F-1

ARIZONA ACUPUNCTURE BOARD OF EXAMINERS (R-16-0702)
Title 4, Chapter 8, Acupuncture Board of Examiners

Amend: R4-8-101; Table 1; R4-8-203; R4-8-403; R4-8-407; R4-8-502

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-1**

TO: Members of the Governor's Regulatory Review Council ("Council")

FROM: Chris Kleminich, Staff Attorney

DATE: July 15, 2016

SUBJECT: **ARIZONA ACUPUNCTURE BOARD OF EXAMINERS (R-16-0702)**
Title 4, Chapter 8, Article 1, General Provisions; Article 2, Acupuncture Licensing, Visiting Professor Certificate; Article 4, Training Programs and Continuing Education; Article 5, Supervision, Recordkeeping

Amend: R4-8-101; Table 1; R4-8-203; R4-8-403; R4-8-407; R4-8-502

General Comments

Purpose of the Agency and Summary of What the Rulemaking Does

The purpose of the Arizona Acupuncture Board of Examiners (Board) is "to promote the safe and professional practice of acupuncture." Laws 2008, Ch. 19, § 3.

This rulemaking amends five rules and one table in A.A.C. Title 4, Chapter 8. The affected rules were last amended in 2008.

The Board initiated this rulemaking in response to statutory changes. See Laws 2014, Chapter 107. As references in statute to preceptorships have been removed, the Board is removing all such references from its rules. In addition, applicants for licensure are now required to disclose all other active and past professional health care licenses and certificates issued by any state. Furthermore, applicants are now required to submit fingerprints for a state and federal criminal records check.

Article Contents, Including the Subject Matter of Each Rule Affected

Article 1 contains seven rules, two of which are being amended. The amended rules relate to definitions, and time-frames (in days).

Article 2 contains six rules, one of which is being amended. The amended rule relates to applications for acupuncture licenses.

Article 4 contains ten rules, two of which are being amended. The amended rules relate to approval of an acupuncture, clinical training, or preceptorship training program, and program monitoring, records, and reporting.

Article 5 contains three rules, one of which is being amended. The amended rule relates to recordkeeping.

Proposed Action

The following is a non-exhaustive summary of changes being proposed by the Board:

- Section 101: To ensure clarity, definitions are being amended.
- Table 1: References to preceptorship training program and preceptorship training program supervisor licenses are being struck.
- Section 203: Applicants for licensure are now required to disclose all other active and past professional health care licenses and certificates issued by any state, instead of only disclosing other licenses and certificates for the practice of acupuncture. Also, qualifications for licensure are being modified in accordance with 2014 statutory changes. In addition, subsections (7) and (8) are being added to reflect that applicants are required to submit fingerprints for a state and federal criminal records check.
- Section 403: Subsection (C), which references a preceptorship training program, is being struck.
- Section 407: References to preceptorship training programs are being struck.
- Section 502: A reference to "preceptorship" is being struck.

Exemption or Request and Approval for Exception from the Moratorium

The Board received an exception from the Governor's Office on July 30, 2015.

Substantive or Procedural Concerns

None.

1. Are the rules legal, consistent with legislative intent, and within the agency's statutory authority?

Yes. The Board cites to A.R.S. § 32-3903(A)(1) as general statutory authority, under which the Board must "[a]dopt rules necessary to enforce this chapter [Title 32, Chapter 39, Acupuncture]." As specific statutory authority, the Board cites to A.R.S. § 32-3903(A)(6), under which the Board must "[a]dopt rules for clinical training."

2. Are the rules written in a manner that is clear, concise, and understandable to the general public?

Yes. The rules are generally clear, concise, and understandable.

3. Does the agency adequately address the comments on the proposed rules and any supplemental proposals?

Yes. The Board indicates that it received no comments regarding the rulemaking, and no one attended the oral proceeding held on May 3, 2016.

4. Are the final rules a substantial change, considered as a whole, from the proposed rules and any supplemental proposals?

No. The final rules are not a substantial change, considered as a whole, from the proposed rules. At the request of Council staff, Section 203(A)(7) was reformatted into two subsections.

5. Does the preamble disclose a reference to any study relevant to the rules that the agency reviewed and either did or did not rely on in the agency's evaluation of or justification for the rules?

No. The Board indicates that it did not review or rely on any study for this rulemaking.

6. Are the rules more stringent than corresponding federal law and, if so, is there statutory authority that allows the agency to exceed the requirements of federal law?

No. The Board indicates that no federal laws directly relate to this rulemaking.

7. Do the rules require a permit or license and if so, does the agency use a general permit or is any exception applicable under A.R.S. § 41-1037?

Yes. The Board indicates that the licenses it issues are general permits consistent with A.R.S. § 41-1037, as they are issued to qualified individuals or entities to conduct activities that are substantially similar in nature.

8. Do the rules establish a new fee or contain a fee increase?

No. The rules do not establish a new fee or contain a fee increase.

9. Conclusion

The Board requests an immediate effective date for the rules. This analyst recommends approval of the rules.

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-1**

TO: Members of the Governor's Regulatory Review Council ("Council")

FROM: GRRC Economic Team

DATE: July 15, 2016

SUBJECT: **ARIZONA ACUPUNCTURE BOARD OF EXAMINERS (R-16-0702)**
Title 4, Chapter 8, Article 1, General Provisions; Article 2, Acupuncture Licensing, Visiting Professor Certificate; Article 4, Training Programs and Continuing Education; Article 5, Supervision, Recordkeeping

Amend: R4-8-101; Table 1; R4-8-203; R4-8-403; R4-8-407; R4-8-502

I reviewed the economic, small business, and consumer impact comparison for compliance with A.R.S. § 41-1056 and make the following comments. These comments are made to assist the Council in its review and may be used as the Council determines.

GRRC Economist Comments

The Board is proposing to amend several rules to comply with statutory changes. Starting July 1, 2016, all new applicants are required by statute to submit fingerprints for a state and federal criminal background check. This cost results from the statutory change rather than this rulemaking. The Board will benefit from having rules that are consistent with statute. It will also benefit from having another tool, state and federal criminal background checks, with which to protect the public.

The Board currently licenses 598 acupuncturists and certifies 38 auricular acupuncturists. During calendar year 2015, the Board received applications from 57 acupuncturists and 9 auricular acupuncturists. Of the 57 acupuncturist applicants, 27 were not certified by a national certifying entity and therefore, saved the cost of obtaining and maintaining that certification.

The Board has certified that the Joint Legislative Budget Committee has not been notified because the number of new full-time employees necessary to implement and enforce the rule is zero. Notice of new FTEs is required by A.R.S. § 41-1055(B)(3)(a).

1. **Costs and Benefits for:**

a. The implementing agency:

The Board incurred the cost of completing this rulemaking and will incur the minimal cost of implementing it. It will be necessary to amend application forms to comply with the new statutory requirements.

b. Political subdivisions:

This rulemaking does not provide any benefits or impose any costs on political subdivisions.

c. Businesses:

The only businesses directly affected by the rulemaking are applicants for licensure.

d. Small businesses:

Individuals who apply to the Board for licensure are the only small businesses subject to this rulemaking

e. Consumers directly affected by the rulemaking:

There are no private persons or consumers directly affected by the rulemaking.

2. Do the probable benefits outweigh the probable costs?

Based on the information provided, the Board indicates that the benefits from the proposed amendments outweigh the costs. The rulemaking primarily affects and benefits applicants for licensure. It does not affect those who are currently licensed. Applicants will benefit by being able to obtain a license without incurring the cost of obtaining certification from a national certifying entity.

3. Analysis of methods to reduce the small business impact:

An analysis was not submitted because the Board estimates that there will be no economic impact to small businesses.

4. The probable effect on state revenues:

The proposed rulemaking will have no effect on state revenues.

5. Analysis of any less intrusive or less costly alternative methods:

The rulemaking simply makes the rules consistent with statutory changes. No less intrusive or less costly alternative method was considered.

6. Whether an analysis was submitted to the agency regarding the rule's impact on the competitiveness of businesses in this state as compared to the competitiveness of businesses in other states:

No analysis was submitted that compares the rule's impact of the competiveness of businesses in this state to the impact on businesses in other states.

7. A description of any data on which a rule is based with an explanation of how the data was obtained and why the data is acceptable data, and the methods used by the agency to evaluate the costs and benefits in the EIS.

The Board indicates that no outside data or studies were used in the development of the rules.

8. Conclusion:

The submitted economic, small business and consumer impact statement is generally accurate, and contains the information required for compliance with A.R.S. §§ 41-1035, 41-1052(D)(1-3), and 41-1055. This analyst recommends that the proposed rules be approved.

Douglas A. Ducey
Governor

Craig Seitz, D.C., L.AC., Chairman
Jennifer Sandoval, L.AC., Secretary

State of Arizona Acupuncture Board of Examiners

1400 West Washington, Suite 230, Phoenix, Arizona 85007
(602) 542-3095 FAX (602) 542-3093

May 23, 2016

RECEIVED
MAY 23 2016
GRRC

Ms. Nicole A. Ong, Chair
The Governor's Regulatory Review Council
100 North 15th Avenue, Ste. 402
Phoenix, AZ 85007

Re: A.A.C. Title 4. Professions and Occupations
Chapter 8. Acupuncture Board of Examiners

Dear Ms. Ong:

The attached final rule package is submitted for review and approval by the Council. The following information is provided for Council's use in reviewing the rule package:

A. Close of record date: The rulemaking record was closed on May 3, 2016, following a period for public comment and an oral proceeding. This rule package is being submitted within the 120 days provided by A.R.S. § 41-1024(B).

B. Relation of the rulemaking to a five-year-review report: The rulemaking relates, in part, to a five-year-review report approved by the Council on December 1, 2015.

C. New fee: The rulemaking does not establish a new fee.

D. Fee increase: The rulemaking does not increase an existing fee.

E. Immediate effective date: An immediate effective date is requested under A.R.S. § 41-1032(A)(2) so the Board's rules will align with the new statutory requirement that an applicant submit fingerprints for a state and federal criminal background check. This statutory requirement goes into effect on July 1, 2016.

The need for an immediate effective date was not created by the Board's delay or inaction. Laws 2014, Second Regular Session, Chapter 107, Senate Bill 1136 was effective on July 24, 2014. At that time, under Governor Brewer's interpretation of EO2012-03, it was not necessary for the Board to obtain an exemption from EO2012-03 to conduct a rulemaking. That changed, however, when Governor Ducey issued EO2015-01 in January 2015. The Board applied for the required exemption on July 15, 2015, and was granted the exemption on July 30, 2015. After the Board started to conduct the required rulemaking, it became aware of the need for clarification of the term "relicensure," as used in the amended statute. It took several months to obtain the needed clarification from the legislators who sponsored Laws 2014, Second Regular Session, Chapter 107, Senate Bill 1136. This rulemaking is being completed timely after the needed clarification was obtained.

F. Certification regarding studies: I certify that the preamble accurately discloses that the Board did not review or rely on a study in its evaluation of or justification for any rule in this rulemaking.

G. Certification that the preparer of the EIS notified the JLBC of the number of new full-time employees necessary to implement and enforce the rule: I certify that none of the rules in this rulemaking will require a state agency to employ a new full-time employee. No notification was provided to JLBC.

H. List of documents enclosed:
   1. Cover letter signed by the Executive Director;
   2. Notice of Final Rulemaking including the preamble, table of contents, and rule text;
   3. Economic, Small Business, and Consumer Impact Statement

Sincerely,

Pete Gonzalez
Executive Director

NOTICE OF FINAL RULEMAKING

TITLE 4. PROFESSIONS AND OCCUPATIONS

CHAPTER 8. ACUPUNCTURE BOARD OF EXAMINERS

PREAMBLE

1. Articles, Parts, and Sections Affected	**Rulemaking Action**
R4-8-101	Amend
Table 1	Amend
R4-8-203	Amend
R4-8-403	Amend
R4-8-407	Amend
R4-8-502	Amend

2. Citations to the agency's statutory rulemaking authority to include both the authorizing statute (general) and the implementing statute (specific):

Authorizing statute: A.R.S. § 32-3903(A)(1)

Implementing statute: A.R.S. § 32-3903(A)(6) and 32-3924

3. The effective date for the rules:

Under A.R.S. § 41-1032(A)(2), the Board respectfully requests an immediate effective date.

a. If the agency selected a date earlier than the 60-day effective date as specified in A.R.S. § 41-1032(A), include the earlier date and state the reason or reasons the agency selected the earlier effective date as provided in A.R.S. § 41-1032(A)(1) through (5):

Under Laws 2014, Chapter 107, § 5, the Board is required to obtain fingerprints for a state and federal background check from applicants for licensure. The requirement goes into effect on July 1, 2016. The Board respectfully requests under A.R.S. § 41-1032(A)(2) an immediate effective date for this rulemaking so the rules will align with this statutory requirement.

The need for an immediate effective date was not created by the Board's delay or inaction. Laws 2014, Chapter 107 was effective on July 24, 2014. At that time, under Governor Brewer's interpretation of EO2012-03, it was not necessary for the Board to obtain an exemption from EO2012-03 to conduct a rulemaking so the Board did preliminary work on the required rulemaking. The need for a rulemaking exemption changed, however, when Governor Ducey issued EO2015-01 in January 2015. The Board applied for the required exemption on July 15, 2015, and was granted the exemption on July 30, 2015. After the Board resumed work on the

required rulemaking, it became aware of the need for clarification of the term “relicensure,” as used in the amended statute. It took several months to obtain the needed clarification from the legislators who sponsored Laws 2014, Chapter 107. This rulemaking is being completed timely after the needed clarification was obtained.

b. If the agency selected a date later than the 60-day effective date as specified in A.R.S. § 41-1032(A), include the later date and state the reason or reasons the agency selected the later effective date as provided in A.R.S. § 41-1032(B):

Not applicable

4. Citation to all related notices published in the *Register* to include the *Register* as specified in R1-1-409(A) that pertain to the record of the final rulemaking package:

Notice of Rulemaking Docket Opening: 22 A.A.R. 703, April 1, 2016

Notice of Proposed Rulemaking: 22 A.A.R. 697, April 1, 2016

5. The agency's contact person who can answer questions about the rulemaking:

Name: Pete Gonzalez, Executive Director

Address: 1400 W. Washington Street; Suite 230
Phoenix, AZ 85007

Telephone: (602) 364-0145

Fax: (602) 542-3093

E-mail: PeteGonzalez@azacupunctureboard.us

Web site: acupuntureboard.az.gov

6. An agency's justification and reason why a rule should be made, amended, repealed , or renumbered, to include an explanation about the rulemaking:

Under Laws 2014, Chapter 107, the legislature removed reference to preceptorships and required that an applicant for licensure disclose all other active and past professional health care licenses and certificates issued by any state, added qualifying education, and required submission of fingerprints for a state and federal criminal records check. The Board is making the rules required by these statutory changes.

An exemption from Executive Order 2015-01 was provided for this rulemaking by Ted Vogt, Chief of Operations in the Governor’s office, in an e-mail dated July 30, 2015.

This rulemaking relates, in part, to a five-year-review report approved by the Council on December 1, 2015. The Board was unable to address all issues identified in the five-year-review report because the exemption provided to EO2015-01 was specific to issues relating to Laws 2014, Chapter 107.

7. **A reference to any study relevant to the rule that the agency reviewed and either relied on or did not rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:**

   The Board did not review or rely on a study in its evaluation of or justification for any rule in this rulemaking.

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

   Not applicable

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

   It is legislative action rather than this rulemaking that requires eliminating preceptorships, disclosure of all health care licenses, expanding qualifying education, and a criminal background check before licensure. The rulemaking simply makes the rules consistent with statutory changes and will have minimal economic impact.

10. **A description of any changes between the proposed rulemaking, including supplemental notices, and the final rulemaking:**

    To improve clarity, R4-8-203(A)(7) was reformatted into two subsections and conforming changes were made.

11. **An agency's summary of the public or stakeholder comments made about the rulemaking and the agency response to comments:**

    The Board received no comments regarding the rulemaking. No one attended the oral proceeding held on May 3, 2016.

12. **All agencies shall list any other matters prescribed by statute applicable to the specific agency or to any specific rule or class of rules. Additionally, an agency subject to Council review under A.R.S. §§ 41-1052 and 41-1055 shall respond to the following questions:**

    None

    a. **Whether the rule requires a permit, whether a general permit is used and if not, the reasons why a general permit is not used:**

       The licenses listed in Table 1 and issued by the Board are general permits consistent with A.R.S. § 41-1037 because they are issued to qualified individuals or entities to conduct activities that are substantially similar in nature.

b. Whether a federal law is applicable to the subject of the rule, whether the rule is more stringent than federal law and if so, citation to the statutory authority to exceed the requirements of federal law:

There are many federal laws applicable to health-care professionals and the provision of health care. However, none of these laws is directly applicable to this rulemaking.

c. Whether a person submitted an analysis to the agency that compares the rule's impact of the competitiveness of business in this state to the impact on business in other states:

No analysis was submitted.

13. A list of any incorporated by reference material as specified in A.R.S. § 41-1028 and its location in the rule:

Not applicable

14. Whether the rule was previously made, amended, or repealed as an emergency rule. If so, cite the notice published in the *Register* as specified in R1-1-409(A). Also, the agency shall state where the text was changed between the emergency and the final rulemaking packages:

No rule in this rulemaking was previously made, amended, or repealed as an emergency rule.

15. The full text of the rules follows:

TITLE 4. PROFESSIONS AND OCCUPATIONS

CHAPTER 8. ACUPUNCTURE BOARD OF EXAMINERS

ARTICLE 1. GENERAL PROVISIONS

R4-8-101. Definitions

Table 1. Time-frames (in days)

ARTICLE 2. ACUPUNCTURE LICENSING; VISITING PROFESSOR CERTIFICATE

R4-8-203. Application for Acupuncture License

ARTICLE 4. TRAINING PROGRAMS AND CONTINUING EDUCATION

R4-8-403. Approval of an Acupuncture~~,~~ or Clinical Training~~, or Preceptorship Training~~ Program

R4-8-407. Program Monitoring; Records; Reporting

ARTICLE 5. SUPERVISION; RECORDKEEPING

R4-8-502. Recordkeeping

ARTICLE 1. GENERAL PROVISIONS

R4-8-101. Definitions

The definitions in A.R.S. § 32-3901 apply to this Chapter. Additionally, in this Chapter:

"ACAOM" means the Accreditation Commission for Acupuncture and Oriental Medicine.

"Acupuncture program" means a Board-approved training designed to prepare a student for the NCCAOM examination and licensure.

"Acupuncture student" means an individual enrolled in an acupuncture~~,~~ or auricular acupuncture~~, or preceptorship~~ training program.

"Acupuncturist" means an individual licensed or certified by the Board to practice acupuncture in this state.

"Administrative completeness review" means the Board's process for determining whether an applicant provided a complete application packet.

"Applicant" means an individual who applies to the Board for an initial or renewal license or certificate.

"Application packet" means the fees, forms, documents, and additional information the Board requires to be submitted by an applicant or on an applicant's behalf.

"Approved continuing education" means a planned educational experience ~~that~~ the Board determines meets the criteria in R4-8-408.

"Auricular acupuncture" means a therapy in which the five-needle protocol is used to treat alcoholism, substance abuse, or chemical dependency.

"Clean needle technique" means a manner of needle sterilization and use that avoids the spread of disease and infection, protects the public and the patient, and complies with state and federal law.

"Clinical hours" means actual clock hours that a student spends providing patient care under the supervision of an individual licensed under R4-8-203 or R4-8-208.

"Course" means a systematic learning experience that assists a participant to acquire knowledge, skills, and information relevant to the practice of acupuncture.

"Day" means calendar day.

"Five-needle protocol" means a therapy, developed by NADA to treat alcoholism, substance abuse, or chemical dependency, which involves inserting five needles into specific points on the outer ear.

"Hour" means at least 50 minutes of course participation.

"Letter of concern" means an alternative sanction that informs a licensee or certificate holder that, while the evidence does not warrant disciplinary action, the Board believes the licensee or certificate holder should change certain practices and failure to change the practices may result in disciplinary action. A letter of concern is a public document that may be used in future disciplinary proceedings.

"NADA" means the National Acupuncture Detoxification Association.

"NCCAOM" means the National Certification Commission for ~~the Certification of~~ Acupuncture and Oriental Medicine.

~~"Preceptorship training" means a program in which a student studies under a Board-approved supervisor who assumes responsibility for the didactic and clinical training of the student.~~

"Respondent" means an individual accused of violating A.R.S. Title 32, Chapter 39 or this Chapter.

"Successful completion of a clean needle technique course" means a course participant:

Attended the course, and

Received a passing score on an examination or other confirmation from the course provider that evidences ~~that~~ the participant mastered the course content.

"Supervisor" means an acupuncturist licensed by the Board who is responsible for the oversight and direction of an acupuncture student or a certificate holder.

Table 1. Time-frames (in days)

Type of license, certificate, or approval	Authority	Administrative Completeness Time-frame	Time to Complete	Substantive Review Time-frame	Time to Respond	Overall Time-frame
Acupuncture License	A.R.S. § 32-3924; R4-8-203	20	30	40	30	60
Visiting Professor Certificate	A.R.S. § 32-3926; R4-8-208	20	30	40	30	60
Auricular Acupuncture Certificate	A.R.S. § 32-3922; R4-8-301	20	30	40	30	60

Auricular Acupuncture Training Program	A.R.S. § 32-3922; R4-8-401	20	30	40	30	60
Acupuncture Program	A.R.S. § 32-3924(2); R4-8-403	20	30	40	30	60
Clinical Training Program	A.R.S. § 32-3924(2); R4-8-403	20	30	40	30	60
Clean Needle Technique Course	A.R.S. § 32-3924; R4-8-402	20	30	40	30	60
~~Preceptorship Training Program~~	~~A.R.S. § 32-3903; R4-8-411~~	~~20~~	~~30~~	~~40~~	~~30~~	~~60~~
~~Preceptorship Training Program Supervisor~~	~~A.R.S. § 32-3903; R4-8-412~~	~~20~~	~~30~~	~~40~~	~~30~~	~~60~~
Continuing Education Approval	A.R.S. § 32-3925; R4-8-409	20	30	40	30	60
Renewal of License or Certificate	A.R.S. § 32-3925; R4-8-204 or R4-8-303	20	30	40	30	60
Extension of Visiting Professor Certificate	A.R.S. § 32-3926(C); R4-8-208	20	30	40	30	60
Reinstatement of License	A.R.S. § 32-3925(D); R4-8-205	20	30	40	30	60

ARTICLE 2. ACUPUNCTURE LICENSING; VISITING PROFESSOR CERTIFICATE

R4-8-203. Application for Acupuncture License

A. No change

1. No change
   a. No change
   b. No change
   c. No change
   d. No change
   e. No change
   f. No change;
   g. A statement of whether the applicant has ever been permitted by law to practice ~~acupuncture~~ a health-care profession in this or another state, territory, or district of the United States, or another country or subdivision of another country, and if so:
      i. A list of the jurisdictions in which the applicant has been permitted by law to practice ~~acupuncture~~ a health-care profession;
      ii. No change
      iii. No change
      iv. No change
      v. No change
      ~~vi. Current status of each license;~~ and
      ~~vii.~~vi. No change
   h. No change
   i. ~~A~~ If not certified by the NCCAOM, a statement of whether the applicant: ~~is certified by another certifying body, and if so, the name and address of the certifying body, and the dates of issuance and expiration of the certification;~~
      i. Has passed all the following NCCAOM modules: Point Location; Foundations of Oriental Medicine; Biomedicine; and Acupuncture; or
      ii. Has passed the State of California Acupuncture Licensing Examination;
   ~~j. A statement of whether the applicant has passed a certifying or licensing examination in acupuncture, and if so, the name and address of the organization administering the examination;~~
   ~~k.~~j. No change
   ~~l.~~k. No change
   ~~m.~~l. No change
   ~~n.~~m. No change

~~o.~~n. No change

~~p.~~o. No change

~~q.~~p. No change

~~r.~~q. No change

2. An official record or document that relates to the applicant's explanation of an item under subsections ~~(1)(l)~~ (A)(1)(k) through ~~(1)(r)~~ (A)(1)(q);

3. No change

   a. No change

   b. No change

   c. No changer

   d. No change

4. No change

5. A 2" X 2" photograph, taken within the last year, that shows the front of the applicant's face ~~and that the applicant signs on the back or the white frame around the photograph~~;

6. No change

7. A complete set of fingerprints that meet the criteria of the Federal Bureau of Investigation and are taken by a law enforcement agency or other qualified entity;

8. The amount charged by the Department of Public Safety to process fingerprints for a state and federal criminal records check; and

~~7.~~9. No change

B. In addition to the materials required under subsection (A), an applicant shall provide evidence that the applicant completed at least 1,850 hours of training in acupuncture, including at least 800 clinical hours, by having submitted directly to the Board~~:~~

~~1. An~~ an official transcript from each school at which the applicant attended a Board-approved acupuncture program showing:

~~a.~~1. No change

~~b.~~2. No change

~~c.~~3. No change

~~d.~~4. No change

~~e.~~5. No change

~~f.~~6. Whether the applicant received a diploma or degree from the school~~, and~~.

~~2. An official record from any Board-approved preceptorship training program attended by the applicant showing:~~

~~a. The name and address of the preceptorship training program,~~

~~b. The name of the Board-approved supervising preceptor,~~

~~c. The dates on which the applicant attended the preceptorship training program,~~

~~d. The subject matter of all didactic and clinical training,~~

~~e. The number of hours spent on each subject,~~

~~f. The grade or score obtained by the applicant in each subject, and~~

~~g. Whether the applicant received a certificate of completion from the preceptorship training program.~~

C. No change

ARTICLE 4. TRAINING PROGRAMS AND CONTINUING EDUCATION

R4-8-403. Approval of an Acupuncture~~,~~ or Clinical Training~~, or Preceptorship Training~~ Program

A. No change

1. No change
2. No change

B. No change

1. No change
2. No change

~~**C.** To be approved by the Board, the provider of a preceptorship training program shall submit documentation of meeting the standards at R4-8-411.~~

R4-8-407. Program Monitoring; Records; Reporting

A. No change

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

~~**B.** The provider of an approved preceptorship training program shall submit to the Board annually a letter attesting that the preceptorship training program continues to meet the standards at R4-8-411.~~

~~**C.**~~**B.** A representative of the Board may conduct an onsite visit of an approved acupuncture~~,~~ or clinical training~~, or preceptorship training~~ program to review and evaluate the status of the program. The provider of the approved program shall reimburse the Board for direct costs incurred in conducting this review and evaluation.

~~**D.**~~**C.** The provider of an approved acupuncture~~,~~ or clinical training~~, or preceptorship training~~ program shall ensure that all student records are maintained in English.

~~**E.**~~**D.** The provider of an approved acupuncture~~,~~ or clinical training~~, or preceptorship training~~ program shall, within 30 days, report to the Board any failure to meet the standards at R4-8-403~~,~~ or R4-8-404~~, or R4-8-411~~.

ARTICLE 5. SUPERVISION; RECORDKEEPING

R4-8-502. Recordkeeping

A. No change

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

B. The provider of an acupuncture, auricular acupuncture, or clinical~~, or preceptorship~~ training program shall:

1. No change
    a. No change
    b. No change
        i. No change
        ii. No change
        iii. No change
        iv. No change
        v. No change
        vi. No change
2. No change
3. No change

C. No change

1. No change
    a. No change
    b. No change

c. No change

2. No change

ECONOMIC, SMALL BUSINESS, AND CONSUMER IMPACT STATEMENT[1]

TITLE 4. PROFESSIONS AND OCCUPATIONS

CHAPTER 8. ACUPUNCTURE BOARD OF EXAMINERS

1. Identification of the rulemaking:

   Under Laws 2014, Chapter 107, the legislature removed reference to preceptorships and required that an applicant for licensure disclose all other active and past professional health care licenses and certificates issued by any state, added qualifying education, and required submission of fingerprints for a state and federal criminal records check. The Board is making the rules required by these statutory changes.

   a. The conduct and its frequency of occurrence that the rule is designed to change:

      Without this rulemaking, the Board's rules are inconsistent with statute and a source of possible confusion to applicants.

   b. The harm resulting from the conduct the rule is designed to change and the likelihood it will continue to occur if the rule is not changed:

      Without this rulemaking, applicants will continue to be confused by the inconsistency between statute and rule. Having to deal with this confusion potentially takes staff time away from other important responsibilities.

   c. The estimated change in frequency of the targeted conduct expected from the rule change:

      When the rulemaking is complete, the Board's rules will be consistent with statute. The current source of confusion will be eliminated.

2. A brief summary of the information included in the economic, small business, and consumer impact statement:

[1] If adequate data are not reasonably available, the agency shall explain the limitations of the data, the methods used in an attempt to obtain the data, and characterize the probable impacts in qualitative terms. (A.R.S. § 41-1055(C)).

It is legislative action rather than this rulemaking that requires eliminating preceptorships, disclosure of all health care licenses, expanding qualifying education, and a criminal background check before licensure. The rulemaking simply makes the rules consistent with statutory changes and will have minimal economic impact.

3. The person to contact to submit or request additional data on the information included in the economic, small business, and consumer impact statement:

Name: Pete Gonzalez, Executive Director
Address: 1400 W. Washington Street; Suite 230
Phoenix, AZ 85007
Telephone: (602) 364-0145
Fax: (602) 542-3093
E-mail: PeteGonzalez@azacupunctureboard.us
Web site: acupuntureboard.az.gov

4. Persons who will be directly affected by, bear the costs of, or directly benefit from the rulemaking:

The rulemaking primarily affects and benefits applicants for licensure. It does not affect those who are currently licensed. It is applicants who will bear the minimal costs associated with supplying fingerprints for a state and federal criminal background check. Applicants will benefit by being able to obtain a license without incurring the cost of obtaining certification from a national certifying entity. Licensed applicants from California will be able to be licensed in Arizona without incurring the cost of taking another licensing examination. The Board determined California's licensing examination is as stringent as that offered by NCCAOM. California, which has 17,000 licensed acupuncturists, is the only state with its own licensing examination. Persons that operated a preceptorship program would be affected by the statutory change eliminating them. However, there have been no preceptorship programs in Arizona for several years.

The Board will also be affected by and benefit from the rulemaking. The Board incurred the cost of completing this rulemaking and will incur the cost of implementing it. It will be

necessary to amend application forms to comply with the new statutory requirements. The Board will benefit from having rules that are consistent with statute. It will also benefit from having another tool, state and federal criminal background checks, with which to protect the public.

The Board currently licenses 598 acupuncturists and certifies 38 auricular acupuncturists. During calendar year 2015, the Board received applications from 57 acupuncturists and 9 auricular acupuncturists. The number of annual applicants has been very consistent since 2006. Of the 57 acupuncturist applicants, 27 were not certified by a national certifying entity and therefore, saved the cost of obtaining and maintaining that certification.

Starting July 1, 2016, all new applicants will be required by statute to submit fingerprints for a state and federal criminal background check. This cost results from the statutory change rather than this rulemaking. There are numerous entities from which fingerprints may be obtained. The Phoenix Police Department charges $6 to take them while the Maricopa County Sheriff's Office charges $8. The Department of Public Safety charges $22 to obtain a criminal background check.

5. Cost-benefit analysis:

   a. Costs and benefits to state agencies directly affected by the rulemaking including the number of new full-time employees at the implementing agency required to implement and enforce the proposed rule:

      The Board is the only agency directly affected by the rulemaking. DPS is indirectly affected by the statutory change requiring background checks.

   b. Costs and benefits to political subdivisions directly affected by the rulemaking:

      No political subdivision is directly affected by the rulemaking.

   c. Costs and benefits to businesses directly affected by the rulemaking:

The only businesses directly affected by the rulemaking are applicants for licensure. Their costs and benefits, which result from statutory change rather than this rulemaking, are explained in item 4.

6. Impact on private and public employment:

   This rulemaking will have no impact on private or public employment. If an applicant is disqualified from licensure as a result of information revealed by the criminal background check, it is the statutory change requiring a criminal background check rather than this rulemaking that produced the consequence.

7. Impact on small businesses[2]:

   a. Identification of the small business subject to the rulemaking:

      Individuals who apply to the Board for licensure are the only small businesses subject to this rulemaking. Their costs and benefits are explained in item 4.

   b. Administrative and other costs required for compliance with the rulemaking:

      Applicants will incur the cost of completing an application that is amended to be consistent with the recent statutory changes. They will also incur the cost of obtaining and submitting a complete set of fingerprints and paying the amount charged by DPS to obtain a state and federal criminal background check.

   c. Description of methods that may be used to reduce the impact on small businesses:

      All of the economic impact results from statutory change. The rulemaking simply makes the rules consistent with the changed statutes. As a result, there is no way for the Board to reduce impact on small businesses.

8. Cost and benefit to private persons and consumers who are directly affected by the rulemaking:

   There are no private persons or consumers directly affected by the rulemaking.

9. Probable effects on state revenues:

   There will be no effect on state revenues.

[2] Small business has the meaning specified in A.R.S. § 41-1001(21).

10. Less intrusive or less costly alternative methods considered:

The rulemaking simply makes the rules consistent with statutory changes. No less intrusive or less costly alternative method was considered.

TITLE 4. PROFESSIONS AND OCCUPATIONS

CHAPTER 8. ACUPUNCTURE BOARD OF EXAMINERS

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ARTICLE 1. GENERAL PROVISIONS

R4-8-101. Definitions

The definitions in A.R.S. § 32-3901 apply to this Chapter. Additionally, in this Chapter:

"ACAOM" means the Accreditation Commission for Acupuncture and Oriental Medicine.

"Acupuncture program" means a Board-approved training designed to prepare a student for the NCCAOM examination and licensure.

"Acupuncture student" means an individual enrolled in an acupuncture, auricular acupuncture, or preceptorship training program.

"Acupuncturist" means an individual licensed or certified by the Board to practice acupuncture in this state.

"Administrative completeness review" means the Board's process for determining whether an applicant provided a complete application packet.

"Applicant" means an individual who applies to the Board for an initial or renewal license or certificate.

"Application packet" means the fees, forms, documents, and additional information the Board requires to be submitted by an applicant or on an applicant's behalf.

"Approved continuing education" means a planned educational experience that the Board determines meets the criteria in R4-8-408.

"Auricular acupuncture" means a therapy in which the five-needle protocol is used to treat alcoholism, substance abuse, or chemical dependency.

"Clean needle technique" means a manner of needle sterilization and use that avoids the spread of disease and infection, protects the public and the patient, and complies with state and federal law.

"Clinical hours" means actual clock hours that a student spends providing patient care under the supervision of an individual licensed under R4-8-203 or R4-8-208.

"Course" means a systematic learning experience that assists a participant to acquire knowledge, skills, and information relevant to the practice of acupuncture.

"Day" means calendar day.

"Five-needle protocol" means a therapy, developed by NADA to treat alcoholism, substance abuse, or chemical dependency, which involves inserting five needles into specific points on the outer ear.

"Hour" means at least 50 minutes of course participation.

"Letter of concern" means an alternative sanction that informs a licensee or certificate holder that, while the evidence does not warrant disciplinary action, the Board believes the licensee or certificate holder should change certain practices and failure to change the practices may result in disciplinary action. A letter of concern is a public document that may be used in future disciplinary proceedings.

"NADA" means the National Acupuncture Detoxification Association.

"NCCAOM" means the National Commission for the Certification of Acupuncture and Oriental Medicine.

"Preceptorship training" means a program in which a student studies under a Board-approved supervisor who assumes responsibility for the didactic and clinical training of the student.

"Respondent" means an individual accused of violating A.R.S. Title 32, Chapter 39 or this Chapter.

"Successful completion of a clean needle technique course" means a course participant:

Attended the course, and

Received a passing score on an examination or other confirmation from the course provider that evidences that the participant mastered the course content.

"Supervisor" means an acupuncturist licensed by the Board who is responsible for the oversight and direction of an acupuncture student or a certificate holder.

R4-8-102. Authentication of Documentation; Translation; Verification

A. An applicant shall ensure that a document submitted to the Board by or on behalf of the applicant has an official or government seal or written verification authenticating the document. If the Board determines that an applicant cannot obtain the seal or verification through the exercise of due diligence, the Board shall waive this requirement.

B. An applicant shall ensure that an official copy of any diploma, transcript, license, certificate, examination score, or other document required for application is forwarded directly to the Board by the issuing entity.

C. An applicant shall ensure that a document submitted in a language other than English is accompanied by an original English translation, performed by a qualified translator who is not the applicant. The applicant shall ensure that the translation is accompanied by an Affidavit of Accuracy in which the translator who performed or verified the translation affirms, under oath and penalty of perjury, that the entire document has been translated, nothing has been omitted or added, and the translation is true and correct. The

Board shall return an original translation to the applicant only if the applicant provides a photocopy of the entire translation, including the Affidavit of Accuracy.

D. The following persons are regarded as qualified translators:
1. An officer or employee of an official translation bureau or governmental agency;
2. A professor or instructor who teaches the translated language at an accredited college or university in the United States. The professor or instructor shall ensure that the Affidavit of Accuracy includes the name of the course taught, is on official letterhead of the college or university, and is notarized;
3. An American consul in the country where the translated document was issued. If a private translator translated the document, the American consul shall verify the translation as required under subsection (C) and the identity of the translator; and
4. A consul general or diplomatic representative accredited in the United States, or other representative of a foreign government agency. If a private translator translated the document, the representative shall verify the translation as required under subsection (C) and the identity of the translator.

R4-8-103. Change of Mailing Address, E-mail Address, or Telephone Numbers

The Board shall communicate with a licensee, certificate holder, or a person holding an approval from the Board using the contact information provided to the Board. To ensure timely communication from the Board, a licensee, certificate holder, or person holding an approval from the Board shall notify the Board, in writing, within 30 days of any change of mailing address (giving both the old and the new address), e-mail address, or residential, business, or mobile telephone number.

R4-8-105. Time-frames for Licensure, Certification, and Approval

A. For the purpose of A.R.S. § 41-1073, the Board establishes the time-frames listed in Table 1. An applicant or a person requesting an approval from the Board and the Executive Director of the Board may agree in writing to extend the substantive review and overall time-frames by no more than 25% of the overall time-frame.

B. The administrative completeness review time-frame begins when the Board receives an application packet or a request for approval. During the administrative completeness review time-frame, the Board shall notify the applicant or person requesting approval that the application packet or request for approval is either complete or incomplete. If the application packet or request for approval is incomplete, the Board shall specify in the notice what information is missing.

C. An applicant or person requesting approval whose application packet or request for approval is incomplete, shall submit the missing information to the Board within the time to complete listed in Table 1. Both the administrative completeness review and overall time-frames are suspended from the date of the Board's notice under subsection (B) until the Board receives all of the missing information.

D. Upon receipt of all missing information, the Board shall notify the applicant or person requesting approval that the application packet or request for approval is complete. The Board shall not send a separate notice of completeness if the Board grants or denies a license, certificate, or approval within the administrative completeness time-frame listed in Table 1.

E. The substantive review time-frame listed in Table 1 begins on the date of the Board's notice of administrative completeness.

F. If the Board determines during the substantive review that additional information is needed, the Board shall send the applicant or person requesting approval a comprehensive written request for additional information.

G. An applicant or person requesting approval who receives a request under subsection (F), shall submit the additional information to the Board within the time for response listed in Table 1. Both the substantive review and overall time-frames are suspended from the date of the Board's request until the Board receives the additional information.

H. An applicant or person requesting approval may receive a 30-day extension of the time provided under subsection (C) or (G) by providing written notice to the Board before the time expires. If an applicant or person requesting approval fails to submit to the Board the missing or additional information within the time provided under Table 1 or the time as extended, the Board shall close the applicant's or person's file. To receive further consideration, an applicant or person requesting approval whose file is closed shall re-apply.

I. Within the overall time-frame listed in Table 1, the Board shall:
1. Grant a license, certificate, or approval if the Board determines that the applicant or person requesting approval meets all criteria required by statute and this Chapter; or
2. Deny a license, certificate, or approval if the Board determines that the applicant or person requesting approval does not meet all criteria required by statute and this Chapter.

J. If the Board denies a license, certificate, or approval, the Board shall send the applicant or person requesting approval a written notice explaining:
1. The reason for denial, with citations to supporting statutes or rules;
2. The applicant's or person's right to appeal the denial by filing an appeal under A.R.S. Title 41, Chapter 6, Article 10;
3. The time for appealing the denial; and
4. The applicant's or person's right to request an informal settlement conference.

K. If a time-frame's last day falls on a Saturday, Sunday, or official state holiday, the next business day is the time-frame's last day.

Table 1. Time-frames (in days)

Type of license, certificate, or approval	Authority	Administrative Completeness Time-frame	Time to Complete	Substantive Review Time-frame	Time to Respond	Overall Time-frame

Acupuncture License	A.R.S. § 32-3924; R4-8-203	20	30	40	30	60
Visiting Professor Certificate	A.R.S. § 32-3926; R4-8-208	20	30	40	30	60
Auricular Acupuncture Certificate	A.R.S. § 32-3922; R4-8-301	20	30	40	30	60
Auricular Acupuncture Training Program	A.R.S. § 32-3922; R4-8-401	20	30	40	30	60
Acupuncture Program	A.R.S. § 32-3924(2); R4-8-403	20	30	40	30	60
Clinical Training Program	A.R.S. § 32-3924(2); R4-8-403	20	30	40	30	60
Clean Needle Technique Course	A.R.S. § 32-3924; R4-8-402	20	30	40	30	60
Preceptorship Training Program	A.R.S. § 32-3903; R4-8-411	20	30	40	30	60
Preceptorship Training Program Supervisor	A.R.S. § 32-3903; R4-8-412	20	30	40	30	60
Continuing Education Approval	A.R.S. § 32-3925; R4-8-409	20	30	40	30	60
Renewal of License or Certificate	A.R.S. § 32-3925; R4-8-204 or R4-8-303	20	30	40	30	60
Extension of Visiting Professor Certificate	A.R.S. § 32-3926(C); R4-8-208	20	30	40	30	60
Reinstatement of License	A.R.S. § 32-3925(D); R4-8-205	20	30	40	30	60

R4-8 106. Fees

A. Under the authority provided at A.R.S. § 32-3927, the Board establishes and shall collect the following fees:

1. Application for an acupuncture license: $150;
2. Issuance of an initial acupuncture license: $275;
3. Renewal of an acupuncture license: $275;
4. Additional fee for late renewal of an acupuncture license: $100;
5. Application for an auricular acupuncture certificate: $75;
6. Issuance of an initial auricular acupuncture certificate: $75;
7. Renewal of an auricular acupuncture certificate: $75;
8. Visiting professor certificate: $600;
9. Extension of a visiting professor certificate: $600; and
10. Duplicate license or certificate: $50.

B. Except as provided in subsections (B)(1) through (B)(3) or as required under A.R.S. § 41-1077, all fees are nonrefundable. The Board shall refund the fee paid under subsection (A)(2) or (A)(6) if:

1. The Board denies a license or certificate to an applicant,
2. The Board closes the file of an applicant under R4-8-105, or
3. An applicant withdraws an application.

R4-8-107. Materials Incorporated by Reference

A. The Board incorporates the following material by reference:

1. "NADA Registered Trainer Resource Manual," 1999, published by the National Acupuncture Detoxification Association, 3220 N Street NW #275, Washington, D.C. 20007;
2. "Clean Needle Technique Manual for Acupuncturists," 5th edition, 2004, published by the National Acupuncture Foundation, P.O. Box 137, Chaplin, CT 06235; and
3. "Accreditation Handbook," Part One, 2005, published by the Accreditation Commission for Acupuncture and Oriental Medicine, Maryland Trade Center #3, 7501 Greenway Center Drive, Suite 260, Greenbelt, MD 20770.

B. The materials incorporated by reference under subsection (A) contain no later editions or amendments and are on file with the Board.

ARTICLE 2. ACUPUNCTURE LICENSING; VISITING PROFESSOR CERTIFICATE

R4-8-203. Application for Acupuncture License

A. To be licensed to practice acupuncture, an applicant shall submit an application packet to the Board that includes:

1. An application, on a form provided by the Board, that provides the following information about the applicant:
   a. Name;
   b. Other names by which the applicant has been known;
   c. Date of birth;
   d. Social Security number;
   e. Home, business, and e-mail addresses;
   f. Home, business, and mobile telephone numbers;
   g. A statement of whether the applicant has ever been permitted by law to practice acupuncture in another state, territory, or district of the United States, or another country or subdivision of another country, and if so:
      i. A list of the jurisdictions in which the applicant has been permitted by law to practice acupuncture;
      ii. The number of each license;
      iii. The date each license was issued;
      iv. The date each license expired or expires;
      v. Limitations, if any, for each license;
      vi. Current status of each license; and
      vii. Whether each license was granted by endorsement, examination, or another means;
   h. A statement of whether the applicant is certified by the NCCAOM, and if so, whether the certification is active and current, and the dates of issuance and expiration;
   i. A statement of whether the applicant is certified by another certifying body, and if so, the name and address of the certifying body, and the dates of issuance and expiration of the certification;
   j. A statement of whether the applicant has passed a certifying or licensing examination in acupuncture, and if so, the name and address of the organization administering the examination;
   k. A statement of whether the applicant has completed an acupuncture program accredited within the United States or another country or subdivision of another country, and if so, the date of program completion;
   l. A statement of whether the applicant has ever had a licensing authority of another state, district, or territory of the United States, or another country or subdivision of another country, deny the applicant a license or certificate to practice acupuncture, and if so, the name of the jurisdiction denying a license or certificate, date of the denial, and an explanation of the circumstances;
   m. A statement of whether the applicant has ever had a licensing authority of another state, district, or territory of the United States, or another country or subdivision of another country, revoke, suspend, limit, restrict, or take any other action regarding the applicant's license or certificate to practice acupuncture, and if so, the name of the jurisdiction taking the action, the action taken, date of the action, and an explanation of the circumstances;
   n. A statement of whether the applicant has ever been convicted of a crime, including driving under the influence of drugs or alcohol, other than a minor traffic offense, and if so, the name of the jurisdiction in which convicted, the nature of the crime, date of the conviction, and current status;
   o. A statement of whether the applicant has ever had a claim for malpractice or a lawsuit filed against the applicant alleging professional malpractice or negligence in the practice of acupuncture, and if so, the claim or case number, date of the claim or lawsuit, the matters alleged, and whether the claim or lawsuit is still pending or the manner in which it was resolved;
   p. A statement of whether the applicant has any condition that may impair the applicant's ability to practice acupuncture safely and skillfully, and if so, the nature of the condition and any accommodations necessary;
   q. A statement of whether the applicant has ever resigned, voluntarily or involuntarily, from a health-care facility while under investigation, and if so, the name of the health-care facility, the date of the resignation, and an explanation of the circumstances; and
   r. A statement of whether the applicant has ever had a health-care facility terminate, restrict, or take any other action regarding the applicant's employment, professional training, or privileges, and if so, the name of the health-care facility, the date of the action, and an explanation of the circumstances;
2. An official record or document that relates to the applicant's explanation of an item under subsections (1)(l) through (1)(r);
3. Documentation of one of the following:
   a. Certification from the NCCAOM or its successor;
   b. Certification by another certifying body recognized by the Board;

c. Certification as a result of passing a licensing or certifying examination in acupuncture; or
d. Authorization by law to practice acupuncture in another state, district, or territory of the United States, or another country or subdivision of another country with licensing standards substantially similar to those in this Chapter that has not been revoked;

4. Documentation of successfully completing a Board-approved clean needle technique course. A copy of the certificate of completion showing the name of the course and the date on and location at which the course was completed is acceptable documentation;
5. A 2" X 2" photograph, taken within the last year, that shows the front of the applicant's face and that the applicant signs on the back or the white frame around the photograph;
6. A completed Arizona Statement of Citizenship and Alien Status for State Public Benefits, which is a form available from the Board; and
7. The application and initial licensing fees prescribed by the Board under R4-8-106(A)(1) and (A)(2).

B. In addition to the materials required under subsection (A), an applicant shall provide evidence that the applicant completed at least 1,850 hours of training in acupuncture, including at least 800 clinical hours, by having submitted directly to the Board:

1. An official transcript from each school at which the applicant attended a Board-approved acupuncture program showing:
   a. The name and address of the school,
   b. The dates on which the applicant attended the school,
   c. The courses and clinical training completed by the applicant,
   d. The number of hours in each course or clinical training,
   e. The grade or score obtained by the applicant in each course or clinical training, and
   f. Whether the applicant received a diploma or degree from the school, and
2. An official record from any Board-approved preceptorship training program attended by the applicant showing:
   a. The name and address of the preceptorship training program,
   b. The name of the Board-approved supervising preceptor,
   c. The dates on which the applicant attended the preceptorship training program,
   d. The subject matter of all didactic and clinical training,
   e. The number of hours spent on each subject,
   f. The grade or score obtained by the applicant in each subject, and
   g. Whether the applicant received a certificate of completion from the preceptorship training program.

C. In addition to complying with subsections (A) and (B), an applicant shall sign, date, and have notarized an affidavit that indicates all information provided in the application packet, including any accompanying documents submitted by or on behalf of the applicant, are true, complete, and correct.

R4-8-204. Renewal of an Acupuncture License

A. An acupuncture license expires 12 months after the date issued.

B. The Board shall provide a licensee with 60-days notice of the need to renew. It is the responsibility of the licensee to renew timely. Failure to receive notice of the need to renew does not excuse failure to renew timely.

C. If a licensee fails to submit a renewal application packet as described in subsection (D) on or before the expiration date, the licensee shall cease the practice of acupuncture.

D. To renew an acupuncture license, a licensee shall submit to the Board:

1. A renewal application that provides the following information about the licensee:
   a. Name;
   b. License number;
   c. Business name;
   d. Home, business, and e-mail addresses;
   e. Home, business, and mobile telephone numbers;
   f. A statement of whether during the last 12 months a licensing authority of another state, district, or territory of the United States or another country or subdivision of another country denied the licensee a license or certificate to practice acupuncture and if so, the name of the jurisdiction denying a license or certificate, date of the denial, and an explanation of the circumstances;
   g. A statement of whether during the last 12 months a licensing authority of another state, district, or territory of the United States or another country or subdivision of another country revoked, suspended, limited, restricted, or took other action regarding the license of the licensee and if so, the name of the jurisdiction taking action against the license, the action taken, date of the action, and an explanation of the circumstances;
   h. A statement of whether during the last 12 months the licensee has been convicted of a crime, including driving under the influence of drugs or alcohol, other than a minor traffic offense, and if so, the name of the jurisdiction in which convicted, the nature of the crime, date of the conviction, and current status;
   i. A statement of whether during the last 12 months a claim for malpractice or a lawsuit was filed against the licensee alleging professional malpractice or negligence in the practice of acupuncture, and if so, the claim or case number, date of the claim or lawsuit, the matters alleged, and whether the claim or lawsuit is still pending or the manner in which it was resolved;
   j. A statement of whether during the last 12 months the licensee has any condition that may impair the licensee's ability to practice acupuncture safely and skillfully, and if so, the nature of the condition and any accommodations necessary;

k. A statement of whether during the last 12 months the licensee resigned, voluntarily or involuntarily, from a health-care facility while under investigation, and if so, the name of the health-care facility, the date of the resignation, and an explanation of the circumstances; and
l. A statement of whether during the last 12 months the licensee had a health-care facility terminate, restrict, or take any other action regarding the licensee's employment, professional training, or privileges, and if so, the name of the health-care facility, the date of the action, and an explanation of the circumstances;

2. An affirmation that the licensee completed the continuing education required under R4-8-206;
3. An affirmation that the licensee is in compliance with the requirements at A.R.S. § 32-3211;
4. A completed Arizona Statement of Citizenship and Alien Status for State Public Benefits, which is a form available from the Board;
5. The renewal fee required under R4-8-106(A)(3); and
6. The licensee's dated signature affirming that the information provided is accurate, true, and complete.

R4-8-205. Reinstatement of an Acupuncture License

A. An individual whose acupuncture license expires because of failure to renew timely under R4-8-204(D) may apply to the Board for reinstatement of the acupuncture license by submitting, within 60 days after expiration of the license:
1. The application packet described under R4-8-204(D);
2. A sworn affidavit that the individual has not practiced acupuncture since the license expired; and
3. The fee prescribed under R4-8-106(A)(4) for late renewal of an acupuncture license.

B. The Board shall not reinstate an acupuncture license that expires more than 60 days before the former licensee complies with subsection (A). If an acupuncture license is expired for more than 60 days, the former licensee may apply for licensure by complying with R4-8-203.

R4-8-206. Continuing Education Requirement

A. A licensee shall complete at least 15 hours of approved continuing education per year.

B. The Board shall award hours in an approved continuing education as follows:
1. Seminar or workshop: One hour of continuing education for each contact hour;
2. Course at an accredited educational institution: 15 hours of continuing education for each semester hour;
3. Self-study, online, or correspondence course: Hours of continuing education determined by the course provider;
4. Teaching an approved continuing education: One hour of continuing education for each hour taught;
5. Having an article on the practice of acupuncture or traditional East-Asian medicine published in a peer-reviewed professional journal or in a text book: 15 hours of continuing education;
6. Attending a Board meeting: One hour for attending one meeting during a year; and
7. Having a text book published relating to the practice of acupuncture or traditional East-Asian medicine: 15 hours of continuing education.

C. The Board shall limit the number of hours of approved continuing education awarded as follows:
1. No more than 30 percent of the required hours may be obtained from teaching an approved continuing education. Hours may be obtained from teaching a particular approved continuing education only once during each year. No hours may be obtained from participating as a member of a panel at an approved continuing education; and
2. Hours that exceed the maximum required during a year may not be carried over to a subsequent year.

D. A licensee shall obtain a certificate or other evidence of attendance from the provider of each approved continuing education attended that includes the following:
1. Name of the licensee;
2. License number of the licensee;
3. Name of the approved continuing education;
4. Name of the continuing education provider;
5. Name of the entity that approved the continuing education;
6. Date, time, and location of the approved continuing education; and
7. Number of hours of approved continuing education.

E. A licensee shall maintain the evidence of attendance described in subsection (D) for two years and make the evidence available to the Board under R4-8-207 and as otherwise required under this Chapter.

R4-8-207. Audit of Compliance and Sanction for Noncompliance with Continuing Education Requirement

When notice of the need to renew a license is provided, the Board shall also provide notice of an audit of continuing education records to a random sample of licensees. A licensee subject to a continuing education audit shall submit the documentation required under R4-8-206(D) at the same time that the licensee submits the renewal application packet required under R4-8-204(D). If a licensee fails to submit the required documentation with the renewal application packet before the date of expiration, the license expires.

R4-8-208. Application for Visiting Professor Certificate; Extension of Visiting Professor Certificate

A. To obtain a visiting professor certificate, an applicant shall submit to the Board:
1. The application form required under R4-8-203(A) and a signed verification that the information provided is accurate, true, and complete;
2. The fee required under R4-8-106(A)(8);
3. Documentation of at least five years of experience in the practice of acupuncture;

4. Evidence of skill and training in the subject that the applicant will be teaching, including one of the following:
   a. Documentation from a college or university of experience, education, or other training in the subject the applicant will be teaching;
   b. Documentation of experience in teaching the same or similar subject matter content within the two years before the application; or
   c. Documentation of one year of experience within the last two years in the specialized area in which the applicant is teaching; and
5. A detailed plan outlining the duties of the visiting professor.

B. A visiting professor certificate is valid for one year from the date issued. To extend a visiting professor certificate for another year, the certificate holder shall, at least 30 days before the certificate expires, submit to the Board an application for extension. An application for extension includes:
1. The renewal application form described in R4-8-204(D)(1) including a signed verification that the information provided is accurate, true, and complete;
2. A letter on official letterhead from an official of the school of acupuncture at which the visiting professor will be teaching requesting that the extension be granted; and
3. The fee required under R4-8-106(A)(9).

C. The Board shall not extend a visiting professor certificate more than twice.

ARTICLE 3. AURICULAR ACUPUNCTURE CERTIFICATION

R4-8-301. Application for Auricular Acupuncture Certificate

To be certified as an auricular acupuncturist to provide auricular acupuncture services in a Board-approved alcoholism, substance abuse, or chemical dependency program, an applicant shall submit an application packet to the Board that includes:
1. An application, on a form provided by the Board, that provides the following information about the applicant:
   a. Name;
   b. Other names by which the applicant has been known;
   c. Date of birth;
   d. Social Security number;
   e. Home, business, and e-mail addresses;
   f. Home, business, and mobile telephone numbers;
   g. A statement of whether the applicant has ever been permitted by law to practice auricular acupuncture in another state, territory, or district of the United States, or another country or subdivision of another country, and if so:
      i. A list of the jurisdictions in which the applicant has been permitted by law to practice auricular acupuncture;
      ii. The number of each license or certificate;
      iii. The date each license or certificate was issued;
      iv. The date each license or certificate expired or expires;
      v. Limitations, if any, for each license or certificate;
      vi. Current status of each license or certificate; and
      vii. Whether each license or certificate was granted by endorsement, examination, or another means;
   h. A statement of whether the applicant has ever had a licensing authority of another state, district, or territory of the United States, or another country or subdivision of another country, deny the applicant a license or certificate to practice auricular acupuncture, and if so, the name of the jurisdiction denying a license or certificate, date of the denial, and an explanation of the circumstances;
   i. A statement of whether the applicant has ever had a licensing authority of another state, district, or territory of the United States, or another country or subdivision of another country, revoke, suspend, limit, restrict, or take any other action regarding the applicant's license or certificate to practice auricular acupuncture, and if so, the name of the jurisdiction taking the action, the action taken, date of the action, and an explanation of the circumstances;
   j. A statement of whether the applicant has ever been convicted of a crime, including driving under the influence of drugs or alcohol, other than a minor traffic offense, and if so, the name of the jurisdiction in which convicted, the nature of the crime, date of the conviction, and current status;
   k. A statement of whether the applicant has ever had a claim for malpractice or a lawsuit filed against the applicant alleging professional malpractice or negligence in the practice of auricular acupuncture, and if so, the claim or case number, date of the claim or lawsuit, the matters alleged, and whether the claim or lawsuit is still pending or the manner in which it was resolved;
   l. A statement of whether the applicant has any condition that may impair the applicant's ability to practice auricular acupuncture safely and skillfully, and if so, the nature of the condition and any accommodations necessary;
   m. A statement of whether the applicant has ever resigned, voluntarily or involuntarily, from a health-care facility while under investigation, and if so, the name of the health-care facility, the date of the resignation, and an explanation of the circumstances; and
   n. A statement of whether the applicant has ever had a health-care facility terminate, restrict, or take any other action regarding the applicant's employment, professional training, or privileges, and if so, the name of the health-care facility, the date of the action, and an explanation of the circumstances;

2. An official record or document that relates to the applicant's explanation of an item under subsections (1)(h) through (1)(n);
3. The application and initial certification fees prescribed by the Board under R4-8-106(A)(5) and (A)(6);
4. Documentation of successfully completing a Board-approved:
   a. Training program in auricular acupuncture for the treatment of alcoholism, substance abuse, or chemical dependency. A copy of the certificate of completion showing the name, date, and location of the course is acceptable documentation; and
   b. Clean needle technique course. A copy of the certificate of completion showing the name, date, and location of the course is acceptable documentation;
5. The name, license number, and telephone number of the Arizona licensed acupuncturist who will supervise the applicant if the applicant is certified;
6. A 2" X 2" photograph, taken within the last year, that shows the front of the applicant's face and that the applicant signs on the back or the white frame around the photograph;
7. A completed Arizona Statement of Citizenship and Alien Status for State Public Benefits, which is a form available from the Board; and
8. The applicant's dated and notarized signature affirming that the information provided in the application, including any accompanying documents submitted by or on behalf of the applicant, are true and complete.

R4-8-302. Requirements for the Practice of Auricular Acupuncture

A. A holder of an auricular acupuncture certificate shall provide auricular acupuncture services only in an alcoholism, substance abuse, or chemical dependency program approved by the Board or the state or federal government.

B. A holder of an auricular acupuncture certificate shall provide auricular acupuncture services only under the supervision of an individual licensed under A.R.S. § 32-3924 and R4-8-203.

C. The Board approves an alcoholism, substance abuse, or chemical dependency program that provides services and is licensed by the Arizona Department of Health Services as a behavioral health agency under A.R.S. Title 36, Chapter 4.

R4-8-303. Renewal of an Auricular Acupuncture Certificate

A. An auricular acupuncture certificate expires 12 months after the date issued.

B. The Board shall provide a certificate holder with 60-days notice of the need to renew. It is the responsibility of the certificate holder to renew timely. Failure to receive notice of the need to renew does not excuse failure to renew timely.

C. If a certificate holder fails to submit a renewal application packet as described in subsection (D) on or before the expiration date, the certificate holder shall cease the practice of auricular acupuncture.

D. To renew an auricular acupuncture certificate, a certificate holder shall submit to the Board:
1. A renewal application that provides the following information listed about the certificate holder:
   a. Name;
   b. Certificate number;
   c. Renewal date;
   d. The name, address, and telephone number of the alcoholism, substance abuse, or chemical dependency facility at which the certificate holder works;
   e. Residential and e-mail addresses;
   f. Residential and mobile telephone numbers;
   g. A statement of whether during the last 12 months a licensing authority of another state, district, or territory of the United States or another country or subdivision of another country denied the certificate holder a license or certificate to practice auricular acupuncture and if so, the name of the jurisdiction denying a license or certificate, date of the denial, and an explanation of the circumstances;
   h. A statement of whether during the last 12 months a licensing authority of another state, district, or territory of the United States or another country or subdivision of another country revoked, suspended, limited, restricted, or took other action regarding the license or certificate of the certificate holder and if so, the name of the jurisdiction taking action, the action taken, date of the action, and an explanation of the circumstances;
   i. A statement of whether during the last 12 months the certificate holder has been convicted of a crime, including driving under the influence of drugs or alcohol, other than a minor traffic offense, and if so, the name of the jurisdiction in which convicted, the nature of the crime, date of the conviction, and current status;
   j. A statement of whether during the last 12 months a claim for malpractice or a lawsuit was filed against the certificate holder alleging professional malpractice or negligence in the practice of auricular acupuncture, and if so, the claim or case number, date of the claim or lawsuit, the matters alleged, and whether the claim or lawsuit is still pending or the manner in which it was resolved;
   k. A statement of whether during the last 12 months the certificate holder has any condition that may impair the certificate holder's ability to practice auricular acupuncture safely and skillfully, and if so, the nature of the condition and any accommodations necessary;
   l. A statement of whether during the last 12 months the certificate holder resigned, voluntarily or involuntarily, from a health-care facility while under investigation, and if so, the name of the health-care facility, the date of the resignation, and an explanation of the circumstances;
   m. A statement of whether during the last 12 months the certificate holder had a health-care facility terminate, restrict, or take any other action regarding the certificate holder's employment, professional training, or privileges, and if so, the name of the health-care facility, the date of the action, and an explanation of the circumstances; and
   n. The name, license number, and telephone number of the licensed acupuncturist who supervises the certificate holder;

2. A completed Arizona Statement of Citizenship and Alien Status for State Public Benefits, which is a form available from the Board;
3. The renewal fee required under R4-8-106(A)(7); and
4. The certificate holder's dated signature affirming that the information provided is accurate, true, and complete.

E. The Board does not have authority to reinstate an expired auricular acupuncture certificate. An individual whose auricular acupuncture certificate expires because of failure to renew timely under subsection (D) may apply for certification by complying with R4-8-301.

R4-8-304. Notice of Change in Supervisor

A. A certificate holder shall provide written notice to the Board within 10 days after one of the following occurs:
1. The certificate holder changes employment from one approved alcoholism, substance abuse, and chemical dependency program to another;
2. The certificate holder ceases to practice as an auricular acupuncturist; or
3. The licensed acupuncturist supervising the certificate holder changes.

B. A certificate holder required to provide notice under subsection (A), shall include the following information in the notice:
1. Name and certificate number of the certificate holder;
2. Name and address of the approved alcoholism, substance abuse, and chemical dependency program at which the certificate holder is employed; and
3. Name, license number, and telephone number of the licensed acupuncturist supervising the certificate holder; or
4. A statement that the certificate holder is not practicing as an auricular acupuncturist.

ARTICLE 4. TRAINING PROGRAMS AND CONTINUING EDUCATION

R4-8-401. Auricular Acupuncture Training Program Approval

A. The Board approves an auricular acupuncture training program that is recognized by NADA.

B. To obtain Board approval of an auricular acupuncture training program that is not approved under subsection (A), the provider of the training program shall submit to the Board evidence that the program is:
1. Conducted in accordance with the "NADA Registered Trainer Resource Manual," which is incorporated by reference in R4-8-107; and
2. Approved by another board-approved certifying entity for acupuncture.

R4-8-402. Clean Needle Technique Course Approval

To be approved by the Board, a person that proposes to conduct a clean needle technique course shall submit to the Board evidence that the course is conducted in accordance with "Clean Needle Technique Manual for Acupuncturists," which is incorporated by reference in R4-8-107.

R4-8-403. Approval of an Acupuncture, Clinical Training, or Preceptorship Training Program

A. To be approved by the Board, the provider of an acupuncture program shall submit to the Board either:
1. Documentation that the acupuncture program is a candidate for accreditation or has accreditation through the ACAOM and provides at least 1,850 hours of training, including at least 800 hours of clinical training; or
2. Documentation that the acupuncture program meets the standards at R4-8-404(A).

B. To be approved by the Board, the provider of an acupuncture clinical training program shall submit to the Board either:
1. Documentation that the clinical training program is part of an acupuncture program that is a candidate for accreditation or has accreditation through the ACAOM, or is itself a candidate for accreditation or has accreditation through ACAOM; or
2. Documentation that the clinical program meets the standards at R4-8-404(B).

C. To be approved by the Board, the provider of a preceptorship training program shall submit documentation of meeting the standards at R4-8-411.

R4-8-404. Standards for an Acupuncture or Clinical Training Program

A. The Board shall approve an acupuncture program that does not meet the standard at R4-8-403(A)(1) only if the program:
1. Is for at least three years;
2. Complies with the essential requirements and attendant criteria in Part One of the "Accreditation Handbook," which is incorporated by reference in R4-8-107; and
3. Provides the following course content and minimum hours:
   a. Traditional East-Asian medical theory, diagnosis, treatment techniques in acupuncture, and related studies: 690 hours;
   b. Clinical training: 800 hours; and
   c. Biomedical clinical sciences: 360 hours.

B. The Board shall approve an acupuncture clinical training program that does not meet the standard of R4-8-403(B)(1) only if the clinical training program:
1. Is operated by a person who owns and operates an acupuncture clinic,
2. Provides at least 75% of clinical instruction in the acupuncture clinic, and
3. Provides direct patient contact in the following:
   a. Supervised observation of the clinical practice of acupuncture with case presentations and discussions;
   b. Application of Eastern and Western diagnostic procedures in evaluating a patient; and

c. Clinical treatment of a patient with acupuncture techniques.

R4-8-405. Documentation Required for Approval

To obtain Board approval of an acupuncture or clinical training program under R4-8-404, the provider of the program shall submit or have the custodian of program records submit to the Board documents and other evidence that demonstrates that the program meets the standards in R4-8-404. These documents and other evidence may include catalogues, course descriptions, curricula plans, and study bulletins.

R4-8-407. Program Monitoring; Records; Reporting

A. The provider of an approved acupuncture or clinical training program shall submit to the Board, within 60 days after the close of the program's fiscal year, a letter attesting that the acupuncture or clinical training program continues to meet the standards of R4-8-403 or R4-8-404, and a course catalog that includes:
1. A description of the courses in the next year's proposed curriculum;
2. A list of members of the program faculty, administration, and governing body; and
3. A description of the program facility.

B. The provider of an approved preceptorship training program shall submit to the Board annually a letter attesting that the preceptorship training program continues to meet the standards at R4-8-411.

C. A representative of the Board may conduct an onsite visit of an approved acupuncture, clinical training, or preceptorship training program to review and evaluate the status of the program. The provider of the approved program shall reimburse the Board for direct costs incurred in conducting this review and evaluation.

D. The provider of an approved acupuncture, clinical training, or preceptorship training program shall ensure that all student records are maintained in English.

E. The provider of an approved acupuncture, clinical training, or preceptorship training program shall, within 30 days, report to the Board any failure to meet the standards at R4-8-403, R4-8-404, or R4-8-411.

R4-8-408. Approval of Continuing Education

A. The Board shall approve a continuing education only if the continuing education:
1. Is related to the knowledge or technical skills used to practice acupuncture safely and competently; or
2. Is related to direct or indirect acupuncture patient care, including practice management, medical ethics, or Chinese language; and
3. Includes a method by which the continuing education participants evaluate:
   a. The extent to which the continuing education met its stated objectives,
   b. The adequacy of the instructor's knowledge of the subject taught,
   c. The use of appropriate teaching methods, and
   d. The applicability or usefulness of the information provided; and
4. Provides continuing education participants with a certificate of attendance that meets the requirements at R4-8-206(D).

B. The Board shall approve a continuing education, without application under R4-8-409, if the continuing education is:
1. Approved by a licensing board of acupuncture in another state,
2. Provided by the Continuing Education Council of NCCAOM, or
3. Provided by a board-approved acupuncture or clinical training program.

R4-8-409. Application for Continuing Education Approval

A. To obtain the Board's approval for a continuing education, the provider of the continuing education shall submit to the Board at least 45 days before teaching the continuing education:
1. A form, which is available from the Board, containing the following information:
   a. Title of the continuing education;
   b. Name and address of the continuing education provider;
   c. Name, telephone and fax numbers of a contact person for the continuing education provider;
   d. Date, time, and place at which the continuing education will be taught, if known;
   e. Subject matter of the continuing education;
   f. Method of instruction;
   and
   g. Number of continuing education hours requested; and
2. The following documents:
   a. Curriculum vitae of the continuing education instructor,
   b. Objective of the continuing education,
   c. Detailed outline of the continuing education,
   d. Agenda for the continuing education showing the hours of instruction and the subject matter taught during each hour,
   e. Method by which participants evaluate the continuing education, and
   f. Certificate of attendance that meets the requirements at R4-8-206(D).

B. The provider of a continuing education that is not approved under R4-8-408(B) shall not advertise that the continuing education is approved by the Board until the Board acts on an application submitted under subsection (A).

C. The Board's approval of a continuing education is valid for one year unless there is a change in subject matter, instructor, or hours of instruction. At the end of one year or when there is a change in subject matter, instructor, or hours of instruction, the continuing education provider shall apply again for approval.

R4-8-411. Preceptorship Training Standards

The Board shall approve a preceptorship training program only if the preceptorship training program meets the following criteria:

1. Provides at least 4,000 hours of training in no fewer than three and no more than six consecutive years;
2. Has at least 1,950 clinical hours that include:
   a. Clinical observation;
   b. History and physical examination;
   c. Therapeutic diagnosis and treatment planning;
   d. Preparation of the patient;
   e. Sterilization, use, and maintenance of equipment;
   f. Moxibustion;
   g. Electro acupuncture (AC and DC voltages);
   h. Acupuncture techniques, auricular acupuncture, acupressure, Tui Na, and other forms of traditional East-Asian bodywork;
   i. Treatment of emergencies, including cardiopulmonary resuscitation;
   j. Pre-treatment and post-treatment instruction to the patient;
   k. Contraindications, precautions, and clean needle technique; and
   l. Practice management and ethics.
3. Has at least 1,050 hours of didactic training that include:
   a. Traditional East-Asian medicine;
   b. Acupuncture, Tui Na, traditional East-Asian bodywork, and clinical training techniques;
   c. Traditional East-Asian exercise, including Qi Gong and Tai Chi;
   d. Western sciences, which may be obtained at a college or university accredited by the U.S. Department of Education, including:
      i. Anatomy;
      ii. Physiology;
      iii. Pathology and pathophysiology;
      iv. Survey of western clinical medicine and sciences;
      v. Psychology and counseling;
      vi. Nutrition;
      vii. General sciences (biology, chemistry, and physics);
      viii. Medical terminology; and
      ix. First aid and cardiopulmonary resuscitation;
4. Enrolls no more than two students at one time per Board-approved supervisor;
5. Enrolls only students who:
   a. Are at least 18 years old, and
   b. Have official transcripts documenting at least 60 semester hours or 90 quarter hours of credit from a college or university accredited by the U.S. Department of Education; and
6. Requires each student, before admission, to sign a statement disclosing receipt of the following:
   a. Preceptorship training requirements,
   b. A copy of the Board's current statutes and rules, and
   c. A current copy of NCCAOM requirements for apprenticeship training programs.

R4-8-412. Approval of Preceptorship Training Program Supervisor

The Board shall approve an individual to be a supervisor for a Board-approved preceptorship training program only if the individual:

1. Is licensed under A.R.S. § 32-3924 and R4-8-203;
2. Submits to the Board an application, using a form provided by the Board, which includes:
   a. Name, date of birth, and Social Security number;
   b. Current license number and expiration date;
   c. Name of the Board-approved preceptorship training program and the date on which it was approved by the Board; and
   d. Address of the facility at which the preceptorship training program will be provided;
3. Submits to the Board documentation of:
   a. At least 10 years of experience in the practice of acupuncture; and
   b. A current general health care practice that annually includes at least:
      i. Five hundred acupuncture patient visits, and
      ii. One hundred different patients; and
4. Signs and dates the form certifying that if approved by the Board, the individual shall be solely responsible for supervising a student enrolled in the approved preceptorship training program and assigned to the individual for supervision.

ARTICLE 5. SUPERVISION; RECORDKEEPING

R4-8-501. Treatment of Patients by Acupuncture Students; Supervision

A. Before a supervising acupuncturist allows an acupuncture student to treat a patient, the supervising acupuncturist shall:

1. Consult with the acupuncture student regarding the treatment to be provided;
2. Ensure that the acupuncture student has the level of training required to provide the treatment safely and effectively;

3. Ensure that written evidence of informed consent is obtained from the patient indicating that the patient knows a student will be treating the patient; and
4. Ensure that the supervisor is physically present in the clinic during any patient treatment performed by the acupuncture student.

B. If an acupuncture student treats a patient, the supervising acupuncturist shall ensure that records of the treatment:
1. Are maintained as required under R4-8-502;
2. Include the written evidence of informed consent required under subsection (A)(3), and
3. Indicate the names of both the supervising acupuncturist and the acupuncture student.

R4-8-502. Recordkeeping

A. An acupuncturist shall:
1. Make a complete, legible, and accurate record of each patient to whom an acupuncture treatment is given. The acupuncturist shall ensure that a patient record is in English and includes:
   a. Name of the patient,
   b. Patient history,
   c. Dates of treatment,
   d. Treatment given, and
   e. Progress made during acupuncture treatments; and
2. Maintain a patient record for six years after the last treatment of the patient or as prescribed at A.R.S. § 12-2297, whichever date occurs later.

B. The provider of an acupuncture, auricular acupuncture, clinical, or preceptorship training program shall:
1. Make accurate and complete records of:
   a. Compliance with the program standards in Article 4, and
   b. Students enrolled in the program. The provider shall ensure that a student record indicates:
      i. Name of the student;
      ii. Date enrolled;
      iii. Courses taken;
      iv. Grade obtained in each course;
      v. Date on which the program was completed or the student ceased to participate; and
      vi. Whether the student was awarded a diploma, degree, or certificate of completion.
2. Maintain the records required under subsection (B)(1)(a) for six years, and
3. Maintain the records required under subsection (B)(1)(b) for 25 years after the student completes or is last enrolled in the program or as required by A.R.S. § 32-3001 et seq. and the rules of the Board of Private Postsecondary Education, whichever is longer.

C. The provider of an approved continuing education shall:
1. Make accurate and complete records of:
   a. The Board's approval of the continuing education;
   b. The date, time, and location of each presentation of the continuing education; and
   c. Participants at each presentation of the continuing education.
2. Maintain the records required under subsection (C)(1) for two years.

R4-8-503. Supervision of an Auricular Acupuncturist

A licensed acupuncturist supervising an auricular acupuncture certificate holder shall:
1. Be available promptly to consult with the auricular acupuncture certificate holder in person, by telephone, or electronically during normal working hours; and
2. Ensure that the auricular acupuncture certificate holder performs auricular acupuncture safely and effectively and complies with the law regarding auricular acupuncture.

ARTICLE 6. COMPLAINTS; HEARING PROCEDURES; DISCIPLINE

R4-8-601. Making a Complaint

A. Anyone, including the Board, may file a complaint that alleges a violation of A.R.S. Title 32, Chapter 39 or this Chapter.

B. A complaint may be filed against:
1. An individual licensed under A.R.S. § 32-3921 and R4-8-203;
2. An individual certified under A.R.S. § 32-3922 and R4-8-301;
3. An individual certified under A.R.S. § 32-3926 and R4-8-208; or
4. An individual who is not exempt under A.R.S. § 32-3921(B) and believed to be practicing acupuncture without a license or certificate issued under A.R.S. Title 32, Chapter 39 and this Chapter.

C. To file a complaint, an individual shall provide the following information, either orally or in writing, to the Board:
1. Date;
2. Name, address, and telephone number of the individual complained against;
3. Name, address, and telephone number of the complainant;
4. If the complaint is filed on behalf of a third party, the name and address of the third party;
5. The date on which the complaint was last discussed with the individual complained against or a representative of an involved business:
   a. A statement of whether the last discussion of the complaint was by telephone or in person, and

b. The name of the individual with whom the complaint was last discussed; and

6. A detailed description, including dates, of the events alleged to constitute a violation of A.R.S. Title 32, Chapter 39 or this Chapter.

D. A complainant shall file a complaint within 90 days of the events alleged to constitute a violation of A.R.S. Title 32, Chapter 39 or this Chapter.

E. A complainant may withdraw a complaint at any time by providing notice to the Board.

R4-8-602. Complaint Procedures

A. The Board shall review a complaint to determine whether it meets the requirements under R4-8-601. If a complaint does not meet the requirements under R4-8-601, the Board shall provide written notice to the complainant that the complaint is dismissed without further action.

B. If the Board determines that a complaint meets the requirements under R4-8-601, the Board shall assess whether the complaint alleges a violation of A.R.S. Title 32, Chapter 39 or this Chapter and:

1. Dismiss the complaint if the Board determines that the allegation, if true, does not amount to a violation of A.R.S. Title 32, Chapter 39 or this Chapter and provide written notice of the dismissal to the complainant; or
2. Serve a copy of the complaint on the respondent if the Board determines that the allegation, if true, amounts to a violation of A.R.S. Title 32, Chapter 39 or this Chapter and provide the respondent with 20 days to submit:
   a. A response in which the individual admits, denies, or further explains each allegation in the complaint; and
   b. Records relevant to the complaint.

C. If a respondent responds to a complaint, the Board shall send a copy of the response to the complainant and provide five days for the complainant to submit a rebuttal.

D. When the times provided under subsections (B)(2) and (C) expire, the Board shall conduct an investigation and prepare a report that summarizes the complaint and results of the investigation. The Board shall:

1. Provide a copy of the investigative report to the complainant and respondent; and
2. Provide written notice to the complainant and respondent of the date, time, and location of the Board meeting at which the complaint will be considered.

E. Both the complainant and respondent may be represented by an attorney at the Board meeting at which the complaint is considered.

F. At the Board meeting at which a complaint is considered, the Board shall:

1. Provide the complainant and respondent with an opportunity to address the Board, present evidence, and cross-examine witnesses; and
2. Negotiate an equitable and just resolution of the matters asserted in the complaint; or
3. Forward the complaint to a formal hearing.

R4-8-603. Hearing Procedures

The Board shall conduct any hearing required by law according to the procedures in A.R.S. Title 41, Chapter 6, Article 10.

R4-8-604. Rehearing or Review of Decision

A. The Board shall provide for a rehearing and review of its decisions under A.R.S. Title 41, Chapter 6, Article 10.

B. Except as provided in subsection (I), a party is required to file a motion for rehearing or review of a decision of the Board to exhaust the party's administrative remedies.

C. A party may amend a motion for rehearing or review at any time before the Board rules on the motion.

D. The Board may grant a rehearing or review for any of the following reasons materially affecting a party's rights:

1. Irregularity in the proceedings of the Board or any order or abuse of discretion that deprived the moving party of a fair hearing;
2. Misconduct of the Board, its staff, or an administrative law judge;
3. Accident or surprise that could not have been prevented by ordinary prudence;
4. Newly discovered material evidence that could not, with reasonable diligence, have been discovered and produced at the hearing;
5. Excessive or insufficient penalty;
6. Error in the admission or rejection of evidence or other errors of law occurring at the hearing or during the progress of the proceedings; and
7. The findings of fact or a decision is not justified by the evidence or is contrary to law.

E. The Board may affirm or modify a decision or grant a rehearing or review to all or some of the parties on all or some of the issues for any of the reasons listed in subsection (D). An order modifying a decision or granting a rehearing or review shall specify with particularity the grounds for the order. If a rehearing or review is granted, the rehearing or review shall cover only the matters specified in the order.

F. Within 30 days after the date of a decision and after giving the parties notice and an opportunity to be heard, the Board may, on its own initiative, order a rehearing or review of its decision for any reason it might have granted a rehearing or review on motion of a party. The Board may grant a motion for rehearing or review, timely served, for a reason not stated in the motion. An order granting a rehearing or review shall specify with particularity the grounds on which the rehearing or review is granted.

G. When a motion for rehearing is based upon affidavits, they shall be served with the motion. An opposing party may, within 15 days after service, serve opposing affidavits. This period may be extended by the Board for a maximum of 20 days for good cause as described in subsection (H) or by written stipulation of the parties. Reply affidavits may be permitted.

H. The Board may extend all time limits listed in this Section upon a showing of good cause. A party demonstrates good cause by showing that the grounds for the party's motion or other action could not have been known in time, using reasonable diligence, and a ruling on the motion will:
1. Further administrative convenience, expedition, or economy; or
2. Avoid undue prejudice to any party.

I. If, in a particular decision, the Board makes a specific finding that the immediate effectiveness of the decision is necessary for preservation of the public health, safety, or welfare and that a rehearing or review of the decision is impracticable, unnecessary, or contrary to the public interest, the decision may be issued as a final decision without an opportunity for a rehearing or review. If an application for judicial review of the decision is made, it shall be made under A.R.S. § 12-901 et seq.

R4-8-605. Disciplinary Action

After a Board meeting at which a complaint is considered or after a hearing that results in a determination that a licensee or certificate holder violated A.R.S. Title 32, Chapter 39 or this Chapter, the Board shall consider the following factors to determine the degree of discipline to impose under A.R.S. § 32-3951:
1. Prior conduct resulting in discipline;
2. Dishonest or self-serving motive;
3. Amount of experience as an acupuncturist;
4. Bad faith obstruction of the disciplinary proceeding by intentionally failing to comply with rules or orders of the Board;
5. Submission of false evidence, false statements, or other deceptive practices during the investigative or disciplinary process;
6. Refusal to acknowledge wrongful nature of conduct;
7. Degree of harm resulting from the conduct; and
8. Whether harm resulting from the conduct was cured.

ARTICLE 7. PUBLIC PARTICIPATION PROCEDURES

R4-8-702. Petition for Rulemaking; Review of Agency Practice or Substantive Policy Statement; Objection to Rule Based Upon Economic, Small Business, or Consumer Impact

A. A person may petition the Board under A.R.S. § 41-1033 for a:
1. Rulemaking action relating to a Board rule, including making a new rule or amending or repealing an existing rule; or
2. Review of an existing Board practice or substantive policy statement alleged to constitute a rule.

B. A person may petition the Board under A.R.S. § 41-1056.01 objecting to all or part of a Board rule because the actual economic, small business, or consumer impact of the rule:
1. Exceeds the estimated economic, small business, or consumer impact of the rule; or
2. Was not estimated and imposes a significant burden on persons subject to the rule.

C. To act under A.R.S. § 41-1033 or 41-1056.01 and this Section, a person shall submit to the Board a written petition including the following information:
1. The name, home or business and e-mail addresses, and telephone and fax numbers of the petitioner;
2. Name of any person represented by the petitioner;
3. If requesting a rulemaking action:
   a. Statement of the rulemaking action sought, including the A.A.C. citation to all existing rules, and the specific language of a new rule or rule amendment; and
   b. Reasons for the rulemaking action, including an explanation of why an existing rule is inadequate, unreasonable, unduly burdensome, or unlawful;
4. If requesting a review of an existing Board practice or substantive policy statement:
   a. Subject matter of the existing practice or substantive policy statement; and
   b. Reasons why the existing practice or substantive policy statement constitutes a rule.
5. If objecting to a rule because of its economic, small business, and consumer impact statement:
   a. The A.A.C. citation of the rule to which objection is made; and
   b. A description of how the actual economic, small business, or consumer impact of the rule differs from that estimated; or
   c. A description of the actual economic, small business, or consumer impact of the rule and an assessment of the burden on persons subject to the rule; and
6. Dated signature of the petitioner.

D. A person may submit supporting information with a petition.

R4-8-704. Oral Proceedings

A. A person requesting an oral proceeding, as prescribed in A.R.S. § 41-1023(C), shall:
1. File the request with the Board;
2. Include the name and current address of the person making the request; and
3. Refer to the proposed rule and include, if known, the date and issue of the Arizona Administrative Register in which the notice of the proposed rule is published.

B. The Board shall make a record of an oral proceeding. The Board shall make any material submitted during an oral proceeding part of the official rulemaking record.

C. The presiding officer shall use the following guidelines to conduct an oral proceeding:

1. Registration of attendees. Registration of attendees is voluntary;
2. Registration of persons intending to speak. A person wishing to speak shall provide the following information on a form that is available from the Board:
   a. Name,
   b. Representative capacity, if applicable,
   c. Whether the person supports or opposes the proposed rule, and
   d. Approximate length of time the person wishes to speak;
3. Opening of the record. The presiding officer shall open the proceeding by identifying the rule to be considered and the location, date, time, and purpose of the proceeding, and by presenting the agenda;
4. A statement by Board representative. A Board representative shall explain the background and general content of the proposed rule;
5. A public oral comment period. Any person may speak at an oral proceeding. A person who speaks shall address the proposed rule. A person who speaks may ask questions regarding the proposed rule and present oral argument, data, and views on the proposed rule. The presiding officer may limit the time allotted to each speaker and preclude undue repetition; and
6. Closing remarks. The presiding officer shall announce the location and last day for submitting written comments about the proposed rule.

R4-8-706. Written Criticism of Rule

A. A person may file a written criticism of an existing rule with the Board.

B. A person filing a written criticism of a rule shall identify the rule by its A.A.C. citation and specify why the rule is inadequate, unduly burdensome, unreasonable, or otherwise improper.

C. The Board shall acknowledge receipt of any criticism within 15 days and place the criticism in the official record for review by the Board under A.R.S. § 41-1056.

32-3901. Definitions

In this chapter, unless the context otherwise requires:

1. "Acupuncture" means puncturing the skin by thin, solid needles to reach subcutaneous structures, stimulating the needles to produce a positive therapeutic response at a distant site and the use of adjunctive therapies.

2. "Adjunctive therapies" means the manual, mechanical, magnetic, thermal, electrical or electromagnetic stimulation of acupuncture points and energy pathways, auricular and detoxification therapy, ion cord devices, electroacupuncture, herbal poultices, therapeutic exercise and acupressure.

3. "Board" means the acupuncture board of examiners.

4. "Unprofessional conduct" includes the following, whether occurring in this state or elsewhere:

(a) Wilfully disclosing a professional secret or wilfully violating a privileged communication except as either of these may otherwise be required by law.

(b) Committing a felony as evidenced by conviction by a court of competent jurisdiction.

(c) Habitual intemperance in the use of alcohol or any substance abuse that interferes with the ability to safely practice acupuncture.

(d) Conduct that the board determines is gross malpractice, repeated malpractice or any malpractice resulting in the death of a patient.

(e) Impersonating another acupuncturist or any other practitioner of the healing arts.

(f) Falsely acting or assuming to act as a member, an employee or an authorized agent of the board.

(g) Procuring or attempting to procure a license pursuant to this chapter by fraud or misrepresentation.

(h) Refusing to divulge to the board on demand the acupuncture method used in the treatment of a patient.

(i) Giving or receiving or aiding or abetting the giving or receiving of rebates, either directly or indirectly.

(j) Knowingly making any false or fraudulent statement, written or oral, in connection with the practice of acupuncture.

(k) The refusal, revocation or suspension of a license by any other state, district or territory of the United States or any other country, unless the action was not taken for reasons relating to the person's ability to safely and skillfully practice acupuncture or relating to an act of unprofessional conduct.

(l) Conduct that is contrary to the recognized standards or ethics of the acupuncture profession or that may constitute a danger to the health, welfare or safety of the patient or the public.

(m) Any conduct or condition that may impair the ability to safely and skillfully practice acupuncture.

(n) Violating or attempting to violate, directly or indirectly, assisting in or abetting the violation of or conspiring to violate this chapter or board rules.

(o) Advertising in a false, deceptive or misleading manner.

(p) Failing or refusing to maintain adequate patient health records or failing or refusing to make health records promptly available to the patient or to another health practitioner or provider on request and receipt of proper authorization.
(q) Deriving direct or indirect compensation from the referral of a patient without disclosing to the patient in writing the extent of the compensation.
(r) Deriving a financial interest in products the acupuncturist endorses or recommends to the patient without disclosing to the patient in writing the extent of the financial interest.
(s) Sexual intimacies with a patient in the practice of acupuncture.
(t) Failing to appropriately exercise control over or supervise an acupuncture student employed by or assigned to the practitioner in the practice of acupuncture.
(u) Failing to furnish information in a timely manner to the board or its investigators or representatives if the information is legally requested by the board.
(v) Supervising or engaging in a clinical training program in acupuncture without being approved and registered by the board for that program.
(w) Knowingly making a false, fraudulent or misleading statement, written or oral, to the board.
(x) Failing to exercise proper care for a patient by abandoning or neglecting a patient in need of immediate care without making reasonable arrangements for the continuation of care or by failing to refer the patient to another appropriate health care provider when necessary.
(y) Failing to use needles that have been sterilized according to clean needle technique principles approved by the board.

32-3902. Acupuncture board of examiners; members; qualifications; terms; removal; compensation
A. The acupuncture board of examiners is established consisting of the following members appointed by the governor:
1. Four members who are licensed to practice acupuncture pursuant to this chapter and who have practiced acupuncture in this state for at least three years. Not more than two of these members shall be graduates of the same school or college of acupuncture. The governor may make these appointments from a list of names submitted by a statewide acupuncture society. The initial appointees need not be licensed pursuant to this chapter at the time of selection but shall meet all of the qualifications for licensure as prescribed by this chapter.
2. Three consumers who:
(a) Are not employed in a health profession.
(b) Do not have any pecuniary interest in a school of medicine or health care institution.

(c) Demonstrate an interest in health issues in this state.

3. Two members who are licensed pursuant to chapter 8, 13, 14, 17 or 29 of this title. These members shall not be licensed pursuant to the same chapter.

B. Board members shall be residents of this state for at least three years immediately preceding their appointment.

C. Board members serve three-year terms to begin and end on the third Monday in January. A member shall not serve more than two consecutive terms.

D. The board shall meet in January of each year to elect a chairperson and secretary.

E. The board shall meet quarterly and at the call of the chairperson or a majority of board members.

F. Board members are eligible to receive compensation in an amount not to exceed fifty dollars per day for each day of actual service in the business of the board and are eligible for reimbursement of expenses necessarily and properly incurred in attending board meetings.

G. The governor may remove a board member from office for malfeasance, dishonorable conduct or unprofessional management of board duties.

H. The term of any member automatically ends on resignation or absence from this state for a period of at least six months. The governor shall fill vacancies for an unexpired portion of a term in the same manner as regular appointments.

I. Board members and board employees are not subject to civil liability for any act done or proceeding undertaken or performed in good faith and in furtherance of the purposes of this chapter.

32-3903. Powers and duties of the board

A. The board shall:

1. Adopt rules necessary to enforce this chapter.

2. Initiate investigations and take disciplinary actions to enforce this chapter.

3. Evaluate the qualifications of applicants and issue licenses to qualified applicants.

4. Adopt and use a seal to authenticate official board documents.

5. Establish fees pursuant to section 32-3927.

6. Adopt rules for clinical training.

B. The board may:

1. Subject to title 41, chapter 4, article 4, employ personnel needed to carry out board functions.

2. Purchase, lease, rent, sell or otherwise dispose of personal and real property for the operations of the board.

3. Approve examinations for licensure.

32-3904. Executive director; personnel; duties; compensation

A. Subject to title 41, chapter 4, article 4, the board may appoint an executive director who serves at the pleasure of the board. The executive director shall not be a board member.

B. The executive director is eligible to receive compensation set by the board within the range determined pursuant to section 38-611.

C. The executive director shall:

1. Perform the administrative duties of the board.

2. Subject to title 41, chapter 4, article 4, employ personnel needed to carry out board functions.

3. Perform other duties as directed by the board.

32-3905. Acupuncture board of examiners fund

A. The acupuncture board of examiners fund is established consisting of fees collected pursuant to section 32-3927. The board shall administer the fund. Pursuant to sections 35-146 and 35-147, the board shall deposit ten per cent of all monies collected under this chapter in the state general fund and deposit the remaining ninety per cent in the acupuncture board of examiners fund.

B. Monies deposited in the acupuncture board of examiners fund are subject to section 35-143.01.

32-3906. Third party reimbursements

This chapter does not require direct third party reimbursement to persons who are licensed pursuant to this chapter.

32-3921. Licensure; acts and persons not affected

A. A person shall not practice acupuncture without a license issued pursuant to this chapter.

B. This chapter does not apply to:

1. Health care professionals licensed pursuant to this title practicing within the scope of their license.

2. A student enrolled in a school of acupuncture approved by the board practicing acupuncture under the direct supervision of an acupuncturist licensed pursuant to this chapter as a part of a course of study approved by the board.

3. The practice of acupuncture in this state by a person licensed or certified to perform acupuncture by any other jurisdiction if the person is doing so in the course of regular instruction of a school of acupuncture approved by the board or in an educational seminar by a professional organization of

acupuncture, if in the case of an educational seminar the practice is supervised directly by a person licensed pursuant to this chapter or by a health professional licensed pursuant to this title whose scope of practice includes acupuncture.

4. An acupuncturist who resides outside the state and who is authorized to practice acupuncture in that jurisdiction, if the person engages in a single or infrequent consultation with an acupuncturist licensed in this state and the consultation regards a specific patient or patients.

5. A person who self-administers acupuncture.

32-3922. Auricular acupuncture for chemical dependency; definition

A. The board may issue an auricular acupuncture certificate to a person who practices auricular acupuncture for the purpose of treating alcoholism, substance abuse or chemical dependency if the person does all of the following:

1. Provides documentation of successful completion of a board approved training program in acupuncture for the treatment of alcoholism, substance abuse or chemical dependency that meets or exceeds standards of training established by the national acupuncture detoxification association or a board approved group.

2. Provides documentation satisfactory to the board of successfully completing a board approved clean needle technique course.

3. Submits an application as prescribed by the board and a fee prescribed by section 32-3927.

B. A certificate issued pursuant to this section allows the certificate holder to practice auricular acupuncture in a substance abuse or chemical dependency program approved by the board, this state or the federal government under the supervision of a person licensed pursuant to this chapter.

C. A certificate issued pursuant to this section is valid for one year. The certificate may be renewed by the board if the certificate holder submits an application as prescribed by the board and a fee prescribed by section 32-3927 at least thirty days before the certificate expires.

D. For the purposes of this section, "auricular acupuncture" means the application of acupuncture needles to the pinna, lobe or auditory meatus to treat alcoholism, substance abuse or chemical dependency.

32-3923. Use of title or abbreviation by licensee; prohibited acts; posting of license

A. A person who is licensed pursuant to this chapter may use the title "licensed acupuncturist" and the abbreviation "L.AC.".

B. A person who is not licensed pursuant to this chapter shall not use any title, abbreviation, words, letters, signs or figures to indicate that the person is licensed pursuant to this chapter.

C. Possession of a license pursuant to this chapter does not by itself entitle a person to use the title "doctor" or "physician".
D. A person who is licensed pursuant to this chapter shall post the license or an official duplicate of the license in a conspicuous location in the reception area of each office facility of that licensee.
E. A person who is licensed pursuant to this chapter shall not represent to any member of the public that, by virtue of that license, the person is licensed to practice any modality other than acupuncture.

32-3924. Qualifications for licensure

To receive a license to practice acupuncture pursuant to this chapter, a person shall submit an application as prescribed by the board. The applicant shall disclose in an application for initial licensure or relicensure all other active and past professional health care licenses and certificates issued to the applicant in this state or by another state, district or territory of the United States. The application shall document to the board's satisfaction that the applicant has successfully completed a clean needle technique course approved by the board and meets all of the following:
1. Has either:
(a) Been certified in acupuncture by the national certification commission for acupuncture and oriental medicine, or its successor organization, or another certifying body or examination that is recognized by the board.
(b) Passed the point location module, foundations of oriental medicine module, biomedicine module and acupuncture module offered by the national certification commission for acupuncture and oriental medicine.
(c) Been licensed by another state with substantially similar standards, and has not had certification or licensure revoked.
2. Has graduated from or completed training in a board-approved program of acupuncture with a minimum of one thousand eight hundred fifty hours of training that includes at least eight hundred hours of board-approved clinical training.
3. Beginning July 1, 2016, has submitted a full set of fingerprints to the board for the purpose of obtaining a state and federal criminal records check pursuant to section 41-1750 and Public Law 92-544. The department of public safety may exchange this fingerprint data with the federal bureau of investigation.

32-3925. Renewal of license; continuing education

A. Except as provided in section 32-4301, a license issued pursuant to this chapter is subject to renewal each year and expires unless renewed.

B. The executive director shall send a renewal application to each licensee at least sixty days before expiration of the license.
C. A licensee shall include with the application for renewal documentation satisfactory to the board that the licensee has successfully completed at least fifteen hours of board approved continuing education each year.
D. On compliance with board requirements for the renewal of licenses, the board may reinstate a license canceled for failure to renew.

32-3926. Visiting professor certificate

A. The board may issue a visiting professor certificate to an acupuncturist who has received a teaching position in a school of acupuncture in this state if that person demonstrates to the satisfaction of the board that the person has at least five years' experience in the practice of acupuncture and has adequate skill and training. The acupuncturist shall submit an application as prescribed by the board and shall submit the fee prescribed pursuant to section 32-3927.
B. A certificate issued pursuant to this section allows the certificate holder to practice acupuncture only in relation to the certificate holder's faculty position duties.
C. A certificate issued pursuant to this section is valid for one year. The board may grant a one year extension if the certificate holder submits an application at least thirty days before the certificate expires. The board may grant a total of two one-year extensions.

32-3927. Fees

A. By a formal vote at its annual meeting the board shall establish nonrefundable fees that do not exceed the following:
1. For issuance of an initial license, six hundred dollars.
2. For an application for a license or certificate, one hundred fifty dollars.
3. For renewal of a license, six hundred dollars.
4. For late renewal of a license, an additional one hundred dollars.
5. For issuance of a duplicate license or certificate, fifty dollars.
6. For issuance of an initial visiting professor certificate, six hundred dollars.
7. For renewal of a visiting professor certificate, six hundred dollars.
8. For issuance of an initial auricular acupuncture certificate, two hundred fifty dollars.
9. For renewal of an auricular acupuncture certificate, two hundred fifty dollars.
10. For copying records, documents, letters, minutes, applications and files, twenty-five cents a page.

11. For a copy of the minutes to board meetings during the current calendar year, twenty-five dollars for each set of minutes.

B. The board shall charge additional fees for services not required to be provided by this chapter but that the board determines are necessary and appropriate to carry out this chapter. The fees shall not exceed the actual cost of providing these services.

32-3951. Denial, revocation or suspension of license; hearings; alternative sanctions

A. The board may deny, revoke or suspend a license issued under this chapter for any of the following reasons:

1. Conviction of a felony or a misdemeanor involving moral turpitude. The record of the conviction or a certified copy from the clerk of the court where the conviction occurred or from the judge of that court is sufficient evidence of conviction.

2. Securing a license under this chapter through fraud or deceit.

3. Unprofessional conduct or incompetence in the conduct of the licensee's practice.

4. Using a false name or alias in the practice of the licensee's profession.

5. Violating this chapter or board rules.

B. If the board determines pursuant to a hearing that grounds exist to revoke or suspend a license, the board may do so permanently or for a fixed period of time and may impose conditions prescribed by the board. The board may also impose a civil penalty of not more than ten thousand dollars for each violation of this chapter. The board shall deposit, pursuant to sections 35-146 and 35-147, civil penalties collected pursuant to this subsection in the state general fund.

C. The board may deny a license without holding a hearing. After receiving notification of the denial, the applicant may request a hearing to review the denial.

D. The board shall conduct any hearing to revoke or suspend a license pursuant to title 41, chapter 6, article 10. Any person appearing before the board may be represented by an attorney.

E. Instead of denying, revoking or suspending a license the board may file a letter of concern, issue a decree of censure, prescribe a period of probation or restrict or limit the practice of a licensee. The board may also Issue a nondisciplinary order requiring the licensee to complete a prescribed number of hours of continuing education in an area or areas prescribed by the board to provide the licensee with the necessary understanding of current developments, skills, procedures or treatment.

F. The board shall promptly notify a licensee's employer if the director initiates a disciplinary action against the licensee.

G. The board may appoint an investigator to provide information to the board concerning an alleged violation of this chapter.

H. The board on its own initiative or on application of any person involved in an investigation or proceeding conducted by the board may issue subpoenas compelling the attendance and testimony of witnesses or demanding the production for examination or copying of documents, reports, records or any other evidence relating to a board investigation or proceeding.

32-3952. Right to examine and copy evidence

In connection with a board investigation conducted pursuant to 32-3951, the board at all reasonable times has the right to examine and copy any documents, reports, records or other physical evidence of any person being investigated or reports, records and any other documents maintained by and in the possession of any clinic, licensee's office or other public or private agency and any health care institution as defined in section 36-401 if the board believes this information is related to unprofessional conduct or the mental or physical ability of a licensee to practice acupuncture.

32-3953. Injunctive relief; bond; service of process

A. In addition to all other available remedies, if the board has any reason to believe that a person has violated this chapter or a board rule, the board through the attorney general or the county attorney of the county in which the violation is alleged to have occurred may apply to the superior court in that county for an injunction restraining that person from engaging in the violation.

B. The court shall issue a temporary restraining order, a preliminary injunction or a permanent injunction without requiring the board to post a bond.

C. Service of process may be on the defendant in any county of this state where the defendant is found.

32-3954. Violation; classification

A person who violates this chapter is guilty of a class 1 misdemeanor.

F-2

ARIZONA BOARD OF RESPIRATORY CARE EXAMINERS (R-16-0801)
Title 4, Chapter 45, Article 1, General Provisions; Article 2, Licensure

Amend:	R4-45-101; R4-45-102; R4-45-105; R4-45-201; R4-45-203; R4-45-205; R4-45-218
Repeal:	R4-45-213

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-2**

TO: Members of the Governor's Regulatory Review Council (Council)

FROM: Matthew Rippentrop, Legal Intern

DATE: July 15, 2016

SUBJECT: **ARIZONA BOARD OF RESPIRATORY CARE EXAMINERS (R-16-0801)**
Title 4, Chapter 45, Article 1, General Provisions; Article 2, Licensure

Amend: R4-45-101, R4-45-102, R4-45-105, R4-45-201, R4-45-203, R4-45-205, R4-45-218

Repeal: R4-45-213

General Comments

Purpose of the Agency and Summary of What the Rulemaking Does

The Board of Respiratory Care Examiners (Board) "regulate[s] the practice of respiratory care for the public health, safety and welfare." Laws 2007, Ch. 107, § 3. This rulemaking relates to eight rules in Articles 1 and 2, located in A.A.C. Title 4, Chapter 45.

Article Contents, Including the Subject Matter of Each Rule Affected

Article 1 contains five rules relating to General Provisions. This rulemaking proposes amendments to Definitions, Fees, and Change of Name or Address.

Article 2 contains 18 rules relating to Licensure. This rulemaking proposes amendments to Application, Examinations, Application Based on Licensure by Another State, Reinstatement Following Revocation; Modification of Probation, and the repeal of Temporary Licensure.

Proposed Action

To reflect new Commission on Accreditation for Respiratory Care (CoARC) accreditation standards, the Board has determined that the Registered Respiratory Therapist (RRT) credential will be required for licensure as a respiratory therapist in Arizona instead of the

Certified Respiratory Therapist (CRT) credential. Additionally, the Board is removing references to temporary licenses as the statutory authority for these licenses was revoked in 2015.

Exemption or Request and Approval for Exception from the Moratorium

The Board received an exemption from Governor Ducey's office on October 1, 2015.

Substantive or Procedural Concerns

None.

1. **Are the rules legal, consistent with legislative intent, and within the agency's statutory authority?**

Yes. The rules are legal, consistent with legislative intent, and within the agency's statutory authority. A.R.S. § 32-3504(B) calls on the Board to "consider the requirements and standards set by the Commission on Accreditation for Respiratory Care" in approving education programs. The Board proposes to amend their rules in direct response to new standards set forth by the CoARC, as prescribed by statute.

Implementing statutes include A.R.S. §§ 32-3504, 32-3506(C), 32-3521, 32-3522, 32-3523, 32-3525, and 32-3526.

2. **Are the rules written in a manner that is clear, concise, and understandable to the general public?**

Yes. The rules are clear, concise, and understandable.

3. **Does the agency adequately address the comments on the proposed rules and any supplemental proposals?**

Yes. The Board has provided a summary of all the comments made by the public during the rulemaking process and the Board's response to each, located on pages 4-5 in the report.

4. **Are the final rules a substantial change, considered as a whole, from the proposed rules and any supplemental proposals?**

No. The final rules are not a substantial change from the proposed rules or any supplemental proposals.

5. **Does the preamble disclose a reference to any study relevant to the rules that the agency reviewed and either did or did not rely on in the agency's evaluation of or justification for the rules?**

   No. The Board indicates that it did not review or rely on any study.

6. **Are the rules more stringent than corresponding federal law and, if so, is there statutory authority that allows the agency to exceed the requirements of federal law?**

Not applicable. The Board indicates that no federal law is applicable to the subject of the rules.

7. **Do the rules require a permit or license and if so, does the agency use a general permit or is any exception applicable under A.R.S. § 41-1037?**

   Yes. The Board indicates that it issues general permits.

8. **Do the rules establish a new fee or contain a fee increase?**

   No. The rules do not establish a new fee or contain a fee increase.

Conclusion

The Board requests the usual 60-day delayed effective date for the rule. Staff recommends that the rules be approved.

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-2**

TO: Members of the Governor's Regulatory Review Council

FROM: GRRC Economic Team

DATE : July 15, 2016

SUBJECT: **ARIZONA BOARD OF RESPIRATORY CARE EXAMINERS (R-16-0801)**
Title 4, Chapter 45, Article 1, General Provisions; Article 2, Licensure

Amend: R4-45-101, R4-45-102, R4-45-105, R4-45-201, R4-45-203, R4-45-205, R4-45-218

Repeal: R4-45-213

I reviewed the economic, small business, and consumer impact comparison for compliance with A.R.S. § 41-1056 and make the following comments. These comments are made to assist the Council in its review and may be used as the Council determines.

GRRC Economist Comments

In this rulemaking, the Board is proposing a change to the licensing requirements for respiratory therapists. The Board is proposing that the Certified Respiratory Therapist (CRT) credential, currently the only required credential for licensure as a respiratory therapist, be replaced by the Registered Respiratory Therapist (RRT) credential.

The RRT examination requires a higher level of practice and requires the exam taker to complete clinical questions. The CRT examination does not require exam takers to complete clinical questions. The proposed changes will align the rules with current Board policy. Respiratory therapists with a CRT credential will not be required to obtain the RRT credential to obtain a license, if they apply for licensure by January 1, 2017. In addition, the Board is removing references to temporary licenses because their statutory authority was revoked in 2015.

The Board has certified that the Joint Legislative Budget Committee has not been notified because the number of new full-time employees necessary to implement and enforce the rule is zero.

1. **Costs and Benefits for:**

a. The implementing agency:

The Board should experience moderate costs ($1,000-$5,000) for writing the rules and economic impact statement.

b. Political subdivisions:

This rulemaking does not provide any benefits or impose any costs on political subdivisions.

c. Businesses:

The Board has identified hospitals and schools as affected businesses. The Board states that "costs should not increase to schools, because schools already have a curriculum for RRT that they teach." The Board also stated that schools could potentially see increases in revenue, but that additional revenue is not anticipated to be significant.

d. Small businesses:

The Board stated that the impact to small businesses should not be different than the anticipated costs and benefits stated in section 5(c.).

e. Costs and benefits to individuals affected by the rulemaking:

The Board states that licensees will benefit from clear, concise, and understandable standards.

Based on the self-reported credential data and annual wage data provided by the Board, licensed respiratory therapists could realize a decrease in wages after obtaining a CRT certification.

Individuals applying for licensure as a respiratory therapist will be required to pass the clinical simulation examination to obtain a CRT certification. This exam was not required to obtain the RRT certification. The clinical simulation examination costs $200 for both new and repeat applicants. The Board stated that it does not anticipate that there will not be a decline in the number of respiratory care therapists, given the more stringent license requirements of the RRT certification.

Other examination fees required for the CRT certification are consistent with the fees associated with the RRT certification. Both require individuals to take the therapist multiple-choice examination at a cost of $190 for new applicants and $150 for repeat applicants. The Board currently licenses about 4,100 individuals.

f. Consumers directly affected by the rulemaking:

The Board states that "consumers should not experience increased costs, but should benefit from rules that require respiratory therapists to qualify at a higher level."

2. Do the probable benefits outweigh the probable costs?

The Board believes that the probable benefits outweigh the probable costs. The Board states that "the Board, applicants, licensees, and consumers should benefit from rules that are clearly and consistently written."

3. Analysis of methods to reduce the small business impact:

An analysis was not submitted.

4. The probable effect on state revenues:

The proposed rulemaking will have no effect on state revenues.

5. Analysis of any less intrusive or less costly alternative methods:

The Board indicates that it chose the least intrusive and least costly alternatives to meet its statutory requirements. Most of the rules have been amended for clarity, conciseness and understandability and to comply with current statutory requirements.

6. Whether an analysis was submitted to the agency regarding the rule's impact on the competitiveness of businesses in this state as compared to the competitiveness of businesses in other states:

No analysis was submitted that compares the rule's impact of the competiveness of businesses in this state to the impact on businesses in other states.

7. A description of any data on which a rule is based with an explanation of how the data was obtained and why the data is acceptable data, and the methods used by the agency to evaluate the costs and benefits in the EIS.

The Board indicates that no outside data or studies were used in the development of the proposed rules.

8. Conclusion:

The submitted economic, small business and consumer impact statement is generally accurate, and contains the information required for compliance with A.R.S. §§ 41-1035, 41-1052(D)(1-3), and 41-1055. This analyst recommends that the proposed rules be approved.

Douglas A. Ducey
Governor

State of Arizona
Board of Respiratory Care Examiners
1400 W. Washington, Suite 200
Phoenix, Arizona 85007
(602) 542-5995 FAX (602) 542-5900
www.rb.az.gov

Jack Confer
Executive Director

May 25, 2016

Nicole A. Ong, Chairwoman
Governor's Regulatory Review Council
100 North 15th Avenue, Suite 402
Phoenix, AZ 85007

RE: Notice of Final Rulemaking

Enclosed is the Notice of Final Rulemaking for A.A.C. Title 4, Chapter 45, Articles 1 and 2, which I am submitting as Director of the Board of Respiratory Care Examiners (Board) for approval by the Governor's Regulatory Review Council under A.R.S. § 41-1052.

As required by A.A.C. R4-6-104, the following information is provided for your use in reviewing the enclosed rulemaking package:

1. The close of record date:
   The close of record was 5:00 p.m. on April 11, 2016. The Board received comments and responded to them. Submission of the rules is within 120 days allowed for Final Rulemaking after the close of record.

2. Whether definitions of terms contained in statutes and rules:
   The definitions in other statutes and rules are attached.

3. Whether the rulemaking relates to a five-year-review report and, if applicable, the date the report was approved by the Council:
   The rules do not relate to a five-year-review report.

4. Whether the rule contains a new fee and, if it does, citation of the statute authorizing the new fee:
   The rules do not contain a new fee.

5. Whether the rules contain a fee increase:
   The rules do not contain a fee increase.

6. Whether an immediate effective date is requested for the rule under A.R.S. § 41-1032:
   The Board is not requesting an immediate effective date.

7. A certification that the preamble discloses a reference to any study relevant to the rule that the agency reviewed and either did or did not rely on in the agency's evaluation of or justification of the rule.

I certify that the preamble discloses a reference to any study relevant to the rule that the agency reviewed and either did or did not rely on in the agency's evaluation of or justification of the rule.

8. If one or more full-time employees are necessary to implement and enforce the rule, a certification that the preparer of the economic, small business, and consumer impact statement has notified the Joint Legislative Budget Committee of the number of new full-time employees necessary to implement and enforce the rule:
   Because the Board has not increased the number of employees due to the rulemaking, the Committee has not been notified.

9. A list of all documents enclosed:
   a. Cover letter signed by the Executive Director
   b. Notice of Final Rulemaking, including the Preamble, table of contents, and text of the rules.
   c. Economic, small business, and consumer impact statement
   d. Current rules
   e. Authorizing statutes
   f. Other statutes and rules

If you have any questions please feel free to contact me at (602) 542-5990 or by email at john@rb.az.gov.

Thank you and Respectfully,

Jack Confer
Executive Director

Copy: File

NOTICE OF FINAL RULEMAKING

TITLE 4. PROFESSIONS AND OCCUPATIONS

CHAPTER 45. BOARD OF RESPIRATORY CARE EXAMINERS

PREAMBLE

1.	**Article, Part, or Section Affected (as applicable)**	**Rulemaking Action**
	R4-45-101	Amend
	R4-45-102	Amend
	R4-45-105	Amend
	R4-45-201	Amend
	R4-45-203	Amend
	R4-45-205	Amend
	R4-45-213	Repeal
	R4-45-218	Amend

2. Citations to the agency's statutory rulemaking authority to include the authorizing statute (general) and the implementing statute (specific):

Authorizing statute: A.R.S. § 32-3504

Implementing statute: A.R.S. §§ 32-3504, 32-3506(C), 32-3521, 32-3522, 32-3523, 32-3524, 32-3526

3. The effective date of the rule

The rules become effective 60 days after filing with the Secretary of State.

4. Citations to all related notices published in the *Register* as specified in R1-1-409(A) that pertain to the record of the proposed rules:

Notice of Rulemaking Docket Opening: 20 A.A.R. 2808, October 17, 2014

Notice of Rulemaking Docket Opening: 21 A.A.R. 3085, December 4, 2015

Notice of Proposed Rulemaking: 22 A.A.R. 549, March 11, 2016

5. The agency's contact person who can answer questions about the rulemaking:

Name: Jack Confer, Executive Director

Address: 1400 W. Washington, Suite 200
Phoenix, Arizona 85007

Telephone: (602) 542-5990

Fax: (602) 542-5900

E-mail john@rb.az.gov

Website: www.respiratorycare.az.gov

6. An agency's justification and reason why a rule should be made, amended, repealed, or renumbered, to include an explanation about the rulemaking:

The Board is amending and repealing some of its rules in Articles 1 and 2 to make them conform to current changes in Board policy. The Board has determined that the Registered Respiratory Therapist (RRT) credential will be required for licensure as a respiratory therapist in Arizona instead of the Certified Respiratory Therapist (CRT) credential. The Commission on Accreditation for Respiratory Care has adopted new accreditation standards for respiratory care therapists that set the standard of minimum level of competency by examination pursuant to A.R.S. § 32-3504(B). The RRT examination is a higher level of competency than the CRT examination and contains clinical questions. The CRT examination does not contain clinical questions. The rules will allow respiratory therapists with a CRT credential who apply for a license before January 1, 2017 to be "grandfathered", which allows the respiratory therapist to continue to practice or obtain a license without earning the RRT credential.

R4-45-213 for temporary licenses is being repealed because its statutory authority has been repealed and the Board no longer issues them. References to temporary licenses in the rules have been repealed throughout the rules.

The Board sent a copy of the rules to the Arizona Society of Respiratory Care and the American Association of Respiratory Care and posted the rules on the Board's website to solicit comments on the rules and the rules' economic impact. The Board did not receive any comments from these solicitations.

The Board is submitting this rulemaking to the Secretary of state's office in accordance with the exemption authorization under item (2)(b) of Executive Order 2015-01, State Regulatory Rulemaking Moratorium. The rulemaking exemption was approved by the Governor's office on February 13, 2015 and May 22, 2015.

7. A reference to any study relevant to the rules that the agency reviewed and proposes either to rely on or not to rely on in its evaluation of or justification for the rules, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

The Board did not review or rely on any study.

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

None

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

Annual cost/revenue changes are designated as minimal when less than $1,000, moderate when between $1,000 and $5,000, and substantial when greater than $5,000.

The changes to the rules may affect the Board, an applicant, a licensee, schools that provide a respiratory care program, health care institutions, and consumers.

The Board has determined that the RRT credential will be required for licensure as a respiratory care therapist in Arizona. Thus, the Board is changing the credential it requires of a respiratory care therapist from the CRT to the RRT. The Registry Examination system was developed to objectively measure knowledge, skills, and abilities required of advanced respiratory therapists and to set uniform standards for measuring such knowledge. Many health care institutions expect services at the RRT level, but there are no costs to them. The Board is eliminating all references to temporary licenses throughout the rules. One of these rules is R4-45-102 for Fees. The Board is not increasing or decreasing any of its fees, but is removing the reference to temporary license. The Board is not increasing costs for an application or application renewal, so all fees for applicants remain the same. Costs should not increase to schools because schools have already updated their curriculum in the accreditation process. Respiratory therapists who apply for license before January 1, 2017 may be “grandfathered” into licensing, which allows the respiratory therapist to continue to practice without earning the RRT credential. The Board should experience moderate costs for writing the rules and economic impact statement.

The Board currently licenses about 4,100 individuals. Costs should not increase to a licensee due to amendment or repeal of the rules.

Consumers benefit from rules that require respiratory therapists to qualify at a higher level. Consumers should not experience increased costs. The Board, applicants, licensees, and consumers should benefit from rules that are clearly and consistently written.

10. A description of any changes between the proposed rulemaking, to include supplemental notices, and the final rulemaking:

There are no substantial changes between the proposed rules and final rules. There are minor changes to style, format, grammar, and punctuation requested by GRRC staff.

11. An agency's summary of the public stakeholder comments made about the rulemaking and the agency response

The Board received the following comments regarding the rules:

Comment: Experienced therapists are and will be forced out of the field.

Response: The grandfather provision of these rules allows experienced RCP's to continue practicing while holding a CRT credential. The Board does not have jurisdiction over the employment practices of health care institutions that may require a RRT credential as a term of employment.

Comment: There is no difference between a CRT and RRT. Eventually the CRT will go away.

Response: The NBRC determines the difference in testing to obtain these credentials. The Board has determined that beginning January 1, 2017, any new applicant will be required to obtain the RRT credential as its minimum level of competency. Eventually, as RCPs retire from the industry, the number of CRTs will diminish and eventually disappear.

Comment: I am against a third party credential, a college degree should be all that is required for licensure.

Response: The Board disagrees and has established the minimum level of competency to obtain a license to practice the respiratory care profession in this state beginning January 1, 2017 is at the RRT examination and credential level.

Comment: Under the proposed rules, a "grandfathered" CRT who was unable to maintain his/her credential with the NBRC would subsequently loose his/her license and livelihood.

Response: This is not true for CRTs or RRTs; the Board only requires the credential as its current and future minimum level of competency. The Board does not require continued maintenance of that credential issued by the NBRC.

Comment: Requiring the RRT credential as a condition of licensure would force individuals to become members and pay fees for organization, which they might not otherwise do.

Response: The Board is not forcing any current licensees that hold the CRT to obtain the RRT credential. The NBRC no longer provides a stand-alone CRFT examination, so the fiscal impact to a new graduate or applicant is the same.

Comment: Let the market place take care of the market, no new law.

Response: The legislature has identified this industry as requiring regulation and oversight. The Board does not believe that regulation will change in the immediate future and does not concur with this response.

Comment: The rules are an attempt to interfere with the legal practice of respiratory therapy by credentialed respiratory practitioners.

Response: The Board will continue to protect the public's health, safety, and welfare by licensing only those individuals that meet the licensing requirements. The Board is providing a grandfather provision that will allow CRTs to continue practicing.

12. All agencies shall list other matters prescribed by statute applicable to the specific agency or to any specific rule or class of rules. Additionally, an agency subject to Council review under A.R.S. §§ 41-1052 and 41-1055 shall respond to the following questions:

a. Whether the rule requires a permit, whether a general permit is used and if not, the reasons why a general permit is not used:

The rules comply with A.R.S. 41-1037 because they are issued to qualified individuals or entities to conduct activities that are substantially similar in nature.

b. Whether a federal law is applicable to the subject of the rule, whether the rule is more stringent than federal law and if so, citation to the statutory authority to exceed the requirements of federal law:

Federal law is not applicable to the subject of the rules.

c. Whether a person submitted an analysis to the agency that compares the rule's impact of the competitiveness of business in this state to the impact on business in other states:

The Board did not receive such an analysis from any person.

13. A list of any incorporation by reference material as specified in A.R.S. § 41-1028 and its location in the rules:

None

14. Whether the rule was previously made, amended or repealed as an emergency rule. If so, cite the notice published in the Register as specified in R1-1-409(A). Also, the agency shall state where the text was changed between the emergency and the final rulemaking packages

The rules were not made as emergency rules.

15. The full text of the rules follows:

TITLE 4. PROFESSIONS AND OCCUPATIONS

CHAPTER 45. BOARD OF RESPIRATORY CARE EXAMINERS

ARTICLE 1. GENERAL PROVISIONS

Section	
R4-45-101	Definitions
R4-45-102	Fees
R4-45-105	Electronic Communication

ARTICLE 2. LICENSURE

R4-45-201	Application
R4-45-203	Examinations
R4-45-205	Application Based on Licensure By Another State
R4-45-213	~~Temporary Licensure~~ Repeal
R4-45-218	Reinstatement Following Revocation; Modification of Probation

ARTICLE 1. GENERAL PROVISIONS

R4-45-101. Definitions

In addition to the definitions in A.R.S. § 32-3501, in this Chapter, unless otherwise specified:

"Applicant" means an individual who meets the qualifications of A.R.S. § 32-3523 and applies for licensure under A.R.S. § 32-3522.

"Approved continuing education" means a planned course or program that the Board confirms meets the criteria in R4-45-210 or is approved by the American Association for Respiratory Care or the Arizona Society for Respiratory Care.

~~"Contested case" has the same meaning as prescribed in A.R.S. § 41-1001.~~

"Continuing education unit" or "CEU" means a segment of an approved continuing education.

"CRT examination" means the objective measure of essential knowledge, skills, and abilities required of an entry-level respiratory therapist, which is approved by the Board and administered by the NBRC.

"Day" means calendar day.

"Direct supervision" means that a licensed respiratory care practitioner, or physician licensed under A.R.S. Title 32, Chapters 13 or 17, is physically present at a work site and readily available to provide respiratory care to a patient ~~or observe and direct the practice of a temporary licensee~~**.**

"Executive Director" means the officer employed by the Board to perform administrative and investigative functions.

"Grandfathered" means to license a respiratory therapist who has a CRT credential and applies for licensure before January 1, 2017 without meeting the qualifications required by these rules.

~~"Individual," as used in A.R.S. § 32-3521(B)(4), means only those persons listed with current, valid certifications, registrations, or licenses acting within the scope of their authorized practice.~~

"License" means the document issued by the Board to practice respiratory care in Arizona.

"License application package" means a license application form and any documents required to be submitted with the license application form.

"Licensee" means an individual who holds a current license issued under A.R.S. Title 32, Ch. 35.

"National Board for Respiratory Care, Inc." or "NBRC" means the national credentialing board for respiratory therapy.

~~"Party" has the same meaning as prescribed in A.R.S. § 41-1001.~~

"Pharmacological, diagnostic, and therapeutic agents," as used in A.R.S. § 32-3501(5), means medications that are aerosolized and given through artificial airways or vascular access.

"RRT credential" means an award issued to a respiratory therapist by the NBRC who passes the RRT examination.

"RRT examination" means the objective measure of essential knowledge, skills, and abilities at a level that is higher than the CRT examination and that is required of a respiratory therapist and approved by the Board.

~~"Temporary license" means the document issued by the Board under A.R.S. § 32-3521 that allows an applicant to practice respiratory care under direct supervision before the Board issues the applicant a license.~~

"Verification by a licensed respiratory therapist," as used in A.R.S. § 32-3521(B)(7) and (C), means a licensee's written confirmation, before equipment is delivered, that the equipment is consistent with the patient's prescription and needs.

"Verification of license" means a form the Board provides to an applicant to submit for completion by a state to confirm that the applicant currently holds or previously held a license, certification, or registration from that state.

R4-45-102. Fees

A. No change

1. No change
2. No change
3. No change
4. No change
5. ~~Extension to a temporary license, $75;~~
6. ~~6.~~5. No change
7. ~~7.~~6. No change
   a. No change
   b. No change
8. ~~8.~~7. No change
9. ~~9.~~8. No change
   a. No change
   b. No change

~~10.~~9. No change

~~11.~~10. No change

B. No change

R4-45-105. Electronic Communication

A. No change

1. No change
2. No change
3. License renewal application, and

~~4. Request for an extension to a temporary license, and~~

~~5.~~4. No change

B. No change

C. No change

D. No change

ARTICLE 2. LICENSURE

R4-45-201. Application

A. In addition to meeting the qualifications listed in A.R.S. § 32-3523(A), an applicant for a license to practice as a respiratory care practitioner shall submit the following information on the Board's license application form:

1. ~~Applicant's~~ The applicant's full name and Social Security number;
2. ~~Applicant's~~ The applicant's current mailing, permanent and e-mail addresses;
3 ~~Current~~ The applicant's current employer's name, address, and telephone number;
4. ~~Current~~ The applicant's current employment position and beginning date of employment;
5. ~~Applicant's Current~~ The applicant's current supervisor's name and telephone number;
6. ~~Applicant's~~ The applicant's area of care or specialty;
7. ~~Applicant's~~ The applicant's birth date;
8. ~~Applicant's~~ The applicant's home and work telephone numbers;
9 No change
10. A statement of the facts entitling the applicant to take the ~~CRT~~ RRT examination, ~~or~~ to receive a license without examination under R4-45-206;

11. ~~Name~~ The name of any state or province in which the applicant has been granted a certification, registration, or license as a respiratory care practitioner; including the number, date issued, expiration date, and a statement whether that certificate, registration, or license has ever been the subject of discipline, censure, probation, practice restriction, suspension, revocation, or cancellation;

12. No change

13. No change

14. No change

15. No change

16. No change

17. No change

18. No change

19. ~~Applicant's~~ The applicant's physical description, including height, weight, and eye and hair color;

20. ~~Highest~~ The highest level of education completed by the applicant;

21. Evidence of the applicant's U.S. citizenship, alien status, legal residency, or lawful presence in the U.S.;

22. No change

23. No change

24. ~~Applicant's~~ The applicant's certification that the information provided is true and complete and that the applicant has not engaged in any act prohibited by Arizona law or this Chapter.

B. An applicant shall submit or have submitted on the applicant's behalf the following with the license application form:

1. If NBRC-~~certified or~~ registered, a copy of the applicant's:

   a. NBRC-issued ~~certification or~~ registration; ~~or~~

   b. ~~CRT~~ RRT examination results; or

   c. If grandfathered, CRT examination results.

2. No change

3. No change

4. No change

5. No change

6. No change

~~C. The Board shall issue a temporary license to an applicant who is qualified under R4-45-213.~~

~~D.~~C. No change

~~E.~~D. No change

1. No change

2. No change

3. No change

R4-45-203. Examinations

A. Except when a license may be issued without an examination under A.R.S. § 32-3524 or grandfathered, an applicant shall pass the ~~CRT~~ RRT examination. The passing score is the scaled score set by the NBRC.

B. An applicant shall inform the Board as soon as possible by one of the following methods that the applicant passed the ~~CRT~~ RRT examination:

1. No change

2. No change

R4-45-205. Application Based on Licensure by Another State

If an application for a license is based on licensure by another state, the applicant shall cause the state that issued the license to deliver to the Board:

1. No change

2. No change

3. Either a copy of the results of the ~~CRT~~ RRT examination or a copy of another examination administered to the applicant, the results of the other examination, and any information necessary to enable the Board to determine whether the other examination is equivalent to the ~~CRT~~ RRT examination.

R4-45-213. ~~Temporary Licensure~~ Repeal

~~A. To be considered for a temporary license, an applicant shall submit a license application package, as described in R4-45-201, and pay the application fee. The Board shall issue a temporary license, valid for eight months, to the applicant only if the Board's Executive Director determines, after reviewing the license application package, that the applicant~~

~~has never held a temporary license and is eligible to receive a license except that one or more of the following documents are missing from the license application package:~~

~~1. Passing score on the CRT examination,~~

~~2. Verification of license from another state in which the applicant is or was licensed,~~

~~3. Certified copy of course transcripts and descriptive information regarding the applicant's course of study at a foreign respiratory therapy school, or~~

~~4. Completed federal and state criminal background check.~~

~~B. An applicant who is issued a temporary license shall:~~

~~1. Perform respiratory care services only under direct supervision,~~

~~2. Not supervise a licensee or another temporary licensee, and~~

~~3. Work as an instructor or in a management position only if issued the temporary license under A.R.S. § 32-3524.~~

~~C. A temporary licensee who applied for licensure under A.R.S. § 32-3524 may extend the temporary license for an additional 120 days by submitting a request for an extension to the Board on a form prescribed by the Board.~~

~~D. A temporary licensee who is required by A.R.S. § 32-3523 and R4-15-201 to pass the CRT examination before becoming licensed may extend the temporary license for an additional 120 days by submitting to the Board:~~

~~1. A request for an extension to a temporary license form, and~~

~~2. Evidence that the temporary licensee has either:~~

~~a. Passed the CRT examination , or~~

~~b. Attempted to pass the CRT examination and is registered to take the next scheduled CRT examination.~~

~~E. A temporary licensee shall ensure that a request for an extension to a temporary license:~~

~~1. Includes an address of record,~~

~~2. Is typed or written in black ink,~~

~~3. Is signed by the applicant,~~

~~4. Is accompanied by the following:~~

~~a. The fee prescribed in R4-45-102(A)(5), and~~

~~b. An affirmation that the temporary license has not expired.~~

~~F. A temporary licensee who is required but unable to submit the evidence under subsection (D)(2) may request an opportunity to explain this inability to the Board.~~

~~G. If the Board has not acted on an applicant's application for licensure, the Board shall administratively close an application for licensure if the applicant fails to apply for extension to the applicant's temporary license. The temporary licensee shall apply for extension no more than 60 days before expiration of the temporary license. An individual who wishes to be considered for licensure after the individual's file is administratively closed shall reapply.~~

~~H. Reapplication under subsection (G) does not qualify an individual for a second temporary license. The Board shall not issue more than one temporary license to an individual.~~

~~I. A temporary licensee is subject to disciplinary action by the Board under A.R.S. § 32-3553.~~

R4-45-218. Reinstatement Following Revocation; Modification of Probation

A. No change

B. If a former licensee wishes to have a revoked license reinstated after the time stated in subsection (A), the former licensee shall meet the qualifications in A.R.S. § 32-3523(A) and comply with R4-45-201. ~~The Board shall not issue a temporary license to a former licensee who applies for reinstatement.~~

C. No change

1. No change

a. No change

b. No change

c. No change

d. No change

e. No change

f. No change

g. No change

2. No change

D. No change

ECONOMIC, SMALL BUSINESS, AND CONSUMER IMPACT STATEMENT

TITLE 4. PROFESSIONS AND OCCUPATIONS

CHAPTER 45. ARIZONA BOARD OF RESPIRATORY CARE EXAMINERS

Identification of the rulemaking:

The Board is amending and repealing some of its rules in Articles 1 and 2 to make them conform to current changes in Board policy. The Board has determined that the Registered Respiratory Therapist (RRT) credential will be required for licensure as a respiratory therapist in Arizona instead of the Certified Respiratory Therapist (CRT) credential. The Commission on Accreditation for Respiratory Care has adopted new accreditation standards for respiratory care therapists that set the standard of minimum level of competency by examination pursuant to A.R.S. § 32-3504(D). The RRT examination is a higher level of practice than the CRT and contains clinical questions. The CRT does not contain clinical questions and is a lower level of practice. The rules will allow respiratory therapists who have a CRT credential to apply for licensure by January 1, 2017 to be "grandfathered", which allows the respiratory therapists to continue to practice or obtain a license without earning the RRT credential.

a. The conduct and its frequency of occurrence that the rules are designed to change:

The Board is amending the rules to require the RRT credential instead of the CRT credential. If the rules are not changed there will be confusion about what examination is approved by the Board. Additionally, the Board is removing references to temporary licenses because their statutory authority was revoked in 2015.

b. The harm resulting from the conduct the rules are designed to change and the likelihood it will continue to occur if the rules are not changed:

The Board has determined that the RRT credential will be required for licensure as a respiratory care therapist in Arizona. Thus, the Board is changing the credential it requires of a respiratory care therapist from the CRT to the RRT. The Registry Examination system was developed to objectively measure knowledge, skills, and abilities required of advanced respiratory therapists and to set uniform standards for measuring such knowledge. Many health care institutions expect services at the RRT level, but there are no costs to them. The Board is eliminating all references to temporary

licenses throughout the rules because statutory authority for them was removed from the Board's statutes.

c. The estimated change in frequency of the targeted conduct expected from the rule change:

The Board expects that the proposed rules will be followed at all times

2. **A brief summary of the information included in the economic, small business, and consumer impact statement:**

Annual cost/revenue changes are designated as minimal when less than $1,000, moderate when between $1,000 and $5,000, and substantial when greater than $5,000.

The changes to the rules may affect the Board, an applicant, a licensee, schools that provide a respiratory care program, health care institutions, and consumers.

The Board has determined that the RRT credential will be required for licensure as a respiratory care therapist in Arizona. Thus, the Board is changing the credential it requires of a respiratory care therapist from the CRT to the RRT. The Registry Examination system was developed to objectively measure knowledge, skills, and abilities required of advanced respiratory therapists and to set uniform standards for measuring such knowledge. Many health care institutions expect services at the RRT level, but there are no costs to them. The Board is eliminating all references to temporary licenses throughout the rules. One of these rules is R4-45-102 for Fees. The Board is not increasing or decreasing any of its fees, bur is removing the reference to temporary license. The Board is not increasing costs for an application or application renewal, so all fees for applicants remain the same. Costs should not increase to schools because schools have already updated their curriculum in the accreditation process. Respiratory therapists with a CRT who apply before January 1, 2017 may be "grandfathered". This allows the respiratory therapist to continue to practice without earning the RRT credential. The Board should experience moderate costs for writing the rules and economic impact statement.

The Board currently licenses about 4,100 individuals. Costs should not increase to a licensee due to amendment or repeal of the rules.

Consumers benefit from rules that require respiratory therapists to qualify at a higher level. Consumers should not experience increased costs. The Board, applicants, licensees, and consumers should benefit from rules that are clearly and consistently written.

3. **The person to contact to submit or request additional data on the information included in the economic, small business, and consumer impact statement:**

Name: Jack Confer, Executive Director

Address: 1400 West Washington, Suite 200

Telephone: (602) 542-5990

Fax: (602) 542-5900

Website: www.respiratorycare.az.gov

4. **Persons who will be directly affected by, bear the costs of, or directly benefit from the rulemaking:**

Costbearers

The Board, applicants, and licensees, bear minimal costs of the rules.

Beneficiaries

The rules contain clear and concise standards that benefit the Board, applicants, licensees, schools, hospitals and other health care institutions, and consumers of respiratory care services.

5. **Cost-benefit analysis:**

When used in the economic impact statement, annual cost/revenue are designated as minimal when less than $1,000, moderate when between $1,000 and $5,000, and substantial when greater than $5,000.

a. Costs and benefits to state agencies directly affected by the rulemaking:

The Board will bear moderate costs to write the rules and economic impact statement and enforce the rules' requirements.

The number of new full-time employees at the implementing agency required to implement and enforce the proposed rule:

The Board does not anticipate adding any new full-time employees to implement and enforce the rules.

b. Costs and benefits to political subdivisions directly affected by the rulemaking:

None

c. Costs and benefits to businesses directly affected by the rulemaking:

In August 2015 the Board voted to eliminate temporary licenses and to require the RRT examination. Most hospitals currently require the RRT credential.

Costs should not increase to schools because schools already have a curriculum for RRT that they teach. Schools could see increases in their revenues as a result of offering and teaching the program.

d. Costs and benefits to individuals affected by the rulemaking:

Clear, concise, and understandable standards benefit applicants, licensees, public, schools, and consumers of respiratory care services. Because the RRT standard is a higher standard than the CRT, licensees will be more qualified, which will benefit all consumers.

6. Impact on private and public employment:

The rules should have minimal costs to private and public employment.

7. Impact on small businesses:

a. Identification of the small business subject to the rulemaking:

A small business is one that employs less than 100 persons. The impact on small businesses should be the same as the impact on businesses as stated in 5(c).

b. Administrative and other costs required for compliance with the rulemaking:

None of the rules should increase administrative costs.

c. Description of methods that may be used to reduce the impact on small businesses:

i. Establish less costly or less stringent compliance or reporting requirements: The Board believes the rules contain the least stringent compliance or reporting requirements.

ii. Establish less costly schedules or less stringent compliance or reporting requirements: Because the overall cost to comply with the rules is minimal, there are no less costly schedules or less stringent compliance or reporting requirements.

iii. Exempt small business from any or all requirements:

The statutes do not exempt small business from its requirements.

8. Cost and benefit to private persons and consumers who are directly affected by the rulemaking:

Consumers should not experience increased costs, but should benefit from rules that require respiratory therapists to qualify at a higher level. The Board, applicants, licensees, and consumers should benefit from rules that are clearly and consistently written.

9. Probable effects on state revenues:

There should be no effects on state revenues

10. Less intrusive or less costly alternative methods considered:

When writing the rules, the Board chose the least intrusive and least costly alternatives to meet its statutory requirements. Most of the rules have been amended for clarity, conciseness and understandability and to comply with current statutory requirements.

TITLE 4. PROFESSIONS AND OCCUPATIONS

CHAPTER 45. BOARD OF RESPIRATORY CARE EXAMINERS

(Authority A.R.S. § 32-3504 et seq.)

ARTICLE 1. GENERAL PROVISIONS

Article 1, consisting of Sections R4-45-101 through R4-45-104, amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

Article 1, consisting of Sections R4-45-101 through R4-45-104, adopted effective September 12, 1996 (Supp. 96-3).

Section
R4-45-101. Definitions
R4-45-102. Fees
R4-45-103. Service by the Board
R4-45-104. Change of Name or Address
R4-45-105. Electronic Communication

ARTICLE 2. LICENSURE

Article 2, consisting of Sections R4-45-201 through R4-45-214, adopted effective September 12, 1996 (Supp. 96-3).

Section
R4-45-201. Application
R4-45-202. Approved Respiratory Therapy Training Programs
R4-45-203. Examinations
R4-45-204. Application by a Foreign-trained Applicant
R4-45-205. Application Based on Licensure by Another State
R4-45-206. Licensure Based on Organizational Registration or Certification
R4-45-207. Renewal
R4-45-208. Continuing Education Requirement
R4-45-209. Approved Continuing Education
R4-45-210. Criteria for Approved Continuing Education
R4-45-211. Audit of Compliance and Sanction for Noncompliance with Continuing Education Requirement
R4-45-212. Waiver of Requirements
R4-45-213. Temporary Licensure
R4-45-214. Standards of Professional Conduct
R4-45-215. Procedures for Processing Initial License Applications; Time-frames
R4-45-216. Procedures for Processing License Renewal or Reinstatement Applications; Time-frames
R4-45-217. Appeal from Denial
R4-45-218. Reinstatement Following Revocation; Modification of Probation

ARTICLE 3. HEARINGS

Article 2, consisting of Sections R4-45-301 and R4-45-302, adopted effective September 12, 1996 (Supp. 96-3).

Section
R4-45-301. Hearing Procedures
R4-45-302. Rehearing or Review of Decision

ARTICLE 1. GENERAL PROVISIONS

R4-45-101. Definitions

In addition to the definitions in A.R.S. § 32-3501, in this Chapter, unless otherwise specified:

"Applicant" means an individual who meets the qualifications of A.R.S. § 32-3523 and applies for licensure under A.R.S. § 32-3522.

"Approved continuing education" means a planned course or program that the Board confirms meets the criteria in R4-45-210 or is approved by the American Association for Respiratory Care or the Arizona Society for Respiratory Care.

"Contested case" has the same meaning as prescribed in A.R.S. § 41-1001.

"Continuing education unit" or "CEU" means a segment of an approved continuing education.

"CRT examination" means the objective measure of essential knowledge, skills, and abilities required of an entry-level respiratory therapist, which is approved by the Board and administered by the NBRC.

"Day" means calendar day.

"Direct supervision" means that a licensed respiratory care practitioner, or physician licensed under A.R.S. Title 32, Chapters 13 or 17, is physically present at a work site and readily available to provide respiratory care to a patient or observe and direct the practice of a temporary licensee.

"Executive Director" means the officer employed by the Board to perform administrative and investigative functions.

"Individual," as used in A.R.S. § 32-3521(B)(4), means only those persons listed with current, valid certifications, registrations, or licenses acting within the scope of their authorized practice.

"License" means the document issued by the Board to practice respiratory care in Arizona.

"License application package" means a license application form and any documents required to be submitted with the license application form.

"Licensee" means an individual who holds a current license issued under A.R.S. Title 32, Ch. 35.

"National Board for Respiratory Care, Inc." or "NBRC" means the national credentialing board for respiratory therapy.

"Party" has the same meaning as prescribed in A.R.S. § 41-1001.

"Pharmacological, diagnostic, and therapeutic agents," as used in A.R.S. § 32-3501(5), means medications that are aerosolized and given through artificial airways or vascular access.

"Temporary license" means the document issued by the Board under A.R.S. § 32-3521 that allows an applicant to practice respiratory care under direct supervision before the Board issues the applicant a license.

"Verification by a licensed respiratory therapist," as used in A.R.S. § 32-3521(B)(7) and (C), means a licensee's written confirmation, before equipment is delivered, that the equipment is consistent with the patient's prescription and needs.

"Verification of license" means a form the Board provides to an applicant to submit for completion by a state to confirm that the applicant currently holds or previously held a license, certification, or registration from that state.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3).
Amended by final rulemaking at 5 A.A.R. 1110, effective

March 22, 1999 (Supp. 99-1). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-102. Fees

A. Under the authority provided by A.R.S. § 32-3526 or other specified statutes, the Board establishes and shall collect the following fees:
1. Application for a license, $100;
2. Application based on a diploma from a foreign respiratory therapy school, $200;
3. Initial license, $120;
4. Biennial renewal of a license, $120;
5. Extension to a temporary license, $75;
6. Verifying an Arizona license to another state:
   a. Current valid license, $25;
   b. Expired license, $50;
7. Duplicate license or duplicate wallet license card, $25;
8. Copy of the Board's Respiratory Care Practitioner Register compiled under A.R.S. § 32-3504(A)(7):
   a. Noncommercial, $25;
   b. Commercial, $25 or the amount allowed under A.R.S. § 39-121.03(A), whichever is greater;
9. Insufficient funds check submitted to the Board as payment of any fee, $25;
10. Fingerprint fee, authorized by A.R.S. § 41-1750(L), remitted by credit card, certified check, or money order, $50; and
11. Copy of the audiotape of a hearing under A.R.S. § 41-1092.07(E), $25.

B. With the exception of the fingerprint fee specified in subsection (A)(10), all fees shall be remitted to the Board of Respiratory Examiners by personal check, credit card, certified check, or money order. All fees remitted to the Board are nonrefundable, except as provided in A.R.S. § 41-1077.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 5 A.A.R. 1110, effective March 22, 1999 (Supp. 99-1). Amended by final rulemaking at 6 A.A.R. 1575, effective April 4, 2000 (Supp. 00-2). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1). Amended by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1).

R4-45-103. Service by the Board

Service of any decision, order, subpoena, notice, or other written process may be made by, for, or on behalf of the Board by personal service or by mailing a copy by certified mail. The Board shall make service by certified mail to the address of record on file with the Board. Service upon an attorney who has appeared on behalf of a party constitutes service upon the party. If service is by certified mail, service is complete upon deposit in the United States mail.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-104. Change of Name or Address

A. A licensee shall notify the Board in writing within 30 days after the licensee's name is legally changed. The licensee shall include with the notice a notarized or certified copy of the official document evidencing the name change. At the time of notification, the licensee shall request a duplicate license in the new name and pay the fee prescribed in R4-45-102(A)(7).

B. A licensee shall notify the Board in writing within 10 days after a change in the licensee's address of record.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-105. Electronic Communication

A. To facilitate communication between the Board and an applicant, licensee, or continuing education provider, the Board shall make the following forms available on its web site:
1. Application for licensure,
2. Verification of licensure,
3. License renewal application,
4. Request for an extension to a temporary license, and
5. Notice of change of address.

B. After completing a form that is available on the Board's web site, an applicant or licensee shall submit the form to the Board electronically or by mail or personal delivery.

C. An applicant or licensee that submits a form to the Board electronically shall use mail or personal delivery to submit or have submitted on behalf of the applicant other documents required under this Chapter.

D. An applicant or licensee that does not have access to the Board's web site may request from the Board a printed copy of any form listed in subsection (A).

Historical Note

New Section made by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1).

ARTICLE 2. LICENSURE

R4-45-201. Application

A. In addition to meeting the qualifications listed in A.R.S. § 32-3523(A), an applicant for a license to practice as a respiratory care practitioner shall submit the following information on the Board's license application form:
1. Applicant's full name and Social Security number;
2. Applicant's current mailing, permanent, and e-mail addresses;
3. Current employer's name, address, and telephone number;
4. Current employment position and beginning date of employment;
5. Current supervisor's name and telephone number;
6. Applicant's area of care or specialty;
7. Applicant's birth date;
8. Applicant's home and work telephone numbers;
9. Any name by which the applicant has ever been known. The applicant shall submit documentation of name change if the applicant is applying for licensure under a name different from that on the applicant's credentials, educational degree, or diploma;
10. A statement of the facts entitling the applicant to take the CRT examination or to receive a license without examination under R4-45-206;
11. Name of any state or province in which the applicant has been granted a certification, registration, or license as a respiratory care practitioner; including certificate number, date issued, expiration date, and a statement whether that certificate, registration, or license has ever been the subject of discipline, censure, probation, practice restriction, suspension, revocation, or cancellation;
12. A statement whether the applicant has ever been denied a professional license or certificate or the privilege of taking an examination by a governing licensing authority

and, if the answer is yes, a complete explanation of the denial including date, state or province, and a copy of any order issued;

13. A statement whether the applicant is the subject of any pending disciplinary action that is directly or indirectly related to the practice of respiratory therapy and, if the answer is yes, a complete explanation, including date, state or province, and a copy of any order issued;
14. A statement whether the applicant has ever voluntarily surrendered a professional license and, if the answer is yes, a complete explanation, including dates, state or province, and a copy of any order issued;
15. A statement whether the applicant has ever filed an application for a respiratory care practitioner license in Arizona and, if the answer is yes, the date;
16. A statement whether the applicant has been enrolled in or committed to a substance-abuse or alcohol-treatment program in the past 10 years and, if the answer is yes, a complete explanation, including date, place, and a copy of any documentation of completion of the program;
17. Except for a minor traffic violation, a statement whether the applicant has ever been convicted of, pled no contest (nolo contendere) to, entered into any agreement concerning an arrest or charge (even if the agreement resulted in a dismissal or expungement of record), or has an outstanding arrest or charge for any violation of any law of any state of the United States, or a foreign country and, if the answer is yes, a complete explanation, including place, date, and a copy of any pertinent documentation such as a court order or plea agreement;
18. A statement whether the applicant has had an intemperance to drugs or alcohol within the last 10 years and, if the answer is yes, a complete explanation;
19. Applicant's physical description, including height, weight, and eye and hair color;
20. Highest level of education completed by the applicant;
21. Evidence of the applicant's U.S. citizenship, alien status, legal residency, or lawful presence in the U.S.;
22. Consistent with the Board's authority under A.R.S. § 32-3522(B)(4), other information or documentation the Board determines is necessary to evaluate the applicant fully;
23. A record or documentation release; and
24. Applicant's certification that the information provided is true and complete and that the applicant has not engaged in any act prohibited by Arizona law or this Chapter.

B. An applicant shall submit or have submitted on the applicant's behalf the following with the license application form:

1. If NBRC-certified or registered, a copy of the applicant's:
   a. NBRC-issued certification or registration; or
   b. CRT examination results;
2. If not NBRC-certified or registered, a copy of the applicant's diploma awarded upon successful completion of an approved respiratory therapy training program or letter of completion from the registrar of an approved respiratory therapy training program that provides the date of the applicant's successful completion;
3. If ever licensed as a respiratory care practitioner in another state, the information specified in R4-45-205;
4. If foreign-trained, the information specified in R4-45-204;
5. The fee required under R4-45-102(A)(1); and
6. A full set of fingerprints submitted on a card provided by the Board for a state and federal criminal background check along with the fee prescribed at R4-45-102(A)(10).

C. The Board shall issue a temporary license to an applicant who is qualified under R4-45-213.

D. An applicant shall inform the Board in writing of a change in the applicant's address or other contact information within 10 days from the date of the change.

E. An applicant shall inform the Board immediately, by fax or e-mail, of the following:

1. A change in any non-contact information provided on the license application,
2. A change in the applicant's employment status and the reason for the change, or
3. Other information that a reasonable person would believe is relevant to the Board's decision to grant or deny a license to the applicant.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 5 A.A.R. 1110, effective March 22, 1999 (Supp. 99-1). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1). Amended by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1).

R4-45-202. Approved Respiratory Therapy Training Programs

The Board shall approve any respiratory therapy training program that is accredited by the Committee on Accreditation for Respiratory Care.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-203. Examinations

A. Except when a license may be issued without an examination under A.R.S. § 32-3524, an applicant shall pass the CRT examination. The passing score is the scaled score set by the NBRC.

B. An applicant shall inform the Board as soon as possible by one of the following methods that the applicant passed the CRT examination:

1. Forward to the Board a copy of either the examination results or certificate, or
2. Direct the NBRC to forward to the Board a copy of either the examination results or certificate.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-204. Application by a Foreign-trained Applicant

An applicant who has a diploma from a respiratory therapy school located outside the United States shall:

1. Cause the school from which the diploma was issued to deliver to the Board a certified copy of course transcripts and other information concerning the applicant's course of study sufficient to enable the Board to determine whether the course of study is equivalent to a training program approved under R4-45-202, and
2. Submit a photocopy of the applicant's diploma from the foreign respiratory therapy school.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1). Amended by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1).

R4-45-205. Application Based on Licensure by Another State
If an application for a license is based on licensure by another state, the applicant shall cause the state that issued the license to deliver to the Board:
1. A certified copy of the license;
2. A verification of license, completed, signed, and authenticated by seal or notarization by the Board of the state issuing the license; and
3. Either a copy of the results of the CRT examination or a copy of another examination administered to the applicant, the results of the other examination, and any information necessary to enable the Board to determine whether the other examination is equivalent to the CRT examination.

Historical Note
Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1). Amended by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1).

R4-45-206. Licensure Based on Organizational Registration or Certification
The Board shall issue a license to an applicant without examination if the applicant:
1. Is qualified under A.R.S. § 32-3523,
2. Files an application for licensure under R4-45-201, and
3. Is registered or certified as a respiratory therapist by the NBRC.

Historical Note
Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-207. Renewal
A. A respiratory care practitioner's first license expires on the licensee's second birthday following issuance of the license. Thereafter, a respiratory care practitioner's license expires every other year on the licensee's birthday.
B. To apply for renewal of a license, a licensee shall:
1. Complete a license renewal application form and provide the following information:
   a. Applicant's full name;
   b. Applicant's Arizona license number;
   c. Applicant's mailing, permanent, and e-mail addresses and telephone number;
   d. Applicant's highest educational degree;
   e. Applicant's employment status;
   f. Applicant's principal field of employment;
   g. Current employer's name and address;
   h. Current supervisor's name and telephone number;
   i. Applicant's physical description, including height, weight, and eye and hair color;
   j. A statement whether, since the time of last application, the applicant:
      i. Has been arrested for, has pled guilty or no contest to, or has been convicted of a felony, misdemeanor, or undesignated offense, and if the answer is yes, a complete explanation, including place, date, charge, and a copy of any pertinent documentation such as a court order or plea agreement;
      ii. Has been arrested for a traffic violation that resulted in a fine greater than $150, and if the answer is yes, a complete explanation, including date, offense, and a copy of any pertinent documentation such as a court order;
      iii. Has been named in a civil or malpractice lawsuit relating to the applicant's employment as a respiratory care practitioner, and if the answer is yes, a complete explanation;
      iv. Has been or is subject to any disciplinary action, consent order, or settlement regarding the applicant's license in any jurisdiction, and if the answer is yes, a complete explanation;
      v. Has abused illegal substances, prescription drugs, or alcohol or been enrolled or committed to a substance-abuse or alcohol-treatment program, and if the answer is yes, a complete explanation, including date, place, and copy of any documentation of program completion; and
      vi. Has been disciplined, suspended, or terminated from employment as a respiratory care practitioner, and if the answer is yes, a complete explanation;
   k. A statement of whether the applicant is in compliance with all federal and state law regarding storage, transfer, and access to medical records;
   l. Evidence of the applicant's U.S. citizenship, alien status, legal residency, or lawful presence in the U.S.; and
   m. The applicant's certification that the information provided is true and complete;
2. Pay the renewal fee prescribed in R4-45-102(A)(4); and
3. Complete the required continuing education units.

C. The Board shall notify a licensee of:
1. Need to renew the licensee's license,
2. Expiration of the licensee's license, and
3. Audit of the licensee's continuing education records.

D. If a license expires because it is not renewed timely, the former licensee may apply for late renewal within two years from the date of expiration. To apply for late renewal, the former licensee shall comply with subsection (B).
E. If a former licensee does not apply for late renewal under subsection (D), the former licensee may obtain a new license only by applying as a new applicant.
F. Misrepresentation of information on the license renewal application form or of compliance with the continuing education requirement in R4-45-208 constitutes grounds for disciplinary action.

Historical Note
Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1). Amended by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1).

R4-45-208. Continuing Education Requirement
Continuing education is required as a condition of licensure renewal.
1. A respiratory care practitioner shall acquire 20 CEUs during every two-year licensure period. To renew a license, a respiratory care practitioner shall report compliance with the continuing education requirement. A respiratory care practitioner shall submit documentation showing evidence of compliance only if requested by the Board.
2. During the first licensure period, a licensee shall use the licensure issuance date as the beginning of the period in which the licensee is required to acquire CEUs. A licensee shall acquire 20 hours of CEUs before expiration of the first licensure period. Subsequent continuing education periods coincide with subsequent licensure periods.

Historical Note
Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-209. Approved Continuing Education

A. The Board shall accept for CEUs a continuing education approved by the American Association for Respiratory Care or the Arizona Society for Respiratory Care.

B. The provider of or an individual who takes a continuing education that is not approved by the American Association for Respiratory Care or the Arizona Society for Respiratory Care may apply to the Board for approval under R4-45-210.

Historical Note
Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-210. Criteria for Approved Continuing Education

A. The Board shall approve for CEUs a continuing education that meets the following criteria:
1. The content of the continuing education is relevant to the scope of practice of respiratory care as defined in A.R.S. § 32-3501(5),
2. At least 2/3 of the continuing education hours relate to clinical practice,
3. The non-clinical continuing education hours cover:
   a. Activities relevant to specialized aspects of respiratory care, such as education, supervision, and management;
   b. Health care cost containment or cost management;
   c. Preventative health services and health promotion;
   d. Required abuse reporting; or
   e. Other subject matter required by statute or rule to be included in continuing education for a licensed health professional, and
4. The faculty who provide the continuing education are knowledgeable in the continuing education subject matter as evidenced by:
   a. A degree from an accredited college or university and verifiable experience in the subject matter, or
   b. Teaching and clinical experience in the same or similar subject matter.

B. A continuing education provider that wishes to grant CEUs shall apply to the Board using an application, which is available from the Board, and provide the following information:
1. List of educational objectives;
2. Description of the teaching methods, for example: lecture, seminar, audio-visual materials, or simulation;
3. Description of the manner in which participants will be involved in the learning activities; and
4. Names and qualifications of all faculty.

C. A continuing education provider shall maintain a record of who attended each continuing education for three years.

D. A continuing education provider shall provide documentation of attendance to each participant that includes:
1. The participant's name,
2. The participant's respiratory care practitioner license number,
3. Title of the continuing education,
4. Number of CEUs earned,
5. Date or dates of attendance, and
6. Name and address of the continuing education provider.

Historical Note
Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1). Amended by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1).

R4-45-211. Audit of Compliance and Sanction for Noncompliance with Continuing Education Requirement

The Board shall provide notice of an audit of continuing education records to a random sample of licensees. A licensee subject to a continuing education audit shall submit documentation that demonstrates compliance with the continuing education requirement within the time specified in the audit notice. If the licensee fails to submit documentation that demonstrates compliance with the continuing education requirement on or before the date specified in the audit notice, the Board shall provide written notice of intent to revoke the license issued to the licensee.

Historical Note
Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1). Amended by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1).

R4-45-212. Waiver of Requirements

A. When applying for renewal of a license, a licensee may request a waiver from completion of the continuing education requirement. The Board shall grant a waiver only if the licensee verifies in writing that during the period immediately before expiration of the license, the licensee:
1. Resided in a country outside the United States for at least one year, reasonably preventing completion of the continuing education requirement;
2. Was absent from Arizona for at least one year, reasonably preventing completion of the continuing education requirement; or
3. Was prevented from completing the continuing education requirement for reasons of health or other good cause including:
   a. Physical or mental disability of the licensee for at least one year, reasonably preventing completion of the continuing education requirement; or
   b. Physical or mental disability of a member of the licensee's family for at least one year and the licensee had responsibility for the family member's care, preventing completion of the continuing education requirement.

B. A licensee who claims a disability under subsection (A)(3) shall submit with the waiver request a written verification of the disability by a licensed physician.

Historical Note
Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-213. Temporary Licensure

A. To be considered for a temporary license, an applicant shall submit a license application package, as described in R4-45-201, and pay the application fee. The Board shall issue a temporary license, valid for eight months, to the applicant only if the Board's Executive Director determines, after reviewing the license application package, that the applicant has never held a temporary license and is eligible to receive a license except that one or more of the following documents are missing from the license application package:
1. Passing score on the CRT examination,
2. Verification of license from another state in which the applicant is or was licensed,

3. Certified copy of course transcripts and descriptive information regarding the applicant's course of study at a foreign respiratory therapy school, or
4. Completed federal and state criminal background check.

B. An applicant who is issued a temporary license shall:
1. Perform respiratory care services only under direct supervision,
2. Not supervise a licensee or another temporary licensee, and
3. Work as an instructor or in a management position only if issued the temporary license under A.R.S. § 32-3524.

C. A temporary licensee who applied for licensure under A.R.S. § 32-3524 may extend the temporary license for an additional 120 days by submitting a request for an extension to a temporary license form to the Board.

D. A temporary licensee who is required by A.R.S. § 32-3523 and R4-45-201 to pass the CRT examination before becoming licensed may extend the temporary license for an additional 120 days by submitting to the Board:
1. A request for an extension to a temporary license form, and
2. Evidence that the temporary licensee has either:
   a. Passed the CRT examination, or
   b. Attempted to pass the CRT examination and is registered to take the next scheduled CRT examination.

E. A temporary licensee shall ensure that a request for an extension to a temporary license:
1. Includes an address of record,
2. Is typed or written in black ink,
3. Is signed by the applicant, and
4. Is accompanied by the following:
   a. The fee prescribed in R4-45-102(A)(5), and
   b. An affirmation that the temporary license has not expired.

F. A temporary licensee who is required but unable to submit the evidence under subsection (D)(2) may request an opportunity to explain this inability to the Board.

G. If the Board has not acted on an applicant's application for licensure, the Board shall administratively close the application for licensure if the applicant fails to request an extension to the applicant's temporary license. The temporary licensee shall apply for extension no more than 60 days before expiration of the temporary license. An individual who wishes to be considered for licensure after the individual's file is administratively closed shall reapply.

H. Reapplication under subsection (G) does not qualify an individual for a second temporary license. The Board shall not issue more than one temporary license to an individual.

I. A temporary licensee is subject to disciplinary action by the Board under A.R.S. § 32-3553.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1). Amended by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1).

R4-45-214. Standards of Professional Conduct

Conduct or practice that is contrary to recognized standards of ethics of the respiratory therapy profession, as used in A.R.S. § 32-3501(10)(i), includes the following:
1. Engaging in the practice of respiratory care in a manner that harms or may harm a patient or that the Board determines falls below the community standard;
2. Procuring or attempting to procure by fraud or misrepresentation a license or renewal of a license to practice respiratory care;
3. Violating a formal order, condition of probation, or stipulation issued by the Board, another regulatory entity of any state, or a court of law;
4. Obtaining a fee by fraud, deceit, or misrepresentation;
5. Falsely claiming attendance at an approved continuing education to meet license renewal requirements;
6. Endangering a patient's or the public's physical or emotional health or safety or engaging in conduct or practice that may reasonably be expected to do so;
7. Engaging in sexual intimacies with a patient unless the sexual intimacies were initiated before the practitioner-patient relationship was established;
8. Committing an act of sexual abuse, misconduct, harassment, or exploitation;
9. Acting in a manner that the Board determines, based on community standards, constitutes incompetence, gross negligence, repeated negligence, or negligence that results in harm or death of a patient;
10. Abandoning or neglecting a patient, including leaving a respiratory therapy assignment before properly advising supervisory personnel;
11. Failing to report for scheduled duty without properly advising supervisory personnel;
12. Using or being under the influence of alcohol, illegal drugs or substances, or drugs or substances that impair judgment, while on duty in any health care work location;
13. Impersonating another licensed practitioner;
14. Knowingly employing, directing, or supervising an individual in the performance of respiratory care who is not authorized to practice respiratory care;
15. Violating the confidentiality of information concerning a patient;
16. Inaccurately recording, falsifying, or altering a patient record, including a patient chart or medication administration record;
17. Misrepresenting or omitting a fact on an application for employment as a respiratory care practitioner;
18. Retaliating against any person who reports in good faith to the Board alleged incompetence or illegal or unethical conduct of any practitioner;
19. Using, removing, or possessing property that belongs to an individual or entity without authorization;
20. Threatening the physical health or safety of a Board member or the Board's staff; and
21. Knowingly exceeding the scope of practice for a respiratory care practitioner at any health care location as the scope of practice is defined by the entity responsible for that health care location.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 5 A.A.R. 1110, effective March 22, 1999 (Supp. 99-1). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1). Amended by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1). Amended by final rulemaking at 14 A.A.R. 3430, effective October 4, 2008 (Supp. 08-3).

R4-45-215. Procedures for Processing Initial License Applications; Time-frames

A. For the purpose of A.R.S. § 41-1073, the Board establishes the following licensing time-frames for an initial license application:
1. Administrative completeness review time-frame: 15 days;
2. Substantive review time-frame: 90 days;

3. Overall time-frame: 105 days.

B. The administrative completeness review time-frame listed in subsection (A)(1) begins on the date the Board receives a license application package. During the administrative completeness review time-frame, the Board shall notify the applicant that the package is either complete or incomplete. If the package is incomplete, the notice shall specify what information is missing.

C. An initial license application package is not complete until the Board receives the results of the state and federal criminal background check required at A.R.S. § 32-3504(A)(6), and the applicant fully complies with the requirements of R4-45-201, the applicable provisions of R4-45-202 through R4-45-206, and submits the fee prescribed in R4-45-102(A)(3).

D. An applicant with an incomplete license application package shall supply the missing information within 210 days from the date of the notice. Both the administrative completeness review and overall time-frames are suspended from the date of the Board's notice until the date that the Board office receives all missing information.

E. Upon receipt of all missing information, the Board shall notify the applicant that the license application package is complete. The Board shall not send a separate notice of completeness if the Board grants or denies a license within the administrative completeness review time-frame in subsection (A)(1).

F. If an applicant fails to submit the missing information within the 210 days provided under subsection (D), the Board shall close the applicant's file. An applicant whose file is closed and who later wishes to be licensed, shall apply anew.

G. The substantive review time-frame listed in subsection (A)(2) begins on the date of the Board's notice of administrative completeness.

H. If the Board determines during the substantive review that additional information is needed, the Board shall send the applicant a comprehensive written request for the additional information. Both the substantive review and overall time-frames are suspended from the date on the Board's request until the date that the Board office receives the additional information.

I. Within the time listed in subsection (A)(3), the Board shall grant or deny a license.

J. If the Board denies a license, the Board shall send the applicant a written notice explaining:
1. The reason for denial, with citations to supporting statutes or rules;
2. The applicant's right to seek a fair hearing to challenge the denial; and
3. The time period for appealing the denial.

Historical Note

New Section adopted by final rulemaking at 5 A.A.R. 1110, effective March 22, 1999 (Supp. 99-1). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-216. Procedures for Processing License Renewal or Reinstatement Applications; Time-frames

A. For the purposes of A.R.S. § 41-1073, the Board establishes the following licensing time-frames for renewal or reinstatement of a license:
1. Administrative completeness review time-frame: 7 days;
2. Substantive review time-frame: 60 days;
3. Overall time-frame: 67 days.

B. The administrative completeness review time-frame listed in subsection (A)(1) begins on the date the Board receives a license renewal application package. Within seven days of receiving a license renewal application package, the Executive Director shall notify the applicant that the license renewal application package is complete or incomplete. If the license renewal application package is incomplete, the Board's notice shall specify the missing information.

C. A license renewal application package is not complete until the applicant fully complies with R4-45-207 and R4-45-208.

D. The Board shall not send a notice of completeness if the Board renews the license within the administrative completeness time-frame in subsection (A)(1).

E. The Board shall substantively review a license renewal application package and grant or deny the renewal within 60 days from the postmark date of the completion notice as follows:
1. For an applicant who submits a license renewal application package before the applicant's existing license expires:
   a. If the license renewal application package is complete, the Board shall renew the license; or
   b. If the license renewal application package is incomplete and the applicant supplies the missing information before the existing license expires, the Board shall renew the license;
2. For an applicant with an incomplete license renewal application package who supplies the missing information within seven days after the date the applicant's license expires, or an applicant who submits a complete license renewal application package within seven days after the date that the applicant's license expires, the Executive Director shall review the applicant's compliance with A.R.S. § 32-3556. The Board shall notify the applicant of the Board requirement for a signed statement regarding whether the applicant violated A.R.S. § 32-3556 during the time that the applicant's license was expired. The applicant shall submit the required statement within seven days from the postmark date of the Board's notice. Upon receipt of a complete license renewal application package and the signed statement:
   a. For an applicant who did not knowingly violate A.R.S. § 32-3556, the Board shall renew the license and issue a letter of concern within the substantive review time-frame;
   b. For an applicant who knowingly violated A.R.S. § 32-3556, the Board shall:
      i. Deny the renewal unless the applicant can demonstrate to the Board that no person was harmed by the violation, and the applicant understands the nature and consequences of the applicant's actions; or
      ii. Require the applicant to appear before the Board, present evidence regarding the applicant's violation of A.R.S. § 32-3556, and enter into an agreement regarding discipline. The Board shall conditionally renew the applicant's license. The Board shall remove the condition when the applicant complies fully with the agreement;
3. An applicant with an incomplete license renewal application package who supplies the missing information more than seven days after the date the applicant's license expires, or an applicant who submits a complete license renewal application package more than seven days but less than two years after the date the applicant's license expires, is an applicant for reinstatement. The Executive Director shall review the applicant's compliance with A.R.S. § 32-3556. The Board shall notify the applicant of the Board requirement for a signed statement regarding whether the applicant violated A.R.S. § 32-3556. The

applicant shall submit the required statement within seven days from the postmark date of the Board's notice. Upon receipt of the signed statement, the Board shall:

i. Deny the reinstatement unless the applicant can demonstrate to the Board that no person was harmed by the violation, and the applicant understands the nature and consequences of the applicant's actions; or

ii. Require the applicant to appear before the Board, present evidence regarding the applicant's violation of A.R.S. § 32-3556, and enter into an agreement regarding discipline. The Board shall conditionally reinstate the applicant's license. The Board shall remove the condition when the applicant complies fully with the agreement.

F. If the Board denies a license renewal or reinstatement, the Board shall send the applicant written notice explaining:

1. The reason for denial, with citations to supporting statutes or rules;
2. The applicant's right to seek a fair hearing to challenge the denial; and
3. The time period for appealing the denial.

Historical Note

New Section adopted by final rulemaking at 5 A.A.R. 1110, effective March 22, 1999 (Supp. 99-1). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-217. Appeal from Denial

A. If the Board denies a license, an applicant may make a written request for a hearing to review the denial. The applicant shall file the request with the Board within 30 days following service of notice of the denial. The request shall state specifically the reasons why the Board should review its decision. The Board shall schedule the hearing at its next meeting or at the first meeting that is convenient for all parties.

B. If an applicant who is denied a license does not request a hearing to review the denial or if the denial is affirmed, the Board shall administratively close the applicant's file. An individual who wishes to be considered for licensure after the individual's file is administratively closed shall reapply.

Historical Note

New Section adopted by final rulemaking at 5 A.A.R. 1110, effective March 22, 1999 (Supp. 99-1). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

R4-45-218. Reinstatement Following Revocation; Modification of Probation

A. Under A.R.S. § 32-3554, a former licensee whose license is revoked may apply to the Board after one year to have the license reinstated. A licensee who is placed on probation may apply to the Board after one year to have the conditions of probation modified.

B. If a former licensee wishes to have a revoked license reinstated after the time stated in subsection (A), the former licensee shall meet the qualifications in A.R.S. § 32-3523(A) and comply with R4-45-201. The Board shall not issue a temporary license to a former licensee who applies for reinstatement.

C. A licensee who is placed on probation shall comply with R4-45-207 while on probation. If the licensee wishes to have the conditions of probation modified after the time stated in subsection (A), the licensee shall submit to the Board:

1. A letter that contains the following information:
   a. Name and address of licensee,
   b. License number,
   c. Date on which probation was imposed,
   d. Reason that probation was imposed,
   e. Conditions of probation,
   f. Modification of conditions of probation requested, and
   g. Reason a modification of conditions is warranted; and
2. Evidence that supports the request for modification of conditions.

D. The Board shall grant or deny a request for modification of conditions of probation based on its assessment of whether the licensee has complied with all conditions of probation and is able to practice respiratory care in a safe, skillful, and professional manner.

Historical Note

New Section made by final rulemaking at 14 A.A.R. 3430, effective October 4, 2008 (Supp. 08-3).

ARTICLE 3. HEARINGS

R4-45-301. Hearing Procedures

The Board shall conduct all hearings, including those held under A.R.S. § 32-3553, according to the procedures in A.R.S. Title 41, Chapter 6, Article 10.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3). Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1). Amended by final rulemaking at 14 A.A.R. 832, effective May 3, 2008 (Supp. 08-1).

R4-45-302. Rehearing or Review of Decision

A. The Board shall provide for a rehearing and review of its decisions under A.R.S. Title 41, Chapter 6, Article 10 and the rules established by the Office of Administrative Hearings.

B. Except as provided in subsection (I), a party is required to file a motion for rehearing or review of a decision of the Board to exhaust the party's administrative remedies.

C. A party may amend a motion for rehearing or review at any time before the Board rules on the motion.

D. The Board may grant a rehearing or review for any of the following reasons materially affecting a party's rights:

1. Irregularity in the proceedings of the Board or any order or abuse of discretion that deprived the moving party of a fair hearing;
2. Misconduct of the Board, its staff, or an administrative law judge;
3. Accident or surprise that could not have been prevented by ordinary prudence;
4. Newly discovered evidence that could not, with reasonable diligence, have been discovered and produced at the hearing;
5. Excessive penalty;
6. Error in the admission or rejection of evidence or other errors of law occurring at the hearing or during the progress of the proceedings; or
7. The findings of fact or decision is not justified by the evidence or is contrary to law.

E. The Board may affirm or modify a decision or grant a rehearing or review to all or some of the parties on all or some of the issues for any of the reasons in subsection (D). An order modifying a decision or granting a rehearing or review shall specify with particularity the grounds for the order. If a rehearing or review is granted, the rehearing or review shall cover only the matters specified in the order.

F. Not later than 15 days after the date of a decision, and after giving the parties notice and an opportunity to be heard, the Board may, on its own initiative, order a rehearing or review of its decision for any reason it might have granted a rehearing or review on motion of a party. The Board may grant a motion for rehearing or review, timely served, for a reason not stated in the motion. An order granting a rehearing or review shall specify the grounds on which the rehearing or review is granted.

G. When a motion for rehearing or review is based upon affidavits, they shall be served with the motion. An opposing party may serve opposing affidavits within 15 days after service of the motion. This period may be extended by the Board for a maximum of 20 days for good cause as described in subsection (H) or upon written stipulation of the parties. Reply affidavits may be permitted.

H. The Board may extend all time limits listed in this Section upon a showing of good cause. A party demonstrates good cause by showing that the grounds for the party's motion or other action could not have been known in time, using reasonable diligence, and a ruling on the motion will:

1. Further administrative convenience, expedition, or economy; or
2. Avoid undue prejudice to any party.

I. If, in a particular decision, the Board makes a specific finding that the immediate effectiveness of the decision is necessary for preservation of the public health, safety, or welfare, the decision may be issued as a final decision without an opportunity for rehearing or review. If an application for judicial review of the decision is made, it shall be made under A.R.S. § 12-901 et seq.

Historical Note

Adopted effective September 12, 1996 (Supp. 96-3).
Amended by final rulemaking at 12 A.A.R. 968, effective May 6, 2006 (Supp. 06-1).

32-3504. Powers and duties; inspection of records; personnel examinations; immunity

A. The board shall:

1. Enforce and administer the provisions of this chapter.
2. Adopt rules necessary to administer this chapter.
3. Examine applicants for licensure pursuant to this chapter at times and places it designates.
4. Investigate each applicant for licensure, before a license is issued, in order to determine if the applicant is qualified pursuant to this chapter.
5. Keep a record of all its acts and proceedings pursuant to this chapter, including the issuance, refusal, renewal, suspension or revocation of licenses.
6. Beginning on January 1, 1999, require each applicant for initial licensure to submit a full set of fingerprints to the board for a state and federal criminal history records check pursuant to section 41-1750 and Public Law 92-544.
7. Maintain a register which contains the name, the last known place of residence and the date and number of the license of all persons licensed pursuant to this chapter.
8. Compile, once every two years, a list of licensed respiratory care practitioners who are authorized to practice in this state.
9. Establish minimum annual continuing education requirements for persons licensed under this chapter.

B. The board, in approving training programs for respiratory therapists and training programs for respiratory therapy technicians shall consider the requirements and standards set by the American medical association's committee on allied health education and accreditation in collaboration with the joint review committee for respiratory therapy education. The board may recognize examinations administered by a national board for respiratory care approved by the board.

C. The board may conduct examinations under a uniform examination system and may make arrangements with the national board of respiratory care or other organizations regarding examination materials it determines necessary and desirable.

D. The board and its members, personnel and board examiners are personally immune from suit with respect to all acts done and actions taken in good faith and in furtherance of the purposes of this chapter.

32-3506. Executive director; duties; compensation

A. Subject to title 41, chapter 4, article 4, the board shall appoint an executive director who serves at the pleasure of the board. The executive director shall not be a board member.

B. The executive director and other board employees are eligible to receive compensation as determined pursuant to section 38-611.

C. The executive director shall:

1. Perform the board's administrative duties.

2. Subject to title 41, chapter 4, article 4 and, as applicable, articles 5 and 6, employ, evaluate, dismiss, discipline and direct personnel as necessary to carry out board functions.
3. Initiate an investigation if there is reason to believe that a licensee is incompetent, mentally or physically unable to safely practice respiratory care or engaged in unprofessional conduct.
4. Issue subpoenas if necessary to compel the attendance and testimony of witnesses and the production of books, records, documents and evidence.
5. As directed by the board, sign and execute disciplinary orders, rehabilitative orders and notices of hearings.
6. On behalf of the board, enter into stipulated agreements with licensees for the treatment, rehabilitation and monitoring of chemical substance abuse or misuse.
7. Perform all other duties required by the board.

32-3521. Allowable respiratory care services; transactions by medical equipment dealers
A. This chapter does not prohibit:
1. The performance of respiratory care services that are an integral part of a program of study by students enrolled in respiratory therapy training programs if the services are rendered under the supervision of a licensed respiratory care practitioner or a physician licensed pursuant to chapter 13 or 17 of this title.
2. Self-care by a patient or the gratuitous care by a friend or relative who does not purport to be a licensed respiratory care practitioner.
3. The performance of respiratory care services in case of an emergency, including an epidemic or public disaster.
4. The performance of respiratory care services by registered, certified or licensed individuals as provided pursuant to chapters 7, 8, 11, 13, 14, 15, 17, 18, 19, 21, 25, 28 and 29 of this title and title 36, chapter 21.1.
5. The performance of specific diagnostic testing techniques relating to respiratory care by a person under medical direction in a clinical laboratory that is regulated pursuant to title 36, chapter 4.1.
6. The performance of respiratory care services by a person employed as a respiratory therapist or respiratory therapy technician by the United States government or any of its agencies if that person provides respiratory therapy only under the direction or control of the federal government or an agency of the federal government.
7. Medical equipment dealers who comply with subsection B of this section from taking a prescription for respiratory equipment, as long as that prescription is verified by a licensed respiratory therapist or respiratory therapy technician, and delivering oxygen equipment to or demonstrating the operation, safety and maintenance of oxygen equipment at a patient's home.
B. In a sale or lease of respiratory equipment by a medical equipment dealer to a patient, the terms of the sale or lease shall be in writing and signed by the

parties describing the date of the sale or lease, the equipment to be sold or leased and the cost and method of payment for the equipment and shall include verification by a licensed respiratory therapist or respiratory therapy technician attesting that purchase or lease of the equipment is consistent with the prescription and the needs of the patient. The patient shall be provided a copy of all documents pertaining to the sale or lease at the time the documents are signed by the parties.

32-3522. Application for licensure

A. All applications for licenses to practice respiratory care shall be filed with the board.

B. Each application shall:

1. Be accompanied by the prescribed application fee.
2. Be signed by the applicant.
3. Contain a statement under oath of the facts entitling the applicant to take an examination or to receive a license without examination.
4. Contain information the board deems necessary to determine the qualifications of the applicant.

C. If an applicant's application is based on a diploma from a foreign respiratory therapy school or a certificate of license issued by another state, he shall furnish documentary evidence, to the satisfaction of the board, that he has completed courses of study which are at least equivalent to the minimum standards established by the board in its rules.

32-3523. Qualifications

A. An applicant for a license shall:

1. Be a high school graduate or the equivalent as prescribed by the board by rule.
2. Be a graduate of a respiratory therapy training program.
3. Pass a written examination approved by the board or be eligible to take a written examination pursuant to section 32-3522.
4. Not have committed acts or crimes which constitute grounds for denial of a license or disciplinary action pursuant to section 32-3552.

B. An applicant who otherwise meets the requirements for licensure pursuant to this chapter but who has not practiced respiratory care or held a license in this or any other state during the three years immediately preceding the date the applicant files an application for licensure shall provide documentation of completing at least twenty board approved continuing education units relating to clinical practice.

32-3524. Licensure without examination

The board may issue a license to an applicant without examination if the applicant:

1. Files an application pursuant to section 32-3522.
2. Satisfies the requirements prescribed in section 32-3523.
3. At the time of his application is either:

(a) Licensed as a licensed respiratory care practitioner in another state in which, in the opinion of the board, the licensure requirements are at least equivalent to those in this state and has passed, to the satisfaction of the board, an examination in the state where he is licensed that is, in the opinion of the board, equivalent to the examination given under its direction.

(b) Registered as a respiratory therapist or certified as a respiratory therapy technician by a national organization for respiratory care approved by the board.

32-3526. Fees

A. The board by rule shall establish and collect fees that do not exceed the following:

1. Application for a license, one hundred dollars.
2. Application based on a diploma from a foreign respiratory therapy school, two hundred dollars.
3. Initial license, two hundred dollars.
4. Renewal of a license, two hundred dollars.
5. Duplicate license, fifty dollars.
6. Examination fee, one hundred fifty dollars.

B. The board shall prescribe the fee necessary to obtain a copy of the list of licensed respiratory care practitioners. Any interested person may obtain a copy upon payment of the fee.

C. The board by rule may establish and collect fees for license renewals and verifications and for checks that are returned for nonpayment because of insufficient monies, payments stopped or closed accounts.

F-3

ARIZONA DEPARTMENT OF AGRICULTURE (R-16-0802)
Title 3, Chapter 2, Article 2, Meat and Poultry Inspection

Amend: R3-2-202

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-3**

TO: Members of the Governor's Regulatory Review Council ("Council")

FROM: Preston Knight, Legal Intern

DATE: July 15, 2016

SUBJECT: **ARIZONA DEPARTMENT OF AGRICULTURE (R-16-0802)**
Title 3, Chapter 2, Article 2, Meat and Poultry Inspection

Amend: R3-2-202

General Comments

Purpose of the Agency and Summary of What the Rulemaking Does

The purpose of the Arizona Department of Agriculture (Department) is to "provide for a uniform and coordinated agricultural program and policy in [Arizona]." Laws 2011, Chapter 12 § 3.

This rulemaking amends one rule in A.A.C. Title 3, Chapter 2, Article 2.

Article Contents, Including the Subject Matter of Each Rule Affected

Article 2 contains nine rules, one of which is affected by this rulemaking. The amended rule relates to meat and poultry inspection, slaughtering, and processing standards.

Year that Each Rule was Last Amended or Newly Made

This rule was last amended on July 9, 2013.

Proposed Action

The Department is amending R3-2-202 to update the incorporated federal rule to the most recent change. The update is required to maintain Arizona's "equal to" status in order to receive federal funding for inspections. The federal rule that is incorporated by reference has been amended in seven rule makings since January 1, 2013 and the Department intends to incorporate

these changes including new labeling requirements, chemical uses, inspection for young chicken and all turkey slaughter establishments, and record keeping requirements related to sourcing of raw ground beef.

Exemption or Request and Approval for Exception from the Moratorium

The Department received an exception from Governor Ducey's Office on April 11, 2016.

Substantive or Procedural Concerns

None**.**

1. Are the rules legal, consistent with legislative intent, and within the agency's statutory authority?

Yes. The Department cites to both general and specific statutory authority. Under A.R.S. § 3-107(A)(1), the Department Director shall "[f]ormulate the program and policies of the department and adopt administrative rules to effect its program and policies."

As specific authority for the rules, the Department cites to A.R.S. § 3-1203 which authorizes the Department's Director to make rules to control and govern:

> 1. Importation of animals and poultry into the state, establishment of quarantine and its boundaries, notice of quarantine and accomplishment of all things necessary to effect the object of the quarantine and to protect the livestock and poultry industries from and prevent the spread of contagious or infectious diseases.
> 2. Slaughter of animals and poultry affected by contagious or infectious diseases and disposition of carcasses of animals and poultry so slaughtered, when the action appears necessary to prevent the spread of contagion or infection among livestock and poultry.
> 3. Importation, manufacture, sale, distribution or use within the state of serums, vaccines and other biologics intended for diagnostic or therapeutic treatment of animals and poultry, and the importation, manufacture or use of virulent blood or living virus of diseases affecting animals and poultry.

2. Are the rules written in a manner that is clear, concise, and understandable to the general public?

Yes. As a whole, the rules are written in a clear, concise, and understandable manner.

3. Does the agency adequately address the comments on the proposed rules and any supplemental proposals?

Yes. The Department indicates that it received no written comments regarding the rulemaking.

4. Are the final rules a substantial change, considered as a whole, from the proposed rules and any supplemental proposals?

No. No changes were made.

5. Does the preamble disclose a reference to any study relevant to the rules that the agency reviewed and either did or did not rely on in the agency's evaluation of or justification for the rules?

No. No study was reviewed.

6. Are the rules more stringent than corresponding federal law and, if so, is there statutory authority that allows the agency to exceed the requirements of federal law?

No. The Department indicates that the federal laws directly corresponding to the rules are incorporated by reference.

7. Do the rules require a permit or license and if so, does the agency use a general permit or is any exception applicable under A.R.S. § 41-1037?

No. The rules do not require a permit or license.

8. Do the rules establish a new fee or contain a fee increase?

No. The rules do not establish a new fee or contain a fee increase.

9. Conclusion

The Department requests the usual 60-day delayed effective date for the rules. This analyst recommends approval of the rules.

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-3**

TO: Members of the Governor's Regulatory Review Council ("Council")

FROM: GRRC Economic Team

DATE: July 15, 2016

SUBJECT: **ARIZONA DEPARTMENT OF AGRICULTURE (R-16-0802)**
Title 3, Chapter 2, Article 2, Meat and Poultry Inspection

Amend: R3-2-202

I reviewed the economic, small business, and consumer impact comparison for compliance with A.R.S. § 41-1056 and make the following comments. These comments are made to assist the Council in its review and may be used as the Council determines.

GRRC Economist Comments

In this rulemaking, the Department is proposing to amend one rule to comply with federal regulations regarding labeling of meat and poultry products, removal of items from the list of substances prohibited for use in meat or poultry products, creation of new inspection system for chicken and turkey slaughter establishments.

1. **Costs and Benefits for:**

a. The implementing agency:

The Department may face minimal costs in educating staff on the new federal provisions.

b. Political subdivisions:

The rulemaking does not provide any benefits or impose any costs on political subdivisions.

c. Businesses:

The Department does not believe that the amendment will have any impact on private or public employment.

d. Small businesses:

Currently, Arizona has 26 licensed official establishments affected by these new rules. There may be minimal costs to some individuals due to the new requirements related to labeling and recordkeeping.

e. Consumers directly affected by the rulemaking:

There are no private persons or consumers directly affected by the rulemaking.

2. Do the probable benefits outweigh the probable costs?

Based on the information provided, the Department indicates that the benefits from the proposed amendments outweigh the costs.

3. Analysis of methods to reduce the small business impact:

Because this is a federal equivalency program, the Department cannot establish lower compliance requirements and maintain its program. No other methods were considered to reduce the impact.

4. The probable effect on state revenues:

The Department's Meat and Poultry Inspection program is funded in part through federal funds. The Department is allotted to receive $550,000 from the USDA to support its Meat and Poultry Inspection program this year. Failure to conduct this rulemaking could jeopardize this funding.

5. Analysis of any less intrusive or less costly alternative methods:

The Department cannot consider less intrusive or less costly methods and continue to implement a federally recognized program. The Department did consider the intrusiveness and cost of the update, and determined that state operation of the program is still of great value to its licensees.

6. Whether an analysis was submitted to the agency regarding the rule's impact on the competitiveness of businesses in this state as compared to the competitiveness of businesses in other states:

No analysis was submitted that compares the rule's impact of the competiveness of businesses in this state to the impact on businesses in other states.

7. A description of any data on which a rule is based with an explanation of how the data was obtained and why the data is acceptable data, and the methods used by the agency to evaluate the costs and benefits in the EIS.

The Department indicates that no outside data or studies were used in the development of the proposed rules.

8. Conclusion:

The submitted economic, small business and consumer impact statement is generally accurate, and contains the information required for compliance with A.R.S. §§ 41-1035, 41-1052(D)(1-3), and 41-1055. This analyst recommends that the proposed rules be approved.

DOUG A. DUCEY
Governor

MARK W. KILLIAN
Director

Arizona Department of Agriculture

1688 W. Adams Street, Phoenix, Arizona 85007
(602) 542-3578 FAX (602) 542-0466

June 7, 2016

Nicole Ong, Chairman
Governor's Regulatory Review Council
100 N. 15th Avenue, Suite 402
Phoenix, Arizona 85007

RE: Request for Approval and Cover Letter
Notice of Final Rulemaking for A.A.C. Title 3, Chapter 2, Article 2

Dear Ms. Ong:

Pursuant to R1-6-201, the Arizona Department of Agriculture hereby submits the attached Notice of Final Rulemaking to amend R3-2-202 and related documents and requests approval of the same.

The Department requests that the rulemaking be placed on the Council's August 2, 2016 meeting agenda. In accordance with Executive Order 2016-03 the Department received approval of the rulemaking from the Office of the Governor on April 11, 2016.
In accordance with A.A.C. R1-6-201, the Department provides the following additional information:

a. Close of record date: June 6, 2016.

b. Relation of the rulemaking to a five-year review report: This rulemaking does not relate to a five-year review report.

c. Whether the rule establishes a new fee: No.

d. Whether the rule contains a fee increase: No.

e. Immediate effective date: The Department does not request an immediate effective date.

f. Certification regarding studies: The Department certifies that the preamble accurately discloses that no study was reviewed and either relied on or not relied on in the Department's evaluation of or justification for the rule.

g. Certification regarding employees: No new employees are needed to implement or enforce the rule.

h. Documents enclosed and provided electronically:
   1. This request for approval and cover letter;
   2. Notice of Final Rulemaking;
   3. Economic, small business, and consumer impact statement;

i. Additional documents provided electronically:
   1. Material incorporated by reference;
   2. General and specific statutes authorizing the rule;
   3. The existing rules;
   4. Letter sent to the Governor's Office on February 16, 2016;
   5. Email from Governor's Office dated April 11, 2016;
   6. Notice of Proposed Rulemaking;

In addition, no person has submitted an analysis to the Office that compares the rule's impact on the competitiveness of businesses in this state to the competitiveness of businesses in other states.

Please contact Aaron Thompson at (602) 542-8334 or Aaron.Thompson@azag.gov with any questions.

Sincerely,

Mark Killian

mk:at
Enclosures

NOTICE OF PROPOSED RULEMAKING

TITLE 3. AGRICULTURE

CHAPTER 2. DEPARTMENT OF AGRICULTURE

ANIMAL SERVICES DIVISION

PREAMBLE

1.	**Section Affected**	**Rulemaking Action**
	R3-2-202	Amend

2. Citations to the agency's statutory rulemaking authority to include both the authorizing statute (general) and the implementing statute (specific):

Authorizing statute: A.R.S. §§ 3-107(A)(1) & 3-1203(B)

Implementing statute: A.R.S. §§ 3-2046 & 3-2161

3. The effective date of the rule:

60 days after filing in the Office of the Secretary of State of Arizona

a. If the agency selected a date earlier than the 60 day effective date as specified in A.R.S. § 41-1032(A), include the earlier date and state the reason or reasons the agency selected the earlier effective date as provided in A.R.S. § 41-1032(A)(1) through (5):

Not applicable

b. If the agency selected a date later than the 60 day effective date as specified in A.R.S. § 41-1032(A), include the later date and state the reason or reasons the agency selected the later effective date as provided in A.R.S. § 41-1032(B):

Not applicable

4. Citations to all related notices published in the *Register* as specified in R1-1-409(A) that pertain to the record of the final rulemaking package:

Notice of Rulemaking Docket Opening: 22 A.A.R. 1021, May 6, 2016

5. The agency's contact person who can answer questions about the rulemaking:

Name:	Rick Mann
Address:	1688 W. Adams
	Phoenix, AZ 85007
Telephone Number:	(602) 542-6398
E-mail:	rmann@azda.gov

6. An agency's justification and reason why a rule should be made, amended, repealed or renumbered, to include an explanation about the rulemaking:

The purpose of this rulemaking is to update the incorporated federal regulations to the latest version in order to maintain consistent state status.

The applicable federal regulations in 9 CFR Chapter III have undergone seven rulemakings since January 1, 2013 that that the Department intends to incorporate into the rule. First, generic approval of meat and poultry products labels was allowed in expanded circumstances, and the regulations that provide for the approval of labels were consolidated into a new Code of Federal Regulations part. Second, sodium benzoate, sodium propionate, and benzoic acid were removed from the list of substances prohibited for use in meat or poultry products. Third, a new inspection system for young chicken and all turkey slaughter establishments was created. Establishments that choose not to operate under the new system may continue to use their current system. Additionally, several changes were made to the regulations covering establishments that slaughter poultry other than ratites. Fourth, a uniform compliance date for new meat and poultry product labeling regulation was established. Fifth, requirements to use a descriptive designation as part of the product name on the labels of raw meat and poultry products that contain added solutions and that do not meet a standard of identity were established. Sixth, requirements to use a descriptive designation "mechanically tenderized" blade tenderized," or "needle tenderized" on the labels of raw or partially cooked needle or blade tenderized beef products unless the products are to be fully cooked or to receive another full lethality treatment at an official establishment were created. Seventh, new record keeping requirements related to sourcing of raw ground beef were created for official establishments and retail stores that grind raw beef products for sale in commerce.

Federal regulations to establish a mandatory inspection program for fish of the order Siluriformes and products derived from these fish were also created. 80 FR 75590-01. These regulations are effective March 1, 2016 and are not included in this rulemaking which incorporates 9 CFR Chapter III as revised, January 1, 2016.

7. A reference to any study relevant to the rule that the agency reviewed and either relied on or did not rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

None

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

Not applicable.

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

The conduct and its frequency of occurrence that the rule is designed to change.

The purpose of this rulemaking is to update the incorporated federal regulations to the latest version in order to maintain consistent state status. The Department believes most persons regulated by this rule are already in compliance with the current federal regulations. Therefore, the Department does not believe the target conduct occurs with significant frequency.

The harm resulting from the conduct the rule is designed to change and the likelihood it will continue to occur if the rule is not changed:

The main harm that will result if the conduct is not addressed by updating the incorporated federal regulations is the loss of consistent state status. The Department believes the loss of consistent state status is likely if the rule is not changed.

The estimated change in frequency of the targeted conduct expected from the rule change:

As stated above, the Department does not believe the targeted conduct occurs with significant frequency, however, to the extant there may be some individuals not following current federal regulations the Department expects the rule change to further reduce the targeted conduct to even more limited frequency.

Brief summary of the information included in the economic, small business, and consumer impact statement:

None of these changes are expected to require any new full-time Department employees. There may be some minimal cost to some individuals due the new requirements related to labeling and recordkeeping, however, the Department does not believe these costs will outweigh the benefit of maintaining consistent state status, and the Department is not able to offer any less intrusive alternatives and still be "at least equal to" federal law.

10. A description of any changes between the proposed rulemaking, to include supplemental notices, and the final rulemaking:

None

11. An agency's summary of the public or stakeholder comments made about the rulemaking and the agency response to the comments:

No comments were received.

12. All agencies shall list other matters prescribed by statute applicable to the specific agency or to any specific rule or class of rules. Additionally, an agency subject to Council review under A.R.S. §§ 41-1052 and 41-1055 shall respond to the following questions:

The Department received permission to conduct rulemaking from the Governor's Office in compliance with Executive Order 2016-03. Pursuant to A.R.S. § 3-104(F), the ADA Advisory Council approved this rulemaking.

a. Whether the rule requires a permit, whether a general permit is used and if not, the reasons why a general permit is not used:

The rule does not require a permit.

b. Whether a federal law is applicable to the subject of the rule, whether the rule is more stringent than federal law and if so, citation to the statutory authority to exceed the requirements of federal law:

9 CFR Chapter III is applicable to this rule. This rule is not more stringent than the federal law.

c. Whether a person submitted an analysis to the agency that compares the rule's impact of the competitiveness of business in this state to the impact on business in other states:

No

13. A list of any incorporated by reference material as specified in A.R.S. § 41-1028 and its location in the rules:

Most of 9 CFR Chapter III is incorporated by reference in rule 202.

14. Whether the rule was previously made, amended or repealed as an emergency rule. If so, cite the notice published in the Register as specified in R1-1-409(A). Also, the agency shall state where the text was changed between the emergency and the final rulemaking packages:

Not applicable

15. The full text of the rule follows:

TITLE 3. AGRICULTURE

CHAPTER 2. DEPARTMENT OF AGRICULTURE
ANIMAL SERVICES DIVISION

ARTICLE 2. MEAT AND POULTRY INSPECTION

Section

R3-2-202. Meat and Poultry Inspection; Slaughtering Standards

ARTICLE 2. MEAT AND POULTRY INSPECTION

R3-2-202. Meat and Poultry Inspection; Slaughtering Standards

All meat and poultry inspection, slaughtering, production, processing, labeling, storing, handling, transportation and sanitation procedures shall be conducted as prescribed in 9 CFR Chapter III, revised January 1, ~~2013~~ 2016, as amended by ~~76 FR 68058-64 (November 3, 2011)~~ 80 FR 75590-01 (December 2, 2015), except sections 302.2, 307.5, 307.6, 312, 322, 327, 329.7, 329.9, 331, 335, 351, 352, 354, 355, 381.38, 381.39, 381.96 through 381.112, 381.195 through 381.209, 381.218 through 381.225, 390, 391, 392, 590 and 592. This material is incorporated by reference and does not include any later amendments or editions. A copy of the incorporated material is available from the Department and may also be viewed online at www.gpo.gov/fdsys.

ECONOMIC, SMALL BUSINESS, AND CONSUMER IMPACT STATEMENT

TITLE 3. AGRICULTURE

CHAPTER 2. DEPARTMENT OF AGRICULTURE

ANIMAL SERVICES DIVISION

R3-2-202

1. Identification of the rulemaking:
   The purpose of this rulemaking is to update the incorporated federal regulations to the latest version in order to maintain consistent state status.

   The applicable federal regulations in 9 CFR Chapter III have undergone seven rulemakings since January 1, 2013 that the Department intends to incorporate into the rule. First, generic approval of meat and poultry products labels was allowed in expanded circumstances, and the regulations that provide for the approval of labels were consolidated into a new Code of Federal Regulations part. Second, sodium benzoate, sodium propionate, and benzoic acid were removed from the list of substances prohibited for use in meat or poultry products. Third, a new inspection system for young chicken and all turkey slaughter establishments was created. Establishments that choose not to operate under the new system may continue to use their current system. Additionally, several changes were made to the regulations covering establishments that slaughter poultry other than ratites. Fourth, a uniform compliance date for new meat and poultry product labeling regulation was established. Fifth, requirements to use a descriptive designation as part of the product name on the labels of raw meat and poultry products that contain added solutions and that do not meet a standard of identity were established. Sixth, requirements to use a descriptive designation "mechanically tenderized" blade tenderized," or "needle tenderized" on the labels of raw or partially cooked needle or blade tenderized beef products unless the products are to be fully cooked or to receive another full lethality treatment at an official establishment were created. Seventh, new record keeping requirements related to sourcing of raw ground beef were created for official establishments and retail stores that grind raw beef products for sale in commerce.

   Federal regulations to establish a mandatory inspection program for fish of the order Siluriformes and products derived from these fish were also created. 80 FR 75590-01. These regulations are effective March 1, 2016 and are not included in this rulemaking which incorporates 9 CFR Chapter III as revised, January 1, 2016.

   a. The conduct and its frequency of occurrence that the rule is designed to change:

      The purpose of this rulemaking is to update the incorporated federal regulations to the latest version in order to maintain consistent state status. The Department believes most persons regulated by this rule are already in compliance with the current federal regulations. Therefore, the Department does not believe the target conduct occurs with significant frequency..

   b. The harm resulting from the conduct the rule is designed to change and the likelihood it will continue to occur if the rule is not changed:

      The main harm that will result if the conduct is not addressed by updating the incorporated federal regulations is the loss of consistent state status. The Department believes the loss of consistent state status is likely if the rule is not changed.

   c. The estimated change in frequency of the targeted conduct expected from the rule change:

      As stated above, the Department does not believe the targeted conduct occurs with significant frequency, however, to the extant there may be some individuals not following current federal regulations the

Department expects the rule change to further reduce the targeted conduct to even more limited frequency.

2. A brief summary of the information included in the economic, small business, and consumer impact statement:

None of these changes are expected to require any new full-time Department employees.
There may be some minimal cost to some individuals due the new requirements related to labeling and recordkeeping, however, the Department does not believe these costs will outweigh the benefit of maintaining consistent state status, and the Department is not able to offer any less intrusive alternatives and still be "at least equal to" federal law.

3. The person to contact to submit or request additional data on the information included in the economic, small business, and consumer impact statement:

Name:	Rick Mann
Address:	1688 W. Adams
	Phoenix, AZ 85007
Telephone Number:	(602) 542-6398
E-mail:	rmann@azda.gov

4. Persons who will be directly affected by, bear the costs of, or directly benefit from the rulemaking:

Meat and poultry processors licensed by the Department.

5. Cost-benefit analysis:

a. Costs and benefits to state agencies directly affected by the rulemaking:

The Department may have nominal costs in educating staff on the new provisions of the rule.

The number of new full-time employees at the implementing agency required to implement and enforce the proposed rule:

None

b. Costs and benefits to political subdivisions directly affected by the rulemaking:

None

c. Costs and benefits to businesses directly affected by the rulemaking:

There may be some minimal cost to some individuals due the new requirements related to labeling and recordkeeping

6. Impact on private and public employment:

The Department does not believe this rule will have any impact on private or public employment.

7. Impact on small businesses:

a. Identification of the small businesses subject to the rulemaking:

Currently Arizona has 26 licensed official establishments effected by these new rules. All of which would qualify as small businesses.

b. Administrative and other costs required for compliance with the rulemaking:

There may be some minimal cost to some individuals due the new requirements related to labeling and recordkeeping.

c. Description of methods that may be used to reduce the impact on small businesses:

i. Establish less costly or less stringent compliance or reporting requirements:

Because this is a federal equivalency program, the Department cannot establish lower compliance requirements and maintain its program.

ii. Establish less costly schedules or less stringent deadlines for compliance or reporting requirements:

None

iii. Consolidate or simplify compliance or reporting requirements:

None

iv. Establish separate performance standards:

None

v. Exempt small businesses from any or all requirements:

Not applicable.

8. Cost and benefit to private persons and consumers who are directly affected by the rulemaking:

The Department does not believe consumers or private persons other than Department licensed meat processors will be directly affected by the rulemaking.

9. Probable effects on state revenues:

The Department's Meat and Poultry Inspection program is funded in part through federal funds. The Department is allotted to receive $550,000 from the USDA to support its Meat and Poultry Inspection program this year. Failure to conduct this rulemaking could jeopardize this funding.

10. Less intrusive or less costly alternative methods considered:

The Department cannot consider less intrusive or less costly methods and continue to implement a federally recognized program. The Department did consider the intrusiveness and cost of the update and determined that state operation of the program is still of great value to its licensees.

a. Monetizing of the costs and benefits for each option:

None

b. Rationale for not using non-selected alternatives:

None

11. A description of any data on which a rule is based with a detailed explanation of how the data was obtained and why the data is acceptable data. An agency advocating that any data is acceptable data has the burden of proving that the data is acceptable. For the purposes of this paragraph, "acceptable data" means empirical, replicable and testable data as evidenced in supporting documentation, statistics, reports, studies, or research:

    None

R3-2-202. Meat and Poultry Inspection; Slaughtering and Processing Standards

All meat and poultry inspection, slaughtering, production, processing, labeling, storing, handling, transportation and sanitation procedures shall be conducted as prescribed in 9 CFR Chapter III, revised January 1, 2013, as amended by 76 FR 68058-64 (November 3, 2011), except sections 302.2, 307.5, 307.6, 312, 322, 327, 329.7, 329.9, 331, 335, 351, 352, 354, 355, 381.38, 381.39, 381.96 through 381.112, 381.195 through 381.209, 381.218 through 381.225, 390, 391, 392, 590 and 592. This material is incorporated by reference and does not include any later amendments or editions. A copy of the incorporated material is available from the Department and may also be viewed online at www.gpo.gov/fdsys.

Arizona Revised Statutes Annotated
Title 3. Agriculture (Refs & Annos)
Chapter 1. Agricultural Administration (Refs & Annos)
Article 1. Department of Agriculture (Refs & Annos)

A.R.S. § 3-107

§ 3-107. Organizational and administrative powers and duties of the director

Effective: September 13, 2013

Currentness

A. The director shall:

1. Formulate the program and policies of the department and adopt administrative rules to effect its program and policies.

2. Ensure coordination and cooperation in the department in order to achieve a unified policy of administering and executing its responsibilities.

3. Subject to § 35-149, accept, expend and account for gifts, grants, devises and other contributions of money or property from any public or private source, including the federal government. All contributions shall be included in the annual report under paragraph 6 of this subsection. Monies received under this paragraph shall be deposited, pursuant to §§ 35-146 and 35-147, in special funds for the purpose specified, which are exempt from the provisions of § 35-190 relating to lapsing of appropriations.

4. Contract and enter into interagency and intergovernmental agreements pursuant to title 11, chapter 7, article 3[1] with any private party or public agency.

5. Administer oaths to witnesses and issue and direct the service of subpoenas requiring witnesses to attend and testify at or requiring the production of evidence in hearings, investigations and other proceedings.

6. Not later than September 30 each year, issue a report to the governor and the legislature of the department's activities during the preceding fiscal year. The report may recommend statutory changes to improve the department's ability to achieve the purposes and policies established by law. The director shall provide a copy of the report to the Arizona state library, archives and public records.

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7. Establish, equip and maintain a central office in Phoenix and field offices as the director deems necessary.

8. Sign all vouchers to expend money under this title, which shall be paid as other claims against this state out of the appropriations to the department.

9. Coordinate agricultural education efforts to foster an understanding of Arizona agriculture and to promote a more efficient cooperation and understanding among agricultural educators, producers, dealers, buyers, mass media and the consuming public to stimulate the production, consumption and marketing of Arizona agricultural products.

10. Employ staff subject to title 41, chapter 4, article 4[2] and terminate employment for cause as provided by title 41, chapter 4, article 5.[3]

11. Conduct hearings on appeals by producers regarding the assessed actual costs of the plow up and the penalty of one hundred fifty per cent for unpaid costs pursuant to § 3-204.01. The director may adopt rules to implement this paragraph.

12. Cooperate with the Arizona-Mexico commission in the governor's office and with researchers at universities in this state to collect data and conduct projects in the United States and Mexico on issues that are within the scope of the department's duties and that relate to quality of life, trade and economic development in this state in a manner that will help the Arizona-Mexico commission to assess and enhance the economic competitiveness of this state and of the Arizona-Mexico region.

B. The director may:

1. Authorize in writing any qualified officer or employee in the department to perform any act that the director is authorized or required to do by law.

2. Construct and operate border inspection stations or other necessary facilities in this state and cooperate by joint agreement with an adjoining state in constructing and operating border inspection stations or other facilities within the boundaries of this state or of the adjoining state.

3. Cooperate with agencies of the United States and other states and other agencies of this state and enter into agreements in developing and administering state and federal agricultural programs regarding the use of department officers, inspectors or other resources in this state, in other states or in other countries.

4. Cooperate with the office of tourism in distributing Arizona tourist information.

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5. Enter into compliance agreements with any person, state or regulatory agency. For the purposes of this paragraph, "compliance agreement" means any written agreement or permit between a person and the department for the purpose of enforcing the department's requirements.

6. Abate, suppress, control, regulate, seize, quarantine or destroy any agricultural product or foodstuff that is adulterated or contaminated as the result of an accident at a commercial nuclear generating station as defined in § 26-301, paragraph 1. A person owning an agricultural product or foodstuff that has been subject to this paragraph may request a hearing pursuant to title 41, chapter 6, article 10.[4]

7. Engage in joint venture activities with businesses and commodity groups that are specifically designed to further the mission of the department, that comply with the constitution and laws of the United States and that do not compete with private enterprise.

8. Sell, exchange or otherwise dispose of personal property labeled with the "Arizona grown" trademark. Revenues received pursuant to this paragraph shall be credited to the commodity promotion fund established by § 3-109.02.

Credits

Added by Laws 1989, Ch. 162, § 3, eff. Jan. 1, 1991. Amended by Laws 1990, Ch. 374, § 4, eff. Jan. 1, 1991; Laws 1993, Ch. 175, § 2; Laws 1996, Ch. 266, § 1; Laws 1997, Ch. 49, § 1; Laws 1997, Ch. 228, § 2, eff. July 21, 1997, retroactively effective to July 1, 1997; Laws 2000, Ch. 113, § 1; Laws 2000, Ch. 193, § 1; Laws 2000, Ch. 234, § 3; Laws 2001, Ch. 231, § 1; Laws 2002, Ch. 48, § 1, eff. April 20, 2002; Laws 2004, Ch. 301, § 2; Laws 2012, Ch. 321, § 1, eff. Sept. 29, 2012; Laws 2013, Ch. 161, § 1.

Notes of Decisions (2)

Footnotes

1 Section 11-951 et seq.

2 Section 41-741 et seq.

3 Section 41-771 et seq.

4 Section 41-1092 et seq.

A. R. S. § 3-107, AZ ST § 3-107
Current through legislation effective May 17, 2016 of the Second Regular Session of the Fifty-Second Legislature (2016), and also includes election results from the May 17, 2016 special election

End of Document

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A.R.S. § 3-1203

§ 3-1203. General powers and duties; civil penalties

Effective: September 21, 2006

Currentness

A. The director or the director's authorized representative shall exercise general supervision over the livestock interests of the state, protect the livestock industry from theft and the livestock and poultry industries from contagious and infectious diseases and protect the public from diseased and unwholesome meat products.

B. The director, with the advice of the state veterinarian, may make rules to control and govern:

1. Importation of animals and poultry into the state, establishment of quarantine and its boundaries, notice of quarantine and accomplishment of all things necessary to effect the object of the quarantine and to protect the livestock and poultry industries from and prevent the spread of contagious or infectious diseases.

2. Slaughter of animals and poultry affected by contagious or infectious diseases and disposition of carcasses of animals and poultry so slaughtered, when the action appears necessary to prevent the spread of contagion or infection among livestock and poultry.

3. Importation, manufacture, sale, distribution or use within the state of serums, vaccines and other biologics intended for diagnostic or therapeutic treatment of animals and poultry, and the importation, manufacture or use of virulent blood or living virus of diseases affecting animals and poultry.

C. The director may:

1. Enter into agreements with neighboring states, including agreements regarding the use of livestock officers or livestock inspectors or other agency resources for the purpose of enforcement of livestock laws within this state or within border areas of neighboring states.

2. Waive inspections, service charges or inspection fees under this chapter in cases the director deems advisable.

3. Direct employees or peace officers to execute the director's orders under this chapter.

D. The director may adopt by rule a mandatory self-inspection program for moving livestock from one location to another, and may provide for the private treaty sale of self-inspected livestock. The associate director shall monitor compliance with the requirements of the self-inspection program and shall periodically examine self-inspection records, including livestock inventory records that verify the origin, shipment or sale of livestock. For just cause the director may suspend or modify the self-inspection authorization of feedlots, dairies and producers. A person who knowingly violates the requirements of the self-inspection program shall be placed on administrative probation by the director for a period of one year. If a subsequent violation occurs during the period of probation, the person shall be brought before an administrative law judge and is subject to a civil penalty of two hundred dollars per violation, and the self-inspection authorization shall be revoked for a period of three years. The director may review any order of the administrative law judge and shall review each order involving subsequent violations during a period of probation pursuant to title 41, chapter 6, article 10.[1] The period of a sanction imposed under this subsection begins on the date of determination of the violation at a hearing. Civil penalties imposed under this subsection shall be deposited, pursuant to §§ 35-146 and 35-147, in the state general fund.

E. The director may establish a central investigation group to investigate reports of crimes related to livestock and other violations of this title and rules adopted pursuant to this title. Livestock officers and other employees of the department shall report all cases of apparent crimes related to livestock to the associate director. The investigation group shall cooperate and coordinate its activities with appropriate federal, state and local law enforcement agencies in apprehending and prosecuting violators of livestock laws.

Credits

Formerly § 24-104. Amended by Laws 1963, Ch. 83, § 1; Laws 1970, Ch. 155, § 1; Laws 1972, Ch. 174, § 2, eff. May 22, 1972; Laws 1973, Ch. 158, § 262; Laws 1975, Ch. 100, § 1, eff. May 22, 1975; Laws 1977, Ch. 92, § 1, eff. May 26, 1977; Laws 1978, Ch. 201, § 368, eff. Oct. 1, 1978; Laws 1980, Ch. 152, § 4, eff. Jan. 1, 1981; Laws 1982, Ch. 135, § 10; Laws 1983, Ch. 12, § 1; Laws 1986, Ch. 8, § 2; Laws 1986, Ch. 169, § 5, eff. Aug. 13, 1986, retroactively effective to July 1, 1986; Laws 1988, Ch. 165, § 13; Laws 1990, Ch. 76, § 1. Renumbered as § 3-1203 and amended by Laws 1990, Ch. 374, §§ 215, 240, eff. Jan. 1, 1991. Amended by Laws 1992, Ch. 58, § 1; Laws 1997, Ch. 221, § 23; Laws 2002, Ch. 270, § 1; Laws 2006, Ch. 279, § 10.

Notes of Decisions (1)

Footnotes

1 Section 41-1092 et seq.

A. R. S. § 3-1203, AZ ST § 3-1203
Current through legislation effective May 17, 2016 of the Second Regular Session of the Fifty-Second Legislature (2016), and also includes election results from the May 17, 2016 special election

End of Document

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Arizona Revised Statutes Annotated
Title 3. Agriculture (Refs & Annos)
Chapter 13. Slaughter of Animals and Sale of Meat (Refs & Annos)
Article 2. State Meat Inspection (Refs & Annos)

A.R.S. § 3-2046

§ 3-2046. Meat inspection rules; violation; classification

Currentness

A. The director shall adopt reasonable rules necessary to assure that all meat and meat products subject to inspection under this article which are to be sold or distributed for human consumption are free from unwholesome, poisonous or other foreign substances and filth, insects or disease causing organisms. The rules shall provide reasonably necessary measures governing the production, processing, labeling, storing, handling and transportation of such products. The rules shall prescribe minimum standards for the sanitary facilities and conditions which shall be maintained at any plant, packing house or abattoir and in any truck or other vehicle in which meat or meat products are produced, processed, stored, handled or transported.

B. The director upon the advice of the chief veterinary meat inspector shall adopt reasonable rules, including, but not limited to, what the antemortem and postmortem inspection shall consist of, to carry out the purposes of this chapter. The rules shall conform so far as possible to the rules governing meat inspection of the United States department of agriculture. To the extent deemed appropriate by the director the rules may incorporate by reference existing federal meat inspection regulations, but in no case shall the rules exceed the requirements of the United States department of agriculture. All rules adopted to implement this section shall be adopted in compliance with title 41, chapter 6.[1]

Credits

Added as § 24-621.05 by Laws 1956, Ch. 146, § 3. Amended by Laws 1973, Ch. 158, § 266; Laws 1977, Ch. 92, § 2, eff. May 26, 1977; Laws 1982, Ch. 129, § 8; Laws 1986, Ch. 232, § 35, eff. Jan. 1, 1987. Renumbered as § 3-2046 and amended by Laws 1990, Ch. 374, §§ 230, 315, eff. Jan. 1, 1991.

Notes of Decisions (1)

Footnotes

1 Section 41-1001 et seq.

A. R. S. § 3-2046, AZ ST § 3-2046
Current through legislation effective May 17, 2016 of the Second Regular Session of the Fifty-Second Legislature (2016),

and also includes election results from the May 17, 2016 special election

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Arizona Revised Statutes Annotated
Title 3. Agriculture (Refs & Annos)
Chapter 13. Slaughter of Animals and Sale of Meat (Refs & Annos)
Article 5. Poultry (Refs & Annos)

A.R.S. § 3-2161

§ 3-2161. Rules

Currentness

A. The director may by rule prescribe conditions under which poultry products capable of use as human food, shall be stored or otherwise handled by any person engaged in the business of buying, selling, freezing, storing or transporting, in or for intrastate commerce, such articles, whenever the director deems such action necessary to assure that such articles will not be adulterated or misbranded when delivered to the consumer. Violation of any such rule is prohibited.

B. The director shall adopt such other rules as are necessary.

C. When opportunity is afforded for submission of comments by interested persons on proposed rules, it shall include opportunity for oral presentation of views.

Credits

Added as § 24-681 by Laws 1970, Ch. 44, § 1. Renumbered as § 3-2161 and amended by Laws 1990, Ch. 374, §§ 233, 356, eff. Jan. 1, 1991.

A. R. S. § 3-2161, AZ ST § 3-2161
Current through legislation effective May 17, 2016 of the Second Regular Session of the Fifty-Second Legislature (2016), and also includes election results from the May 17, 2016 special election

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ARIZONA DEPARTMENT OF AGRICULTURE (R-16-0803)
Title 3, Chapter 2, Article 8, Dairy and Dairy Products Control

Amend: R3-2-801; R3-2-806

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-4**

TO: Members of the Governor's Regulatory Review Council ("Council")

FROM: Preston Knight, Legal Intern

DATE: July 15, 2016

SUBJECT: **ARIZONA DEPARTMENT OF AGRICULTURE (R-16-0803)**
Title 3, Chapter 2, Article 8, Dairy and Dairy Products Control

Amend: R3-2-801; R3-2-806

General Comments

Purpose of the Agency and Summary of What the Rulemaking Does

The purpose of the Arizona Department of Agriculture (Department) is to "provide for a uniform and coordinated agricultural program and policy in [Arizona]." Laws 2011, Chapter 12 § 3. These rules define terms used in the Article and specify building requirements for parlors and milk rooms. The Department is updating R3-2-806 to remove stringent and overly specific requirements for parlors and milk rooms. The amendments are intended to make compliance easier and reduce potential conflicts with modern practices such as loading directly into milk trucks. The Department is amending R3-2-801 to remove one definition of a term that is no longer used in R3-2-806.

Article Contents, Including the Subject Matter of Each Rule Affected

Article 8 contains eleven rules, two of which are affected by this rulemaking. The amended rules relate to definitions and parlor and milk room requirements.

Year that Each Rule was Last Amended or Newly Made

Section 806 was last amended December 2, 1998 and section 801 was last amended May 3, 2008.

Proposed Action

In addition to technical and stylistic changes, the following is a summary of the actions being taken by the Department:

- Section 801: A definition is being deleted.
- Section 806: Provisions related to building and altering parlors and milk rooms are being amended to allow for more flexibility. The Dairy Supervisor must still approve all plans before parlors and milk rooms are built or extensively altered. The amendments remove very specific requirements such as minimum grade slopes, curb heights, number of vents required, and drainage requirements and replace such requirements with more general requirements leaving the builder with more flexibility in design.

Exemption or Request and Approval for Exception from the Moratorium

The Department received an exception from Governor Ducey's Office on April 11, 2016.

Substantive or Procedural Concerns

None**.**

1. Are the rules legal, consistent with legislative intent, and within the agency's statutory authority?

Yes. The Department cites to both general and specific statutory authority. Under A.R.S. § 3-107(A)(1), the Department Director shall "[f]ormulate the program and policies of the department and adopt administrative rules to effect its program and policies."

As specific authority for the rules, the Department cites to A.R.S. § 3-605(C) which authorizes the Department's Director to "adopt rules necessary to assure that all milk and milk products sold or distributed for human consumption are free from unwholesome, poisonous or other foreign substances and filth, insects or disease-causing organisms. The rules shall prescribe reasonably necessary measurements governing the production, processing, labeling, storing, handling and transportation of milk and milk products."

2. Are the rules written in a manner that is clear, concise, and understandable to the general public?

Yes. As a whole, the rules are written in a clear, concise, and understandable manner.

3. Does the agency adequately address the comments on the proposed rules and any supplemental proposals?

Yes. The Department indicates that it received no written comments regarding the rulemaking.

4. Are the final rules a substantial change, considered as a whole, from the proposed rules and any supplemental proposals?

No. Non-substantive changes were made between the proposed and final rules to correct a typographical error.

5. Does the preamble disclose a reference to any study relevant to the rules that the agency reviewed and either did or did not rely on in the agency's evaluation of or justification for the rules?

No. No study was reviewed.

6. Are the rules more stringent than corresponding federal law and, if so, is there statutory authority that allows the agency to exceed the requirements of federal law?

No. The Department indicates that no federal laws directly correspond to the rules.

7. Do the rules require a permit or license and if so, does the agency use a general permit or is any exception applicable under A.R.S. § 41-1037?

No. The rules do not require a permit. R3-2-806 requires agency approval of construction or renovation plans for parlors or milk rooms. The Department reviews the entire construction or renovation plan before work can begin and issues a general approval for the entire proposed action. The Department allows modifications after approvals for necessary changes as long as the proposed change meets the same requirements for safety and sanitation that are required for the initial plans. The amendments are meant to give producers more flexibility in the construction and renovation of their facility, but they must still continue to operate their facilities in accordance with sanitary rules.

8. Do the rules establish a new fee or contain a fee increase?

No. The rules do not establish a new fee or contain a fee increase.

9. Conclusion

The Department requests the usual 60-day delayed effective date for the rules. This analyst recommends approval of the rules.

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-4**

TO: Members of the Governor's Regulatory Review Council ("Council")

FROM: GRRC Economic Team

DATE: July 15, 2016

SUBJECT: **ARIZONA DEPARTMENT OF AGRICULTURE (R-16-0803)**
Title 3, Chapter 2, Article 8, Dairy and Dairy Products Control

Amend: R3-2-801; R3-2-806

I reviewed the economic, small business, and consumer impact comparison for compliance with A.R.S. § 41-1056 and make the following comments. These comments are made to assist the Council in its review and may be used as the Council determines.

GRRC Economist Comments

In this rulemaking, the Department is simplifying and clarifying the rules by removing some of the stringent and overly specific requirements. This will make compliance with the rules easier, and reduce potential conflicts of modern practices. R3-2-801 is being amended to remove a defined term, because the provision that uses the defined term is being removed from R3-2-806.

1. **Costs and Benefits for:**

a. The implementing agency:

The Department may face minimal costs in educating staff on the new provisions of the rule. The Department may benefit from reduced enforcement and technical assistance costs due to the modernized, more flexible requirements.

b. Political subdivisions:

This rulemaking does not provide any benefits or impose any costs on political subdivisions.

c. Businesses:

The Department does not believe the changes will impose costs on businesses. The Department believes dairy farmers will benefit from the greater flexibility in the new rule.

d. Small businesses:

There currently are 106 permitted dairy farms in Arizona and approximately 5 potential additional businesses that are currently in the planning stages of becoming permitted dairy farms. Dairy farmers in Arizona will directly benefit from the rule update, modernization, and increased flexibility of the rule.

e. Consumers directly affected by the rulemaking:

There are no private persons or consumers directly affected by the rulemaking.

2. Do the probable benefits outweigh the probable costs?

Based on the information provided, The Department indicates that the benefits from the proposed amendments outweigh the costs.

3. Analysis of methods to reduce the small business impact:

i. Establish less costly or less stringent compliance or reporting requirements:

The Department considered the elimination of several building requirements, however it concluded that doing so would affect its ability to meet statutory obligations. The Department does not believe further changes would have a significant benefit on industry.

ii. Establish less costly schedules or less stringent deadlines for compliance or reporting requirements:

The Department considered changing the effective date of the rule or delaying the compliance deadline, however the Department does not believe there are any current projects that would benefit from doing so. The Department believes current industry practices conform to the new rules. The rule is essentially aligning requirements with industry practice. There are no reporting requirements affected by the rulemaking.

iii. Consolidate or simplify compliance or reporting requirements:

The purpose of this rulemaking is to simplify compliance. For the reasons stated herein, the Department believes that further simplification would not be beneficial.

iv. Establish separate performance standards:

The milk parlor rules are food safety rules that establish minimum criteria for operations to produce wholesome products in a sanitary environment. This rulemaking reduces regulatory requirements for the performance standard currently in place. The Department does not believe a further reduction in regulatory requirements for small businesses would be appropriate or useful.

v. Exempt small businesses from any or all requirements:

This rulemaking reduces compliance requirements. Exempting small businesses from this rulemaking would negatively impact them.

4. The probable effect on state revenues:

The proposed rulemaking will have no effect on state revenues.

5. Analysis of any less intrusive or less costly alternative methods:

The Department does not identify any less costly or alternative methods.

6. Whether an analysis was submitted to the agency regarding the rule's impact on the competitiveness of businesses in this state as compared to the competitiveness of businesses in other states:

No analysis was submitted that compares the rule's impact of the competiveness of businesses in this state to the impact on businesses in other states.

7. A description of any data on which a rule is based with an explanation of how the data was obtained and why the data is acceptable data, and the methods used by the agency to evaluate the costs and benefits in the EIS.

The Department indicates that no outside data or studies were used in the development of the proposed rules.

8. Conclusion:

The submitted economic, small business and consumer impact statement is generally accurate, and contains the information required for compliance with A.R.S. §§ 41-1035, 41-1052(D)(1-3), and 41-1055. This analyst recommends that the proposed rules be approved.

DOUG A. DUCEY
Governor

MARK W. KILLIAN
Director

Arizona Department of Agriculture

1688 W. Adams Street, Phoenix, Arizona 85007
(602) 542-3578 FAX (602) 542-0466

June 7, 2016

Nicole Ong, Chairman
Governor's Regulatory Review Council
100 N. 15th Avenue, Suite 402
Phoenix, Arizona 85007

RE: Request for Approval and Cover Letter
Notice of Final Rulemaking for A.A.C. Title 3, Chapter 2, Article 8

Dear Ms. Ong:

Pursuant to R1-6-201, the Arizona Department of Agriculture hereby submits the attached Notice of Final Rulemaking to amend R3-2-801 and R3-2-806 and related documents and requests approval of the same.

The Department requests that the rulemaking be placed on the Council's August 2, 2016 meeting agenda. In accordance with Executive Order 2016-03 the Department received approval of the rulemaking from the Office of the Governor on April 11, 2016.
In accordance with A.A.C. R1-6-201, the Department provides the following additional information:

a. Close of record date: June 6, 2016.

b. Relation of the rulemaking to a five-year review report: This rulemaking does not relate to a five-year review report.

c. Whether the rule establishes a new fee: No.

d. Whether the rule contains a fee increase: No.

e. Immediate effective date: The Department does not request an immediate effective date.

f. Certification regarding studies: The Department certifies that the preamble accurately discloses that no study was reviewed and either relied on or not relied on in the Department's evaluation of or justification for the rule.

g. Certification regarding employees: No new employees are needed to implement or enforce the rule.

h. Documents enclosed and provided electronically:
   1. This request for approval and cover letter;
   2. Notice of Final Rulemaking;
   3. Economic, small business, and consumer impact statement;

i. Additional documents provided electronically:
   1. Material incorporated by reference;
   2. General and specific statutes authorizing the rule;
   3. The existing rules;
   4. Letter sent to the Governor's Office on February 16, 2016;
   5. Email from Governor's Office dated April 11, 2016;
   6. Notice of Proposed Rulemaking;

In addition, no person has submitted an analysis to the Office that compares the rule's impact on the competitiveness of businesses in this state to the competitiveness of businesses in other states.

Please contact Aaron Thompson at (602) 542-8334 or Aaron.Thompson@azag.gov with any questions.

Sincerely,

Mark Killian

mk:at
Enclosures

NOTICE OF PROPOSED RULEMAKING

TITLE 3. AGRICULTURE

CHAPTER 2. DEPARTMENT OF AGRICULTURE

ANIMAL SERVICES DIVISION

PREAMBLE

1.	**Section Affected**	**Rulemaking Action**
	R3-2-801	Amend
	R3-2-806	Amend

2. Citations to the agency's statutory rulemaking authority to include both the authorizing statute (general) and the implementing statute (specific):

Authorizing statute(s): A.R.S. §§ 3-107(A)(1) and 3-605(C).

Implementing statute(s): A.R.S. § 3-606.

3. The effective date of the rule:

60 days after filing in the Office of the Secretary of State of Arizona

a. If the agency selected a date earlier than the 60 day effective date as specified in A.R.S. § 41-1032(A), include the earlier date and state the reason or reasons the agency selected the earlier effective date as provided in A.R.S. § 41-1032(A)(1) through (5):

Not applicable

b. If the agency selected a date later than the 60 day effective date as specified in A.R.S. § 41-1032(A), include the later date and state the reason or reasons the agency selected the later effective date as provided in A.R.S. § 41-1032(B):

Not applicable

4. Citations to all related notices published in the *Register* as specified in R1-1-409(A) that pertain to the record of the final rulemaking package:

Notice of Rulemaking Docket Opening: 22 A.A.R. 1023, May 6, 2016

5. The agency's contact person who can answer questions about the rulemaking:

Name: Roland Mader

Address: Arizona Department of Agriculture
1688 W. Adams Street
Phoenix, AZ 85007

Telephone: (602) 466-0884

Fax: (602) 542-4194

E-mail: rmader@azda.gov

6. An agency's justification and reason why a rule should be made, amended, repealed or renumbered, to include an explanation about the rulemaking:

The requirements of R3-2-806 are outdated. The Department is proposing to simplify and clarify the rules by removing some of the stringent and overly specific requirements. This will make compliance with the rule easier and reduce potential conflicts modern practices. R3-2-801 is being amended to remove a defined term because the provision that uses the defined term is being removed from R3-2-806.

7. A reference to any study relevant to the rule that the agency reviewed and either relied on or did not rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

None

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

Not applicable.

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

The conduct and its frequency of occurrence that the rule is designed to change.

Persons constructing or extensively altering a parlor or milk room must submit the plans to the Dairy Supervisor for written approval. The Department receives plans on a bimonthly basis, approximately. Currently the rules create very specific requirements for the construction and alteration of these facilities. This rule making will provide more flexibility to those seeking approval of their plans.

The harm resulting from the conduct the rule is designed to change and the likelihood it will continue to occur if the rule is not changed:

The current rules are overly specific and strict application in some situations may prohibit modern production and construction practices. For example a strict application of the rule may prevent the direct loading of milk into a tanker trunk.

The estimated change in frequency of the targeted conduct expected from the rule change: The Department will implement the streamlined requirements as soon as this rule is effective.

Brief summary of the information included in the economic, small business, and consumer impact statement:
None of these changes are expected to require any new full-time Department employees. The Department does not believe the changes will have a significant economic impact for business or consumers. If anything there may be some economic befits to dairy farmers due to the greater flexibility in the new rule.

10. A description of any changes between the proposed rulemaking, to include supplemental notices, and the final rulemaking:

In the proposed rulemaking, due to typographical error the Department listed A.R.S. § 3-306 as an implementing statute. The citation was corrected to A.R.S. § 3-606 in the final rulemaking.

11. An agency's summary of the public or stakeholder comments made about the rulemaking and the agency response to the comments:

No comments were received.

12. All agencies shall list other matters prescribed by statute applicable to the specific agency or to any specific rule or class of rules. Additionally, an agency subject to Council review under A.R.S. §§ 41-1052 and 41-1055 shall respond to the following questions:

The Department received permission to conduct rulemaking from the Governor's Office in compliance with Executive Order 2016-03. Pursuant to A.R.S. § 3-104(F), the ADA Advisory Council approved this rulemaking.

a. Whether the rule requires a permit, whether a general permit is used and if not, the reasons why a general permit is not used:

The rules do not require a permit. R3-2-806 requires agency approval of constructing or extensively altering a parlor or milk room. The Department issues a general approval for the entire proposed action and allow for modifications after approvals are granted. R3-2-806(A).

b. Whether a federal law is applicable to the subject of the rule, whether the rule is more stringent than federal law and if so, citation to the statutory authority to exceed the requirements of federal law:

There is not a corresponding federal law for the rules in this rulemaking.

c. Whether a person submitted an analysis to the agency that compares the rule's impact of the competitiveness of business in this state to the impact on business in other states:

No

13. A list of any incorporated by reference material as specified in A.R.S. § 41-1028 and its location in the rules:

The Grade A Pasteurized Milk Ordinance –2013 Revision is incorporated in the definition of "PMO" in R3-2-801.

14. Whether the rule was previously made, amended or repealed as an emergency rule. If so, cite the notice published in the Register as specified in R1-1-409(A). Also, the agency shall state where the text was changed between the emergency and the final rulemaking packages:

Not applicable

15. The full text of the rule follows:

TITLE 3. AGRICULTURE

CHAPTER 2. DEPARTMENT OF AGRICULTURE

ANIMAL SERVICES DIVISION

ARTICLE 8. DAIRY AND DAIRY PRODUCTS CONTROL

Section

R3-2-801. Definitions

R3-2-806. Parlors and Milk Rooms

ARTICLE 8. DAIRY AND DAIRY PRODUCTS CONTROL

R3-2-801. Definitions

In addition to the definitions in A.R.S. §§ 3-601 and 3-661, the following terms apply to this Article:

"3-A Sanitary Standards" and "3-A Accepted Practices," as published by the International Association for Food Protection, amended May 31, 2002, means the criteria for cleanability of dairy processing equipment. This material is incorporated by reference, does not include any later amendments or editions, and is on file with the Department at 1688 W. Adams St., Phoenix, AZ 85007 and is also available at http://www.3-A.org.

"C-I-P" means a procedure by which equipment, pipelines, and other facilities are cleaned-in-place as prescribed in the 3-A Accepted Practices.

"Converted" means the process by which a frozen dessert is changed from a frozen to semi-frozen form without any change in the ingredients.

"Fluid trade product" means any trade product as defined in A.R.S. § 3-661(5) that resembles or imitates milk, lowfat milk, chocolate milk, half and half, or cream.

"Food establishment" means any establishment, except a private residence, that prepares or serves food for human consumption, regardless of whether the food is consumed on the premises.

"Frozen desserts mix" or "mix" means any frozen dessert before being frozen.

"Grade A raw milk" means raw milk produced on a dairy farm that conforms to Section 7 of the PMO and the requirements of R3-2-805.

"Parlor" and "milk room" mean the facilities used for the production of Grade A raw milk for pasteurization.

"Plant" means any place, premise, or establishment, or any part, including specific areas in retail stores, stands, hotels, restaurants, and other establishments where frozen desserts are manufactured, processed, assembled, stored, frozen, or converted for distribution or sale, or both. A plant may consist of rooms or space where utensils or equipment is stored, washed, or sanitized and where ingredients used in manufacturing frozen desserts are stored. Plant includes:

"Manufacturing plant" means a location where frozen desserts are manufactured, processed, pasteurized, and converted.

"Handling plant" means a location that is not equipped or used to manufacture, process, pasteurize, or convert frozen desserts, but where frozen desserts are sold or offered for sale other than at retail.

~~"Plate line" means a horizontal structural member, such as a timber, that provides the bearing and anchorage for the trusses of a roof or the rafters.~~

"PMO" means the Grade A Pasteurized Milk Ordinance –2013 Revision. This material is incorporated by reference, does not include any later amendments or editions, and is on file with the Department at 1688 W. Adams St., Phoenix, AZ 85007. A copy of the incorporated material may also be viewed at http://agriculture.az.gov.

"Retail food store" means any establishment offering packaged or bulk goods for human

consumption for retail sale.

R3-2-806. Parlors and Milk Rooms

A. Construction Plans.

1. Any person constructing or extensively altering a parlor or milk room shall submit the plans and specifications to the Dairy Supervisor for written approval before work begins. The Dairy Supervisor shall approve or deny the plans within 10 business days.
2. Plans shall consist of a scaled plot design with elevations and pertinent dimensions.
3. Any deviations from the requirements in this Section and from approved plans and specifications may be made only after written approval of the Dairy Supervisor.

B. Site.

1. The parlor and milk room shall be located in a place free from contaminated surroundings.
2. Feed racks, calf pens, bull pens, hog pens, poultry pens, horse stables, horse corrals, and shelter sheds shall not be closer than 100 feet to the milk room or closer than 50 feet to the parlor.

C. Surroundings.

1. Dirt or unpaved corrals and unpaved lanes shall not be closer than 25 feet to the parlor or closer than 50 feet to the milk room; corrals shall be constructed to remove runoff from the lowest point of the grade. ~~A minimum 3% slope shall be maintained in unpaved corrals where the available space for each animal is 400 square feet or less but may be reduced proportionately to 1 1/2% slope if 800 square feet or more is provided for each animal.~~
2. A paved (concrete or equivalent) ramp or corral shall be provided to allow the animals to enter and leave the parlor. This paved area shall be curbed sufficiently high enough to contain waste material and water used to clean this area. ~~at least six inches high and six inches wide and sloped to a paved drain area. The paved area shall provide access to permanent feed racks or mangers and to water troughs. Water troughs shall be provided with an apron of concrete or equivalent at least 10 feet wide at the drinking area. The cow standing platform at permanent feed racks shall be paved with concrete or equivalent for at least 10 feet back of the stanchion line. The stanchion line shall have a curb at least one foot in height~~.

D. Drains and waste disposal systems shall be adequate to drain the volume of water used in rinsing and cleaning, as well as the waste created by animals in the parlor .~~Floor level elevations of all structures shall be at least 15 inches above surrounding ground level and shall carry drainage 50 feet from the parlor and at least 100 feet from the milk room~~. Instead of natural drainage, automatic pumps or other means shall be provided for drainage disposal.

E. Milk room.

1. ~~The milk room shall not be more than 15 feet from the parlor and may be located under the same roof (extended) as the parlor~~. The milk room shall consist of one or more rooms for the handling of the milk and the cleaning, sanitization, and storage of the milk-handling equipment. Hot and cold running water outlets shall be provided as needed for sanitation ~~available in each room~~. There shall be a minimum of five feet between a farm milk tank at the widest point and the milk room wall where the wash vats are installed. Except for currently installed milk tanks, there shall be at least three feet between any farm tank or farm tank appurtenance and the milk room walls.

2. Passageway. The passageway between the milk room and parlor shall have at least a 3-foot clearance for ingress and egress ~~and have ceiling or roof ventilation~~. Equipment such as milk receivers, dump tanks, or coolers that are part of an enclosed milk line system may be installed in the passageway if:
   a. A 3-foot clearance is allowed for the walkway;
   b. Space is provided between walls and equipment to permit the disassembly of equipment for cleaning or inspection;
   c. The passageway between the parlor and the milk room may be closed at one end. The parlor may be separated from the passageway by a pipe rail fence if the slope of the parlor floor is away from the passageway. If the slope of the parlor floor is toward the passageway, a concrete wall between the passageway and parlor floor of at least 12 inches in height shall be provided.
   d. Rustless pipe sleeves with tight-fitting flanges and protective closures shall be installed where the milk lines, hoses for tankers, and wash lines go through the walls ~~or stationary doors~~ of the passageway.
3. Floors.
   a. The floors of the milk room, and passageway, if provided, shall be constructed of four-inch thick concrete, or other impervious material troweled smooth. The milk room floor shall slope at least 1/4 inch per 12 inches to a vented trapped drain. The passageway floor shall slope at least one inch per 10 feet toward a drain or gutter. All floor and wall junctions shall have at least a two-inch radius cove. ~~Concrete floors built on soils other than sandy loams shall have a sand or rock cushion at least six inches deep.~~
   b. Drainage from the milk room may be independent from or connected to the parlor drainage. Floor drains shall be vented, have a water trap, and a clean-out plug. All floor drains and pipes under the milk room and parlor floor shall ~~have leakproof connections and~~ meet all applicable plumbing codes.
4. Walls and ceilings.
   a. All walls and ceilings shall be constructed of a light colored, impervious material with a smooth finish. If concrete block or masonry construction is used, all voids below the floor line shall be filled with concrete.
   b. The main ceiling height shall <u>allow sufficient room for access to, and sampling from, the bulk milk storage tank.</u> ~~be at least nine feet above the floor and not less than the height of the farm tank plus two feet. New or extensively altered ceiling shall be at least three feet above the tank. The ceiling may follow the rafters to the plate line which shall be at least 7 feet 3 inches above the floor.~~
5. Doors and windows.
   a. ~~Each room of the milk room shall have at least one glass or other light-transmitting material. The total window area in each room shall be equivalent to at least 1/10 of the floor area~~. All opening windows shall have at least 16-inch mesh screen.
   b. Exterior doors of the milk room shall open outward, be solid, self-closing, and tight fitting. Any door from the passageway shall be a solid door, metal covered on both sides of the bottom half. Wooden door jambs or frames shall terminate six inches above the floor, and the concrete floor cove shall extend to the jambs or frames.
   c. All working areas in the milk room shall contain at least 30 foot-candles of <u>natural and/or artificial</u> lighting.

6. Ventilation. The milk room shall provide adequate ventilation to minimize condensation on ceilings, walls and equipment. Vents shall be protected from the penetration of insects, dust and other contaminants. ~~At least two wall ventilators shall be installed horizontally not more than 10 inches nor less than four inches above the floor in each milk room. The wall ventilators shall provide openings equivalent to 2% of the floor areas. Wall-vent openings shall be equipped with metal framed insect screens.~~ The milk room shall contain one or more ceiling vents. ~~In the absence of forced draft ventilation, the ceiling vents shall be shafted to a roof peak vent that is at least 12 inches in diameter to ventilate the room and exclude dust, rain, birds, insects, and trash. Ceiling vents shall provide high ventilation equivalent to an opening of 2% or more of the floor area~~. Ceiling vents shall not be installed directly above bulk milk storage tanks. ~~Oil or gas water heaters shall be vented outside above the roof edge.~~
7. Tanker loading area. A tanker-loading area, at least 10 feet by 12 feet, paved, curbed, and sloped to drain, shall be provided adjacent to the milk room where milk is transferred from a farm tank to a milk tanker. If a tanker is used instead of a farm tank, a tanker shelter shall be provided that complies with the construction, light, drainage, and general maintenance requirements of the milk room.
8. Farm tank installations. All farm tanks for the cooling and storing of milk shall be installed in the milk room. Bulk milk tanks equipped with agitator shaft opening seals may, if approved by the Dairy Supervisor, be bulk-headed through a wall.

F. Parlor.

1. Floors.
   a. The floors~~, curbs and quarters~~ shall be constructed of four-inch thick concrete or other, light-colored, impervious material, finished smooth. The floors, alleys, gutters, mangers, and curbs shall slope lengthwise ~~at least 1 1/2 inches per 10 feet~~ toward a drain or gutter. The cow standing platform in the elevated stall parlor shall slope sufficiently to provide for adequate drainage and cleaning. ~~at least 1 1/2 inches toward the floor gutter.~~
   b. Floor and wall junctions shall have at least a two-inch radius cove and shall be an integral part of the floor.
   c. ~~The cow standing platform litter alley, feed alley, and gutter shall be given a true, even surface~~. The cow standing platform, litter alley, holding corral and concrete lane shall be treated to prevent slipping. ~~Concrete floors built on soils other than sandy loams shall have a sand or rock cushion at least six inches deep.~~
2. Walls. All walls shall be constructed of a light-colored, impervious material. If necessary, means shall be provided to prevent the entrance of swine, fowl and other prohibited animals. ~~that shall extend at least four feet above the ground floor~~. All walls shall be finished smooth on the inside with the top ledge rounded on open walls. If a parlor wall forms a part of the holding corral or an entrance or exit lane, it shall be finished smooth on the outside. If a concrete block or masonry construction is used, all voids below the floor line shall be filled with concrete. In elevated stall parlors, the wall under the cow standing platform adjacent to the milking area shall be finished smooth and designed to prevent ~~drippage~~ leakage.
3. ~~Plate line. The plate line in the floor level parlor shall be at least 7 feet 3 inches above the floor. In elevated stall parlors, the plate line shall be at least 6 feet 6 inches above the cow standing platform.~~

~~4. Superstructure. The exposed superstructure of the parlor or ceiling shall be constructed of smooth material. The roof sheathing in an exposed superstructure shall be applied directly to the rafters.~~

3.~~5.~~ Stalls. ~~The cow standing platform and floor level parlors shall be at least three feet wide for each cow and shall be at least four feet 10 inches and not more than six feet from the stanchion line to the gutter, depending on the size of the cattle and the design of the manger. If stanchions are not used, the cow standing platform shall be at least 7 feet in length. The cow stall in a tandem elevated stall shall be eight feet in length~~. A tandem stall and a herringbone stall shall have a smooth, flat, non-absorbent splash panel behind each cow.

4.~~6.~~ Light. ~~and airspace. The parlor shall have at least 400 cubic feet of air space for each stall. Window space, with or without glass, shall be equivalent to at least 6% of the floor area. Light-transmitting material in the roof may be substituted for window spaces~~. Natural and/or ~~A~~artificial light shall be at least 30 foot-candles at the floor level and located to minimize shadows in the milking area.

~~7. Alleys.~~

~~a. The litter alley, exclusive of gutter, shall be at least 4 feet 9 inches wide behind a single string of cows. In a 2-string head-out parlor, the litter alley shall be at least eight feet wide between gutters.~~

~~b. In a floor level parlor, the feed alley in single and 2-single head-out types, shall be at least 5 feet 9 inches wide between stanchion line and wall. In 2-string head-in parlors, there shall be at least 10 feet between stanchions.~~

~~c. The milking alley in the 2-string tandem elevated stall parlor shall be at least eight feet wide but may be reduced to five feet at the narrowest point if automatic feeders are installed and used. The width of the milking alley in the 2-string herringbone parlor may be reduced to five feet at the narrowest point.~~

~~d. In the single-string elevated parlor, the milking alley shall be at least eight feet wide.~~

5.~~8.~~ Gutters.

a. All parlors shall have gutters to catch the defecation of cows while in the stall and for any water used for rinsing.

~~b. Gutters in the floor level parlor may be either trench or step-off. The gutter shall be at least 14 inches wide and two inches deep at the cow standing platform. The gutter floor shall slope down away from the cow standing platform 1/2 inch across its width. The gutter shall have a uniform depth for its entire length.~~

~~c. The gutters in an elevated stall parlor shall be grate-covered in the stall and trenched along the outside wall. The stall gutter shall be located to catch defecation of cows in the stall. The stall gutter shall be at least 500 square inches in area and at least 20 inches wide and four inches deep. A herringbone parlor may have the stall gutter width reduced to 14 inches provided a 500 square inch area containing the animal is maintained. The wall gutter shall be at least eight inches wide and three inches deep and the bottom may be rounded. A trench gutter may be eliminated in an exit alley if the alley is curbed and sloped to drain.~~

b.~~d.~~ Pipe used for parlor gutter drainage shall be at least four inches in diameter and meet applicable plumbing codes.

6.~~9.~~ Curbs.

a. In elevated stall parlors, the cow standing platform shall be curbed on the side next to the milking alley and the curb shall be at least six inches in height with the top rounded to retain the elevated stall floor washings. This curb may be lowered to not less than two inches at the area where the milking machines are applied. Metal curbs shall be free of voids and sealed to stall and floor or wall.

b. Floor level parlors shall contain a curb under the stanchion line at least six inches wide, 12 inches high from the stall floor, except if metal mangers are used the top of this curb shall be rounded.

7.~~10~~. Stanchions.

a. The stanchion shall be metal or other impervious, easily cleanable material. ~~The lower horizontal line of the stanchion shall be at least two inches above the curb and at least 14 inches above the floor if no curb is provided.~~

~~b. In floor level parlors, the manger shall have:~~

~~i. A width of at least 27 inches with a back wall at least 12 inches above the floor;~~

~~ii. Rounded corners;~~

~~iii. The low point of the manger at least eight inches out from the stanchion line and three inches above the floor; and~~

~~iv. A lengthwise slope of at least 1 1/2 inches per 10 feet toward a drain or gutter~~.

b.~~c.~~Mangers and feed boxes in all types of parlors shall be constructed of impervious materials, finished smooth, and provided with drainage outlets at low points.

8.~~11.~~ Ventilation.

~~a.~~ Adequate ~~Ventilation~~ ventilation shall be provided in the parlor, holding corral, and wash area, if roofed.

~~b. Continuous open 18-inch ridge vents that rise at least six inches above the roof area are permitted. Any ridge vent continuing over the feed room shall be tightly screened.~~

~~c. If a stack vent is used, single-string parlors shall have a 12-inch diameter opening, and multi-string parlors shall have a 14-inch diameter opening with not more than 10 feet between vent and wall, and vent and vent.~~

~~d. A flat ceiling shall have at least two vents, two feet by two feet or equivalent, shafted to a roof peak vent with not less than a 12-inch opening. The ceiling vents may be located directly over the cow standing platform or the milking pit. The vents shall be located not more than 10 feet between vent and wall, and vent and vent.~~

~~12. The lower half of the parlor doors shall be covered on both sides with corrosion-resistant metal.~~

G. Roof drainage from parlors~~,~~ and milk rooms~~, or shelters~~ shall not drain into a corral unless the corral is paved and properly drained.

H. If animals are fed in the parlor, feed storage facilities shall be provided. Feed storage rooms, when installed, shall be partitioned from the parlor and shall be fly and rodent proof. The feed discharge area of the bulk feed storage shall be concrete or other impervious material that is curbed and drained. Bulk feed may discharge directly into the parlor. A bulk feed tank located opposite the passageway shall be at least six feet from the milk room. Overhead feed storage is permissible if it is fly, rodent, and dust tight. Feed shall be conveyed to the manger or feed box in a tightly closed dust-free system. Overhead metal feed tanks may be used.

I. Facilities to store dairy supplies shall be provided. Only supplies that come in contact with the milk or milk contact surface of the milk-handling equipment may be stored in the milk room and shall be protected from toxic materials, vectors, and dust.

ECONOMIC, SMALL BUSINESS, AND CONSUMER IMPACT STATEMENT

TITLE 3. AGRICULTURE
CHAPTER 2. DEPARTMENT OF AGRICULTURE
ANIMAL SERVICES DIVISION

R3-2-801 and R3-2-806

1. Identification of the rulemaking:

The requirements of R3-2-806 are outdated. The Department is proposing to simplify and clarify the rules by removing some of the stringent and overly specific requirements. This will make compliance with the rule easier and reduce potential conflicts modern practices. R3-2-801 is being amended to remove a defined term because the provision that uses the defined term is being removed from R3-2-806.

a. The conduct and its frequency of occurrence that the rule is designed to change:

Persons constructing or extensively altering a parlor or milk room must submit the plans to the Dairy Supervisor for written approval. The Department receives plans on a bimonthly basis, approximately. Currently the rules create very specific requirements for the construction and alteration of these facilities. This rule making will provide more flexibility to those seeking approval of their plans.

b. The harm resulting from the conduct the rule is designed to change and the likelihood it will continue to occur if the rule is not changed:

The current rules are overly specific and strict application in some situations may prohibit modern production and construction practices. For example a strict application of the rule may prevent the direct loading of milk into a tanker trunk.

c. The estimated change in frequency of the targeted conduct expected from the rule change:

The Department will implement the streamlined requirements as soon as this rule is effective.

2. A brief summary of the information included in the economic, small business, and consumer impact statement:

None of these changes are expected to require any new full-time Department employees.
The Department does not believe the changes will have a significant economic impact for business or consumers. If anything there may be some economic befits to dairy farmers due to the greater flexibility in the new rule.

3. The person to contact to submit or request additional data on the information included in the economic, small business, and consumer impact statement:

Name: Roland Mader

Address: Arizona Department of Agriculture
1688 W. Adams Street
Phoenix, AZ 85007

Telephone: (602) 466-0884

Fax: (602) 542-4194

E-mail: rmader@azda.gov

4. Persons who will be directly affected by, bear the costs of, or directly benefit from the rulemaking:

Dairy farmers in Arizona will directly benefit from the rule update, modernization, and increased flexibility of the rule.

5. Cost-benefit analysis:

a. Costs and benefits to state agencies directly affected by the rulemaking:

The Department will have nominal costs in educating staff on the new provisions of the rule. The Department may benefit from reduced enforcement and technical assistance costs due to the modernized, more flexible requirements..

The number of new full-time employees at the implementing agency required to implement and enforce the proposed rule:

None

b. Costs and benefits to political subdivisions directly affected by the rulemaking:

None

c. Costs and benefits to businesses directly affected by the rulemaking:

The Department does not believe the changes will have a cost for business. The Department believes dairy farmers will benefit from the greater flexibility in the new rule.

6. Impact on private and public employment:

The Department does not believe this rule will have any impact on private or public employment.

7. Impact on small businesses:

a. Identification of the small businesses subject to the rulemaking:

There currently are 106 permitted dairy farms in Arizona and an approximately 5 potential additional businesses that are currently in the planning stages of becoming permitted dairy farms.

b. Administrative and other costs required for compliance with the rulemaking:

The only administrative cost that may occur would be obtaining knowledge or information on the rulemaking.

c. Description of methods that may be used to reduce the impact on small businesses:

i. Establish less costly or less stringent compliance or reporting requirements:

The Department could eliminate more building requirements, but doing so would affect its ability to meet its statutory obligations, and it does not believe further changes would have a significant benefit on industry.

ii. Establish less costly schedules or less stringent deadlines for compliance or reporting requirements:

The Department could change the effective date of the rule or have a delayed compliance deadline, but the Department does not believe there are any current projects that would benefit from doing so. The Department believes current industry practices conform to the new rules. The rule is essentially being brought in line with industry practice. There are no reporting requirements affected by the rulemaking.

iii. Consolidate or simplify compliance or reporting requirements:

The purpose of this rulemaking is to simplify compliance. For the reasons stated herein the Department believes that further simplification would not be beneficial.

iv. Establish separate performance standards:

The milk parlor rules are food safety rules that establish minimum criteria for operations to produce wholesome products in a sanitary environment. Furthermore, this rulemaking decreases the performance standard. The Department does not believe further decrease or separate standards for small businesses would be appropriate or useful.

v. Exempt small businesses from any or all requirements:

This rulemaking decreases compliance requirements. Exempting small business from this rulemaking would be a determent to small businesses.

8. Cost and benefit to private persons and consumers who are directly affected by the rulemaking:

The Department does not believe consumers or private persons other than dairy farmers will be directly affected by the rulemaking. Consumers could be indirectly affected by reduced compliance requirements on producers. There may be some similar correlation between builders and constructors of milk parlors and the rulemaking. However, the Department finds these affects to be unlikely, because it believes industry already operates in a manner reflected by the rulemaking.

9. Probable effects on state revenues:

None

10. Less intrusive or less costly alternative methods considered:

The Department did not identify any less costly or alternative methods. It reviewed the requirements in this section and attempted to make them as least intrusive and costly as possible, considering its statutory and regulatory objectives.

a. Monetizing of the costs and benefits for each option:

None

b. Rationale for not using non-selected alternatives:

None

11. A description of any data on which a rule is based with a detailed explanation of how the data was obtained and why the data is acceptable data. An agency advocating that any data is acceptable data has the burden of proving that the data is acceptable. For the purposes of this paragraph, “acceptable data” means empirical, replicable and testable data as evidenced in supporting documentation, statistics, reports, studies, or research:

None

R3-2-801. Definitions

In addition to the definitions in A.R.S. §§ 3-601 and 3-661, the following terms apply to this Article:

"3-A Sanitary Standards" and "3-A Accepted Practices," as published by the International Association for Food Protection, amended May 31, 2002, means the criteria for cleanability of dairy processing equipment. This material is incorporated by reference, does not include any later amendments or editions, and is on file with the Department at 1688 W. Adams St., Phoenix, AZ 85007 and is also available at http://www.3-A.org.

"C-I-P" means a procedure by which equipment, pipelines, and other facilities are cleaned-in-place as prescribed in the 3-A Accepted Practices.

"Converted" means the process by which a frozen dessert is changed from a frozen to semi-frozen form without any change in the ingredients.

"Fluid trade product" means any trade product as defined in A.R.S. § 3-661(5) that resembles or imitates milk, lowfat milk, chocolate milk, half and half, or cream.

"Food establishment" means any establishment, except a private residence, that prepares or serves food for human consumption, regardless of whether the food is consumed on the premises.

"Frozen desserts mix" or "mix" means any frozen dessert before being frozen.

"Grade A raw milk" means raw milk produced on a dairy farm that conforms to Section 7 of the PMO and the requirements of R3-2-805.

"Parlor" and "milk room" mean the facilities used for the production of Grade A raw milk for pasteurization.

"Plant" means any place, premise, or establishment, or any part, including specific areas in retail stores, stands, hotels, restaurants, and other establishments where frozen desserts are manufactured, processed, assembled, stored, frozen, or converted for distribution or sale, or both. A plant may consist of rooms or space where utensils or equipment is stored, washed, or sanitized and where ingredients used in manufacturing frozen desserts are stored. Plant includes:

"Manufacturing plant" means a location where frozen desserts are manufactured, processed, pasteurized, and converted.

"Handling plant" means a location that is not equipped or used to manufacture, process, pasteurize, or convert frozen desserts, but where frozen desserts are sold or offered for sale other than at retail.

"Plate line" means a horizontal structural member, such as a timber, that provides the bearing and anchorage for the trusses of a roof or the rafters.

"PMO" means the Grade A Pasteurized Milk Ordinance – 1978 Recommendations of the United States Public Health Service/Food and Drug Administration, 2005 Revision. This material is incorporated by reference, does not include any later amendments or editions, and is on file with the Department at 1688 W. Adams St., Phoenix, AZ 85007 and the Department of Health and Human Services, Public Health Services, Food and Drug Administration, Dairy and Egg Branch (HFS-316), 5100 Paint Branch Parkway, College Park, MD 20740-3835.

"Retail food store" means any establishment offering packaged or bulk goods for human consumption for retail sale.

R3-2-806. Parlors and Milk Rooms

A. Construction Plans.

1. Any person constructing or extensively altering a parlor or milk room shall submit the plans and specifications to the Dairy Supervisor for written approval before work begins. The Dairy Supervisor shall approve or deny the plans within 10 business days.
2. Plans shall consist of a scaled plot design with elevations and pertinent dimensions.
3. Any deviations from the requirements in this Section and from approved plans and specifications may be made only after written approval of the Dairy Supervisor.

B. Site.

1. The parlor and milk room shall be located in a place free from contaminated surroundings.
2. Feed racks, calf pens, bull pens, hog pens, poultry pens, horse stables, horse corrals, and shelter sheds shall not be closer than 100 feet to the milk room or closer than 50 feet to the parlor.

C. Surroundings.

1. Dirt or unpaved corrals and unpaved lanes shall not be closer than 25 feet to the parlor or closer than 50 feet to the milk room; corrals shall be constructed to remove runoff from the lowest point of the grade. A minimum 3% slope shall be maintained in unpaved corrals where the available space for each animal is 400 square feet or less but may be reduced proportionately to 1 1/2% slope if 800 square feet or more is provided for each animal.
2. A paved (concrete or equivalent) ramp or corral shall be provided to allow the animals to enter and leave the parlor. This paved area shall be curbed at least six inches high and six inches wide and sloped to a paved drain area. The paved

area shall provide access to permanent feed racks or mangers and to water troughs. Water troughs shall be provided with an apron of concrete or equivalent at least 10 feet wide at the drinking area. The cow standing platform at permanent feed racks shall be paved with concrete or equivalent for at least 10 feet back of the stanchion line. The stanchion line shall have a curb at least one foot in height.

D. Floor level elevations of all structures shall be at least 15 inches above surrounding ground level and shall carry drainage 50 feet from the parlor and at least 100 feet from the milk room. Instead of natural drainage, automatic pumps or other means shall be provided for drainage disposal.

E. Milk room.

1. The milk room shall not be more than 15 feet from the parlor and may be located under the same roof (extended) as the parlor. The milk room shall consist of one or more rooms for the handling of the milk and the cleaning, sanitization, and storage of the milk-handling equipment. Hot and cold running water outlets shall be available in each room. There shall be a minimum of five feet between a farm milk tank at the widest point and the milk room wall where the wash vats are installed. Except for currently installed milk tanks, there shall be at least three feet between any farm tank or farm tank appurtenance and the milk room walls.
2. Passageway. The passageway between the milk room and parlor shall have at least a 3-foot clearance for ingress and egress and have ceiling or roof ventilation. Equipment such as milk receivers, dump tanks, or coolers that are part of an enclosed milk line system may be installed in the passageway if:
   a. A 3-foot clearance is allowed for the walkway;
   b. Space is provided between walls and equipment to permit the disassembly of equipment for cleaning or inspection;
   c. The passageway between the parlor and the milk room may be closed at one end. The parlor may be separated from the passageway by a pipe rail fence if the slope of the parlor floor is away from the passageway. If the slope of the parlor floor is toward the passageway, a concrete wall between the passageway and parlor floor of at least 12 inches in height shall be provided.
   d. Rustless pipe sleeves with tight-fitting flanges and protective closures shall be installed where the milk lines, hoses for tankers, and wash lines go through the walls or stationary doors of the passageway.
3. Floors.
   a. The floors of the milk room, and passageway, if provided, shall be constructed of four-inch thick concrete, or other impervious material troweled smooth. The milk room floor shall slope at least 1/4 inch per 12 inches to a vented trapped drain. The passageway floor shall slope at least one inch per 10 feet toward a drain or gutter. All floor and wall junctions shall have at least a two-inch radius cove. Concrete floors built on soils other than sandy loams shall have a sand or rock cushion at least six inches deep.
   b. Drainage from the milk room may be independent from or connected to the parlor drainage. Floor drains shall be vented, have a water trap, and a clean-out plug. All floor drains and pipes under the milk room and parlor floor shall have leakproof connections and meet all applicable plumbing codes.
4. Walls and ceilings.
   a. All walls and ceilings shall be constructed of a light colored, impervious material with a smooth finish. If concrete block or masonry construction is used, all voids below the floor line shall be filled with concrete.
   b. The main ceiling height shall be at least nine feet above the floor and not less than the height of the farm tank plus two feet. New or extensively altered ceiling shall be at least three feet above the tank. The ceiling may follow the rafters to the plate line which shall be at least 7 feet 3 inches above the floor.
5. Doors and windows.
   a. Each room of the milk room shall have at least one glass or other light-transmitting material. The total window area in each room shall be equivalent to at least 1/10 of the floor area. All opening windows shall have at least 16-inch mesh screen.
   b. Exterior doors of the milk room shall open outward, be solid, self-closing, and tight fitting. Any door from the passageway shall be a solid door, metal covered on both sides of the bottom half. Wooden door jambs or frames shall terminate six inches above the floor, and the concrete floor cove shall extend to the jambs or frames.
   c. All working areas in the milk room shall contain at least 30 foot-candles of lighting.
6. Ventilation. At least two wall ventilators shall be installed horizontally not more than 10 inches nor less than four inches above the floor in each milk room. The wall ventilators shall provide openings equivalent to 2% of the floor areas. Wall-vent openings shall be equipped with metal framed insect screens. The milk room shall contain ceiling vents. In the absence of forced draft ventilation, the ceiling vents shall be shafted to a roof peak vent that is at least 12 inches in diameter to ventilate the room and exclude dust, rain, birds, insects, and trash. Ceiling vents shall provide high ventilation equivalent to an opening of 2% or more of the floor area. Ceiling vents shall not be installed directly above bulk milk storage tanks. Oil or gas water heaters shall be vented outside above the roof edge.
7. Tanker loading area. A tanker-loading area, at least 10 feet by 12 feet, paved, curbed, and sloped to drain, shall be provided adjacent to the milk room where milk is transferred from a farm tank to a milk tanker. If a tanker is used instead of a farm tank, a tanker shelter shall be provided that complies with the construction, light, drainage, and general maintenance requirements of the milk room.

8. Farm tank installations. All farm tanks for the cooling and storing of milk shall be installed in the milk room. Bulk milk tanks equipped with agitator shaft opening seals may, if approved by the Dairy Supervisor, be bulk-headed through a wall.

F. Parlor.

1. Floors.
   a. The floors, curbs and quarters shall be constructed of four-inch thick concrete or other, light-colored, impervious material, finished smooth. The floors, alleys, gutters, mangers, and curbs shall slope lengthwise at least 1 1/2 inches per 10 feet toward a drain or gutter. The cow standing platform in the elevated stall parlor shall slope at least 1 1/2 inches toward the floor gutter.
   b. Floor and wall junctions shall have at least a two-inch radius cove and shall be an integral part of the floor.
   c. The cow standing platform litter alley, feed alley, and gutter shall be given a true, even surface. The cow standing platform, litter alley, holding corral and concrete lane shall be treated to prevent slipping. Concrete floors built on soils other than sandy loams shall have a sand or rock cushion at least six inches deep.
2. Walls. All walls shall be constructed of a light-colored, impervious material that shall extend at least four feet above the ground floor. All walls shall be finished smooth on the inside with the top ledge rounded on open walls. If a parlor wall forms a part of the holding corral or an entrance or exit lane, it shall be finished smooth on the outside. If a concrete block or masonry construction is used, all voids below the floor line shall be filled with concrete. In elevated stall parlors, the wall under the cow standing platform adjacent to the milking area shall be finished smooth and designed to prevent drippage.
3. Plate line. The plate line in the floor level parlor shall be at least 7 feet 3 inches above the floor. In elevated stall parlors, the plate line shall be at least 6 feet 6 inches above the cow standing platform.
4. Superstructure. The exposed superstructure of the parlor or ceiling shall be constructed of smooth material. The roof sheathing in an exposed superstructure shall be applied directly to the rafters.
5. Stalls. The cow standing platform and floor level parlors shall be at least three feet wide for each cow and shall be at least four feet 10 inches and not more than six feet from the stanchion line to the gutter, depending on the size of the cattle and the design of the manger. If stanchions are not used, the cow standing platform shall be at least 7 feet in length. The cow stall in a tandem elevated stall shall be eight feet in length. A tandem stall and a herringbone stall shall have a smooth, flat, non-absorbent splash panel behind each cow.
6. Light and airspace. The parlor shall have at least 400 cubic feet of air space for each stall. Window space, with or without glass, shall be equivalent to at least 6% of the floor area. Light-transmitting material in the roof may be substituted for window spaces. Artificial light shall be at least 30 footcandles at the floor level and located to minimize shadows in the milking area.
7. Alleys.
   a. The litter alley, exclusive of gutter, shall be at least 4 feet 9 inches wide behind a single string of cows. In a 2-string head-out parlor, the litter alley shall be at least eight feet wide between gutters.
   b. In a floor level parlor, the feed alley in single and 2-single head-out types, shall be at least 5 feet 9 inches wide between stanchion line and wall. In 2-string head-in parlors, there shall be at least 10 feet between stanchions.
   c. The milking alley in the 2-string tandem elevated stall parlor shall be at least eight feet wide but may be reduced to five feet at the narrowest point if automatic feeders are installed and used. The width of the milking alley in the 2-string herringbone parlor may be reduced to five feet at the narrowest point.
   d. In the single-string elevated parlor, the milking alley shall be at least eight feet wide.
8. Gutters.
   a. All parlors shall have gutters to catch the defecation of cows while in the stall and for any water used for rinsing.
   b. Gutters in the floor level parlor may be either trench or step-off. The gutter shall be at least 14 inches wide and two inches deep at the cow standing platform. The gutter floor shall slope down away from the cow standing platform 1/2 inch across its width. The gutter shall have a uniform depth for its entire length.
   c. The gutters in an elevated stall parlor shall be grate-covered in the stall and trenched along the outside wall. The stall gutter shall be located to catch defecation of cows in the stall. The stall gutter shall be at least 500 square inches in area and at least 20 inches wide and four inches deep. A herringbone parlor may have the stall gutter width reduced to 14 inches provided a 500 square inch area containing the animal is maintained. The wall gutter shall be at least eight inches wide and three inches deep and the bottom may be rounded. A trench gutter may be eliminated in an exit alley if the alley is curbed and sloped to drain.
   d. Pipe used for parlor gutter drainage shall be at least four inches in diameter and meet applicable plumbing codes.
9. Curbs.
   a. In elevated stall parlors, the cow standing platform shall be curbed on the side next to the milking alley and the curb shall be at least six inches in height with the top rounded to retain the elevated stall floor washings. This curb may be lowered to not less than two inches at the area where the milking machines are applied. Metal curbs shall be free of voids and sealed to stall and floor or wall.
   b. Floor level parlors shall contain a curb under the stanchion line at least six inches wide, 12 inches high from the stall floor, except if metal mangers are used the top of this curb shall be rounded.
10. Stanchions.

a. The stanchion shall be metal or other impervious, easily cleanable material. The lower horizontal line of the stanchion shall be at least two inches above the curb and at least 14 inches above the floor if no curb is provided.
b. In floor level parlors, the manger shall have:
    i. A width of at least 27 inches with a back wall at least 12 inches above the floor;
    ii. Rounded corners;
    iii. The low point of the manger at least eight inches out from the stanchion line and three inches above the floor; and
    iv. A lengthwise slope of at least 1 1/2 inches per 10 feet toward a drain or gutter.
c. Mangers and feed boxes in all types of parlors shall be constructed of impervious materials, finished smooth, and provided with drainage outlets at low points.

11. Ventilation.
    a. Ventilation shall be provided in the parlor, holding corral, and wash area, if roofed.
    b. Continuous open 18-inch ridge vents that rise at least six inches above the roof area are permitted. Any ridge vent continuing over the feed room shall be tightly screened.
    c. If a stack vent is used, single string parlors shall have a 12-inch diameter opening, and multi-string parlors shall have a 14-inch diameter opening with not more than 10 feet between vent and wall, and vent and vent.
    d. A flat ceiling shall have at least two vents, two feet by two feet or equivalent, shafted to a roof peak vent with not less than a 12-inch opening. The ceiling vents may be located directly over the cow standing platform or the milking pit. The vents shall be located not more than 10 feet between vent and wall, and vent and vent.
12. The lower half of the parlor doors shall be covered on both sides with corrosion-resistant metal.

G. Roof drainage from parlors, milk rooms, or shelters shall not drain into a corral unless the corral is paved and properly drained.

H. If animals are fed in the parlor, feed storage facilities shall be provided. Feed storage rooms, when installed, shall be partitioned from the parlor and shall be fly and rodent proof. The feed discharge area of the bulk feed storage shall be concrete or other impervious material that is curbed and drained. Bulk feed may discharge directly into the parlor. A bulk feed tank located opposite the passageway shall be at least six feet from the milk room. Overhead feed storage is permissible if it is fly, rodent, and dust tight. Feed shall be conveyed to the manger or feed box in a tightly closed dust-free system. Overhead metal feed tanks may be used.

I. Facilities to store dairy supplies shall be provided. Only supplies that come in contact with the milk or milk contact surface of the milk-handling equipment may be stored in the milk room and shall be protected from toxic materials, vectors, and dust.

Arizona Revised Statutes Annotated
Title 3. Agriculture (Refs & Annos)
Chapter 1. Agricultural Administration (Refs & Annos)
Article 1. Department of Agriculture (Refs & Annos)

A.R.S. § 3-107

§ 3-107. Organizational and administrative powers and duties of the director

Effective: September 13, 2013

Currentness

A. The director shall:

1. Formulate the program and policies of the department and adopt administrative rules to effect its program and policies.

2. Ensure coordination and cooperation in the department in order to achieve a unified policy of administering and executing its responsibilities.

3. Subject to § 35-149, accept, expend and account for gifts, grants, devises and other contributions of money or property from any public or private source, including the federal government. All contributions shall be included in the annual report under paragraph 6 of this subsection. Monies received under this paragraph shall be deposited, pursuant to §§ 35-146 and 35-147, in special funds for the purpose specified, which are exempt from the provisions of § 35-190 relating to lapsing of appropriations.

4. Contract and enter into interagency and intergovernmental agreements pursuant to title 11, chapter 7, article 3[1] with any private party or public agency.

5. Administer oaths to witnesses and issue and direct the service of subpoenas requiring witnesses to attend and testify at or requiring the production of evidence in hearings, investigations and other proceedings.

6. Not later than September 30 each year, issue a report to the governor and the legislature of the department's activities during the preceding fiscal year. The report may recommend statutory changes to improve the department's ability to achieve the purposes and policies established by law. The director shall provide a copy of the report to the Arizona state library, archives and public records.

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7. Establish, equip and maintain a central office in Phoenix and field offices as the director deems necessary.

8. Sign all vouchers to expend money under this title, which shall be paid as other claims against this state out of the appropriations to the department.

9. Coordinate agricultural education efforts to foster an understanding of Arizona agriculture and to promote a more efficient cooperation and understanding among agricultural educators, producers, dealers, buyers, mass media and the consuming public to stimulate the production, consumption and marketing of Arizona agricultural products.

10. Employ staff subject to title 41, chapter 4, article 4[2] and terminate employment for cause as provided by title 41, chapter 4, article 5.[3]

11. Conduct hearings on appeals by producers regarding the assessed actual costs of the plow up and the penalty of one hundred fifty per cent for unpaid costs pursuant to § 3-204.01. The director may adopt rules to implement this paragraph.

12. Cooperate with the Arizona-Mexico commission in the governor's office and with researchers at universities in this state to collect data and conduct projects in the United States and Mexico on issues that are within the scope of the department's duties and that relate to quality of life, trade and economic development in this state in a manner that will help the Arizona-Mexico commission to assess and enhance the economic competitiveness of this state and of the Arizona-Mexico region.

B. The director may:

1. Authorize in writing any qualified officer or employee in the department to perform any act that the director is authorized or required to do by law.

2. Construct and operate border inspection stations or other necessary facilities in this state and cooperate by joint agreement with an adjoining state in constructing and operating border inspection stations or other facilities within the boundaries of this state or of the adjoining state.

3. Cooperate with agencies of the United States and other states and other agencies of this state and enter into agreements in developing and administering state and federal agricultural programs regarding the use of department officers, inspectors or other resources in this state, in other states or in other countries.

4. Cooperate with the office of tourism in distributing Arizona tourist information.

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5. Enter into compliance agreements with any person, state or regulatory agency. For the purposes of this paragraph, "compliance agreement" means any written agreement or permit between a person and the department for the purpose of enforcing the department's requirements.

6. Abate, suppress, control, regulate, seize, quarantine or destroy any agricultural product or foodstuff that is adulterated or contaminated as the result of an accident at a commercial nuclear generating station as defined in § 26-301, paragraph 1. A person owning an agricultural product or foodstuff that has been subject to this paragraph may request a hearing pursuant to title 41, chapter 6, article 10.[4]

7. Engage in joint venture activities with businesses and commodity groups that are specifically designed to further the mission of the department, that comply with the constitution and laws of the United States and that do not compete with private enterprise.

8. Sell, exchange or otherwise dispose of personal property labeled with the "Arizona grown" trademark. Revenues received pursuant to this paragraph shall be credited to the commodity promotion fund established by § 3-109.02.

Credits

Added by Laws 1989, Ch. 162, § 3, eff. Jan. 1, 1991. Amended by Laws 1990, Ch. 374, § 4, eff. Jan. 1, 1991; Laws 1993, Ch. 175, § 2; Laws 1996, Ch. 266, § 1; Laws 1997, Ch. 49, § 1; Laws 1997, Ch. 228, § 2, eff. July 21, 1997, retroactively effective to July 1, 1997; Laws 2000, Ch. 113, § 1; Laws 2000, Ch. 193, § 1; Laws 2000, Ch. 234, § 3; Laws 2001, Ch. 231, § 1; Laws 2002, Ch. 48, § 1, eff. April 20, 2002; Laws 2004, Ch. 301, § 2; Laws 2012, Ch. 321, § 1, eff. Sept. 29, 2012; Laws 2013, Ch. 161, § 1.

Notes of Decisions (2)

Footnotes

1 Section 11-951 et seq.

2 Section 41-741 et seq.

3 Section 41-771 et seq.

4 Section 41-1092 et seq.

A. R. S. § 3-107, AZ ST § 3-107
Current through legislation effective May 17, 2016 of the Second Regular Session of the Fifty-Second Legislature (2016), and also includes election results from the May 17, 2016 special election

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A.R.S. § 3-605

§ 3-605. Federal milk ordinance; health and sanitation provisions; exemption

Effective: July 24, 2014

Currentness

A. Unless inconsistent with this chapter, the production, transportation, handling and sale of milk and milk products and the inspection of dairy herds, dairies and milk plants shall be regulated in accordance with the terms of the federal milk ordinance.

B. The words "health authority" when used in the federal milk ordinance means the director or the director's authorized representative.

C. Powers and duties in the federal milk ordinance relating to health and sanitation are vested in the director. In addition, the director shall adopt rules necessary to assure that all milk and milk products sold or distributed for human consumption are free from unwholesome, poisonous or other foreign substances and filth, insects or disease-causing organisms. The rules shall prescribe reasonably necessary measurements governing the production, processing, labeling, storing, handling and transportation of milk and milk products. The rules shall prescribe minimum standards for the sanitary facilities and conditions that shall be maintained in any dairy or other facility and in any truck or other vehicle in which milk or milk products are produced, processed, handled or transported. The rules shall provide for the inspection and licensing of premises and vehicles so used, and for abatement as public nuisances of any premises or vehicles that do not comply with rules and minimum standards. This subsection and the rules prescribed pursuant to this subsection do not apply to dispensing and selling frozen desserts at retail.

D. The provisions of the federal milk ordinance apply to this state.

E. The department is exempt from the rulemaking requirements of title 41, chapter 6[1] for the purpose of adopting and implementing the federal milk ordinance.

Credits

Amended by Laws 1956, Ch. 90, § 2, eff. July 14, 1956; Laws 1963, Ch. 24, § 1; Laws 1970, Ch. 48, § 2; Laws 1975, Ch. 104, § 3, eff. May 27, 1975; Laws 1984, Ch. 339, § 3, eff. Aug. 3, 1984, retroactively effective to July 1, 1984; Laws 1988,

Ch. 143, § 2, eff. June 2, 1988; Laws 1990, Ch. 374, § 133, eff. Jan. 1, 1991; Laws 2004, Ch. 301, § 17; Laws 2014, Ch. 82, § 1.

Notes of Decisions (11)

Footnotes

1 Section 41-1001 et seq.

A. R. S. § 3-605, AZ ST § 3-605
Current through legislation effective May 17, 2016 of the Second Regular Session of the Fifty-Second Legislature (2016), and also includes election results from the May 17, 2016 special election

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Arizona Revised Statutes Annotated
Title 3. Agriculture (Refs & Annos)
Chapter 4. Dairies and Dairying
Article 1. General Provisions (Refs & Annos)

A.R.S. § 3-606

§ 3-606. Sale of milk, milk products, raw milk and raw milk products; regulation

Currentness

A. All milk and milk products, including cottage cheese, as defined in the federal milk ordinance, sold to the final consumer, restaurants, soda fountains, grocery stores or similar establishments shall be grade A pasteurized or certified pasteurized milk and milk products. No other milk or milk products may be sold to the final consumer, restaurants, soda fountains, grocery stores or similar establishments except:

1. Grade A raw or certified raw milk and cream only when produced and bottled or produced, manufactured and placed in containers for final sale within this state.

2. Cottage cheese, buttermilk, butter, kefir and other cheeses made from grade A raw or certified raw milk.

3. Manufactured milk products made from manufacturing milk.

B. Any raw milk, raw cream or raw milk products authorized under subsection A shall meet the same health and sanitation standards provided for in this chapter for similar grade A pasteurized milk and milk products.

C. Raw milk or cream or cottage cheese, butter, buttermilk, kefir or cheeses made from raw milk or cream shall be displayed for sale separately from and shall not be commingled with pasteurized dairy products. The display shall be prominently marked “raw milk” or “raw milk products”. The principal display panel of the label on a raw milk product shall prominently state “raw milk product”. The principal display panel of the label on raw milk shall prominently state “raw milk: not pasteurized and may contain organisms injurious to your health.” In each case the label statement shall appear in conspicuous and easily legible bold-faced print or type in distinct contrast to other matter on the package. The label statement shall appear as a distinct item on the principal display panel, shall be separated by a space at least equal to the height of the lettering used in the statement from other printed label information appearing above or below the statement and by a space at least equal to twice the width of the letter “N” of the type style used in the statement from other printed label information appearing to the left or right of the statement. The statement shall be in letters in a type size established in relationship to the area of the principal display panel of the package and shall be uniform for all packages of substantially the same size by complying with the following type specifications:

1. Not less than one-eighth inch in height on packages the principal display panel of which has an area of twenty-five square inches or less.

2. Not less than three-sixteenths inch in height on packages the principal display panel of which has an area of more than twenty-five but not more than one hundred square inches.

3. Not less than one-fourth inch in height on packages the principal display panel of which has an area of more than one hundred square inches but not more than four hundred square inches.

4. Not less than one-half inch in height on packages the principal display panel of which has an area of more than four hundred square inches.

D. Raw milk products authorized under the provisions of subsection A may be produced outside this state and sold in this state and may be manufactured and placed in containers for final sale on premises other than those where the milk is produced.

E. Raw milk and raw milk products authorized under subsection A may not be sold or used by restaurants, soda fountains or other similar establishments.

Credits

Amended by Laws 1963, Ch. 24, § 2; Laws 1980, Ch. 234, § 2, eff. April 23, 1980; Laws 1981, Ch. 21, § 1; Laws 1982, Ch.

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147, § 2; Laws 1984, Ch. 373, § 1, eff. May 8, 1984.

A. R. S. § 3-606, AZ ST § 3-606
Current through legislation effective May 17, 2016 of the Second Regular Session of the Fifty-Second Legislature (2016), and also includes election results from the May 17, 2016 special election

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F-5

ARIZONA GAME AND FISH DEPARTMENT (R-16-0804)
Title 12, Chapter 4, Article 7, Heritage Grants

Amend:	R12-4-701; R12-4-702
Repeal:	R12-4-703; R12-4-704; R12-4-705; R12-4-706; R12-4-707; R12-4-708

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-5**

TO: Members of the Governor's Regulatory Review Council ("Council")

FROM: Shama Thathi, Staff Attorney

DATE: July 15, 2016

SUBJECT: **ARIZONA GAME AND FISH COMMISSION (R-16-0804)**
Title 12, Chapter 4, Article 7, Heritage Grants

Amend: R12-4-701; R12-4-702

Repeal: R12-4-703; R12-4-704; R12-4-705; R12-4-706; R12-4-707; R12-4-708

General Comments

Purpose of the Agency and Summary of What the Rulemaking Does

The purpose of the Arizona Game and Fish Commission ("Commission") is "to manage wildlife and wildlife habitat in this state as provided by law." Laws 2012, Ch. 283, § 3. The Commission oversees the Game and Fish Department, which is in charge of administering state laws regarding wildlife.

This rulemaking amends two rules and repeals six rules that relate to the Heritage Fund ("Fund") in Title 12, Chapter 4, Article 7. The Heritage Fund is funded by monies from the state lottery and is used for identification and protection of sensitive habitats, general habitat evaluation and protection, urban wildlife programs, environmental education, and public access.

The Commission indicates that this rulemaking addresses the issues identified in its April 2016 five-year-review report.

Article Contents, Including the Subject Matter of Each Rule Affected

Article 7 contains eight rules, all of which are impacted by this rulemaking. The rules establish procedures and substantive requirements for receiving Heritage Grant Fund monies, requirements for participation agreements, and reporting and record-keeping for grant recipients.

Year that Each Rule was Last Amended or Newly Made

The rules were made by final rulemaking on June 1, 2013.

Proposed Action

The following is a non-exhaustive summary of the actions being taken by the Commission in this rulemaking:

- R12-4-701: The Commission is adding non-governmental organizations (NGOs) to the definition of "eligible applicant" and removing the stipulation that an eligible applicant who is a non-profit organization must be sponsored by a public agency to reduce the costs and burdens on non-profits and state agency sponsors. The Commission is also adding "administrative sub-unit" in the definition of "public agency" to improve consistency between rules in Article 7. Lastly, the Commission is deleting the definition of "sensitive elements."
- R12-4-702: The Commission is amending the rule to clarify the projects must be located in Arizona or benefit Arizona wildlife or its habitat to ensure the Arizona residents benefit from the use of Heritage Grant funds. The rule allows a participant to deposit Heritage Grant funds in an interest bearing account, while prohibiting a participant from commingling grant funds with any other funds. The Commission is also amending the rule to incorporate the requirements under R12-4-704, R12-4-705, R12-4-706, R12-4-707, and R12-4-708 into this rule. Finally, the Commission is revising the rule to allow the Department to extend the project period to complete the final closure documents.
- R12-4-703: The Commission is repealing this rule to provide the Department with greater flexibility in granting heritage funds, as prescribed in A.R.S. § 17-298.
- R12-4-704 through R12-4-708: The Commission is repealing these rules and incorporating their requirements into R12-4-702. This amendment will streamline and restructure the rules to provide requirements in chronological order for ease of understanding and to make the rules more concise.

Summary of Reasons for the Proposed Action

The Commission is amending the rules to improve clarity, conciseness and understandability, and to complete the proposed course of action in its April 2016 five-year-review report.

Exemption or Request and Approval for Exception from the Moratorium

The Commission received permission from the Governor's Office under Executive Order 2016-03 to proceed with this rulemaking on March 28, 2016.

Substantive or Procedural Concerns

None.

1. Are the rules legal, consistent with legislative intent, and within the agency's statutory authority?

Yes. As general authority, the Commission cites to A.R.S. § 17-231(A)(1), under which the Commission shall "[a]dopt rules and establish services it deems necessary to carry out the provisions and purposes of this title." Also, the Commission has authority under A.R.S. § 17-231(A)(6) to make rules on expenditure of funds received.

As specific authority, the Commission cites to A.R.S. §§ 17-296 through 17-298.01, under which the Commission has authority over the Heritage Fund.

2. Are the rules written in a manner that is clear, concise, and understandable to the general public?

Yes. The rules are clear, concise, and understandable.

3. Does the agency adequately address the comments on the proposed rules and any supplemental proposals?

Yes. The Commission indicates that it did not receive any written comments during the public comment period, April 15 through May 15, 2016. However, the Commission received one written comment in support of this rulemaking on June 7, 2016, from the Executive Director of Audubon Arizona.

4. Are the final rules a substantial change, considered as a whole, from the proposed rules and any supplemental proposals?

No. Only non-substantive changes were made between the proposed and final rules. Specifically, R12-4-702(B) was clarified to indicate that the Department shall provide notice of time, location, and due date for application submission. Additionally, minor stylistic and grammatical changes were made at the request of Council staff.

5. Does the preamble disclose a reference to any study relevant to the rules that the agency reviewed and either did or did not rely on in the agency's evaluation of or justification for the rules?

No. The Commission indicates that it did not review or rely upon any study for this rulemaking.

6. Are the rules more stringent than corresponding federal law and, if so, is there statutory authority that allows the agency to exceed the requirements of federal law?

No. The Commission indicates that no federal laws directly correspond to the rules.

7. Do the rules require a permit or license and if so, does the agency use a general permit or is any exception applicable under A.R.S. § 41-1037?

No. The rules do not require a permit or license.

8. Do the rules establish a new fee or contain a fee increase?

No. The rules do not establish a new fee or contain a fee increase.

9. Conclusion

The Commission requests an immediate effective date of August 2, 2016 for the rules. The Commission indicates that the rulemaking will benefit the public and no penalty is associated with a violation of the rule. This analyst recommends approval of the rules.

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-5**

TO: Members of the Governor's Regulatory Review Council ("Council")

FROM: GRRC Economic Team

DATE: July 15, 2016

SUBJECT: **ARIZONA GAME AND FISH COMMISSION (R-16-0804)**
Title 12, Chapter 4, Article 7, Heritage Grants

Amend: R12-4-701; R12-4-702

Repeal: R12-4-703; R12-4-704; R12-4-705; R12-4-706; R12-4-707; R12-4-708

I reviewed the economic, small business, and consumer impact comparison for compliance with A.R.S. § 41-1056 and make the following comments. These comments are made to assist the Council in its review and may be used as the Council determines.

GRRC Economist Comments

In this rulemaking, the Game and Fish Commission is proposing to repeal six rules and incorporate them into two existing rules. The purpose of this rulemaking is to create a more streamlined process for the administration of Heritage Grants. The Commission intends to reduce regulatory burden on nonprofit organizations, the Game and Fish Department, and other governmental agencies. This rulemaking reduces the transaction costs associated with the application process for Heritage Grantees, and it reduces the transaction costs associated with the administration of the Heritage Grant Program for the Department.

Heritage Grants are funded from Arizona Lottery ticket sales as a mechanism to preserve, protect, and enhance Arizona's natural heritage, cultural heritage, wildlife, biological diversity, scenic wonder, and environment. From 1992 to 2015, the Department has awarded 789 Heritage Grants with total public benefit of $22,775,782.

Beginning with the 2017 grant cycle (August 2016), nonprofit organizations will no longer require a governmental fiscal partner in order to receive a Heritage Grant. This

rulemaking also adds non-governmental organizations as eligible Heritage Grantees. The Commission has received support for the proposed rulemaking from Audubon Arizona.

In 2015, the Department awarded 25 Heritage Grants from a total of 48 applicants. It awarded $408,092 of the $432,000 available as follows:

- 3 Environmental Education Grants totaling $23,591
- 5 Outdoor Education Grants totaling $7,920
- 5 Schoolyard Habitat Grants totaling $37,500
- 5 Urban Wildlife Grants totaling $112,500
- 3 Public Access Grants totaling $50,000
- 4 Identification, Inventory, Acquisition, Protection, and Management Grants totaling $176,581

1. <u>Costs and Benefits for:</u>

a. The implementing agency:

The Commission anticipates that the proposed rulemaking will minimally affect the Department due to changes in the administration requirements of the Heritage Grants. These changes will not, however, require any additional full-time employees.

b. Political subdivisions:

The Commission anticipates that the proposed rulemaking will benefit nonprofit organizations and governmental entities by reducing the transaction costs associated with applying for a Heritage Grant.

c. Businesses:

These rule changes will primarily affect nonprofit organizations. The Commission notes that Heritage Grants are predominantly used to purchase goods from businesses within Arizona. The streamlined application process will not directly impact businesses.

d. Small businesses:

The impact on small businesses will be no different than the impact on all businesses listed above.

e. Consumers directly affected by the rulemaking:

The Commission does not anticipate that this rulemaking will have any direct impact on consumers.

2. Do the probable benefits outweigh the probable costs?

The Commission determines that the benefits of the proposed rule change will outweigh any costs. This proposed rule change reduces regulatory burden to potential Heritage Grantees. The Commission does not expect that this rulemaking will impose any excessive burden on the Department.

3. Analysis of methods to reduce the small business impact:

The rulemaking will have no direct impact on small businesses, so there are no feasible methods to reduce the impact on small businesses.

4. The probable effect on state revenues:

The rulemaking will have no direct effect on state revenues because Heritage Grants are funded by Arizona Lottery ticket sales.

5. Analysis of any less intrusive or less costly alternative methods:

The rulemaking reduces regulations by eliminating the requirement that nonprofit grantees must have a public agency partner for projects funded by Heritage Grants. The proposed amendments are less intrusive than the current rules.

6. Whether an analysis was submitted to the agency regarding the rule's impact on the competitiveness of businesses in this state as compared to the competitiveness of businesses in other states:

No analysis was submitted that compares the rule’s impact on the competiveness of businesses in this state or the impact on businesses in other states.

7. A description of any data on which a rule is based with an explanation of how the data was obtained and why the data is acceptable data, and the methods used by the agency to evaluate the costs and benefits in the EIS.

This rulemaking includes a diverse body of empirical research. The Commission utilized qualitative data such as agency experience and observations from the Department staff who administer the Heritage Grant Program. It also used quantitative data such as Heritage Grant reports and benchmarking with other states.

8. Conclusion:

The submitted economic, small business and consumer impact statement is generally accurate, and contains the information required for compliance with A.R.S. §§ 41-1035, 41-1052(D)(1-3), and 41-1055. This analyst recommends that the proposed rules be approved.

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV

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July 8, 2016

Nicole Ong, Chair
The Governor's Regulatory Review Council
100 North 15th Avenue, Suite 402
Phoenix, AZ 85007

Re: A.A.C. Title 12. Natural Resources, Chapter 4. Game and Fish Commission Article 7. Heritage Grants

Dear Ms Ong:

The Arizona Game and Fish Commission respectfully submit the accompanying final rule package for inclusion on the Council agenda.

In compliance with R1-6-201(A)(1), the Department provides you with the following information:

a. The rulemaking record closed on June 10, 2016.

b. This rulemaking activity is related to the five-year-review report approved by the Council on April 5, 2016.

c. This rulemaking does not establish a new fee.

d. This rulemaking does not contain a fee increase.

e. An immediate effective date is requested.

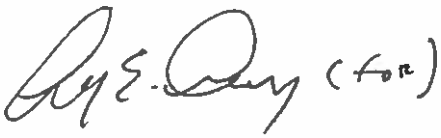
f. The preamble discloses a reference to all studies relevant to the rule that the agency reviewed and either did or did not rely on in its evaluation of, or justification for, the rule.

g. The preparer of the Economic, Small Business, and Consumer Impact Statement did not notify the Joint Legislative Budget Committee of the number of new full-time employees necessary to implement and enforce the rule as the Commission determined that the implementation of the rule does not require any new full-time employees.

h. Items included in the rulemaking package are as follows:

- Signed cover letter
- Notice of Final Rulemaking
- Economic Impact Statement
- Existing rule text
- Definitions of terms contained in statute or other rules and used in the rulemaking
- Authorizing statute: A.R.S. § 17-231(A)(1)
- Implementing statutes: A.R.S. §§ 17-297, 17-298, 17-298.01, and 35-214

Sincerely,



Larry D. Voyles
Director

NOTICE OF FINAL RULEMAKING

TITLE 12. NATURAL RESOURCES

CHAPTER 4. GAME AND FISH COMMISSION

PREAMBLE

1. Article, Part, or Section Affected (as applicable)	**Rulemaking Action**
R12-4-701	Amend
R12-4-702	Amend
R12-4-703	Repeal
R12-4-704	Repeal
R12-4-705	Repeal
R12-4-706	Repeal
R12-4-707	Repeal
R12-4-708	Repeal

2. Citations to the agency's statutory authority to include the authorizing statute (general) and the implementing statute (specific):

Authorizing statute: A.R.S. § 17-231(A)(1)

Implementing statute: A.R.S. §§ 17-297, 17-298, 17-298.01, and 35-214

3. The effective date of the rules: August 2, 2016.

a. If the agency selected a date earlier than the 60 days effective date as specified in A.R.S. § 41-1032(A), include the earlier date and state the reason or reasons the agency selected the earlier effective date as provided in A.R.S. § 41-1032(A)(1) through (5):

The rule is effective immediately upon filing with the Secretary of State's office as authorized under A.R.S. § 41-1032(A)(4), which authorizes an immediate effective date for a rule that provides a benefit to the public and a penalty is not associated with a violation of the rule. The Commission believes the rulemaking will result in an overall benefit to the regulated community, members of the public, and the Department due to amendments that make the grant application process less burdensome, expands opportunity to additional persons, and reduces the burdens and costs to persons regulated by the rule. An immediate effective date will allow non-governmental organizations to be eligible to apply for Heritage grants and allow a nonprofit organization to apply directly for a Heritage grant for the 2017 grant cycle, which is scheduled to begin August 2016.

b. If the agency selected a date later than the 60 days effective date as specified in A.R.S. § 41- 1032(A), include the later date and state the reason or reasons the agency selected the earlier effective date as provided in A.R.S. § 41-1032(A)(B):

Not applicable

4. Citations to all related notices published in the *Register* as specified in R1-1-409(A) that pertain to the

record of the proposed rule:

Notice of Rulemaking Docket Opening: 22 A.A.R. 825, April 15, 2016

Notice of Proposed Rulemaking: 22 A.A.R. 810, April 15, 2016

5. The agency's contact person who can answer questions about the rulemaking:

Name: Celeste Cook, Rule Writer

Address: Arizona Game and Fish Department
5000 W. Carefree Highway
Phoenix, AZ 85086

Telephone: (623) 236-7390

Fax: (623) 236-7110

E-mail: CCook@azgfd.gov

Please visit the AZGFD web site to track progress of this rule and any other agency rulemaking matters at http://www.azgfd.gov/inside_azgfd/rules/rulemaking_updates.shtml.

6. An agency's justification and reason why the rule should be made, amended, repealed, or renumbered, to include an explanation about the rulemaking:

An exemption from Executive Order 2016-03 was provided for this rulemaking by Hunter Moore, Natural Resource Policy Advisor in the Governor's office, in an e-mail dated March 28, 2016.

Heritage Fund money comes from Arizona Lottery ticket sales and was established by voter initiative in 1990. The people of Arizona believe it is in the best interest of the general economy and welfare of Arizona and its citizens to set aside adequate state funds on an annual basis to preserve, protect and enhance Arizona's natural and cultural heritage, wildlife, biological diversity, scenic wonder and environment and provide new opportunities for outdoor recreation in Arizona. The Heritage Grant Program was established by the Arizona Game and Fish Department in 1992 as part of the overall Heritage Fund program and was initially developed as a way to promote outreach, enhance important partnerships, and generate fresh approaches in support of the Department's mission. Heritage funding goes toward conservation efforts such as protecting endangered species, educating students and the general public about wildlife and the outdoors, and creating new opportunities for outdoor recreation. From 1992 through the 2015 Heritage Grant Cycle, the Department has awarded 789 Heritage Grants. Awarded grant funds total $15,376,996 and when combined with grantee match commitments, the total benefit to the public is $22,775,782. In 2015 alone, a total of 25 grant projects were funded for a total of $408,092. When combined with grantee match commitments, the total benefit to the public is $1,040,546. Because the Department receives no state tax dollars to cover its operating budget, the Heritage Fund is critical to recovering or sustaining Arizona's unique native wildlife and to managing more than 800 native species.

The Arizona Game and Fish Commission proposes to amend its Article 7 rules, governing heritage grants, to enact amendments developed during the preceding Five-year Review.

For R12-4-701. Heritage Grant Definitions, the objective of the rule is to establish definitions that assist the regulated community and members of the public in understanding the unique terms that are used throughout 12

A.A.C. Chapter 4, Article 7. The rule was adopted to facilitate consistent interpretation and to prevent the regulated community from misinterpreting the intent of Commission rules. The Commission proposes to amend the rule to add non-governmental organizations (NGOs) to the definition of "eligible applicant" to expand opportunities for Heritage Grant funds to additional applicants. The Commission proposes to amend the rule to remove the stipulation that an eligible applicant cannot have a Heritage grant in extension as this language is more regulatory than descriptive, does not belong in the definition of "eligible applicant" and is addressed under R12-4-702. The Commission proposes to amend the rule to remove the stipulation that an eligible applicant who is a nonprofit organization must be sponsored by a public agency to reduce the costs and burdens on nonprofits and state agency sponsors. The Commission believes this amendment will make the application and grant process more efficient by removing administrative levels. The Commission also proposes to amend the rule to include "administrative sub-unit" in the definition of "public agency" to increase consistency between Article 7 rules. In addition, the Commission proposes to amend the rule to repeal the definition of "sensitive elements" as the rule that referenced the term is recommended for repeal and the term will no longer be referenced in the amended rules.

For R12-4-702. General Provisions, the objective of the rule is to establish the general provisions that apply to all grant fund applicants. The rule was adopted to provide grant applicants with the information necessary to successfully apply for a grant and ensure efficient administration of the application and monitoring processes. The Commission proposes to amend the rule to clarify potential grant recipients must have a project that is either located in Arizona or benefits Arizona wildlife or its habitat to ensure the citizens of Arizona benefit from the use of Heritage Grant funds. The Commission proposes to amend the rule to allow a participant to deposit Heritage Grant funds in an interest bearing account, provided the earned interest is either used to further the project or returned to the Department upon completion of the project, to reduce the burden on the regulated community. The Commission proposes to amend the rule to prohibit a participant from comingling grant funds with any other funds to protect Heritage Grant funds money from potential misuse. The Commission also proposes to streamline and restructure the rule to incorporate the requirements established under R12-4-704, R12-4-705, R12-4-706, R12-4-707, and R12-4-708 to provide those requirements in chronological order for ease of understanding and to make the rule more concise. As a result of this amendment, R12-4-704, R12-4-705, R12-4-706, R12-4-707, and R12-4-708 will be repealed. In addition, the Commission proposes to amend the rule to allow the Department to extend the project period to complete the final closure documents to reduce the costs and burdens to persons regulated by the rule and the Department.

For R12-4-703. Heritage Grant Program Funds, the objective of the rule is to establish the specific requirements that a project proposal must meet in order to be considered for the various Heritage Grant Program funds. The rule was adopted to provide grant applicants with specific guidance for goals and objectives listed within each grant sub-category. The Commission proposes to repeal the rule to provide the Department with greater flexibility in granting heritage funds in compliance with the manner prescribed under A.R.S. § 17-298.

For R12-4-704. Grant Application, the rule establishes the application process, criteria, and information that an applicant is required to include with a completed application. The rule was adopted to provide applicants

with guidance on applying for Heritage grants. The Commission proposes to repeal this rule and incorporate its requirements into R12-4-702 to provide Heritage Grant requirements in chronological order for ease of understanding. As a result of the five-year review, the Commission does not intend to incorporate the requirement that a nonprofit provide proof of their tax exempt status. The Department determined this requirement is unnecessary because an applicant is not required to have tax exempt status in order to qualify for a Heritage grant.

For R12-4-705. Review of Proposals, the objective of the rule is to establish the Department's guidelines for the review of proposals. The rule was adopted to notify the regulated community that grant awards are made available through a competitive application process due to Heritage fund availability. Applications are not evaluated, compared, or scored against each other, but are reviewed and judged on the basis of their compatibility with the goals, needs, and priorities of the Arizona Game and Fish Department, project feasibility, merit, and usefulness of results consistent with the conservation and management of wildlife and their habitats. The Commission proposes to repeal this rule and incorporate its requirements into R12-4-702 to provide Heritage Grant requirements in chronological order for ease of understanding.

For R12-4-706. State Historic Preservation Office Review, the objective of the rule is to notify applicants that Heritage Grant funds shall not be released until after the Department has consulted with the State Historic Preservation Office and it is determined the project proposal will not have a negative impact on the State's prehistorical, historical, architectural or culturally significant values. The rule was adopted to ensure compliance with established State Historic Preservation Act statutes, (*A.R.S.* §§ 41-861 through 865) and the Arizona Antiquities Act (*A.R.S.* §§ 41-841 through 844). These statutes require that specific steps be taken to protect and preserve such properties and or discoveries and are a condition and precedent to the award of any grant funds. The Commission proposes to repeal this rule and incorporate its requirements into R12-4-702 to provide Heritage Grant requirements in chronological order for ease of understanding.

For R12-4-707. Grant Agreement, the objective of the rule is to establish the minimum terms and conditions that a grant participant must comply with. The rule was adopted to provide applicants notice of the basic terms and conditions that must be met when awarded a Heritage grant. This allows the person to decide whether they can comply with the minimum requirements before applying for a Heritage grant. The term "default" is somewhat ambiguous; the Department proposes to amend the rule to replace the term "default" with "not in compliance." In addition, the rule states the Department has the "sole discretion" to amend a Grant Agreement, which implies the participant is not allowed to provide any input in amending an agreement. This is not an accurate portrayal of the process as the participant may also make recommendations when amending an agreement and both parties are required to sign the amendment. The Department proposes to amend the rule to clarify the grant amendment process requires consensus between both parties. The Commission proposes to repeal this rule and incorporate its requirements into R12-4-702 to provide Heritage Grant requirements in chronological order for ease of understanding.

For R12-4-708. Reporting and Recordkeeping Requirements, the objective of the rule is to establish the reporting and record keeping requirements that a participant must comply with. The rule was adopted to provide

applicants notice of the basic recordkeeping and reporting requirements that must be met to ensure compliance with the agreement. The Commission proposes to repeal this rule and incorporate its requirements into R12-4-702 to provide Heritage Grant requirements in chronological order for ease of understanding.

7. A reference to any study relevant to the rule that the agency reviewed and proposes to either 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:

The agency did not rely on any study in its evaluation of or justification for the rule.

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

Not applicable

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

The Commission's intent in proposing the amendments indicated in this rulemaking is to benefit the regulated community, members of the public, and the Department by streamlining and restructuring the rule. The rulemaking will benefit the Department and those governmental entities applying for Heritage Grants by improving the accuracy, clarity, and understandability of the rules. The Commission proposes additional amendments designed to reduce burden and costs to persons regulated by the rule, where practical. The Commission anticipates the rulemaking will result in an overall benefit to the regulated community, members of the public, and the Department. The Commission anticipates the rulemaking will have little or no impact on political subdivisions of this state; private and public employment in businesses, agencies or political subdivisions, or state revenues. The Commission has determined that there are no less intrusive or costly alternative methods of achieving the purpose of the rulemaking. Therefore, the Commission has determined the benefits of the rulemaking outweigh any costs.

10. A description of any changes between the proposed rulemaking, to include supplemental notices, and the final rulemaking:

Under R12-4-702(B), rule language was corrected to indicate the Department shall provide public notice of the time, location, and due date for application submission and furnish materials necessary to complete the application.

In addition, minor grammatical and style corrections were made at the request of the Governor's Regulatory Review Council staff.

11. An agency's summary of the public or stakeholder comments made about the rulemaking and the agency response to the comments:

The Department did not receive any public or stakeholder comments in response to the proposed rulemaking during the public comment period, which ran from April 15 through May 15, 2016. However, on June 7, 2016, Sonia Perillo, Vice President and Executive Director of Audubon Arizona, submitted a letter in support of the Article 7 rulemaking. The letter stated the rulemaking is a clearly written instructional on how to be a Heritage grant applicant; and the change that allows a nonprofit to apply for grants directly without a government fiscal partner is a wonderful improvement and may result in high quality proposals from the nonprofit sector. In

addition, Elizabeth Wooden, President of the Tucson Heritage Alliance and former member of the Arizona Game and Fish Commission, spoke to the Commission at the June 10, 2016 Commission meeting. Ms Woodin stated the previous Heritage grant rules needed work and the Department did a fantastic job of simplifying and clarifying the rules. Allowing nonprofits to apply for grants without a government sponsor removed a stumbling block and resulted in rules that make it easier to apply for a Heritage grant, may increase the popularity of, and result in more enthusiasm for, the Department's Heritage Grant Program.

12. All agency's shall list other matters prescribed by statute applicable to the specific agency or to any specific rule or class of rules. Additionally, an agency subject to Council review under A.R.S. §§ 41-1052 and 41-1055 shall respond to the following questions:

a. Whether the rule requires a permit, whether a general permit is used, and if not, the reason why a general permit is not used:

The rule does not require a general permit.

b. Whether a federal law is applicable to the subject of the rule, whether the rule is more stringent than federal law, and if so, citation to the statutory authority to exceed the requirements of federal law:

Federal law is not directly applicable to the subject of the rule. The rule is based on state law.

c. Whether a person submitted an analysis to the agency that compares the rule's impact of the competitiveness of business in this state to the impact on business in other states:

The Department did not receive any analyses.

13. A list of any incorporated by reference material as specified in A.R.S. § 41-1028 and its location in the rules:

Not applicable

14. Whether the rule previously made, amended, or repealed as an emergency rule. If so, cite the notice published in the *Register* as specified in R1-4-409(A). Also, the agency shall state where the text was changed between the emergency and the final rulemaking packages:

The rule was not previously made, amended, or repealed as an emergency rule.

15. The full text of the rules follows:

TITLE 12. NATURAL RESOURCES

CHAPTER 4. GAME AND FISH COMMISSION

ARTICLE 7. HERITAGE GRANTS

Section

R12-4-701. Heritage Grant Definitions

R12-4-702. General Provisions; Heritage Grant Fund Requirements

R12-4-703. ~~Heritage Grant Program Funds~~ Repeal

R12-4-704. ~~Grant Application~~ Repeal

R12-4-705. ~~Review of Proposals~~ Repeal

R12-4-706. ~~State Historic Preservation Office Review~~ Repeal

R12-4-707. ~~Grant Agreement~~ Repeal

R12-4-708. ~~Reporting and Recordkeeping Requirements~~ Repeal

TITLE 12. NATURAL RESOURCES

CHAPTER 4. GAME AND FISH COMMISSION

ARTICLE 7. HERITAGE GRANTS

R12-4-701. Heritage Grant Definitions

In addition to the definitions provided under A.R.S. §§ 17-101 and 17-296, the following definitions apply to this Article:

"Administrative subunit" means a branch, chapter, department, division, section, school, or other similar divisional entity of an eligible applicant. For example, an individual:

~~a. School, but not an entire school district~~ Administrative department, but not an entire city government;

~~b.~~ Field office or project office, but not an entire agency; or

~~c. Administrative department, but not an entire city government~~ School, but not an entire school district.

"Eligible applicant" means any public agency, non-governmental organization, or ~~non-profit~~ nonprofit organization ~~sponsored by a public agency~~ that meets the applicable requirements of this Article ~~and does not have a Heritage Fund Grant in extension as authorized under R12-4-707(B)~~.

"Facilities" means any structure or site improvements.

"Fund" means the Arizona Game and Fish Commission Heritage Fund, established under A.R.S. § 17-297.

"Grant agreement" means a document that details the terms and conditions of a grant project.

"Grant effective date" means the date the Department Director signs the Grant Agreement.

"In-kind" means contributions other than cash, which include individual and material resources that the applicant makes available to the project, e.g. a ~~permanent~~ public employee's' salary, volunteer time, materials, supplies, space, or other donated goods and services.

"Participant" means an eligible applicant who has been awarded a grant from the Heritage Fund.

"Project" means an activity, or series of related activities, or services described in the specific project scope of work and results in specific end products.

"Project period" means the time during which a participant shall complete all approved work and related expenditures associated with an approved project.

"Public agency" means the federal government or any federal department or agency, an Indian tribe, this state, all state departments, agencies, boards, and commissions, counties, school districts, public charter schools, cities, towns, all municipal corporations, administrative subunits, and any other political subdivision.

"Publicly held lands" means federal, public, and reserved land, State Trust Land, and other lands within Arizona that are owned, controlled, or managed by the federal government, a state agency, or political subdivision.

~~"Sensitive elements" means the specific areas within the geographical area, historically or currently occupied by a species or community of species, which comprise those physical or biological features essential to the establishment or continued existence of the species. These 'sensitive elements may require special management, conservation or protection considerations.~~

"Term of public use" means the time period during which the project or facility is expected to be maintained for

public use.

R12-4-702. General Provisions; Heritage Grant Fund Requirements

A. The Department, in its sole discretion, may make Heritage Fund Grants available for projects that:

1. Are located in Arizona or benefit Arizona wildlife or its habitat; and
2. Meet the criteria established in the Heritage Grant application materials.

B. ~~An applicant shall submit to the Department a Heritage Fund Grant application according to a schedule of due dates determined by the Director. In compliance with A.R.S. § 41-2702, the~~ The Department shall:

1. Provide public notice of the time, location, and due date for application submission; and
2. Furnish materials necessary to complete the application.

~~**B.** An eligible applicant, seeking Heritage Grant funding shall submit a Heritage Grant Application as established under this Article and in compliance with the Heritage Grant application materials.~~

C. An applicant seeking Heritage Grant funding shall submit to the Department a Heritage Fund Grant application according to a schedule of due dates determined by the Director. An applicant shall provide the following information on the Heritage Grant application form:

1. The name of the applicant;
2. Any county and legislative district where the project will be developed or upon which the project will have a direct impact;
3. The name, title, mailing address, e-mail address, and telephone number of the individual responsible for the day-to-day management of the proposed project;
4. Identification of the application criterion established in the Heritage Grant application materials;
5. A descriptive project title;
6. The name of the site, primary location, and any other locations of the project;
7. Description of the:
   a. Scope of work and the objective of the proposed project,
   b. Methods for achieving the objective, and
   c. Desired result of the project;
8. The beginning and ending dates for the project;
9. The resources needed to accomplish the project, including grant monies requested, and, if applicable, evidence of secured matching funds or contributions; and
11. Any additional supporting information required by the Department.
12. Signature and date. The person signing the grant application form shall have the authority to enter into agreements, accept funding, and fulfill the terms of the Grant Agreement on behalf of the applicant.

D. A person applying for multiple projects shall submit a separate application for each project.

~~**C.**~~**E.** An applicant shall demonstrate ownership or control of the project. Ownership or control may be demonstrated through fee title, lease, easement, or agreement. For all other project types related to sites not controlled by an applicant, an applicant shall provide written permission from the property owner authorizing

the project activities and access. The applicant's proof of ownership or control or written permission shall demonstrate:

1. Permission for access is not revocable at will by the property owner, and
2. Public access will be granted to the project site for the life of the project, unless the purpose of the project proposal is to limit access.

F. Heritage Grant proposals are competitive and the Department shall make awards based on a proposed project's compatibility with the priorities of the Department, as approved by the Commission.

G. The Department may require an applicant to modify the application prior to awarding a Heritage Grant, if the Department determines that the modification is necessary for the successful completion of the project.

H When applicable, the Department shall not release Heritage Grant funds until after the Department has consulted with the State Historic Preservation Office regarding the proposed project's potential impact on historic and archaeological properties and resources.

~~**D.**~~**I.** The Department shall notify an applicant in writing of the results of the applicant's submission and announce Heritage Grant awards at a regularly scheduled open meeting of the Commission.

~~**E.** A participant shall not begin a project described in an application until after the grant effective date.~~

J. A participant shall:

1. Sign the Grant Agreement before the Department transfers any grant funds.
2. Deposit transferred Heritage Grant funds in a dedicated account carrying the name and number of the project. In the event the funds are deposited in an interest-bearing account, any interest earned shall be:
   a. Used for the purpose of furthering the project, with prior approval from the Department; or
   b. Remitted to the Department upon completion of the project.

~~**F.**~~3. ~~A participant shall complete~~ Complete the project as specified under the terms and conditions of the Grant Agreement.

4. Use awarded Heritage Grant funds solely for the project described in the application and as approved by the Department.
5. Bear full responsibility for performance of its subcontractors to ensure compliance with the Grant Agreement.
6. Pay all costs associated with the operation and maintenance of properties, facilities, equipment, services, publications, and other media funded by a Heritage Grant for the term of public use as specified in the Grant Agreement.
7. Submit records that substantiate the expenditure of Heritage Grant funds. In addition, each participant shall retain and shall contractually require each subcontractor to retain all books, accounts, reports, files, and any other records relating to the acquisition and performance of the contract for a period of five years from the end date of the project period. The Department may inspect and audit participant and subcontractor records as prescribed under A.R.S. § 35-214. Upon the Department's request, a participant or subcontractor shall produce a legible copy of these records.
8. Allow Department employees or agents to conduct inspections and reviews:

a. To ensure compliance with all terms and conditions established under the Grant Agreement.

b. Before release of the final payment.

9. Give public acknowledgment of Heritage Fund grant assistance for the term of public use of a project. If a project involves acquisition of property, development of public access, or renovation of a habitat site, the participant shall install a permanent sign describing the funding sources. The participant may include the cost of this signage as part of the original project. The participant is responsible for maintenance or replacement of the sign as required. For other project types, the participant shall include Heritage Fund grant funding acknowledgment on any publicly available or accessible products resulting from the project.

~~**G.** A participant shall deposit transferred Heritage Grant Funds in a dedicated non-interest bearing account carrying the name and number of the project.~~

~~**H.** A participant shall use awarded Heritage Grant Funds solely for eligible purposes of the funding program as defined by law and as approved by the Department.~~

K. A participant shall not:

1. Begin a project described in the application until after the grant effective date.

~~**I.**~~2. ~~A participant shall not use~~ Use Heritage Grant ~~Funds~~ funds for the purpose of producing income unless authorized by the Department. A participant shall use all income generated to further the purpose of the approved project or surrender the income to the original funding source.

3. Comingle Heritage Grant funds with any other funds.

4. Use Heritage Grant funds to pay the salary of any public agency employee. A participant may use a public agency's employee's time as in-kind match for the project specified in the Grant Agreement.

L. The parties may amend the terms of the Grant Agreement by mutual written consent. The Department shall prepare any approved amendment in writing, and both the Department and the Grantee shall sign the amendment.

M. The Department and the participant may amend the Grant Agreement during the project period. A participant seeking to amend the Grant Agreement shall submit a written request that includes justification to amend the Grant Agreement. The Department shall prepare any approved amendment in writing and both the Department and the participant shall sign the amendment.

N. A participant shall submit project status reports, as required in the Grant Agreement. If a participant fails to submit a project status report, the Department may not release any remaining grant monies until the participant has submitted all past due project status reports. The project status report shall include the following information, as applicable:

1. Progress in completing approved work;

2. Itemized, cumulative project expenditures;

3. A financial accounting of:

a. Heritage Grant Funds,

b. Matching funds,

c. Donations, and

d. Income derived from project funds;

4. Any delays or problems that may prevent the on-time completion of the project; and

5. Any other information required by the Department.

O. At the end of the project period and for each year until the end of the term of public use, a participant shall:

1. Certify compliance with the Grant Agreement, and

2. Complete a post-completion report form furnished by the Department.

~~**J.**~~**P.** ~~If~~ Upon completion of approved project elements, if a balance of awarded Heritage Grant funds ~~remain~~ remains ~~upon completion of approved project elements~~, the participant may~~, with Department approval, use those~~:

1. Use the unexpended funds for an additional project consistent with the original scope of work, when approved by the Department; or ~~surrender those~~

2. Surrender the unexpended funds to the Department.

Q. Upon completion of the project a participant shall:

1. Surrender equipment with an acquisition cost of more than $500 to the Department upon completion, or

2. Use equipment purchased with Heritage Grant funds in a manner consistent with the purposes of the Grant Agreement.

~~**K.** A participant shall use equipment purchased with Heritage Grant funds in a manner consistent with the purposes of the Grant Agreement, and surrender the equipment to the Department upon completion of the project, if the equipment has an acquisition cost of more than $500.~~

~~**L.** A participant shall not use Heritage Grant funds to pay the salary of any permanent employee. A participant may use a permanent employee's time as in-kind match for the project specified in the Grant Agreement.~~

~~**M.** A participant shall allow Department employees or agents to conduct inspections and reviews:~~

~~1. To ensure compliance with all terms and conditions established under the Grant Agreement.~~

~~2. Before release of the final payment.~~

~~**N.** A participant shall submit records that substantiate the expenditure of Heritage Grant funds.~~

~~**O.** A participant shall bear full responsibility for performance by subcontractors to ensure compliance with the Grant Agreement.~~

~~**P.** A participant shall pay all costs associated with the operation and maintenance of properties, facilities, equipment, services, publications, and other media funded by a Heritage Grant for the term of public use as specified in the Grant Agreement.~~

~~**Q.** A participant shall give public acknowledgment of Heritage Fund grant assistance for the term of public use of a project. If a project involves acquisition of property, development of public access, or renovation of a habitat site, the participant shall install a permanent sign describing the funding sources. The participant may include the cost of this signage as part of the original project. The participant is responsible for maintenance or replacement of the sign as required. For other project types, the participant shall include Heritage Fund grant funding acknowledgment on any publicly available or accessible products resulting from the project.~~

R. A participant may request an extension beyond the approved project period by writing to the Department.

1. Requests for an extension shall be submitted by the participant no later than 30 days before the end of the

project period.

2. If approved, an extension shall be signed by both the participant and the Department.

S. A participant that has a Heritage Grant funded project in extension shall not apply for, nor be considered for, further Heritage Grants until the administrative subunit's project under extension is completed.

T. In addition, the Department may administratively extend the project period for good cause such as, but not limited to, inclement weather, internal personnel changes, or to complete the final closure documents.

R.U. An administrative subunit A participant that failed to comply with the terms and conditions of a Grant Agreement shall not apply for, nor be considered for, further Heritage Grants until the administrative subunit's participant's project is brought into compliance.

S. An administrative subunit that has a Heritage Grant funded project in extension shall not apply for, nor be considered for, further Heritage Grants until the administrative subunit's project under extension is completed.

V. If a participant is not in compliance with the Grant Agreement, the Department may:

1. Terminate the Grant Agreement,
2. Seek recovery of grant monies awarded, and
3. Classify the participant as ineligible for Heritage Fund Grants for a period of up to five years.

R12-4-703. Heritage Grant Program Funds Repeal

A. Environmental Education Grant. An eligible applicant shall ensure a proposed project is designed to:

1. Develop awareness, appreciation, and understanding of Arizona's wildlife and its environment and increase responsible actions toward wildlife;
2. Use Arizona wildlife as its focus and present wildlife issues in a balanced and fair manner; and
3. Benefit Arizona public schools, public charter schools, and students.

B. HAPM Grant: Identification, Inventory, Acquisition, Protection, and Management of Sensitive Elements. An eligible applicant shall ensure a proposed project is designed to:

1. Preserve and enhance Arizona's natural biological diversity; and
2. Incorporate identification, inventory, acquisition, protection, or management of sensitive elements.

C. Outdoor Education Grant: An eligible applicant shall ensure a proposed project is designed to:

1. Provide a meaningful outdoor educational experience;
2. Develop awareness, appreciation, and stewardship of Arizona's wildlife and wildlife habitats; and
3. Benefit Arizona public schools, public charter schools, and students.

D. Public Access Grant: An eligible applicant shall ensure a proposed project:

1. Is designed to increase or maintain public access for recreational use related to wildlife;
2. Is in cooperation with federal land managers, local and state governments, private landowners, or public users, as applicable; and
3. Is designed to inform and educate the public about recreational use of publicly held lands and public access to those lands.

E. Schoolyard Habitat Grant: An eligible applicant shall ensure a proposed project is designed to:

1. ~~Develop awareness, appreciation, and understanding of Arizona's wildlife and its environment;~~
2. ~~Encourage wildlife educational activities on Arizona school sites or adjacent areas;~~
3. ~~Encourage native wildlife species, utilize native plant materials, and demonstrate water conservation techniques;~~
4. ~~Allow Arizona students to actively participate in the planning, development, and construction process;~~
5. ~~Be integrated into the school curriculum; and~~
6. ~~Benefit Arizona public schools, public charter schools, and students.~~

~~F.~~ ~~Urban Wildlife and Urban Wildlife Habitat Grant. An eligible applicant shall ensure a proposed project:~~

1. ~~Is designed to conserve, enhance, and establish wildlife habitats and populations consistent with urban environments, and increase public awareness and support for urban wildlife resources; and~~
2. ~~Meets one of the following criteria:~~
   a. ~~Is within the incorporated limits of a city or town;~~
   b. ~~Is within five miles, in straight distance, of the boundary of an incorporated area; or~~
   c. ~~Is an area that receives significant impact from residential development, as determined by the Department.~~

R12-4-704. ~~Grant Application~~ Repeal

~~A.~~ ~~To be considered for a Heritage Grant, an eligible applicant shall submit a grant application as established under this Article and in compliance with the Heritage Grant Application materials.~~

~~B.~~ ~~An applicant who is applying for multiple projects, shall submit a separate application for each project.~~

~~C.~~ ~~An applicant shall provide the following information on the Heritage Grant application form:~~

1. ~~The name of the applicant;~~
2. ~~Any county and legislative district where the project will be developed or upon which the project will have a direct impact;~~
3. ~~The name, title, mailing address, e-mail address, and telephone number of the individual responsible for the day-to-day management of the proposed project;~~
4. ~~Identification of the specific Heritage Grant program fund;~~
5. ~~A descriptive project title;~~
6. ~~The name of the site, primary location, and any other locations of the project;~~
7. ~~Description of the:~~
   a. ~~Scope of work and the objective of the proposed project,~~
   b. ~~Methods for achieving the objective, and~~
   c. ~~Desired result of the project;~~
8. ~~The beginning and ending dates for the project;~~
9. ~~The resources needed to accomplish the project, including grant monies requested, and, if applicable, evidence of secured matching funds or contributions;~~
10. ~~If the eligible applicant is a non-profit organization exempt from federal income taxation under Section~~

~~501(c) of the Internal Revenue Code, documentation or other evidence of the exemption; and~~

~~11. Any additional supporting information required by the Department.~~

~~**D.** The person signing the grant application form shall have the authority to enter into agreements, accept funding, and fulfill the terms of the Grant Agreement on behalf of the applicant.~~

R12-4-705. ~~Review of Proposals~~ Repeal

~~**A.** Heritage Grant proposals are competitive and the Department shall make awards based on a proposed project's compatibility with the priorities of the Department, as approved by the Commission.~~

~~**B.** The Department may require an applicant to modify the application prior to awarding a Heritage Grant, if the Department determines that the modification is necessary for the successful completion of the project.~~

R12-4-706. ~~State Historic Preservation Office Review~~ Repeal

~~When applicable, the Department shall not release Heritage Grant Funds until after the Department has consulted with the State Historic Preservation Office regarding the proposed project's potential impact on historic and archaeological properties and resources.~~

R12-4-707. ~~Grant Agreement~~ Repeal

~~**A.** Before the Department transfers any grant funds, the applicant shall sign the Grant Agreement.~~

~~**B.** A participant may request an extension beyond the approved project period by writing to the Department. Requests for an extension shall be submitted by the participant no later than 30 days before the end of the project period. If approved, an extension shall be signed by both the participant and the Department.~~

~~**C.** Notwithstanding subsection (B), the Department may extend the project period for good cause such as, but not limited to, inclement weather or internal personnel changes.~~

~~**D.** The Department and the participant may amend the Grant Agreement during the project period. A participant seeking to amend the Grant Agreement shall submit a written request that includes justification to amend the Grant Agreement. The Department shall prepare any approved amendment in writing and both the Department and the participant shall sign the amendment.~~

~~**E.** If a participant is in default of the Grant Agreement, the Department may:~~

~~1. Terminate the Grant Agreement,~~

~~2. Seek recovery of grant monies awarded, and~~

~~3. Classify the participant as ineligible for Heritage Fund Grants for a period of up to five years.~~

~~**F.** The Department, at its sole discretion, has the authority to include additional conditions in the Grant Agreement prior to signing the Agreement and through Amendment.~~

R12-4-708. ~~Reporting and Recordkeeping Requirements~~ Repeal

~~**A.** A participant shall submit project status reports to the Department as specified in the Grant Agreement. The project status report shall include the following information, as applicable:~~

1. ~~Progress in completing approved work;~~
2. ~~Itemized, cumulative project expenditures;~~
3. ~~A financial accounting of:~~
   a. ~~Heritage Grant Funds,~~
   b. ~~Matching funds,~~
   c. ~~Donations, and~~
   d. ~~Income derived from project funds;~~
4. ~~Any delays or problems that may prevent the on-time completion of the project; and~~
5. ~~Any other information required by the Department.~~

~~B.~~ ~~At the end of the project period and for each year until the end of the term of public use, a participant shall:~~

1. ~~Certify compliance with the Grant Agreement, and~~
2. ~~Complete a post-completion report form furnished by the Department.~~

~~C.~~ ~~A participant shall submit project status reports, as required in the grant materials. If a participant fails to submit a project status report, the Department may not release any remaining grant monies until the participant has submitted all past due project status reports.~~

~~D.~~ ~~Each participant shall retain and shall contractually require each subcontractor to retain all books, accounts, reports, files, and any other records relating to the acquisition and performance of the contract for a period of five years from the end date of the project period. The Department may inspect and audit participant and subcontractor records as prescribed under A.R.S. § 35-214. Upon the Department's request, a participant or subcontractor shall produce a legible copy of these records.~~

Audubon ARIZONA

Nina Mason Pulliam Rio Salado
Audubon Center
3131 South Central Avenue
Phoenix, AZ 85040
Tel: 602-468-6470

Arizona Game and Fish Commission
5000 West Carefree Highway
Phoenix AZ 85086

June 7, 2016

Dear Chairman Davis and Members of the Commission;

Thank you for reviewing and streamlining the rules governing Heritage grants. The updated Heritage rule is a very clearly written instructional on how to be a Heritage grant applicant. This rule revision is a much-needed cleaning up and makes it a much more user friendly rule for Heritage grant applicants- kudos to Sherry Crouch and her team.

We are delighted to see the change that allows nonprofit organizations to apply for grants directly without a governmental fiscal partner. This change is a wonderful improvement and we do believe will result in high quality proposals from the nonprofit sector.

Audubon Arizona and our affiliate chapters look towards many years of cooperative work with the Arizona Game and Fish Department and Commission.

Sincerely,

Sonia Perillo

Sonia Perillo, VP and Executive Director
Audubon Arizona

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TITLE 12. NATURAL RESOURCES

CHAPTER 4. GAME AND FISH COMMISSION

ARTICLE 7. HERITAGE GRANTS

R12-4-701, R12-4-702, R12-4-703, R12-4-704, R12-4-705, R12-4-706, R12-4-707, and R12-4-708

Economic, Small Business and Consumer Impact Statement

A. Economic, small business and consumer impact summary:

1. Identification of the proposed rulemaking.

Heritage Fund money comes from Arizona Lottery ticket sales and was established by voter initiative in 1990. The people of Arizona believe it is in the best interest of the general economy and welfare of Arizona and its citizens to set aside adequate state funds on an annual basis to preserve, protect and enhance Arizona's natural and cultural heritage, wildlife, biological diversity, scenic wonder and environment and provide new opportunities for outdoor recreation in Arizona. The Heritage Grant Program was established by the Arizona Game and Fish Department in 1992 as part of the overall Heritage Fund program and was initially developed as a way to promote outreach, enhance important partnerships, and generate fresh approaches in support of the Department's mission. Heritage funding goes toward conservation efforts such as protecting endangered species, educating students and the general public about wildlife and the outdoors, and creating new opportunities for outdoor recreation. From 1992 through the 2015 Heritage Grant Cycle, the Department has awarded 789 Heritage Grants. Awarded grant funds total $15,376,996 and when combined with grantee match commitments, the total benefit to the public is $22,775,782. In 2015 alone, a total of 25 grant projects were funded for a total of $408,092. When combined with grantee match commitments, the total benefit to the public is $1,040,546. Because the Department receives no state tax dollars to cover its operating budget, the Heritage Fund is critical to recovering or sustaining Arizona's unique native wildlife and to managing more than 800 native species.

The Arizona Game and Fish Commission proposes to amend its Article 7 rules, governing Heritage Grants, to enact amendments developed during the preceding Five-year Review.

For R12-4-701. Heritage Grant Definitions, the objective of the rule is to establish definitions that assist the regulated community and members of the public in understanding the unique terms that are used throughout 12 A.A.C. Chapter 4, Article 7. The rule was adopted to facilitate consistent interpretation and to prevent the regulated community from misinterpreting the intent of Commission rules. The Commission proposes to amend the rule to add non-governmental organizations (NGOs) to the definition of "eligible applicant" to expand opportunities for Heritage Grant funds to additional applicants. The Commission proposes to amend the rule to remove the stipulation that an eligible applicant cannot have a Heritage Grant in extension as this language is more regulatory than descriptive, does not belong in the definition of "eligible applicant" and is addressed under R12-4-702. The Commission proposes to amend the rule to remove the stipulation that an eligible applicant who is a nonprofit organization must be sponsored by a public agency to reduce the costs and burdens on nonprofits and state agency sponsors. The Commission

believes this amendment will make the application and grant process more efficient by removing administrative levels. The Commission also proposes to amend the rule to include "administrative sub-unit" in the definition of "public agency" to increase consistency between Article 7 rules. In addition, the Commission proposes to amend the rule to repeal the definition of "sensitive elements" as the rule that referenced the term is recommended for repeal and the term will no longer be referenced in the amended rules.

For R12-4-702. General Provisions, the objective of the rule is to establish the general provisions that apply to all grant fund applicants. The rule was adopted to provide grant applicants with the information necessary to successfully apply for a grant and ensure efficient administration of the application and monitoring processes. The Commission proposes to amend the rule to clarify potential grant recipients must have a project that is either located in Arizona or benefits Arizona wildlife or its habitat to ensure the citizens of Arizona benefit from the use of Heritage Grant funds. The Commission proposes to amend the rule to allow a participant to deposit Heritage Grant funds in an interest bearing account, provided the earned interest is either used to further the project or returned to the Department upon completion of the project, to reduce the burden on the regulated community. The Commission proposes to amend the rule to prohibit a participant from comingling grant funds with any other funds to protect Heritage Grant funds money from potential misuse. The Commission also proposes to streamline and restructure the rule to incorporate the requirements established under R12-4-704, R12-4-705, R12-4-706, R12-4-707, and R12-4-708 to provide those requirements in chronological order for ease of understanding and to make the rule more concise. As a result of this amendment, R12-4-704, R12-4-705, R12-4-706, R12-4-707, and R12-4-708 will be repealed. In addition, the Commission proposes to amend the rule to allow the Department to extend the project period to complete the final closure documents to reduce the costs and burdens to persons regulated by the rule and the Department.

For R12-4-703. Heritage Grant Program Funds, the objective of the rule is to establish the specific requirements that a project proposal must meet in order to be considered for the various Heritage Grant Program funds. The rule was adopted to provide grant applicants with specific guidance for goals and objectives listed within each grant sub-category. The Commission proposes to repeal the rule to provide the Department with greater flexibility in granting Heritage Funds in compliance with the manner prescribed under A.R.S. § 17-298.

For R12-4-704. Grant Application, the rule establishes the application process, criteria, and information that an applicant is required to include with a completed application. The rule was adopted to provide applicants with guidance on applying for Heritage Grants. The Commission proposes to repeal this rule and incorporate its requirements into R12-4-702 to provide Heritage Grant requirements in chronological order for ease of understanding. As a result of the five-year review, the Commission does not intend to incorporate the requirement that a nonprofit provide proof of their tax exempt status. The Department determined this requirement is unnecessary because an applicant is not required to have tax exempt status in order to qualify for a Heritage Grant.

For R12-4-705. Review of Proposals, the objective of the rule is to establish the Department's guidelines for the review of proposals. The rule was adopted to notify the regulated community that grant awards are made available through a competitive application process due to Heritage Fund availability. Applications are not evaluated, compared, or scored against each other, but are reviewed and judged on the basis of their compatibility with the goals, needs, and priorities of the Arizona Game and Fish Department, project feasibility, merit, and usefulness of results consistent with the conservation and management of wildlife and their habitats. The Commission proposes to repeal this rule and incorporate its requirements into R12-4-702 to provide Heritage Grant requirements in chronological order for ease of understanding.

For R12-4-706. State Historic Preservation Office Review, the objective of the rule is to notify applicants that Heritage Grant funds shall not be released until after the Department has consulted with the State Historic Preservation Office and it is determined the project proposal will not have a negative impact on the State's prehistorical, historical, architectural or culturally significant values. The rule was adopted to ensure compliance with established State Historic Preservation Act statutes, (*A.R.S.* §§ 41-861 through 865) and the Arizona Antiquities Act (*A.R.S.* §§ 41-841 through 844). These statutes require that specific steps be taken to protect and preserve such properties and or discoveries and are a condition and precedent to the award of any grant funds. The Commission proposes to repeal this rule and incorporate its requirements into R12-4-702 to provide Heritage Grant requirements in chronological order for ease of understanding.

For R12-4-707. Grant Agreement, the objective of the rule is to establish the minimum terms and conditions that a grant participant must comply with. The rule was adopted to provide applicants notice of the basic terms and conditions that must be met when awarded a Heritage Grant. This allows the person to decide whether they can comply with the minimum requirements before applying for a Heritage Grant. The Commission proposes to repeal this rule and incorporate its requirements into R12-4-702 to provide Heritage Grant requirements in chronological order for ease of understanding.

For R12-4-708. Reporting and Recordkeeping Requirements, the objective of the rule is to establish the reporting and record keeping requirements that a participant must comply with. The rule was adopted to provide applicants notice of the basic recordkeeping and reporting requirements that must be met to ensure compliance with the agreement. The Commission proposes to repeal this rule and incorporate its requirements into R12-4-702 to provide Heritage Grant requirements in chronological order for ease of understanding.

(a) The conduct and its frequency of occurrence that the rule is designed to change.

The Commission believes the amendments proposed in this rulemaking result in rules that are either less burdensome or have little or no impact on the regulated community. Amendments are proposed to expand opportunity and reduce the burdens and costs to persons regulated by the rule. The amended rules are more concise and easier for persons regulated by the rule to navigate.

(b) The harm resulting from the conduct the rule is designed to change and the likelihood it will continue to occur if the rule is not changed.

The Commission believes the amendments proposed in this rulemaking result in rules that are either less burdensome or have little or no impact on the regulated community. The Commission is not aware of any harm resulting from conduct by persons regulated by the Heritage Grant rules. Amendments are proposed to expand opportunity and reduce the burdens and costs to persons regulated by the rule. The Commission believes that the Department's costs to administer the Heritage Grant Programs, including time expended on Department resources, will not be unduly burdened by the rulemaking.

(c) The estimated change in frequency of the targeted conduct expected from the rule change.

The Commission believes the amendments proposed in this rulemaking result in rules that are either less burdensome or have little or no impact on the regulated community. Amendments are proposed to expand opportunity and reduce the burdens and costs to persons regulated by the rule. The Commission believes the number of applicants may increase due to removing the requirement that a nonprofit applicant obtain sponsorship from a government agency and by allowing an NGO to directly apply for a Heritage Grant. In addition, the Commission anticipates all applicants will benefit from amendments that restructure and streamline Heritage Grant requirements. The Commission foresees that more applicants will apply for grants and this may increase the Department's burden with more proposals to review; however it is anticipated that this will also provide more support and promotion of the Department's mission. Even though the Department anticipates receipt of additional applicants, the Commission believes the changes made to the Heritage Grant process will not place an undue burden of time or cost on the Department.

2. Brief summary of the information included in the economic, small business and consumer impact statement.

The Commission's intent in proposing the amendments indicated in this rulemaking is to benefit the regulated community, members of the public, and the Department by streamlining and restructuring the rule. The rulemaking will benefit the Department and those governmental entities applying for Heritage Grants by improving the accuracy, clarity, and understandability of the rules. The Commission proposes additional amendments designed to reduce burden and costs to persons regulated by the rule, where practical. The Commission anticipates the rulemaking will result in an overall benefit to the regulated community, members of the public, and the Department. The Commission anticipates the rulemaking will have little or no impact on political subdivisions of this state; private and public employment in businesses, agencies or political subdivisions, or state revenues. The Commission has determined that there are no less intrusive or costly alternative methods of achieving the purpose of the rulemaking. Therefore, the Commission has determined the benefits of the rulemaking outweigh any costs.

3. The name and address of agency employees who may be contacted to submit or request additional data on the information included in the economic, small business and consumer impact statement.

Name: Marty Herrera, Heritage Fund Administrator

Address: Arizona Game and Fish Department

5000 W. Carefree Highway

Phoenix, AZ 85086
Telephone: (623) 236-7527
Fax: (623) 236-7110
E-mail: MHerrera@azgfd.gov

B. The economic, small business and consumer impact statement:

1. Identification of the proposed rulemaking.

See paragraph (A)(1) above.

2. Identification of the persons who will be directly affected by, bear the costs of or directly benefit from the proposed rulemaking.

Persons who will be directly affected by the rulemaking include:

Department staff associated with reviewing and scoring proposals and administration of the Heritage Grant Program

Applicants applying for Heritage Grant funding

Grant participants awarded Heritage Grant funding

Heritage funding goes toward conservation efforts such as protecting endangered species, educating students and the general public about wildlife and the outdoors, and creating new opportunities for outdoor recreation. In the 2015 grant cycle, a total of 48 Heritage Grant applications were received and, of the $432,000 available, $408,092 was awarded as follows: Environmental Education (EE) of the four applications received, three applicants were awarded EE grants totaling $23,591 of the $24,000 available; Outdoor Education (OE) of the six applications received, five applicants were awarded OE grants totaling $7,920 of the $8,000 available; Schoolyard Habitat (Schoolyard) of the eleven applications received, five were awarded Schoolyard grants totaling $37,500 of the $37,500 available; Urban Wildlife (Urban) of the ten applications received, five applicants were awarded Urban grants totaling $112,500 of the $112,500 available; Public Access (Access) of the three applications received, three applicants were awarded Access grants totaling $50,000 of the $50,000 available; and Identification, Inventory, Acquisition, Protection and Management (IIAPM) of the fourteen applications received, four applicants were awarded IIAPM grants totaling $176,581 of the $200,000 available.

Applicants and successful grant recipients bear the administrative costs of complying with the provisions, which includes the disposal of equipment acquired with grant funding, and the administrative burdens of monitoring and reporting to the Department regarding the use of those funds. The Commission estimates the costs and burdens resulting from the rulemaking for both applicants and recipients are not significant and do not deter applications. The rulemaking is beneficial to the regulated community and the public directly impacted, as they enforce the beneficial use of the grants, while protecting them from misuse. All Heritage Grant applications are evaluated through the Department's Grant Prioritization Process, and the processing is the same for all applications approved for funding, regardless of the amount or type of project. Once funded, projects are managed essentially the same even though the funding may vary greatly among projects. The Commission anticipates the rulemaking will have a significant and

positive impact to the regulated community. The public will benefit by the conservation, enhancement, and restoration of Arizona's diverse wildlife resources and habitats for present and future generations.

The Commission anticipates the rulemaking will benefit the Department and those applicants applying for Heritage Grants by improving the accuracy, clarity, and understandability of the rules.

The Commission anticipates the amendment that includes NGOs in the definition of "eligible applicant" will benefit these organizations by providing them with an opportunity to directly apply for and be awarded a Heritage Grant. The Commission believes the rulemaking may increase the number of applicants, but will not affect the dollars available for grants or expended in the state.

The Commission anticipates removing the stipulation that a nonprofit organization must be sponsored by a public agency will benefit nonprofits by reducing the costs and burdens associated with finding and maintaining an administrative relationship with a governmental agency sponsor. Typically, a sponsor will take a portion of the awarded grant funds to offset the costs of administering the grant. How much the proposed amendment will actually affect costs and in turn the amount of funding requested is not known at this time. The Commission believes the rulemaking will further a nonprofit's project by allowing the nonprofit to apply all grant funds towards a proposed project.

The Commission anticipates nonprofit organizations will benefit from the rulemaking by simplifying the paperwork required from the nonprofit. The Commission believes requiring a nonprofit to provide proof of their tax exempt status is unnecessary because an applicant is not required to have tax exempt status in order to qualify for a Heritage Grant.

The Commission anticipates the amendment that clarifies potential grant recipients must have a project that is either located in Arizona or benefits Arizona wildlife or its habitat will benefit grant applicants. The information is being added to the rule so that Heritage Grant applicants will be better informed about the types of projects eligible for grant funding. The Department's Grant Application Manual, which the Department currently publishes and provides to applicants, already contains this information.

The Commission anticipates the amendment that allows a participant to deposit Heritage Grant funds in an interest bearing account will reduce the burden to persons regulated by the rule. The Commission anticipates the amendment may increase the Department's administrative burden, but believes the Department's costs to administer the Heritage Grant Programs, including time expended on Department resources, will not be unduly burdened by the rulemaking.

The Commission anticipates the amendment that prohibits a participant from comingling Heritage Grant funds with any other funds will benefit the Department and the public by protecting Heritage Grant funds from potential misuse.

The Commission anticipates the amendment that allows the Department to extend the project period to complete the final closure documents will benefit both the Department and participants. The project period end date is specified in the Grant Agreement. A participant who fails to comply with the agreement will not receive the final 10% of the grant funds and may not be eligible for another grant for up to five years. When

a participant fails to comply with the agreement the Department expends resources in seeking recovery of grant monies awarded and classifying the participant as ineligible for another grant for up to five years.

The Commission anticipates repealing R12-4-703 will benefit the Department by providing greater flexibility in granting Heritage Funds in compliance with the manner prescribed under A.R.S. § 17-298. The Department's Grant Application Manual, which the Department currently publishes and provides to applicants, contains detailed information regarding the types of projects that will be funded each grant cycle. Thus, the Commission anticipates the rulemaking will have little or no impact to persons regulated by the rule.

The Commission anticipates incorporating the requirements of R12-4-704, R12-4-705, R12-4-706, R12-4-707, and R12-4-708 into R12-4-702 will benefit grant applicants by providing Heritage Grant requirements in one concise overarching rule.

It is important to note that the requirements established under this Article apply only to an eligible applicant who elects to apply for the Heritage Grant.

The Commission believes that once the proposed amendments indicated in the rulemaking are made, the rules will impose the least burden and costs to persons regulated by the rule.

3. Cost benefit analysis:

(a) Probable costs and benefits to the implementing agency and other agencies directly affected by the implementation and enforcement of the proposed rulemaking. The probable costs to the implementing agency shall include the number of new full-time employees necessary to implement and enforce the proposed rule. The preparer of the Economic, Small Business, and Consumer Impact Statement shall notify the Joint Legislative Budget Committee of the number of new full-time employees necessary to implement and enforce the rule before the rule is approved by council.

The Commission anticipates the rulemaking will impact the Department due to Heritage Grant administration requirements; however, this amendment will not require new full-time employees as the Department already has an administrative process in place. The Commission anticipates the rulemaking will have little or no impact on other state agencies affected by the implementation and enforcement of the rulemaking.

(b) Probable costs and benefits to political subdivision of this state directly affected by implementation and enforcement of the final rule making.

The Commission anticipates the rulemaking will affect those agencies and governmental entities eligible to apply for and receive Heritage Grants. The agencies that have submitted applications to the Department in the past include representative organizations from all of the types of government that are eligible to receive funding. Grants from the Heritage Program have been distributed to nearly all areas in the state and to all levels of government. The Commission anticipates the rulemaking will benefit all public agencies and governmental entities applying for a Heritage Grant.

(c) Probable costs and benefits to businesses directly affected by the final rule making, including any anticipated effect on the revenues or payroll expenditures of employers who are subject to the final rule making.

The Commission anticipates the rulemaking will have little or no impact on businesses, revenues, or payroll expenditures. The Commission anticipates the rulemaking will not impact organizations that employ individuals who are listed as participant contacts for Heritage-funded projects. Grants awarded from the Heritage Fund result in an average expenditure of one million dollars annually (includes grantee match commitments). Many of these funds are expended to purchase goods and services from businesses in Arizona. Some of the types of businesses who receive the benefit of these funds are construction companies, engineering firms, companies that supply high-tech equipment and computers, testing laboratories, scientific supply houses, lumber companies, archaeologists, sign companies, paper products companies, helicopter/flight service companies, fence companies, and landscaping companies. The expenditure of funds from the grants that are approved from the Heritage Fund will continue to have a very positive financial affect in terms of providing additional revenue opportunities for many businesses in the state. There will not be any additional costs or reduction in revenues to businesses resulting from these rule amendments, and there is no anticipated effect on the revenues or payroll expenditures of employers who are subject to or affected by the rulemaking.

4. General description of the probable impact on private and public employment in businesses, agencies and political subdivisions of this state directly affected by the proposed rulemaking.

The Commission anticipates the rulemaking will have little or no impact on private or public employment in this state.

5. Statement of the probable impact of the proposed rulemaking on small businesses:

(a) Identification of the small businesses subject to the proposed rulemaking.

The Commission anticipates the rulemaking will have little or no impact on small businesses, revenues, or payroll expenditures. The Commission anticipates the rulemaking may impact small businesses that apply for or participate in Heritage Grant projects. A review of previous grant cycle applications indicates there are significant numbers of businesses or small businesses that benefit from awarded Heritage Grants, through purchases by grantees.

(b) Administrative and other costs required for compliance with the proposed rulemaking.

The Commission anticipates the rulemaking will not create any significant additional requirements for compliance and will not create a significant additional cost to small businesses.

(c) Description of the methods that the agency may use to reduce the impact on small businesses.

The Commission anticipates any additional requirements for compliance resulting from the rulemaking will have little or no impact on small businesses.

(d) Probable cost and benefit to private persons and consumers who are directly affected by the proposed rulemaking.

The Commission anticipates the rulemaking will not affect private persons or consumers.

6. **Statement of the probable effect on state revenues.**

   The Commission anticipates the rulemaking will have little or no impact on state revenues.

7. **Description of any less intrusive or less costly alternative methods of achieving the purpose of the proposed rulemaking including the monetizing of the costs and benefits for each option and providing rationale for not using the nonselected alternatives.**

   The Commission has determined that there are no less intrusive or less costly alternative methods of achieving the objectives of the rulemaking. The Commission holds that the benefits of the rulemaking outweigh any costs.

8. **Description of any data on which a rule is based with a detailed explanation of how the data was obtained and why the data is acceptable data. An agency advocating that any data is acceptable data has the burden of proving that the data is acceptable. For the purposes of this paragraph, "acceptable data" means empirical, replicable and testable data as evidenced in supporting documentation, statistics, reports, studies or research.**

   For this rulemaking, the Commission relied on empirical data based on agency experience and observations, which included comments from agency staff who administer and enforce rules included in this rulemaking. Additionally, the Commission relied on historical data (i.e., meeting notes from previous rulemaking teams, Heritage Grant reports, other state agency rules, etc.), current processes, benchmarking with other states, and the Department's overall mission. This rulemaking includes rules that govern Heritage Grants. The subjects the rules address are based on fund administration rather than natural sciences, thus recommendations relied more heavily on empirical qualitative data using agency experience and observations instead of quantitative data. The Commission approached this rulemaking and the use of the documentation, statistics, and research in a methodical way, testing various approaches and trying to replicate approaches that were successful in other states.

C. **If for any reason adequate data are not reasonably available to comply with the requirements of subsection B of this section, the agency shall explain the limitations of the data and the methods that were employed in the attempt to obtain the data and shall characterize the probable impacts in qualitative terms. The absence of adequate data, if explained in accordance with this subsection, shall not be grounds for a legal challenge to the sufficiency of the economic, small business and consumer impact statement.**

The Department tasked a team of subject matter experts to review and make recommendations for rules contained within Article 7. In its review, the team considered all comments from agency staff that administer and enforce Article 7 rules, historical data, current processes and environment, and the Department's overall mission. The team took a customer-focused approach, considering each recommendation from a resource perspective and determining whether the recommendation would cause undue harm to the Heritage Grant Program or the Department's grant objectives. The team then determined whether the request was consistent with the Department's overall mission, if it could be effectively implemented given agency resources, and if it was acceptable to the public. The Commission believes the data utilized in completing this economic, small business, and consumer statement is more than adequate.

ARTICLE 7. HERITAGE GRANTS

Section

R12-4-701. Heritage Grant Definitions

R12-4-702. General Provisions

R12-4-703. Heritage Grant Program Funds

R12-4-704. Grant Application

R12-4-705. Review of Proposals

R12-4-706. State Historic Preservation Office Review

R12-4-707. Grant Agreement

R12-4-708. Reporting and Recordkeeping Requirements

R12-4-709. Renumbered

R12-4-710. Renumbered

R12-4-711. Renumbered

R12-4-712. Renumbered

R12-4-701. Heritage Grant Definitions

In addition to the definitions provided under A.R.S. §§ 17-101 and 17-296, the following definitions apply to this Article:

"Administrative subunit" means a branch, chapter, department, division, section, school, or other similar divisional entity of an eligible applicant. For example, an individual:

a. School, but not an entire school district;

b. Field office or project office, but not an entire agency; or

c. Administrative department, but not an entire city government.

"Eligible applicant" means any public agency or non-profit organization sponsored by a public agency that meets the applicable requirements of this Article and does not have a Heritage Fund Grant in extension as authorized under R12-4-707(B).

"Facilities" means any structure or site improvements.

"Fund" means the Arizona Game and Fish Commission Heritage Fund, established under A.R.S. § 17-297.

"Grant agreement" means a document that details the terms and conditions of a grant project.

"Grant effective date" means the date the Department Director signs the Grant Agreement.

"In-kind" means contributions other than cash, which include individual and material resources that the applicant makes available to the project, e.g. a permanent public employee's' salary, volunteer time, materials, supplies, space, or other donated goods and services.

"Participant" means an eligible applicant who has been awarded a grant from the Heritage Fund.

"Project" means an activity, or series of related activities, or services described in the specific project scope of work and results in specific end products.

"Project period" means the time during which a participant shall complete all approved work and related expenditures associated with an approved project.

"Public agency" means the federal government or any federal department or agency, an Indian tribe, this state, all state departments, agencies, boards, and commissions, counties, school districts, public charter schools, cities, towns, all municipal corporations, and any other political subdivision.

"Publicly held lands" means federal, public, and reserved land, State Trust Land, and other lands within Arizona that are owned, controlled, or managed by the federal government, a state agency or political subdivision.

"Sensitive elements" means the specific areas within the geographical area, historically or currently occupied by a species or community of species, which comprise those physical or biological features essential to the establishment or continued existence of the species. These 'sensitive elements' may require special management, conservation or protection considerations.

"Term of public use" means the time period during which the project or facility is expected to be maintained for public use.

Historical Note

Adopted effective July 12, 1996 (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 2692, effective June 6, 2002 (Supp. 02-2). Amended by final rulemaking at 13 A.A.R. 4587, effective February 2, 2008 (Supp. 07-4). Amended by final rulemaking at 19 A.A.R. 768, effective June 1, 2013 (Supp. 13-2).

R12-4-702. General Provisions

A. An applicant shall submit to the Department a Heritage Fund Grant application according to a schedule of due dates determined by the Director. In compliance with A.R.S. § 41-2702, the Department shall:

1. Provide public notice of the time, location, and due date for application submission; and
2. Furnish materials necessary to complete the application.

B. An eligible applicant, seeking Heritage Grant funding shall submit a Heritage Grant Application as established under this Article and in compliance with the Heritage Grant application materials.

C. An applicant shall demonstrate ownership or control of the project. Ownership or control may be demonstrated through fee title, lease, easement, or agreement. For all other project types related to sites not controlled by an applicant, an applicant shall provide written permission from the property owner authorizing the project activities and access. The applicant's proof of ownership or control or written permission shall demonstrate:

1. Permission for access is not revocable at will by the property owner, and
2. Public access will be granted to the project site for the life of the project, unless the purpose of the project proposal is to limit access.

D. The Department shall notify an applicant in writing of the results of the applicant's submission and announce Heritage Grant awards at a regularly scheduled open meeting of the Commission.

E. A participant shall not begin a project described in an application until after the grant effective date.

F. A participant shall complete the project as specified under the terms and conditions of the Grant Agreement.

G. A participant shall deposit transferred Heritage Grant Funds in a dedicated non-interest bearing account carrying the name and number of the project.

H. A participant shall use awarded Heritage Grant Funds solely for eligible purposes of the funding program as defined by law and as approved by the Department.

I. A participant shall not use Heritage Grant Funds for the purpose of producing income unless authorized by the Department. A participant shall use income generated to further the purpose of the approved project or surrender the income to the original funding source.

J. If a balance of awarded Heritage Grant funds remain upon completion of approved project elements, the participant may, with Department approval, use those unexpended funds for an additional project consistent with the original scope of work or surrender those unexpended funds to the Department.

K. A participant shall use equipment purchased with Heritage Grant funds in a manner consistent with the purposes of the Grant Agreement, and surrender the equipment to the Department upon completion of the project, if the equipment has an acquisition cost of more than $500.

L. A participant shall not use Heritage Grant funds to pay the salary of any permanent public employee. A participant may use a permanent employee's time as in-kind match for the project specified in the Grant Agreement.

M. A participant shall allow Department employees or agents to conduct inspections and reviews:

1. To ensure compliance with all terms and conditions established under the Grant Agreement.
2. Before release of the final payment.

N. A participant shall submit records that substantiate the expenditure of Heritage Grant funds.

O. A participant shall bear full responsibility for performance by subcontractors to ensure compliance with the Grant Agreement.

P. A participant shall pay all costs associated with the operation and maintenance of properties, facilities, equipment, services, publications, and other media funded by a Heritage Grant for the term of public use as specified in the Grant Agreement.

Q. A participant shall give public acknowledgment of Heritage Fund grant assistance for the term of public use of a project. If a project involves acquisition of property, development of public access, or renovation of a habitat site, the participant shall install a permanent sign describing the funding sources. The participant may include the cost of this signage as part of the original project. The participant is responsible for maintenance or replacement of the sign as required. For other project types, the participant shall include Heritage Fund grant funding acknowledgment on any publicly available or accessible products resulting from the project.

R. An administrative subunit that failed to comply with the terms and conditions of a Grant Agreement shall not apply for, nor be considered for, further Heritage Grants until the administrative subunit's project is brought into compliance.

S. An administrative subunit that has a Heritage Grant funded project in extension shall not apply for, nor be considered for, further Heritage Grants until the administrative subunit's project under extension is completed.

ARTICLE 7. HERITAGE GRANTS

Historical Note

Adopted effective July 12, 1996 (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 2692, effective June 6, 2002 (Supp. 02-2). Amended by final rulemaking at 13 A.A.R. 4587, effective February 2, 2008 (Supp. 07-4). Amended by final rulemaking at 19 A.A.R. 768, effective June 1, 2013 (Supp. 13-2).

R12-4-703. Heritage Grant Program Funds

A. Environmental Education Grant. An eligible applicant shall ensure a proposed project is designed to:

1. Develop awareness, appreciation, and understanding of Arizona's wildlife and its environment and increase responsible actions toward wildlife;
2. Use Arizona wildlife as its focus and present wildlife issues in a balanced and fair manner; and
3. Benefit Arizona public schools, public charter schools, and students.

B. IIAPM Grant: Identification, Inventory, Acquisition, Protection, and Management of Sensitive Elements. An eligible applicant shall ensure a proposed project is designed to:

1. Preserve and enhance Arizona's natural biological diversity; and
2. Incorporate identification, inventory, acquisition, protection, or management of sensitive elements.

C. Outdoor Education Grant: An eligible applicant shall ensure a proposed project is designed to:

1. Provide a meaningful outdoor educational experience;
2. Develop awareness, appreciation, and stewardship of Arizona's wildlife and wildlife habitats; and
3. Benefit Arizona public schools, public charter schools, and students.

D. Public Access Grant: An eligible applicant shall ensure a proposed project:

1. Is designed to increase or maintain public access for recreational use related to wildlife;
2. Is in cooperation with federal land managers, local and state governments, private landowners, or public users, as applicable; and
3. Is designed to inform and educate the public about recreational use of publicly held lands and public access to those lands.

E. Schoolyard Habitat Grant: An eligible applicant shall ensure a proposed project is designed to:

1. Develop awareness, appreciation, and understanding of Arizona's wildlife and its environment;
2. Encourage wildlife educational activities on Arizona school sites or adjacent areas;
3. Encourage native wildlife species, utilize native plant materials, and demonstrate water conservation techniques;
4. Allow Arizona students to actively participate in the planning, development, and construction process;
5. Be integrated into the school curriculum; and
6. Benefit Arizona public schools, public charter schools, and students.

F. Urban Wildlife and Urban Wildlife Habitat Grant. An eligible applicant shall ensure a proposed project:

1. Is designed to conserve, enhance, and establish wildlife habitats and populations consistent with urban environments, and increase public awareness and support for urban wildlife resources; and
2. Meets one of the following criteria:

a. Is within the incorporated limits of a city or town;

b. Is within five miles, in straight distance, of the boundary of an incorporated area; or

c. Is an area that receives significant impact from residential development, as determined by the Department.

Historical Note

Adopted effective July 12, 1996 (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 2692, effective June 6, 2002 (Supp. 02-2). Amended by final rulemaking at 13 A.A.R. 4587, effective February 2, 2008 (Supp. 07-4). R12-4-703 renumbered to R12-4-705; new Section R12-4-703 made by final rulemaking at 19 A.A.R. 768, effective June 1, 2013 (Supp. 13-2).

R12-4-704. Grant Application

A. To be considered for a Heritage Grant, an eligible applicant shall submit a grant application as established under this Article and in compliance with the Heritage Grant Application materials.

B. An applicant who is applying for multiple projects, shall submit a separate application for each project.

C. An applicant shall provide the following information on the Heritage Grant application form:

1. The name of the applicant;
2. Any county and legislative district where the project will be developed or upon which the project will have a direct impact;
3. The name, title, mailing address, e-mail address, and telephone number of the individual responsible for the day-to-day management of the proposed project;
4. Identification of the specific Heritage Grant program fund;
5. A descriptive project title;
6. The name of the site, primary location, and any other locations of the project;
7. Description of the:
   a. Scope of work and the objective of the proposed project,
   b. Methods for achieving the objective, and
   c. Desired result of the project;
8. The beginning and ending dates for the project;
9. The resources needed to accomplish the project, including grant monies requested, and, if applicable, evidence of secured matching funds or contributions;
10. If the eligible applicant is a non-profit organization exempt from federal income taxation under Section 501(c) of the Internal Revenue Code, documentation or other evidence of the exemption; and
11. Any additional supporting information required by the Department.

D. The person signing the grant application form shall have the authority to enter into agreements, accept funding, and fulfill the terms of the Grant Agreement on behalf of the applicant.

ARTICLE 7. HERITAGE GRANTS

Historical Note

Adopted effective July 12, 1996 (Supp. 96-3). Amended by final rulemaking at 13 A.A.R. 4587, effective February 2, 2008 (Supp. 07-4). R12-4-704 repealed; new Section R12-4-704 renumbered from R12-4-709 and amended by final rulemaking at 19 A.A.R. 768, effective June 1, 2013 (Supp. 13-2).

R12-4-705. Review of Proposals

A. Heritage Grant proposals are competitive and the Department shall make awards based on a proposed project's compatibility with the priorities of the Department, as approved by the Commission.

B. The Department may require an applicant to modify the application prior to awarding a Heritage Grant, if the Department determines that the modification is necessary for the successful completion of the project.

Historical Note

Adopted effective July 12, 1996 (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 2692, effective June 6, 2002 (Supp. 02-2). Amended by final rulemaking at 13 A.A.R. 4587, effective February 2, 2008 (Supp. 07-4). R12-4-705 repealed; new Section R12-4-705 renumbered from R12-4-703 and amended by final rulemaking at 19 A.A.R. 768, effective June 1, 2013 (Supp. 13-2).

R12-4-706. State Historic Preservation Office Review

When applicable, the Department shall not release Heritage Grant Funds until after the Department has consulted with the State Historic Preservation Office regarding the proposed project's potential impact on historic and archaeological properties and resources.

Historical Note

Adopted effective July 12, 1996 (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 2692, effective June 6, 2002 (Supp. 02-2). Amended by final rulemaking at 13 A.A.R. 4587, effective February 2, 2008 (Supp. 07-4). R12-4-706 repealed; new Section R12-4-706 renumbered from R12-4-710 and amended by final rulemaking at 19 A.A.R. 768, effective June 1, 2013 (Supp. 13-2).

R12-4-707. Grant Agreement

A. Before the Department transfers any grant funds, the applicant shall sign the Grant Agreement.

B. A participant may request an extension beyond the approved project period by writing to the Department. Requests for an extension shall be submitted by the participant no later than 30 days before the end of the project period. If approved, an extension shall be signed by both the participant and the Department.

C. Notwithstanding subsection (B), the Department may extend the project period for good cause such as, but not limited to, inclement weather or internal personnel changes.

D. The Department and the participant may amend the Grant Agreement during the project period. A participant seeking to amend the Grant Agreement shall submit a written request that includes justification to amend the

Grant Agreement. The Department shall prepare any approved amendment in writing and both the Department and the participant shall sign the amendment.

E. If a participant is in default of the Grant Agreement, the Department may:
   1. Terminate the Grant Agreement,
   2. Seek recovery of grant monies awarded, and
   3. Classify the participant as ineligible for Heritage Fund Grants for a period of up to five years.

F. The Department, at its sole discretion, has the authority to include additional conditions in the Grant Agreement prior to signing the Agreement and through Amendment.

Historical Note

Adopted effective July 12, 1996 (Supp. 96-3). Amended by final rulemaking at 13 A.A.R. 4587, effective February 2, 2008 (Supp. 07-4). R12-4-707 repealed; new Section R12-4-707 renumbered from R12-4-711 and amended by final rulemaking at 19 A.A.R. 768, effective June 1, 2013 (Supp. 13-2).

R12-4-708. Reporting and Recordkeeping Requirements

A. A participant shall submit project status reports to the Department as specified in the Grant Agreement. The project status report shall include the following information, as applicable:
   1. Progress in completing approved work;
   2. Itemized, cumulative project expenditures;
   3. A financial accounting of:
      a. Heritage Grant Funds,
      b. Matching funds,
      c. Donations, and
      d. Income derived from project funds;
   4. Any delays or problems that may prevent the on-time completion of the project; and
   5. Any other information required by the Department.

B. At the end of the project period and for each year until the end of the term of public use, a participant shall:
   1. Certify compliance with the Grant Agreement, and
   2. Complete a post-completion report form furnished by the Department.

C. A participant shall submit project status reports, as required in the grant materials. If a participant fails to submit a project status report, the Department may not release any remaining grant monies until the participant has submitted all past due project status reports.

D. Each participant shall retain and shall contractually require each subcontractor to retain all books, accounts, reports, files, and any other records relating to the acquisition and performance of the contract for a period of five years from the end date of the project period. The Department may inspect and audit participant and subcontractor records as prescribed under A.R.S. § 35-214. Upon the Department's request, a participant or subcontractor shall produce a legible copy of these records.

ARTICLE 7. HERITAGE GRANTS

Historical Note

Adopted effective July 12, 1996 (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 2692, effective June 6, 2002 (Supp. 02-2). Amended by final rulemaking at 13 A.A.R. 4587, effective February 2, 2008 (Supp. 07-4). R12-4-708 repealed; new Section R12-4-708 renumbered from R12-4-712 and amended by final rulemaking at 19 A.A.R. 768, effective June 1, 2013 (Supp. 13-2).

TITLE 17 - GAME AND FISH,
ARTICLE 6. ARIZONA GAME AND FISH COMMISSION HERITAGE FUND

5-572. Use of monies in state lottery fund; report

A. If there are any bonds or bond related obligations payable from the state lottery revenue bond debt service fund, the state lottery revenue bond debt service fund shall be secured by a first lien on the monies in the state lottery fund after the payment of operating costs of the lottery, as prescribed in section 5-555, subsection A, paragraph 1, until the state lottery bond debt service fund contains sufficient monies to meet all the requirements for the current period as required by the bond documents. Debt service for revenue bonds issued pursuant to this chapter shall be paid first from monies that would have otherwise been deposited pursuant to this section in the state general fund. After the requirements for the current period have been satisfied as required by the bond documents, the monies in the state lottery fund shall be expended for the expenses of the commission incurred in carrying out its powers and duties and in the operation of the lottery.

B. Of the monies remaining in the state lottery fund each fiscal year after appropriations and deposits authorized in subsection A of this section, ten million dollars shall be deposited in the Arizona game and fish commission heritage fund established by section 17-297.

C. Of the monies remaining in the state lottery fund each fiscal year after appropriations and deposits authorized in subsections A and B of this section, five million dollars shall be allocated to the department of child safety for the healthy families program established by section 8-481, four million dollars shall be allocated to the Arizona board of regents for the Arizona area health education system established by section 15-1643, three million dollars shall be allocated to the department of health services to fund the teenage pregnancy prevention programs established in Laws 1995, chapter 190, sections 2 and 3, two million dollars shall be allocated to the department of health services for the health start program established by section 36-697, two million dollars shall be deposited in the disease control research fund established by section 36-274 and one million dollars shall be allocated to the department of health services for the federal women, infants and children food program. The allocations in this subsection shall be adjusted annually according to changes in the GDP price deflator as defined in section 41-563 and the allocations are exempt from the provisions of section 35-190 relating to lapsing of appropriations. If there are not sufficient monies available pursuant to this subsection, the allocation of monies for each program shall be reduced on a pro rata basis.

D. If the state lottery director determines that monies available to the state general fund may not equal eighty-four million one hundred fifty thousand dollars in a fiscal year, the director shall not authorize deposits to the Arizona game and fish commission heritage fund pursuant to subsection B of this section until the deposits to the state general fund equal eighty-four million one hundred fifty thousand dollars in a fiscal year.

E. Of the monies remaining in the state lottery fund each fiscal year after appropriations and deposits authorized in subsections A through D of this section, one million dollars or the remaining balance in the fund, whichever is less, is appropriated to the department of economic security for grants to nonprofit organizations, including faith based organizations, for homeless emergency and transitional shelters and related support services. The department of economic security shall submit a report on the amounts, recipients, purposes and results of each grant to the governor, the speaker of the house of representatives and the president of the senate on or before December 31 of each year for the prior fiscal year and shall provide a copy of this report to the secretary of state.

F. Of the monies remaining in the state lottery fund each fiscal year after appropriations and deposits authorized in subsections A through E of this section, and after a total of at least ninety-nine million six hundred forty thousand dollars has been deposited in the state general fund, three million five hundred thousand dollars shall be deposited in the Arizona competes fund established by section 41-1545.01. The balance in the state lottery fund remaining after deposits into the Arizona competes fund shall be deposited in the university capital improvement lease-to-own and bond fund established by section 15-1682.03, up to a maximum of eighty percent of the total annual payments of lease-to-own and bond agreements entered into by the Arizona board of regents.

G. All monies remaining in the state lottery fund after the appropriations and deposits authorized in this section shall be deposited in the state general fund.

H. Except for monies expended for debt service of revenue bonds as provided in subsection A of this section, monies expended under subsection A of this section are subject to legislative appropriation.

I. The commission shall transfer monies prescribed in this section on a quarterly basis.

17-231. General powers and duties of the commission

A. The commission shall:
   1. Adopt rules and establish services it deems necessary to carry out the provisions and purposes of this title.
   2. Establish broad policies and long-range programs for the management, preservation and harvest of wildlife.

3. Establish hunting, trapping and fishing rules and prescribe the manner and methods that may be used in taking wildlife, but the commission shall not limit or restrict the magazine capacity of any authorized firearm.
4. Be responsible for the enforcement of laws for the protection of wildlife.
5. Provide for the assembling and distribution of information to the public relating to wildlife and activities of the department.
6. Prescribe rules for the expenditure, by or under the control of the director, of all funds arising from appropriation, licenses, gifts or other sources.
7. xercise such powers and duties necessary to carry out fully the provisions of this title and in general exercise powers and duties that relate to adopting and carrying out policies of the department and control of its financial affairs.
8. Prescribe procedures for use of department personnel, facilities, equipment, supplies and other resources in assisting search or rescue operations on request of the director of the division of emergency management.
9. Cooperate with the Arizona-Mexico commission in the governor's office and with researchers at universities in this state to collect data and conduct projects in the United States and Mexico on issues that are within the scope of the department's duties and that relate to quality of life, trade and economic development in this state in a manner that will help the Arizona-Mexico commission to assess and enhance the economic competitiveness of this state and of the Arizona-Mexico region.

B. The commission may:
1. Conduct investigations, inquiries or hearings in the performance of its powers and duties.
2. Establish game management units or refuges for the preservation and management of wildlife.
3. Construct and operate game farms, fish hatcheries, fishing lakes or other facilities for or relating to the preservation or propagation of wildlife.
4. Expend funds to provide training in the safe handling and use of firearms and safe hunting practices.
5. Remove or permit to be removed from public or private waters fish which hinder or prevent propagation of game or food fish and dispose of such fish in such manner as it may designate.
6. Purchase, sell or barter wildlife for the purpose of stocking public or private lands and waters and take at any time in any manner wildlife for research, propagation and restocking purposes or for use at a game farm or fish hatchery and declare wildlife salable when in the public interest or the interest of conservation.
7. Enter into agreements with the federal government, with other states or political subdivisions of the state and with private organizations for the construction and operation of facilities and for management studies, measures or procedures for or relating to the preservation and propagation of wildlife and expend funds for carrying out such agreements.
8. Prescribe rules for the sale, trade, importation, exportation or possession of wildlife.
9. Expend monies for the purpose of producing publications relating to wildlife and activities of the department for sale to the public and establish the price to be paid for annual subscriptions and single copies of such publications. All monies received from the sale of such publications shall be deposited in the game and fish publications revolving fund.
10. Contract with any person or entity to design and produce artwork on terms that, in the commission's judgment, will produce an original and valuable work of art relating to wildlife or wildlife habitat.
11. Sell or distribute the artwork authorized under paragraph 10 of this subsection on such terms and for such price as it deems acceptable.
12. Consider the adverse and beneficial short-term and long-term economic impacts on resource dependent communities, small businesses and the state of Arizona, of policies and programs for the management, preservation and harvest of wildlife by holding a public hearing to receive and consider written comments and public testimony from interested persons.
13. Adopt rules relating to range operations at public shooting ranges operated by and under the jurisdiction of the commission, including the hours of operation, the fees for the use of the range, the regulation of groups and events, the operation of related range facilities, the type of firearms and ammunition that may be used at the range, the safe handling of firearms at the range, the required safety equipment for a person using the range, the sale of firearms, ammunition and shooting supplies at the range, and the authority of range officers to enforce these rules, to remove violators from the premises and to refuse entry for repeat violations.
14. Solicit and accept grants, gifts or donations of money or other property from any source, which may be used for any purpose consistent with this title.

C. The commission shall confer and coordinate with the director of water resources with respect to the commission's activities, plans and negotiations relating to water development and use, restoration projects under the restoration acts pursuant to chapter 4, article 1 of this title, where water development and use are involved, the abatement of pollution injurious to wildlife and in the formulation of fish and wildlife aspects of the director of water resources' plans to develop and utilize water resources of the state and shall have jurisdiction over fish and wildlife resources and fish and wildlife activities of projects constructed for the state under or pursuant to the jurisdiction of the director of water resources.
D. The commission may enter into one or more agreements with a multi-county water conservation district and other parties for participation in the lower Colorado river multispecies conservation program under section 48-3713.03, including the collection and payment of any monies authorized by law for the purposes of the lower Colorado river multispecies conservation program.

17-296. Definitions

In this article:

1. "Public access" means providing entry to publicly held lands for recreational use where such entry is consistent with the provisions establishing those lands.
2. "Sensitive habitat" means the specific areas within the geographical area historically or currently occupied by a species or community of species in which are found those physical or biological features essential to the establishment or continued existence of the species and which may require special management, conservation or protection considerations.
3. "Endangered species" means a species or subspecies of native Arizona wildlife whose population has been reduced due to any cause whatsoever to such levels that it is in imminent danger of elimination from its range in Arizona, or has been eliminated from its range in Arizona.
4. "Threatened species" means a species or subspecies of native Arizona wildlife that, although not presently in imminent danger of being eliminated from its range in Arizona, is likely to become an endangered species in the foreseeable future.
5. "Candidate species" means a species or subspecies of native Arizona wildlife for which habitat or population threats are known or suspected but for which substantial population declines from historic levels have not been documented.
6. "Urban wildlife" means the wildlife that occurs within the limits of an incorporated area or in close proximity to an urban area that receives significant impact from human use.
7. "Environmental education" means educational programs dealing with basic ecological principles and the effects of natural and man related processes on natural and urban systems and programs to enhance public awareness of the importance of safeguarding natural resources.
8. "Habitat evaluation" means the assessment of the status, condition and ecological value of habitat and subsequent recommendations of management, conservation or other protection measures, or mitigation measures, including but not limited to, recommendation of reasonable alternatives for the proposed projects that might otherwise affect the habitat under assessment.
9. "Habitat protection" means the process of protecting the quality, diversity, abundance, and serviceability of habitats for the purposes of maintaining or recovering populations of Arizona wildlife.

17-297. Arizona game and fish commission heritage fund

A. The Arizona game and fish commission heritage fund is established consisting of monies deposited from the state lottery fund pursuant to section 5-572 and interest earned on those monies.
B. The fund shall be administered by the Arizona game and fish commission and is not subject to appropriation and expenditures from the fund are not subject to outside approval notwithstanding any provision of section 17-241 or 17-261 or any other statutory provision to the contrary. Monies received pursuant to section 5-572 shall be deposited directly with the Arizona game and fish commission heritage fund. On notice from the Arizona state game and fish commission, the state treasurer shall invest and divest monies in the fund as provided by section 35-313, and monies earned from investment shall be credited to the fund.
C. All monies in the Arizona game and fish commission heritage fund shall be spent by the Arizona game and fish commission only for the purposes and in the percentages set forth in this article. In no event shall any monies in the fund revert to the state general fund and monies in the fund are exempt from the provisions of section 35-190 relating to lapsing of appropriations.
D. The commission shall not use its rights of eminent domain to acquire property to be paid for with money from the Arizona game and fish commission heritage fund.

17-298. Expenditures from fund; purpose and amounts; annual report

A. Monies received pursuant to section 5-572 shall be spent as follows:
   1. Five per cent on public access, including maintenance and operation expenses.
   2. Sixty per cent on the identification, inventory, acquisition, protection and management, including maintenance and operations, of sensitive habitat. At least forty per cent of the monies available under this paragraph shall be spent on the acquisition of sensitive habitat utilized by endangered, threatened and candidate species. The commission may dispose of any lands acquired for use as habitat by an endangered, threatened or candidate species under this paragraph when the species no longer qualifies as an endangered, threatened or candidate species. The Arizona game and fish commission shall dispose of the land in a manner consistent with the preservation of the species of concern. The disposal may include conservation easements and fee simple transfers with associated instruments of protection. The commission shall follow the guidelines established pursuant to section 37-803 relating to the disposition of real property by a state agency. In addition, disposal shall include a written agreement between the commission and the purchaser requiring the purchaser to incorporate management actions to ensure proper maintenance of the species of concern. Management actions may include maintenance of habitat, selective control of nonnative species, maintenance of genetic viability, monitoring of populations and habitat, coordinating conservation activities, funding conservation actions and assessing conservation progress.
   3. Fifteen per cent on habitat evaluation or habitat protection.
   4. Fifteen per cent on urban wildlife and urban wildlife habitat programs.
   5. Five per cent on environmental education.

B. All monies earned as interest on monies received pursuant to section 5-572 shall be spent only in the percentages and for the purposes described in subsection A of this section or for costs of administering the Arizona game and fish commission heritage fund in such amounts as determined by the Arizona game and fish commission.

C. On or before December 31 each year the commission shall submit its annual report to the president of the senate, the speaker of the house of representatives and the chairmen of the senate and house of representatives committees on natural resources and agriculture, or their successor committees. The annual report shall include information on:
   1. The amount of monies spent or encumbered in the fund during the preceding fiscal year and a summary of the projects, activities and expenditures relating to:
      (a) Property acquisition.
      (b) Identification, inventory, protection and management of sensitive habitat.
      (c) Habitat evaluation and protection.
      (d) Urban wildlife.
      (e) Environmental education.
      (f) Public access.
   2. The number and location of parcels of property acquired during the preceding fiscal year.
   3. For personal and real properties acquired with fund monies during the preceding fiscal year, the amount of property tax revenue paid to each taxing jurisdiction during the last full tax year prior to acquisition.
   4. The amount of money spent from the fund during the preceding fiscal year for employee personal services.
   5. The number of full-time employees employed in the preceding fiscal year in connection with property acquisition, including survey, appraisal and other related activities.
   6. The total number of full-time employees employed in the preceding fiscal year for the programs listed in subsection A of this section.
   7. A list of the grants awarded during the preceding fiscal year including information on the recipients, purposes and amounts.

17-298.01. Decennial performance audit

Beginning in 2001 and every tenth succeeding year thereafter, the auditor general shall conduct a performance audit, as defined in section 41-1278, of the programs and expenditures of the Arizona game and fish commission heritage fund pursuant to this article. The auditor general shall submit copies of the performance audit to the president of the senate, the speaker of the house of representatives and the chairmen of the senate and house of representatives committees on natural resources and agriculture, or their successor committees.

17-299. Arizona wildlife conservation fund (Caution: 1998 Prop. 105 applies)

A. The Arizona wildlife conservation fund is established consisting of monies deposited pursuant to section 5-601.02(H)(3)(b)(iii) and interest earned on those monies. The Arizona state game and fish commission shall administer the fund. The fund is not subject to appropriation, and expenditures from the fund are not subject to outside approval notwithstanding any provision of sections 17-241 or 17-261 or any other statutory provisions to the contrary.
B. Monies received pursuant to section 5-601.02 shall be deposited directly with the Arizona wildlife conservation fund. On notice from the Arizona state game and fish commission, the state treasurer shall invest and divest monies in the fund as provided by section 35-313, and monies earned from investment shall be credited to the fund. No monies in the Arizona wildlife conservation fund shall revert to or be deposited in any other fund, including the state general fund. Monies in the Arizona wildlife conservation fund are exempt from the provisions of section 35-190 relating to the lapsing of appropriations. Monies provided from the Arizona wildlife conservation fund shall supplement, not supplant, existing monies.
C. All monies in the Arizona wildlife conservation fund shall be spent by the Arizona state game and fish commission to conserve, enhance, and restore Arizona's diverse wildlife resources and habitats for present and future generations, and which may include the acquisition of real property. The commission may grant monies to any agency of the state or any political subdivision, Indian tribe, or non-profit organization exempt from federal income taxation under section 501(c) of the internal revenue code for the purpose of conservation of wildlife or wildlife habitat or acquisition of real property or interest in real property that is wildlife habitat. A grant of money under this subsection to a nonprofit organization is conditioned on the organization providing reasonable public access to any land that is wholly or partly purchased with that money.

41-2701. Definitions

In this chapter, unless the context otherwise requires:

1. "Grant" means the furnishing of financial or other assistance, including state funds or federal grant funds, by any state governmental unit to any person for the purpose of supporting or stimulating educational, cultural, social or economic quality of life.
2. "Person" means any corporation, business, individual, committee, club or other organization or group of individuals.
3. "State governmental unit" means any department, commission, council, board, bureau, committee, institution, agency, government corporation or other establishment or official of the executive branch or corporation commission of this state.

41-2702. Solicitation and award of grant applications

A. State governmental units shall award any grant in accordance with the competitive grant solicitation requirements of this chapter.
B. A state governmental unit shall prepare and issue a request for grant applications that includes at least the following information:
   1. A description of the nature of the grant project, including the scope of the work to be performed by an awardee.
   2. An identification of the funding source and the total amount of available funds.
   3. Whether a single award or multiple awards may be made.
   4. Encouragement of collaboration by entities for community partnerships, if appropriate.
   5. Any additional information required by the applications.
   6. The criteria or factors under which applications will be evaluated for award and the relative importance of each criteria or factor.
   7. The due date for submittal of applications and the anticipated time the awards may be made.
C. Adequate public notice of the request for grant applications shall be given at least six weeks before the due date for the submittal of applications. Adequate notification of the request for grant applications shall also be provided to the central state permitting program pursuant to section 41-1505.08.
D. A preapplication conference may be conducted before the due date for the submittal of applications to explain the grant application requirements. If a preapplication conference is held, it shall be held at least twenty-one days before the due date. Statements made at a preapplication conference are not amendments to the request for grant applications unless a written amendment is issued.
E. Grant applications shall be publicly received at the time and place designated in the request for grant applications. The name of each applicant shall be publicly read and recorded. All other information in the grant application is confidential during the process of evaluation. All applications shall be open for public inspection

after grants are awarded. To the extent the applicant designates and the state concurs, trade secrets and other proprietary information contained in the application shall remain confidential.

F. Applications shall be evaluated by at least three evaluators who are peers or other qualified individuals. The evaluators may allow applicants to make oral or written presentations regarding the scope of work, terms and conditions of the grant, budget and other relevant matters set forth in the request for grant applications. Applicants shall be accorded fair treatment with respect to any opportunity for oral or written presentations. The evaluators may require an applicant to revise its application to reflect information provided in an oral or written presentation. Any person who has information contained in the application of competing applications shall not disclose that information.

G. The evaluators shall review each application based solely on the evaluation criteria or factors set forth in the request for grant applications. The evaluators shall maintain a written record of the assessment of each application, which shall include comments regarding compliance with each evaluation criteria or factor, the citation of a specific criteria or factor as the basis of each stated strength or weakness and a clear differentiation between comments based on facts presented in the application and comments based on professional judgment. Evaluator assessments shall be made available for public inspection no later than thirty days after a formal award is made.

H. The evaluators shall make award recommendations to the head of the state governmental unit based on the evaluators' reviews of each application. The evaluators' recommendations may include the adjustment of the budgets of the applicants individually or collectively.

I. The head of the state governmental unit may affirm, modify or reject the evaluators' recommendations in whole or in part. Modification of the evaluators' recommendations may include the adjustment of the budget on any proposed award individually or on all awards by an amount or percentage. If the head of the state governmental unit does not affirm the recommendations, the head of the state governmental unit shall document in writing the specific justifications for the action taken. The specific justifications shall be made available for public inspection no later than thirty days after the action is taken.

J. The head of a state governmental unit may enter into agreements with other state governmental units to furnish assistance in conducting the solicitation of grant applications.

41-2703. Waiver of solicitation and award procedures

A. Notwithstanding any other provision of this chapter, the director of the department of administration or the director's designee may waive the solicitation and award procedures if a situation exists that makes compliance with section 41-2702 impracticable, unnecessary or contrary to the public interest, except that the grant solicitation and award shall be made with competition that is practicable under the circumstances.

B. A state governmental unit seeking a waiver of solicitation and award procedures shall prepare a written request documenting and explaining the situation justifying the waiver. The request shall be submitted to the director of the department of administration or the director's designee, who shall determine in writing whether to grant the request. If the request is granted, the determination shall state the manner in which the grant is to be solicited and awarded and the limits of the determination.

C. A copy of each request and determination shall be kept on file in the office of the state governmental unit requesting the waiver and the office of the director of the department of administration or the office of the director's designee.

41-2704. Remedies

The head of the state governmental unit may resolve protests of the award or proposed award of a grant. An appeal from a decision of the head of a state governmental unit may be made to the director of the department of administration. A protest of an award or proposed award of a grant and any appeal shall be resolved in accordance with the rules of procedure adopted by the director pursuant to section 41-2611.

TITLE 17 - GAME AND FISH,
ARTICLE 6. ARIZONA GAME AND FISH COMMISSION HERITAGE FUND

41-2705. Violation; classification; liability; enforcement authority

A. A person who violates this chapter is personally liable for the recovery of all public monies paid plus twenty per cent of the amount and legal interest from the date of payment and all costs and damages arising out of the violation.

B. A person who intentionally or knowingly participates in the award of a grant pursuant to a scheme or artifice to avoid the requirements of this chapter is guilty of a class 4 felony.

C. A person who serves as an evaluator of grant applications pursuant to this chapter shall sign a statement before reviewing applications that the person has no interest in any application other than that disclosed and shall not have contact with any representative of an applicant during the evaluation of applications, except those contacts specifically authorized by this chapter. The person shall disclose on the statement any contact unrelated to the review of the grant applications that the person may need to have with a representative of an applicant and any contact with a representative of an applicant during evaluation of applications except those specifically authorized by this chapter. A person who serves as an evaluator and who fails to disclose contact with a representative of an applicant or who fails to provide accurate information on the statement is subject to a civil penalty of at least one thousand dollars but no more than ten thousand dollars.

D. The attorney general on behalf of this state shall enforce the provisions of this chapter.

41-2706. Applicability of chapter

A. This chapter applies to the solicitation of grants initiated after August 6, 1999.

B. This chapter does not apply to:

1. Any grant program that was exempt from chapter 23, article 3 of this title and for which administrative rules establishing grant solicitation procedures were adopted pursuant to chapter 6 of this title before August 6, 1999.
2. The Arizona board of regents and schools, colleges, institutions and universities under its control if the Arizona board of regents adopts rules or policies governing the award of grants that encourage as much competition as practicable.
3. Grants made by the cotton research and protection council for research programs related to cotton production or protection.
4. Grants made by the Arizona iceberg lettuce research council for research programs under section 3-526.02, subsection C, paragraph 3 or 5.
5. Grants made by the Arizona citrus research council for research programs under section 3-468.02, subsection C, paragraph 3 or 5.
6. Grants made by the Arizona grain research and promotion council for research projects and programs under section 3-584, subsection C, paragraph 5.
7. Grants made under section 3-268, subsection C.
8. Grants made by the Arizona commerce authority from the Arizona competes fund pursuant to chapter 10, article 5 of this title. With respect to other grants, the authority shall adopt policies, procedures and practices, in consultation with the department of administration, that are similar to and based on the policies and procedures prescribed by this chapter for the purpose of increased public confidence, fair and equitable treatment of all persons engaged in the process and fostering broad competition while accomplishing flexibility to achieve the authority's statutory requirements. The authority shall make its policies, procedures and practices available to the public.
9. Grants of less than five thousand dollars from the veterans' donations fund if the department of veterans' services adopts rules or policies governing these grants that encourage as much competition as practicable.

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (R-16-0805)
Title 18, Chapter 11, Article 1, Water Quality Standards for Surface Waters

Amend: R18-11-106; R18-11-109; R18-11-110; R18-11-112; R18-11-115; R18-11-121; Appendix A; Appendix B; Appendix C

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-6**

TO: Members of the Governor's Regulatory Review Council ("Council")

FROM: Chris Kleminich, Staff Attorney

DATE: July 15, 2016

SUBJECT: **ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (R-16-0805)**
Title 18, Chapter 11, Article 1, Water Quality Standards for Surface Waters

Amend: R18-11-106; R18-11-109; R18-11-110; R18-11-112; R18-11-115; R18-11-121; Appendix A; Appendix B; Appendix C

General Comments

Purpose of the Agency and Summary of What the Rulemaking Does

The purpose of the Arizona Department of Environmental Quality (Department) is to "consolidate and focus responsibility for environmental management and administration of water quality, air quality, solid waste and hazardous waste regulation with the goal of increasing effectiveness, efficiency and public acceptance of environmental regulation." Laws 2014, Ch. 247, § 7.

This rulemaking amends six rules and three appendices in A.A.C. Title 18, Chapter 11, related to surface water quality standards. The Department indicates that the amendments address errors from the 2009 rulemaking and make other modifications that ease the regulatory burden while achieving the same regulatory objective. The rules were last amended in 2009.

Article Contents, Including the Subject Matter of Each Rule Affected

Article 1 contains 26 rules, six of which are being amended. The amended rules relate to net ecological benefit, numeric water quality standards, salinity standards for the Colorado River, Outstanding Arizona Waters, site-specific standards, and schedules of compliance.

Proposed Action

The following is a non-exhaustive summary of the changes proposed by the Department:

- Section 106: The Department can modify a surface water quality standard when there is a net ecological benefit associated with the discharge of effluent that supports or creates a riparian habitat. To reduce the regulatory burden, the Department proposes to eliminate the requirement in subsection (A)(3) that a discharger have a plan to eliminate the discharge under active consideration as part of what must be demonstrated for a modification.
- Section 109: Clarifying changes are being made to subsections (E) and (F).
- Section 110: The incorporation by reference in subsection (B) is being updated to the most current salinity standards and plan of implementation for the Colorado River.
- Section 112: Listed latitude and longitude coordinates are being removed, as they are duplicative of Appendix B.
- Section 115: Within this rule, related to the effect of local water quality characteristics on toxicity, the process that allows an outside party to submit a scientifically defensible study to support development of the site-specific standard is being made more flexible.
- Section 121: Within this rule, related to compliance schedules for new or revised surface water quality standards, the process is being made more flexible by allowing the Department to consider listed factors in determining the time needed for dischargers to come into compliance.

Exemption or Request and Approval for Exception from the Moratorium

The Department received an exception from the Governor's Office on August 28, 2015.

Substantive or Procedural Concerns

None.

1. Are the rules legal, consistent with legislative intent, and within the agency's statutory authority?

Yes. The Department cites to A.R.S. §§ 49-202(A), 49-203(A)(1), 49-221, 49-222 as authority for the rules. Of particular note is A.R.S. § 49-203(A)(1), under which the Department must "[a]dopt, by rule, water quality standards in the form and subject to the considerations prescribed by article 2 [Water Quality Standards] of this chapter [Title 49, Chapter 2, Water Quality Control]."

2. Are the rules written in a manner that is clear, concise, and understandable to the general public?

Yes. The rules are generally clear, concise, and understandable.

3. Does the agency adequately address the comments on the proposed rules and any supplemental proposals?

Yes. The Department, in staff's view, adequately addresses the comments on the proposed rules.[1]

4. Are the final rules a substantial change, considered as a whole, from the proposed rules and any supplemental proposals?

No. Clarifying changes were made in response to public comments and at the request of Council staff.[2] Staff does not believe that the final rules are a substantial change, when considered as a whole, from the proposed rules.

5. Does the preamble disclose a reference to any study relevant to the rules that the agency reviewed and either did or did not rely on in the agency's evaluation of or justification for the rules?

The Department indicates that it reviewed and relied upon seven studies relevant to the rules:

- "Pinto Creek Site-Specific Water Quality Standard for Dissolved Copper, Salt River Watershed – HUC# 15060103-018, Gila, Maricopa and Pinal Counties, Arizona" (February 2011).[3]
- "Grand Canyon National Park –Water Effect Ratio Studies – Round 1; Acute Toxicity of Copper to *Ceriodaphnis dubia* in Site and Reconstituted Laboratory Water Under Static Test Conditions" (May 2008).[4]
- "Grand Canyon National Park –Water Effect Ratio Studies – Round 2; Acute Toxicity of Copper to *Ceriodaphnis dubia* in Site and Reconstituted Laboratory Water Under Static Test Conditions" (October 2008).[5]
- "Location and Application of LCR Nutrient Standards" (February 2014).[6]
- "A Review of the Status of Paradise Lake as an Arizona Surface Water" (August 2010).[7]
- "Proposal to Remove Coors Lake from Appendix B" (January 2016).[8]
- "Review of Proposed Designated Use Changes to Mineral Creek" (January 2016).[9]

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[1]A full description of the comments, along with the Department's responses, can be found on pages 26-31 in the Notice of Final Rulemaking. Staff cannot boast even a scintilla of the technical knowledge required to attempt a summary of the comments.
[2]A full description of the changes can be found on pages 25 and 26 in the Notice of Final Rulemaking.
[3] Available at: http://legacy.azdeq.gov/function/laws/download/pinto_creek_sswqs.pdf
[4] Available at: http://legacy.azdeq.gov/function/laws/download/aecom_grand_canyon_rd1.pdf
[5] Available at: http://legacy.azdeq.gov/function/laws/download/aecom_grand_canyon_rd2.pdf
[6] Available at: http://legacy.azdeq.gov/function/laws/download/lcr_nutrient_strds.pdf
[7] Available at: http://legacy.azdeq.gov/function/laws/download/status_paradise_lake.pdf
[8] Available at: http://legacy.azdeq.gov/function/laws/download/proposal_coors_lake.pdf
[9] Available at: http://legacy.azdeq.gov/function/laws/download/proposal_mineral_creek.pdf

6. Are the rules more stringent than corresponding federal law and, if so, is there statutory authority that allows the agency to exceed the requirements of federal law?

The Department indicates that the rules are not more stringent than corresponding federal law, namely the Clean Water Act.

7. Do the rules require a permit or license and if so, does the agency use a general permit or is any exception applicable under A.R.S. § 41-1037?

No. The Department indicates that while the standards in these rules are enforced as limitations in both individual and general permits, the rules themselves do not require permits. The rules governing water pollution control permits can be found in A.A.C. Title 18, Chapter 9.

8. Do the rules establish a new fee or contain a fee increase?

No. The rules do not establish a new fee or contain a fee increase.

9. Conclusion

The Department requests an immediate effective date for the rules. This analyst recommends approval of the rules.

GOVERNOR'S REGULATORY REVIEW COUNCIL
M E M O R A N D U M

MEETING DATE: August 2, 2016 **AGENDA ITEM: F-6**

TO: Members of the Governor's Regulatory Review Council ("Council")

FROM: GRRC Economic Team

DATE: July 15, 2016

SUBJECT: **ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (R-16-0805)**
Title 18, Chapter 11, Article 1, Water Quality Standards for Surface Waters

Amend: R18-11-106; R18-11-109; R18-11-110; R18-11-112; R18-11-115; R18-11-121; Appendix A; Appendix B; Appendix C

I reviewed the economic, small business, and consumer impact statement (hereafter referred to as EIS) and Notice of Final Rulemaking and make the following comments. These comments are made to assist the Council in its review and may be used as the Council determines.

GRRC Economist comments:

Surface water quality standards are required by state law and are implemented through and affect various surface water programs (EIS 1). Specifically, the rule amendments for this rule revision affect three main surface water programs; the AZPDES permitting program, the water quality assessment and impaired water listing, and the Total Maximum Daily Load (TMDL) Program.

Changes in the rules being proposed clarify already existing processes, update rules to match current standards and implementation practices for other agencies and organizations, and allow more flexibility in time for schedule of compliance with water quality. Further flexibility is also being provided for outside parties to submit scientifically defensible studies to support the development of site-specific standards.

Additionally, in the 2009 rule revision, 20 pollutants were identified as needing new or revised numeric criteria. This was approved by the state, but rejected by the U.S Environmental Protection Agency (EPA). Because of this, this rule revision suggestions that the 2003 numeric standards be utilized as to be consistent with federal standards.

The change in standards has no effect on designated uses related to humans such as drinking water and full-body contact. According to the Notice of Final Rulemaking, the changes will also not compromise the protection of sensitive aquatic species.

1. **Costs and Benefits for:**

a. The implementing agency:

The Department states that it could incur minimal costs in implementing this rulemaking. The Department does not anticipate any increase in full time employees or state funding to complete any additional TMDLs.

b. Political subdivisions:

The Department indicates that the proposed rule amendments do not directly affect the authority of any other political subdivisions.

c. Businesses:

The Department indicates that there are no administrative costs for compliance with these rules.

The amendments impose less-stringent deadlines and less-costly schedules for compliance with the rules and reporting requirements. Secondly, the Department notes that the amendments will establish less-costly compliance requirements, including establishing performance standards to replace design or operational standards.

d. Small businesses:

The Department states that it does not anticipate that any small dischargers will be affected by the proposed rulemaking.

The amendments described above may affect small wastewater treatment plants impose less-stringent deadlines and less-costly schedules for compliance with the rules and reporting requirements may benefit small (less than one million gallons per day), privately owned, wastewater treatment plants. Small dischargers will benefit from more individual consideration of its circumstance to achieve compliance.

e. Consumers directly affected by the rulemaking:

According to the Department, private persons and consumers are not directly affected, but benefit indirectly, as improving the effectiveness of water quality regulation leads to restoring and maintaining the chemical, physical, and biological integrity of Arizona's waters. Some of the benefits of better water quality listed by the Department include improved agricultural water use, industrial water use, drinking water and household water use, and human health improvement.

2. Do the probable benefits outweigh the probable costs?

The Department indicates that the probable benefits of the amendments outweigh the minimal costs.

3. Analysis of methods to reduce the small business impact:

The proposed rules describe a more flexible system for small businesses to operate under. This includes greater flexibility in nutrient standards for discharging water and less stringent compliance schedules.

4. The probable effect on state revenues:

The Department anticipates that the proposed rules will have no impact on state revenues.

5. Analysis of any less intrusive or less costly alternative methods:

The Department does not note any less intrusive or costly alternative methods considered.

6. Whether an analysis was submitted to the agency regarding the rule's impact on the competitiveness of businesses in this state as compared to the competitiveness of businesses in other states:

The Department indicates that no person has submitted an analysis to the agency that compares the rule's impact on the competitiveness of business in this state to the impact on business in other states.

7. A description of any data on which a rule is based with an explanation of how the data was obtained and why the data is acceptable data, and the methods used by the agency to evaluate the costs and benefits in the EIS.

As described in the attorney memo, seven studies are referenced as relevant to the amendments.

8. Conclusion:

The submitted economic, small business and consumer impact statement is generally accurate, and contains the information required for compliance with A.R.S. §§ 41-1035, 41-1052(D)(1-3), and 41-1055. This analyst recommends that the proposed rules be approved.

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Douglas A. Ducey
Governor

Misael Cabrera
Director

June 14, 2016

Ms. Nicole A. Ong, Chair
Governor's Regulatory Review Council
100 North 15th Avenue, Suite 402
Phoenix, Arizona 85007

Re: 18 A.A.C. 11, Department of Environmental Quality – Water Quality Standards

Dear Ms. Ong:

Enclosed please find a final rule package from the Arizona Department of Environmental Quality (ADEQ) for placement on the Council agenda. Pursuant to A.A.C. R1-6-104, I provide the following information:

- The close of record date was April 6, 2016.
- The rulemaking does not relate to a five-year-review report.
- The rules do not include new or increased fees.
- ADEQ is requesting an immediate effective date pursuant to A.R.S. § 41-1032(A)(5) that the rules proposed will be less stringent than the rules that are currently in effect, without having an impact on the public health, safety, welfare or environment, or affecting the public involvement and public participation process.
- The Governor's office approved an exception from E.O. 2015-01 on September 15, 2015.

I certify that the preamble contains a reference to any study relevant to the rules that ADEQ reviewed and either did or did not rely on in our evaluation and justification for the rules. No new full-time employees are necessary to implement and enforce the rules. No competitive analysis was submitted.

Please do not hesitate to contact me, or Wendy LeStarge, at 602-771-4836 (also wl1@azdeq.gov) if there are any questions we can answer for you.

Sincerely,

Misael Cabrera
Director

Enclosures:
1. Notice of Final Rulemaking
2. Economic, small business and consumer impact statement
3. Copies of written and oral comments received
4. Copy of e-mail approval for exception from E.O. 2015-01

NOTICE OF FINAL RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 11. DEPARTMENT OF ENVIRONMENTAL QUALITY

WATER QUALITY STANDARDS

PREAMBLE

1. Article, Part of Sections Affected (as applicable)	**Rulemaking Action**
Section	
R18-11-106	Amend
R18-11-109	Amend
R18-11-110	Amend
R18-11-112	Amend
R18-11-115	Amend
R18-11-121	Amend
Appendix A	Amend
Appendix B	Amend
Appendix C	Amend

2. Citations to the agency's statutory rulemaking authority to include the authorizing statute (general) and the implementing statute (specific):

Authorizing statutes: A.R.S. §§ 49-202(A), 49-203(A)(1), 49-221, 49-222

Implementing statute: A.R.S. §§ 49-221, 49-222(C)

3. The effective date of the rule:

Immediate effective date pursuant to A.R.S. § 41-1032(A)(5). This rulemaking addresses past errors from the 2009 rulemaking and makes minor adjustments that lessen or ease a regulatory burden while achieving the same regulatory objective, such as creating a more flexible process for schedules of compliance. Additionally, the Arizona Department of Environmental Quality (ADEQ) is setting a site-specific standard to allow potential dischargers to discharge at a higher numeric value for copper, thereby decreasing the regulatory burden in future permits. As explained in the preamble, the change in standards has no effect on designated uses related to humans, such as a drinking water source or full-body contact and will not compromise the protection of sensitive aquatic species. Also, for twenty pollutants, ADEQ is reverting back to the numeric criteria last approved by the U.S.

Environmental Protection Agency (EPA) in 2003. ADEQ does not anticipate that these changes in numeric criteria will impact dischargers because ADEQ has not been able to use the 2009 revised, state-approved criteria for these pollutants in any permits.

4. Citations to all related notices published in the Register as specified in R1-1-409(A) that pertain to the record of the proposed rule:

Notice of Termination of Rulemaking: 22 A.A.R. 343, February 19, 2016

Notice of Rulemaking Docket Opening 22 A.A.R. 345, February 19, 2016

Notice of Proposed Rulemaking: 22 A.A.R. 255, February 19, 2016

5. The agency's contact person who can answer question about the rulemaking:

Name:	Wendy LeStarge
Address:	Arizona Department of Environmental Quality Water Quality Division 1110 W. Washington Street Phoenix, Arizona 85007
Telephone:	(602) 771-4836 (Toll-free number in Arizona: (800) 234-5677)
Fax:	(602) 771-4834
E-mail:	lestarge.wendy@azdeq.gov

6. An agency's justification and reason why a rule should be made, amended, repealed or renumbered, to include an explanation about the rulemaking:

Water quality standards are used both as a mechanism to establish goals and as a regulatory requirement for permits when controls for discharges are inadequate. The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and establishing water quality standards for surface waters. Section 303(c) of the CWA requires all states to review, and revise as necessary, surface water quality standards at least once every three years, subject to approval by EPA. ADEQ is the state agency responsible for administering the CWA. ADEQ previously amended these rules in 2009, and now proposes these changes to the surface water quality standards:

R18-11-106 Net Ecological Benefit

Under R18-11-106, ADEQ can modify a surface water quality standard when there is a net ecological benefit associated with the discharge of effluent that supports or creates a riparian

habitat. Usually the discharger or Arizona Pollutant Discharge Elimination System (AZPDES) permittee requests a modification to its permit because it cannot meet the existing surface water quality standard. ADEQ proposes to eliminate the requirement in subsection (A)(3) that a discharger have a plan to eliminate the discharge under active consideration as part of what must be demonstrated.

R18-11-109 Numeric Water Quality Standards

- In subsection (E), ADEQ is rewording how the dissolved oxygen water quality standard is described due to reported confusion from permittees. There is no substantive change in the standard.
- Subsection (F) identifies nutrient standards for certain streams and their perennial tributaries, with the intent to protect downstream lakes from nutrient accumulation. ADEQ proposes to limit the applicability of these standards to discharges that actually impact the surface water. Any tributary of a listed surface water would be included in the nutrient standard if the source discharging to the tributary has the reasonable potential to impact the listed surface water based on consideration of the factors listed.
- ADEQ is clarifying location segments of the Little Colorado River subject to the nutrient standards in subsection (F).
- ADEQ is correcting the pollutant limits for phosphorus and nitrogen for Oak Creek that were reversed in subsection (F).

R18-11-110 Salinity Standards for the Colorado River

ADEQ proposes to update the incorporation by reference in R18-11-110(B) to the most current salinity standards and plan of implementation for the Colorado River. The Colorado River Basin Salinity Control Forum approved its last triennial review of salinity standards and plan of implementation in 2014, but there are no changes affecting Arizona.

R18-11-112. Outstanding Arizona Waters

ADEQ proposes to eliminate the latitude/longitude coordinates since the Outstanding Arizona Water location is listed in Appendix B.

R18-11-115 Site-Specific Standards

R18-11-115 allows ADEQ to consider the effect of local water quality characteristics on the toxicity of specific pollutants and the varying sensitivities of local, affected aquatic populations

to pollutants to set a site-specific numeric water quality standard. ADEQ is adding more flexibility to the process that allows an outside party to submit a scientifically defensible study to support development of the site-specific standard.

- ADEQ is proposing to add "natural adaptive process" as one of the reasons to adopt a site-specific standard in subsection (B).
- In subsection (C), ADEQ proposes to delete the requirement that limits a study to only EPA methods that have been incorporated by reference. Instead, a person can propose a site-specific standard by first submitting a study outline to the Director for approval. The person can choose to submit an abbreviated study outline that uses the most recent EPA-recognized procedures, or submit a more rigorously documented study outline using any scientifically defensible procedure.

R18-11-121 Schedules of Compliance

When a new or revised surface water quality standard is promulgated, some dischargers need time to modify equipment or practices in order to achieve that standard. When developing an AZPDES permit, ADEQ establishes time to comply with the steps in a compliance schedule. ADEQ proposes to delete the set time of three years and create a more flexible process that allows ADEQ to look at certain factors in determining the time needed in the compliance schedule. The five factors listed are based on EPA's guidance in interpreting whether a compliance schedule is appropriate under 40 C.F.R. § 122.47(a). ADEQ is deleting subsections B through D as redundant; the flexible standard applies to all necessary situations.

Appendix A Numeric Water Quality Standards

Surface water quality standards consist of designating beneficial uses to a body of water, assigning criteria for allowable concentrations of pollutants, and establishing provisions or policies to protect the designated uses. In the 2009 rulemaking, ADEQ proposed new or revised numeric criteria for dozens of pollutants in Table 1. However, EPA did not approve revised criteria for twenty of the pollutants. As a result, the revised, state-approved criteria for these pollutants cannot be used in AZPDES permits and ADEQ must use the numeric criteria that EPA last approved in 2003.

- In order to state clearly what standards are being used in permits and for compliance, ADEQ proposes to repeal the current standards for these twenty pollutants and revert to the prior (2003) EPA-approved criteria (see table below).

Parameter	Affected Designated Use
Benzene	Fish consumption
Beryllium	Acute and chronic for Aquatic and wildlife (cold water) (A&Wc), Aquatic and wildlife (warm water) (A&Ww), Aquatic and wildlife (effluent-dependent water) (A&Wedw), and acute Aquatic and wildlife (ephemeral) (A&We)
Bromodichloromethane	Full body contact
Cadmium	Acute and chronic for A&Ww and A&Wedw, and A&We
Carbon tetrachloride	Partial Body contact
Chloroform	Fish consumption and full body contact
Dibromochloromethane	Full body contact
1,2-Dibromo-3-chloropropane	Full and partial body contact
Di (2-ethylhexyl) phthalate	Full body contact
Hexachlorocyclohexane gamma (lindane)	Chronic A&Wc, A&Ww, and A&Wedw
Hexachlorocyclopentadiene	Fish consumption, full body and partial body contact
Indeno (1,2,3-cd) pyrene	Fish consumption
Nickel	Domestic water source and fish consumption
Paraquat	Returning to no standard for Acute and chronic for A&Wc, A&Ww and A&Wedw
Pentachlorophenol	Fish consumption
Permethrin	Returning to no standard for Acute and chronic for A&Wc, A&Ww and A&Wedw
Sulfides	Acute A&We
1,1,2,2-Tetrachloroethane	Partial body contact
Thallium	Fish consumption
Toluene	Fish consumption, full body and partial body contact

- Also in Table 1, two radionuclides, strontium and tritium, were part of the surface water quality standards in the past, but were inadvertently deleted in the 2009 rulemaking. ADEQ proposes to list these pollutants in Appendix A, Table 1, and include a footnote explaining the measurement for all radionuclides.
- Tables 22 – 26 for ammonia and pentachlorophenol are correct but are overly precise in having values to the fourth place of significant figures. ADEQ proposes to round numeric values only to the first significant figure to the right of the decimal point. The tables will be renumbered as 10 – 12.
- Tables 2 – 21 for hardness-based metals (cadmium, chromium III, dissolved copper, dissolved lead, dissolved nickel, silver, and zinc) are correct but are overly precise. ADEQ is amending the tables, using the calculation formula for each designated use, but listing only three hardness values as examples: 20 mg/L (low), 100 mg/L (median), and 400 mg/L (high). The tables will be renumbered, 2 – 9.

<u>Appendix B Surface Waters and Designated Uses</u>

Appendix B lists surface waters in Arizona, their locations, and their designated uses. ADEQ proposes the following types of corrections throughout Appendix B:

- Change latitude/longitude coordinates from the North American Datum (NAD) of 27 to NAD 83, which conforms to the coordinate system ADEQ uses on its internet GIS mapping system;
- Remove decimals from seconds portion of latitude and longitude as it is overly precise and not used consistently;
- Name changes to conform to the U.S. Geological Survey naming conventions;
- Consistent segment description and locations as beginning at Point A and ending at Point B, so that:
    - A surface water begins at its headwaters and ends at some point.
    - If a surface water ends when it meets another surface water, it ends at the confluence with that water.
    - Remove latitude/longitude when stream reach ends at a named stream or lake as it is redundant to have both the name and latitude/longitude.
- Verify reference locations, such as road names or other surface waters;
- Eliminate unnamed washes designated as EDW if the discharging facility no longer exists. By default, the wash would be regulated under R18-11-105 (Tributaries; Designated Uses).
- Adjust EDW reach origin latitude/longitude to where effluent actually enters stream channel,

creating the EDW, rather than using the locational information of the facility or outfall;

- Eliminate “urban lake” in the segment description because it is redundant with “Urban” as listed in the “Lake Category” column;

ADEQ also made specific changes to the following surface waters:

Watershed	**Surface Water**	**Change**
BW	Boulder Creek	ADEQ proposes to delete the agricultural irrigation designated use for Boulder Creek because there is no crop irrigation in the watershed.
BW	Carter Tank	Correction from Verde River to Bill Williams watershed
BW	Coors Lake	ADEQ is proposing to remove Coors Lake from Appendix B, Surface Waters and Designated Uses. Coors Lake is a 35 acre impoundment of Butte Creek completed in 1982. Subsequent unmineralized overburden deposits have isolated the lake from Butte Creek. Coors Lake is maintained partially by precipitation runoff and by active groundwater pumping, which is required to keep Coors Lake as a viable lake. There is no outflow from the lake to any tributary. Coors Lake has been listed as an impaired water due to mercury.
BW	Red Lake	Correction from Verde River to Bill Williams watershed
CG	Redondo Lake	Correction from Colorado – Grand Canyon to Colorado –Lower Gila watershed
LC	Bow and Arrow Wash	Permitted outfall from Estate at Pine Canyon no longer exists so deleted as EDW; as a named wash, the designated use is changed to ephemeral
LC	Estate at Pine Canyon lake	A new listing that receives reclaimed water from the City of Flagstaff and then is discharged to three storage impoundments created in the drainage tributary to the Rio de Flag
LC	Huffer Tank	Correction from Little Colorado to Verde River watershed
LC	Pool Corral Lake	Correction from Little Colorado to Salt River watershed

LC	Salt House Lake	Correction from Little Colorado to Salt River watershed
LC	Unnamed wash	Permitted outfall from Estate at Pine Canyon no longer exists so deleted as EDW
LC	Unnamed wash	Permitted outfall from Estate at Pine Canyon no longer exists so deleted as EDW
MG	Andorra Wash	Permitted outfall from Town of Cave Creek no longer exists so deleted as EDW; as a named wash, the designated use is changed to ephemeral
MG	East Maricopa Floodway	A new listing recognizing that the East Maricopa Floodway (EMF) is a flood control channel with the primary function of regional stormwater flows. It receives water from numerous ephemeral drainages and redirects the flows south to the Gila River. Drainages that connect two or more surface water bodies are surface waters. The Army Corps of Engineers issued a Section 404 permit for maintenance activities in the EMF in February of 2003. In addition, two wastewater treatment plants discharge to the EMF and have AZPDES permits.
MG	Hank Raymond Lake	Name correction to more prevalent “Lower Lake Pleasant”
MG	The Lake Tank	Correction from Santa Cruz to Middle Gila watershed
MG	Mineral Creek	Segmenting Mineral Creek into three reaches to account for proposed changes in designated uses applied to the diversion channel and tunnel that convey flow around mining operations. The hydrologic modifications within the diversion channel and tunnel prevent the attainment of the current designated uses. The natural stream channel exists above and below mine operations.
MG	Unnamed wash	Permitted outfall from City of Phoenix Cave Creek WRF no longer exists so deleted as EDW
MG	Unnamed	A new listing for the new outfall from Town of Cave Creek WRF

	wash	discharges to an unnamed wash
MG	Unnamed wash	Permitted outfall from Queen Valley Sanitary District WWTP no longer exists so deleted as EDW
SC	Greene Wash	Adding a second segment in order to delineate tribal boundaries
SC	Paradise Lake	ADEQ is proposing to remove Paradise Lake from Appendix B, Surface Waters and Designated Uses. Paradise Lake was constructed around 1960. It is privately-owned and has no significant nexus with any surface waters. The homeowners association no longer has the water rights it had to keep the lake filled. To prevent the lake from drying up, the homeowners association wants to use treated effluent from the Arizona City Sanitary District.
SC	Santa Cruz River, West Branch	Clarifying the surface water's name, by deleting Santa Cruz Wash, West Branch and adding Santa Cruz River, West Branch
SC	Sycamore Canyon	Clarifying that part of the surface water is above 5,000 feet in elevation
SC	Unnamed wash	Deleting because an ephemeral wash is covered under R18-11-105 and the wash is unnamed.
SP	Mule Gulch	ADEQ proposes to change the aquatic and wildlife designated use of Mule Gulch from an effluent dependent water to an ephemeral. The Mule Gulch wastewater treatment plant was decommissioned in early 2006 and has not discharged into Mule Gulch since the first quarter of 2006, making the designated use of effluent dependent water no longer accurate nor necessary.
SP	Rucker Canyon Creek	Incorrectly listed in lake category
SP	Soldier Creek	Permitted outfall from Fort Huachuca WWTP no longer exists so deleted as EDW
SR	Unnamed wash	Permitted outfall from Cobre Valley Plaza WWTP no longer exists so deleted as EDW
UG	Bennett Wash	Permitted outfall from ADOC Safford WWTP no longer exists so

		deleted as EDW; as a named wash, the designated use is changed to ephemeral
UG	Cluff Ranch Pond #2	Name and location corrections by deleting Cluff Ranch Pond #2 and adding Evans Pond #2
UG	Unnamed Wash	Permitted outfall from ADOC Globe WWTP no longer exists so deleted as EDW
VR	Del Monte Wash	Adding two segments to reflect an ephemeral wash and an EDW wash that receives treated effluent from the City of Cottonwood wastewater treatment plant
VR	Green Valley Lake	A new listing created within American Gulch, a water of the U.S., which receives treated effluent from the Northern Gila County Sanitary District, American Gulch Water Reclamation Facility.

Appendix C Site-Specific Standards

ADEQ proposes to establish three site-specific standards for dissolved copper for the Aquatic and Wildlife designated use:

- For a segment of Pinto Creek in the Salt River Watershed near Globe-Miami, the proposed standard would be 34 µg/L;
- For a segment of Bright Angel Wash, which receives treated effluent from the Grand Canyon National Park South Rim Wastewater Treatment Plant, the proposed standard would be 42.5 µg/L;
- For a segment of Transept Canyon, which receives treated effluent from the Grand Canyon National Park North Rim Wastewater Treatment Plant, the proposed standard would be 42.5 µg/L.

Surface water quality standards are implemented through and affect various surface water programs, such as the AZPDES permitting program. Under CWA § 402, an entity seeking to discharge pollutants to a surface water as a point source must have an AZPDES permit, and its discharge must meet limits established in the permit to meet applicable surface water quality standards. Water quality standards also are implemented through a biennial assessment of a State's surface waters. When a water body does not meet one or more of the applicable surface water quality standards, it is considered impaired under § 303(d) of the CWA. The consequence of an impaired water is that it may require a State to establish stricter water quality-based limitations, thereby impacting any source

seeking to discharge to the impaired water. Section 303(d) requires that states list impaired waters in a biennial report evaluating and describing the status of water quality, which must be approved by EPA.

State and federal law authorize the adoption of site-specific standards that reflect local environmental conditions. The federal water quality standards at 40 CFR 131.11(b)(1)(ii) provides ADEQ with the authority to adopt water quality criteria that are "modified to reflect site-specific conditions." Similarly, A.R.S. § 49-221(C)(6) directs ADEQ to consider "[a]ny unique physical, biological, or chemical properties of the waters" when establishing surface water quality standards. Under A.R.S. § 49-222(C), ADEQ may consider the effect of local water quality characteristics on the toxicity of specific pollutants and the varying sensitivities of local, affected aquatic populations to pollutants when setting numeric water quality standards. ADEQ has specific authority for site-specific standards under R18-11-115, which identifies acceptable methods for developing a site-specific standard. Site-specific standards, like all surface water quality standards, must be based on a sound scientific rationale to protect the aquatic and wildlife designated use.

Background on Pinto Creek

Pinto Creek has not met the surface water quality standard for copper and has been listed as impaired since 1998. Pinto Creek flows in the historic Globe-Miami mining area, one of the major copper districts in the southwestern United States, with mining activities dating back to the late 1800's.

EPA developed a total maximum daily load analyses (TMDL) for Pinto Creek in 2001 based on existing available data. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet surface water quality standards. The TMDL allocates, or budgets, that amount among the point and non-point sources in the watershed that discharge the pollutant of concern. The ultimate goal of a TMDL is restoring water quality so that an impaired water no longer exceeds but rather attains applicable surface water quality standards. A TMDL is implemented through a variety of actions, including effluent limits in permits and watershed restoration efforts aimed at reducing or eliminating the pollutant of concern.

ADEQ began monitoring activities in the Pinto Creek watershed in 2002. ADEQ issued its Phase II TMDL Modeling Report (Phase II Report) in February 2006. Based on the monitoring results, ADEQ concluded that even after aggressive remediation of surrounding mining sites, much of upper Pinto Creek would not meet the copper standard because copper occurs naturally in the area. Because the natural background concentration of copper is higher than the standard in this copper-rich mining

area, ADEQ determined that a site-specific standard needed to be developed for Pinto Creek.

ADEQ collected 670 water quality samples at 48 sites between 2000 and 2005. Of these water samples, approximately 126 were obtained from 21 sites in sub-watersheds judged to be representative of natural, pre-anthropogenic conditions. This information combined with numerous other environmental data was used to construct a dynamic watershed-water quality model of Pinto Creek using the Hydrologic Simulation Program Fortran (HSPF). This model provided a tool by which natural background water quality for all of Pinto Creek could be estimated with a reasonable degree of confidence.

A water quality model is a mathematical tool used to estimate or predict water quality conditions of water bodies under a specific set of environmental conditions. Part of the modeling process requires that a model be calibrated, which is the process by which a model's parameters or assumptions are changed to match available current field observations. A calibrated model should accurately predict existing conditions, and therefore should be reliable to estimate future conditions. An additional step in determining a representation of natural condition is to remove the model inputs that represent the human-caused sources of the pollutant from the model of the existing condition.

Using the Phase II Report, ADEQ calculated a site-specific standard for Pinto Creek of 42 μg/L ["Pinto Creek Site-Specific Water Quality Standard for Dissolved Copper," Arizona Department of Environmental Quality, Water Quality Division, (March 12, 2007)]. The design of ADEQ's 2007 study focused on monitoring results from multiple sites chosen to characterize different rock types but having no known anthropogenic sources of copper. Therefore, data from these sites should contain only naturally occurring levels of copper.

In the 2008 triennial review rulemaking, ADEQ proposed a site-specific standard of 42 μg/L for Pinto Creek, higher than the maximum amount of 29.28 μg/L set by EPA (based on a maximum allowable hardness of 400 mg/L). During the public comment period, commenters were generally opposed to the proposed standard for a variety of reasons including: consideration of past mining activities in the area, aerial deposition of copper from current and historic mines, impacts of wildfire, and the proximity of mining roads as well as other disturbances to areas thought to be the naturally occurring sites. Some of the commenters presented new information, including photos of disturbed areas upstream of one or more of ADEQ's sampling locations thought to have no influence by anthropogenic activities related to copper. Based on the new information, ADEQ withdrew the site-

specific standard for Pinto Creek from the final rule package, and revised the modeling calculations, which resulted in a modest change in the proposed standard.

One limitation of the modeling approach is that the effects of any unknown human-caused sources may be excluded from the model. This can result in human impacts being erroneously attributed to the natural condition. ADEQ reran the watershed model used to calculate the site-specific standard model after eliminating three sampling locations that had been used to estimate natural background because information presented by some commenters showed that these locations had been subject to anthropogenic activities related to copper. The current model predicted the natural background concentration of 26 µg/L as exceeding the default standard (23 µg/L based on the mean hardness). The average standard deviation (8.0) of copper from sites identified as representing natural background was added. ADEQ is proposing a site-specific standard of dissolved copper for Pinto Creek of 34 µg/L. This value is equal to the estimated maximum natural background concentration of dissolved copper in Pinto Creek thru the identified reach, and is a static value, not adjusted for variations in hardness for the A&Ww chronic criteria. The site specific standard for the A&Ww acute criteria will also be 34 µg/L where hardness values are less than 268 mg/L, but where hardness values are 268 mg/L or greater, the default hardness formula for acute copper values will need to be calculated.

Background on Grand Canyon surface waters

The Grand Canyon National Park's two wastewater treatment plants discharge to Bright Angel Wash and Transept Canyon under AZPDES permits. Both facilities receive the same source water and have reported copper levels above the standard. With no industrial dischargers to these facilities, the initial hypothesis was naturally elevated copper concentrations in the source water.

A water effects ratio (WER) study was performed with effluent from each facility. The WER procedure is an EPA-approved procedure for developing site-specific standards for metals. A number of physical and chemical characteristics of site water and a metal can affect the toxicity of that metal to aquatic organisms in a particular surface water. When deriving site-specific aquatic life criteria for a metal, the difference between the toxicity of the metal in laboratory water and site water may be adjusted with a site water effect ratio. Toxicity differences of site water and synthetic laboratory water are compared in the laboratory, and evaluated for differential lethal concentrations. The toxicity endpoints from these two tests are used to calculate the WER, which is then multiplied by the national or state aquatic life criterion to calculate the site-specific limit. Based on the WER results, the current

chronic water quality standard for copper can be increased to 42.5 µg/L without compromising the protection of sensitive aquatic species.

Background on this Rulemaking

The 2009 rulemaking had considerable stakeholder comments, amended most of the rule sections in Article 1, and reformatted the tables listing pollutant limits for specified designated uses. With such extensive amendments, some necessary elements were inadvertently omitted or listed erroneously. ADEQ began reviewing the rules for future amendments, but did not proceed with rulemaking until 2014 due to executive orders limiting agency rulemaking. ADEQ sought and received approval to proceed with rulemaking from both Governors Brewer and Ducey. ADEQ has taken the past actions related to these rules:

- December 26, 2014 Notice of Proposed Rulemaking, with an oral proceeding set for January 26, 2015.
- January 23, 2015, Notice of Public Information canceling the oral proceeding in response to Executive Order 2015-01 (Internal Review of Administrative Rules; Moratorium to Promote Jobs Creation and Customer-Service–Oriented Agencies).
- September 18, 2015 Notice of Termination to terminate the December 26, 2014 Notice of Proposed Rulemaking because the comment period had not been completed.
- September 18, 2015 Notice of Proposed Rulemaking, with an oral proceeding set and held on October 19, 2015.

After the comment period closed on October 19, 2015, EPA Region 9 expressed concern that the Notice of Proposed Rulemaking did not comply with the requirements in 40 CFR § 25.5(b) that notice of a hearing must be at least 45 days before the date of the hearing, and that reports, documents and data relevant to the discussion were not available to the public at least 30 days before the hearing. ADEQ had been concerned of the unknown impact of EPA's recently amended water quality standards rules, which became effective October 20, 2015. In subsequent discussions, ADEQ and EPA Region 9 agreed that ADEQ would renotice the proposed rule changes for 45 days and explain why it was not adopting new or revised EPA criteria, as required under 40 C.F.R. § 131.20(a).

ADEQ terminated the September 18, 2015 Notice of Proposed Rulemaking in order to ensure an unambiguous proposed rulemaking. ADEQ made some minor changes, and published the Notice of Proposed Rulemaking on February 19, 2016.

The CWA requires states to hold, at least once every three years, a public hearing for the purpose of reviewing applicable water quality standards. EPA's role is one of oversight to review and approve or disapprove state water quality standards. EPA also is responsible for publishing national recommended criteria to assist states in establishing water quality criteria. States may use EPA's CWA section 304(a) criteria recommendations, modify them to reflect site-specific conditions, or establish criteria using other scientifically defensible methods. Under EPA's recently amended rules, if states choose not to adopt new or revised criteria during their triennial review for any parameters for which EPA has published new or updated criteria recommendations under CWA section 304(a), they must explain their decision when reporting the results of their triennial review to EPA.

Since the extensive amendments to these rules in 2009, ADEQ has always intended that this proposed rulemaking would be to address past errors and make minor adjustments. With two Arizona administrations issuing executive orders limiting agency rulemaking, ADEQ also considered suggested changes that would comply with the executive orders, mainly to lessen or ease a regulatory burden while achieving the same regulatory objective. ADEQ stated in the Preamble of the December 26, 2014 Notice of Proposed Rulemaking that although some stakeholders requested additional amendments, those suggestions did not meet the scope of the Governor's authorization or would require more in depth analysis, and would be postponed for the next Triennial Review. ADEQ is aware that since 2009, EPA has published new CWA section 304(a) criteria recommendations. At this time, ADEQ does not have adequate information to make informed decisions on those recommendations. It has been over seven years since the last amendments to the Arizona surface water quality standards rules; ADEQ needs to correct errors from the 2009 rulemaking, including reverting criteria in Appendix A to what was previously approved in 2003. ADEQ is beginning to develop plans for the next Triennial Review. ADEQ will need to evaluate its rules according to EPA's recently amended rules and the CWA section 304(a) criteria recommendations.

7. A reference to any study relevant to the rule that the agency reviewed and proposes either to rely on or not to rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

These studies are available on ADEQ's rulemaking website:
http://www.azdeq.gov/function/laws/draft.html#water
ADEQ "Pinto Creek Site-Specific Water Quality Standard for Dissolved Copper, Salt River Watershed – HUC# 15060103-018, Gila, Maricopa and Pinal Counties, Arizona" (February 2011)

AECOM "Grand Canyon National Park –Water Effect Ratio Studies – Round 1; Acute Toxicity of Copper to *Ceriodaphnis dubia* in Site and Reconstituted Laboratory Water Under Static Test Conditions" (May 2008).

AECOM "Grand Canyon National Park –Water Effect Ratio Studies – Round 2; Acute Toxicity of Copper to *Ceriodaphnis dubia* in Site and Reconstituted Laboratory Water Under Static Test Conditions" (October 2008).

ADEQ "Location and Application of LCR Nutrient Standards" (February 2014)

ADEQ "A Review of the Status of Paradise Lake as an Arizona Surface Water" (August 2010)

ADEQ "Proposal to Remove Coors Lake from Appendix B" (January 2016)

ADEQ " Review of Proposed Designated Use Changes to Mineral Creek" (January 2016)

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

Not applicable

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

A. Brief summary of the information included in the economic, small business and consumer impact statement:

The overall impact of the proposed changes should be very minor. Persons most affected by this rulemaking are permittees under the AZPDES permitting program. The clarifications and correction of errors should benefit anyone, but particularly AZPDES permittees, who read and interpret the rules. ADEQ anticipates that a few of the rule changes may have a more specific impact. In addition to any costs, these rules overall benefit the general public. These rules ensure that clean water will be available as a source for drinking water, bathing, cooking, and is safe for swimming, fishing, boating, or other water-based recreation.

BACKGROUND

Surface water quality standards are provisions of state law required by the CWA and are implemented through and affect various surface water programs. The water quality standards consist of designating beneficial uses to a body of water and assigning numeric limits for allowable concentrations of pollutants, in order to protect the designated uses. Water quality standards are used both as a mechanism to establish goals and as a regulatory requirement when controls for discharges are inadequate.

The three main surface water programs affected by the surface water quality standards are:

- The AZPDES permitting program. Under § 402 of the CWA and A.R.S. § 49-255.01, an entity seeking a point source discharge of pollutants to a surface water must have an AZPDES permit, and its discharge must meet limits established in the permit to meet applicable surface water quality standards.
- The § 305(b) water quality assessment and § 303(d) impaired water listing. Section 305(b) of the CWA establishes a process to develop and report information on the quality of a State's surface waters. ADEQ monitors surface waters within its boundaries, prepares a biennial report describing the status of water quality in Arizona rivers, streams, lakes, and reservoirs and submits the report to the U.S. Environmental Protection Agency (EPA). Surface water quality standards provide the benchmarks used to assess water quality status. When a water body does not meet one or more of the applicable surface water quality standards, it is considered impaired under § 303(d) of the CWA. ADEQ identifies and lists impaired waters that do not meet one or more of the surface water quality standards.
- Total Maximum Daily Load (TMDL) Program. The consequence of an impaired water is that it may require a State to establish stricter water quality-based limitations, thereby impacting any source seeking to discharge to the impaired water. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet surface water quality standards. The TMDL allocates, or budgets, that amount among the point and non-point sources in the watershed that discharge the pollutant of concern. The ultimate goal of a TMDL is restoring water quality so that an impaired water no longer exceeds but rather attains applicable surface water quality standards. A TMDL is implemented through a variety of actions, including effluent limits in permits and watershed restoration efforts aimed at reducing or eliminating the pollutant of concern.

B. Name and address of agency employees who may be contacted to submit or request additional data on the information included in the economic, small business and consumer impact statement:

Name: Wendy LeStarge
Address: Arizona Department of Environmental Quality
Water Quality Division
1110 W. Washington Street
Phoenix, Arizona 85007
Telephone: (602) 771-4836 (Toll-free number in Arizona: (800) 234-5677)

Fax: (602) 771-4834
E-mail: lestarge.wendy@azdeq.gov

C. Identification of persons who will be directly affected by, bear the costs of or directly benefit from the rulemaking:

Entities likely to be directly affected by this rulemaking would be entities that discharge to a surface water under an AZPDES permit, including publicly and privately owned wastewater treatment plants and some mining facilities. For purpose of this analysis, ADEQ defines annual costs or revenues on a cost-revenue scale as follows:

Minimal – less than $10,000
Moderate – $10,000 to $1 million
Substantial – more than $1 million

D. Cost-benefit analysis of probable costs and benefits to ADEQ and other agencies:

ADEQ could incur minimal costs in implementing this rulemaking. ADEQ does not anticipate any increase in FTEs or state funding to complete any additional TMDLs.

E. Cost-benefit analysis of probable costs and benefits to political subdivisions and to businesses:

ADEQ expects that some sections of this rulemaking will benefit a political subdivision or a business if it is a permitted discharger. The clarifications and correction of errors should benefit anyone, but particularly dischargers, who read and interpret the rules. ADEQ anticipates that the following rules will have only a minor impact, if any, to a discharger:

- R18-11-112. Outstanding Arizona Waters - ADEQ proposes to eliminate the latitude/longitude coordinates since the OAW location is listed in Appendix B.
- R18-11-110 Salinity Standards for the Colorado River - The updates to the 2014 current salinity standards and plan of implementation do not require changes in Arizona, so no cost or benefit is anticipated.
- Appendix A Numeric Water Quality Standards, Table 1, Water Quality Criteria by Designated Use - EPA did not approve revised criteria for twenty pollutants from ADEQ's 2009 rulemaking. ADEQ proposes to revert back to the numeric criteria last approved by EPA in 2003. ADEQ does not anticipate that these changes in numeric criteria will impact AZPDES dischargers because ADEQ has not been able to use the 2009 revised, state-approved criteria for these pollutants in

AZPDES permits. There should be a benefit in that the rules will state what ADEQ is actually able to enforce.

- Appendix B Surface Waters and Designated Uses
  - Clarification of locations and names should benefit anyone reading and interpreting the rules. The change to NAD 83 will allow ADEQ to begin planning over the next few years to integrate surface waters listed in Appendix B with its internet GIS mapping system.
  - Boulder Creek - deleting the agricultural irrigation designated use will mean that the agricultural irrigation metal standards, where they exist, will be the same for all of Boulder Creek in this watershed and reflects the reality that there is no agricultural irrigation.
  - East Maricopa Floodway - adding East Maricopa Floodway (EMF) more accurately reflects the existing reality of permitted discharges. The Army Corps of Engineers recognized the EMF as a waters of the U.S. when it issued a Section 404 permit for maintenance activities in the EMF in February of 2003. Also, two wastewater treatment plants discharge to the EMF and have AZPDES permits. Correctly identifying EMF as a waters of the U.S. benefits anyone reading and interpreting the rules.
  - Mineral Creek - ADEQ anticipates no impact because any permitted discharge must still meet required downstream standards for designated uses of aquatic and wildlife, full body contact, fish consumption, and agricultural livestock watering. The manmade features of the tunnel were constructed to convey flow in Mineral Creek around mining operations. Work on the lined channel and an extension to the preexisting tunnel segment was finalized in March 2002.

F. Cost-benefit analysis of probable costs and benefits by rule section:

R18-11-106 Net Ecological Benefit

ADEQ proposed to eliminate the requirement that a discharger have a plan to eliminate the discharge under active consideration as part of what must be demonstrated. Communities and developers should benefit by eliminating an extra burden in seeking to use high quality effluent to create aquatic and riparian ecosystems.

R18-11-109 Numeric Water Quality Standards

Currently the nutrient standards in subsection (F) apply to all tributaries of the listed waters, regardless of impact. The intent is to protect the downstream waters and lakes from nutrient accumulation and eutrophication. Eutrophication results in excessive growth of algae and nuisance aquatic plants, and can lead to conditions harmful to aquatic life. Wastewater treatment plants

discharging to a surface water under subsection (F) may have to implement costly advanced treatment for nutrient removal. There are about 12 wastewater treatment plants that discharge under an AZPDES permit to one of the waters described in subsection (F).

Under the proposed changes, ADEQ will evaluate whether a discharge will impact a listed water or its perennial tributary before applying the nutrient standards. ADEQ anticipates that it will not have to apply nutrient standards to six of the 12 wastewater treatment plants because the volume, frequency, magnitude and/or duration of their discharge does not affect the downstream water. Of the six, three are publicly-owned and three are privately-owned. The six wastewater treatment plants currently have a variance in their AZPDES permits because they cannot meet the nutrient standards. Generally under a variance, a discharger is expected to implement steps to achieve the required water quality standard. With the change to subsection (F), ADEQ anticipates that at least six wastewater treatment plants discharging under an AZPDES permit will not have to implement costly advanced treatment for nutrient removal.

R18-11-115 Site-Specific Standards

ADEQ is adding more flexibility to the process that allows an outside party to submit a scientifically defensible study to support development of the site-specific standard. A person or entity can choose to submit an abbreviated study outline that uses the most recent EPA-recognized procedures, or submit a more rigorously documented study outline using any scientifically defensible procedure. ADEQ anticipates that the additional flexibility on the study requirements should benefit entities proposing new site specific standards, such as AZPDES dischargers. ADEQ is unable to quantify the benefit, but since about 2007, ADEQ has received only three studies to support a site-specific standard. ADEQ would anticipate that under the proposed changes, it may receive more studies.

R18-11-121 Schedules of Compliance

Currently, a discharger has a set time of three years to come into compliance with a new or revised surface water quality standard under a compliance schedule. ADEQ proposes to create a more flexible standard that allows ADEQ to look at certain factors in determining the time needed in the compliance schedule. The change should benefit the regulated community by allowing a more individual consideration of an entity's circumstances to achieve compliance. Currently six dischargers have a compliance schedule in their AZPDES permits.

Appendix B Surface Waters and Designated Uses

There are eleven surface waters that were categorized as effluent dependent because they received an outfall from a permitted discharge. The permitted discharge no longer exists (a few wastewater treatment plants were decommissioned, a few changed disposal methods so that they no longer discharged to a surface water). ADEQ proposes to categorize these waters as ephemeral. This change would benefit anyone in control of stormwater discharges to the ephemeral water, because an ephemeral water needs to meet acute (less stringent) standards, where an effluent-dependent water is protected for both acute and chronic (more stringent) standards.

ADEQ is adding four effluent dependent waters to reflect permitted discharges to ephemeral washes. AZPDES permittees already meet the effluent dependent standards that are set in their permits. This change would affect anyone in control of stormwater discharges to one of these surface waters, because an effluent-dependent water is protected for both acute and chronic (more stringent) standards where an ephemeral water needs to meet acute (less stringent) standards only.

Removing Paradise and Coors Lakes as surface waters that are not regulated under the CWA is a legal interpretation. Removing these two waters may have some impact, since both lakes rely to a certain extent on groundwater pumping to maintain levels. Persons supporting and opposing removing Paradise Lake as a surface water submitted some cost information, but without supporting documentation. Persons supporting removing Paradise Lake stated that reclaimed water will allow for another source of water for the lake and will be beneficial for costs. A person opposed to removing Paradise Lake stated that any savings in using reclaimed water would be minimal of only about $8,000 per year.

Any other changes to Appendix B can potentially impact those discharging under an AZPDES general permit. ADEQ's general permits with the most permittees are to regulate stormwater discharges primarily by requiring the use of best management practices to lessen pollutants.

<u>Appendix C Site-Specific Standards</u>

A permitted discharger that cannot meet standards faces the regulatory burden of either ending the discharge or installing treatment to remove the specific pollutant to the standard level. ADEQ proposes to establish three site-specific standards for dissolved copper:

- For a segment of Pinto Creek, the proposed standard would be 34 µg/L;
- For a segment of Bright Angel Wash, the proposed standard would be 42.5 µg/L;
- For a segment of Transept Canyon, the proposed standard would be 42.5 µg/L

The proposed site-specific standards would allow potential dischargers to discharge at the higher numeric value for copper, thereby decreasing the regulatory burden in future AZPDES permits. The proposed site-specific standards have no effect on designated uses related to humans, such as a drinking water source or full-body contact.

ADEQ is responsible for reducing pollutants in impaired waters by limiting discharges to the impaired water and through remediation projects. The segment of Pinto Creek has not met the surface water quality standard for copper and has been listed as an impaired water since 1998. EPA developed a TMDL in 2001, but the current applicable standard is unattainable for TMDL implementation likely due to natural mineralization and historic mining in the basin. ADEQ has already approved two Water Quality Improvement (Section 319) grants totaling $710,277 to reduce pollutant loads from non-point sources. The site specific standard for Pinto Creek will allow ADEQ to complete a second phase TMDL and assign waste load allocations based upon the new standard. The site-specific standard for Pinto Creek allows a realistic, achievable surface water quality standard to guide both permitting decisions and clean-up actions.

The site-specific standard would help the Grand Canyon North Rim and South Rim WWTP's. These facilities currently have applications in for a variance for copper. This would eliminate them having to commit resources in showing reasonable progress towards achieving the original standard.

G. Probable impact on public and private employment:

ADEQ does not anticipate that private or public employment will be directly affected by these rules.

H. Probable impact on small businesses:

ADEQ would define a small business as any AZPDES permitted facility that discharges less than 1 million gallons per day.

1) The administrative and other costs required for compliance with the proposed rule making.

These rules do not have any administrative costs, nor establish any reporting schedules or deadlines for small businesses. ADEQ does not anticipate that any small dischargers will be affected by the proposed rulemaking

2) A description of the methods prescribed in section 41-1035 that the agency may use to reduce the impact on small businesses, with reasons for the agency's decision to use or not to use each method.

(i) Establish less costly schedules or less stringent deadlines for compliance, or consolidate or

simplify the rule's compliance or reporting requirements in the proposed rule making.

ADEQ does not anticipate that the proposed rule changes will affect minor dischargers, other than as described in this EIS.

(ii) Establish less costly compliance requirements, including establishing performance standards to replace design or operational standards in the proposed rule making.

The changes in the nutrient standards in R18-11-109 (F) should benefit the three privately owned wastewater treatment plants, which currently have a variance in their AZPDES permits because they cannot meet the nutrient standards. These three entities each discharge less than one million gallons per day so they would be considered a small business. ADEQ anticipates that the change to R18-11-109 (F) will benefit the three dischargers because they will not have to implement costly advanced treatment for nutrient removal. Additionally, for the changes to R18-11-121, one of the six dischargers with a compliance schedule in their AZPDES permits discharges less than one million gallons per day. The change to the compliance schedule rule should benefit the small business discharger by allowing a more individual consideration of its circumstances to achieve compliance.

(iii) Exempt small businesses from any or all requirements of the proposed rule making.

As a federally-delegated program, ADEQ's laws, rules, and program must comply with EPA requirements.

3) The probable cost and benefit to private persons and consumers who are directly affected by the proposed rule making.

Private persons and consumers are not directly affected by this rulemaking, but benefit indirectly. Improving the effectiveness of water quality regulation leads to restoring and maintaining the chemical, physical, and biological integrity of Arizona's waters. Improved water quality has many human health and ecological benefits, impacting:

- Drinking Water Treatment and Household Water Use. Reducing contaminants, nutrients, and sediment in surface water supplies lowers the cost of treating these waters, reduces the health risk from potential exposure to contaminated drinking water, and avoids the need for cities, towns and other public water systems to develop alternative water sources or supplies.
- Agricultural Water Use. Clean water ensures agricultural productivity. As noted in the Arizona Department of Agriculture's Annual Report, FY2014-2015, Arizona ranks third in the nation for overall production of fresh market vegetables. Arizona acreage produced over 89.6 million cartons of fresh produce last year. Arizona ranks second in the nation in

production of iceberg lettuce, leaf lettuce, romaine lettuce, cauliflower, broccoli, spinach, cantaloupes, and honeydews.

- Industrial Water Use. Sediment discharges may have negative effects on industrial water users. Suspended sediment increases the rate at which hydraulic equipment, pumps, and other equipment wear out, causing accelerated depreciation of capital equipment.
- Human Health Improvements. Some contaminants, such as mercury and DDT, may persist for long periods of time and bioaccumulate, meaning they can be found in levels several times higher than ambient water in large fish such as bass that consume contaminated bottom dwelling animals. Eating fish contaminated with mercury or PCBs may lead to developmental and neurological problems and is especially hazardous for children and pregnant women. Ensuring cleaner water may lead to a reduction in illness either through reduced consumption of contaminated seafood or through reduced exposure to infectious disease during recreation activities in contaminated waters.
- Recreational activities. Although considered a desert state, Arizona has many recreational activities enhanced by clean water.
    - Fishing. Degraded water can reduce fish populations by inhibiting reproduction and survival of an aquatic species. As an economic indicator of fishing's impact, the Arizona Game and Fish Department (AZGFD) issued 126,056 resident general fish licenses for 2013 (AZGFD 2013-2014 Annual Report).
    - Boating. Polluted water reduces the aesthetic appeal of recreational boating activities and can be damaging to motors and equipment (e.g., algae, excessive weed growth).
    - Swimming. Pollution of water by toxic chemicals or by fecal indicator bacteria may cause closure of water bodies for swimming. Eutrophication caused by nutrients and turbidity caused by sediment and other pollutants also may greatly reduce a swimmer's aesthetic enjoyment of a water body.

I. Probable effect on state revenues:

There are no fees associated with these rules. This rulemaking will have no impact on state revenues.

J. Description of less intrusive or less costly alternative methods of achieving the proposed rulemaking:

Water quality standards are provisions of state law required by the Clean Water Act, and are required to be revised at least once every three years.

K. Explanation of the limitations of the data available for this economic small business and consumer impact statement.

ADEQ does not require the costs of treatment as part of the regular AZPDES permitting program, so any specific information on costs was obtained through informal means from permittees or other knowledgeable individuals.

10. A description of any changes between the proposed rulemaking, to include supplemental notices, and the final rulemaking:

In Appendix A, Table 1, for the parameters Dibromochloromethane and Bromodichloromethane, under the designated use FBC, the proposed text reads "~~18,667~~ TTHM See (g)". In response to comments, ADEQ changed the text to "~~18,667~~ TTHM", deleting the reference to footnote (g). As detailed in the response to comment #5, ADEQ does not believe that deleting the text "See (g)" constitutes a substantial change, because:

- Footnote g was added in the 2009 rulemaking.
- ADEQ has stated throughout this rulemaking of its intent to revert back to numeric criteria that EPA last approved in 2003 for twenty pollutants EPA did not approve from 2009.
- TTHM was the text in the pre-2009 version of the rules (see Notice of Final Rulemaking, 14 A.A.R. 4708, at 4864-4865, December 26, 2008.)
- Before the 2009 amendments, there was no numeric criteria for FBC for Dibromochloromethane and Bromodichloromethane as the prior reference to "TTHM" meant no numeric standard (see Notice of Final Rulemaking, 14 A.A.R. 4708, at 4871)

In Appendix A, Table 1, for the parameter Total Chromium, the Notice of Proposed Rulemaking proposed reverting to the pre-2009 criteria of 100 µG/L for the designated uses of PBC and FBC. In response to comments, ADEQ is returning the criteria to the original text of no numeric standard. ADEQ does not believe that returning to the original text constitutes a substantial change. As detailed in the response to comment #6, the FBC/PBC standard was inconsistent before the 2009 amendments, in that the two constituents of Chromium III and Chromium VI would greatly exceed the Total Chromium standard of 100 µG/L for both FBC and PBC.

In Appendix A, Table 1, ADEQ added footnote k, which describes the values used in the mathematical equations of the subsequent tables.

k. Abbreviations for the mathematical equations are as follows:

e = the base of the natural logarithm and is a mathematical constant equal to 2.71828

LN = is the natural logarithm

CMC = Criterion Maximum Concentration (acute)

CCC= Criterion Continuous Concentration (chronic)

Also in response to comments for the new segment of Mineral Creek in Appendix B, ADEQ changed the latitude of the tunnel inlet to 33º12'24" and renamed the segment to "Mineral Creek (diversion tunnel and lined channel)". ADEQ also made various grammatical and technical changes at the suggestion of the Governor's Regulatory Review Council staff.

11. An agency's summary of the public or stakeholder comments made about the rulemaking and the agency response to the comments:

1. R18-11-121, Schedules of Compliance: Should the paragraph be lettered "A"?
   ADEQ RESPONSE: No. The Secretary of State's rule, A.A.C. R1-1-408(I), specifies the subsection labeling requirements.

2. R18-11-121: Compliance schedules should be flexible enough to accommodate a situation where it would be more cost effective to build a new facility than to modify an old or outdated facility.
   ADEQ RESPONSE: Deleting the set time of three years allows ADEQ to create a more flexible schedule and to consider an entity's individual circumstances to achieve compliance. The five factors listed are based on EPA's guidance in interpreting whether a compliance schedule is appropriate under 40 C.F.R. § 122.47(a). Cost effectiveness is not one of EPA's five factors; however cost effectiveness is a consideration for a variance, under R18-11-122. A variance is another mechanism to provide regulatory flexibility when it is not technically or economically feasible for a discharger to achieve compliance with a water quality standard.

3. Appendix A, Numeric Water Quality Standards: For the criteria for hardness-dependent metals, can ADEQ retain the existing tables, provide the full tables on its web site, or provide an online calculator.
   ADEQ RESPONSE: ADEQ is currently working on updating its website to include an online calculator to calculate the applicable criteria at each hardness level, which it expects to be online by July 2016.

4. Appendix A, Table 1. Water Quality Criteria by Designated Use: Cadmium, A&Ww Acute (µg/L), the "4" should be omitted as it refers to the Cadmium Table in the rule to be revised.

ADEQ RESPONSE: The “4” is being removed; the proposed rule complies with the Secretary of State’s requirements in A.A.C. R1-1-502(B)(18) for showing deleted and new text.

5. Appendix A, Table 1: The FBC standards for Dibromochloromethane and Bromodichloromethane were changed from 18,667 µg/L to the Total Trihalomethane (TTHM) limit established in footnote (g), which says the TTHM standard is exceeded when the sum of the four compounds exceeds 80 µg/L. How can a permittee comply with the TTHM standard in footnote (g) for adding all four compounds (Dibromochloromethane, Bromodichloromethane, Chloroform, and Bromoform) when Chloroform is 230 µg/L and Bromoform is 180 µg/L? The FBC standards for Dibromochloromethane and Bromodichloromethane should be returned to 18,667 µg/L.
ADEQ RESPONSE: The commentor is correct that the FBC standards for the individual pollutants, added together, will exceed the TTHM standard of 80 µg/L, which is for drinking water designated use only. EPA did not approve the 2009 proposed FBC 18,667 µg/L standards for Dibromochloromethane and Bromodichloromethane, so ADEQ cannot retain them. In the case of Dibromochloromethane and Bromodichloromethane, ADEQ planned to revert to the numeric criteria of “TTHM”, which was listed EPA last approved in 2003. ADEQ’s error is that “TTHM” no longer means the same as what was approved in 2003; it was amended in 2009 to the current language in footnote g.

ADEQ believes the solution is to delete the footnote citation “see (g)”, so that both Dibromochloromethane and Bromodichloromethane will list “TTHM” under FBC. Setting the FBC standard as “TTHM” means to reference Trihalomethanes (T) in Appendix A, Table 1, which has no numeric standard for FBC (the changes are described below):

Parameter		Pre-2009	2009 change	2016 proposed	Proposed change
TTHM (FBC)		NNS (no numeric number)			
	Dibromochloromethane	TTHM	18,667 µg/L	TTHM see (g)	TTHM
	Bromodichloromethane	TTHM	18,667 µg/L	TTHM see (g)	TTHM
Footnote (g) was added in the 2009 rulemaking: “The total trihalomethane (TTHM) standard is exceeded when the sum of these four compounds exceeds 80 µg/L, as a rolling annual average.”					

ADEQ does not believe that deleting the text “See (g)” constitutes a substantial change, because:

- Footnote g was added in the 2009 rulemaking.

- ADEQ has stated throughout this rulemaking of its intent to revert back to numeric criteria that EPA last approved in 2003 for twenty pollutants EPA did not approve from 2009.
- TTHM was the text in the pre-2009 version of the rules (see Notice of Final Rulemaking, 14 A.A.R. 4708, at 4864-4865, December 26, 2008.)
- Before the 2009 amendments, there was no numeric criteria for FBC for Dibromochloromethane and Bromodichloromethane as the prior reference to "TTHM" meant no numeric standard (see Notice of Final Rulemaking, 14 A.A.R. 4708, at 4871)

ADEQ thanks the commentor City of Phoenix for discovering this error, and notes that the waters of likely concern (EDW reaches such as the Salt River from the City of Phoenix 23rd Ave WWTP outfall to the confluence with the Gila River) carry the PBC designated use, for which the 18,667 µg/L standard for Dibromochloromethane and Bromodichloromethane does still apply. Waters carrying the FBC designated use will still be required to meet the individual numeric standards for Chloroform and Bromoform.

6. Appendix A, Table 1: The FBC and PBC standard for Total Chromium is 100 µg/L, but its individual constituents are Chromium III at 1,400,000 µg/L and Chromium VI 2,800 µg/L. This will make compliance with the standards challenging.
ADEQ RESPONSE: The commentor is correct. ADEQ is returning the criteria to the original text of no numeric standard.

Chromium occurs in the environment primarily in two states, trivalent chromium (Chromium III) and hexavalent chromium (Chromium VI). The Total Chromium standard was inconsistent before the 2009 amendments, in that the two constituents of Chromium III and Chromium VI would greatly exceed the Total Chromium standard of 100 for both FBC and PBC. For the 2009 amendments, ADEQ proposed to delete the 100 standard for Total Chromium for FBC and PBC on the rationale that certain reference factors necessary to calculate a criteria for PBC or FBC did not exist (such as the relative source contribution) and ADEQ did not believe that a reliable criterion could be derived for PBC or FBC. The historical changes are described below:

Parameter		Pre-2009	2009 change	2016 proposed
Total Chromium (FBC and (PBC)		100 T		100 T
	Chromium III	2,100,000 µg/L	1,400,000 µg/L	
	Chromium VI	4,200 µg/L	2,800 µg/L	

EPA did not accept ADEQ's rationale and did not act on the proposed change to no criteria. ADEQ proposed to return the Total Chromium standard for both FBC and PBC to 100. In response to comments ADEQ reexamined the proposed language and decided to retain the original text of no numeric standard for the following reasons:

- ADEQ has standards protective of human health and the environment for Chromium III and Chromium VI for all designated uses (other than agricultural).
- Reliable reference factors necessary to calculate a criterion for PBC or FBC still do not exist for Total Chromium.
- EPA and other surrounding states have PBC/FBC standards for Chromium III and Chromium VI and set Total Chromium for a drinking water designated use.
- Total Chromium set at 100 µG/L for the designated uses of PBC and FBC is not supported by any data.

7. Appendix A, Table 1: For Nitrate, the CAS Number and PBC standard is split into two rows and is difficult to read.
   ADEQ RESPONSE: The Secretary of State's office is responsible for publishing the Arizona Register and Arizona Administrative Code.

8. Appendix A, Table 1: footnote (f) should include definitions of the following abbreviations: DWS, FC, FBC, PBC, A&Wc, A&Www, A&Wedw, AgI, and AgL.
   ADEQ RESPONSE: These acronyms are defined in R18-11-101.

9. Appendix A: An explanation of the calculations used in tables 2 – 12 should be included in the rule.
   ADEQ RESPONSE: ADEQ has added footnote k after Table 1 to explain the abbreviations used.

10. Appendix B. Surface Waters and Designated Uses: Two designations for the Phoenix Area Canals should be clarified for the issue if water treatment plants (WTP) are constructed in succession along a single canal, would the first WTP be considered a drinking water source (DWS) canal and the second WTP be a non-DWS canal?
    ADEQ RESPONSE: The designation language for the Phoenix area canals is consistent with the language for Yuma area canals; DWS designation above the WTP intakes, but not below them. As the language refers to all "WTP intakes", the DWS designation applies until below the last WTP intake.

11. Appendix B: A portion of the Salt River from the 23rd Avenue WWTP outfall to the 91st Avenue WWTP Outfall should be classified as ephemeral, and the Dobson Lake system and the Riverview Park Lake should be removed from Appendix B as these waters are maintained by purchased water purchased and precipitation runoff from storm events.
    ADEQ RESPONSE: Redesignating or removing additional waters from Appendix B at this stage of the rulemaking would be a substantial change, requiring that ADEQ renotice the changes and open the rulemaking up for an additional 45-day public comment period. ADEQ is not opposed to the suggested changes and will work with the city commentors to conduct any necessary studies supporting these changes for the next Triennial Review.

12. Appendix B: For the new segment of Mineral Creek, the correct latitude of the tunnel inlet should be 33º 12’ 24”. The commentor also suggests that the new segment be referred to “Mineral Creek (diversion tunnel and lined channel)”.
    ADEQ RESPONSE: ADEQ agrees and has made both changes.

13. R18-11-101 Definitions: The existing regulatory definition of surface water tracks the federal definition of the term “waters of the United States” (“WOTUS”) from 1986, which has been held to be overly broad in some respects by two Supreme Court decisions. Federal agencies adopted guidance to interpret the Supreme Court decisions (last revised in 2008). As the recently adopted regulatory definition has been stayed by multiple courts pending the resolution of numerous legal challenges to the rule, the 2008 guidance remains in effect in Arizona. ADEQ should clarify in the preamble to the final rule that notwithstanding the outdated definition contained in the rules, the phrase “surface water” will be interpreted for purposes of the SWQS as applying to WOTUS as defined by governing legal precedent.
    ADEQ RESPONSE: Comment noted, however it is outside the scope of this rulemaking.

14. The following is a summary of sections for which ADEQ received supportive comments:

- R18-11-106, Net Ecological Benefit: Removal of the requirement that there needs to be “…a plan to eliminate the discharge…”
- R18-11-109, Numeric Water Quality Standards: Change in nutrient standards.
- R18-11-115, Site-Specific Standards: Enhanced flexibility that will be achieved by additional grounds for adopting site-specific criteria and allowing a broader range of studies to be submitted in support.

- R18-11-115: Adding natural adaptive process and the Biotic ligand model.
- R18-11-121, Schedules of Compliance: Eliminate the three year limitation on compliance schedules because allows dischargers the time needed to address particularly challenging situations that sometimes arise.
- Appendix A, Numeric Water Quality Standards: Revising the state rules to reflect the EPA-approved criteria for the particular 21 pollutants and uses, since it will eliminate permittee confusion.
- Appendix B: Supports discrete new segment of Mineral Creek (comprising the diversion tunnel and concrete-lined channel) that will have partial body contact as the only assigned designated use.

12. All agencies shall list other matters prescribed by statute applicable to the specific agency or to any specific rule or class of rules. Additionally, an agency subject to Council review under A.R.S. §§ 41-1052 and 41-1055 shall respond to the following questions:

a. Whether the rule requires a permit, whether a general permit is used and if not, the reasons why a general permit is not used:

The rules do not require permits, but establish standards. Standards are enforced as limitations in both individual and general permits. The rules governing permits are in Title 18, Chapter 9.

b. Whether a federal law is applicable to the subject of the rule, whether the rule is more stringent than federal law and if so, citation to the statutory authority to exceed the requirements of federal law:

The administrative rules are consistent with federal law and are no more stringent than federal law.

c. Whether a person submitted an analysis to the agency that compares the rule's impact of the competitiveness of business in this state to the impact on business in other states:

No person has submitted an analysis to the agency that compares the rule's impact on the competitiveness of business in this state to the impact on business in other states.

13. List of any incorporated by reference material as specified in A.R.S. § 41-1028 and its location in the rules:

R18-11-110(B)	2014 Review, Water Quality Standards for Salinity, Colorado River System
R18-11-112(D)(4)(a)	Endangered and Threatened Wildlife, 50 CFR 17.11 (revised 2005) and Endangered and Threatened Plants, 50 CFR 17.12 (revised 2005)

14. Whether the rule was previously made, amended or repealed as an emergency rule, If so, cite the notice published in the *Register* as specified in R1-1-409(A). Also, the agency shall state where the text was changed between the emergency and the final rulemaking packages:

Not applicable

15. The full text of the rule follows:

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 11. DEPARTMENT OF ENVIRONMENTAL QUALITY

WATER QUALITY STANDARDS

ARTICLE 1. WATER QUALITY STANDARDS FOR SURFACE WATERS

Section

R18-11-106. Net Ecological Benefit

R18-11-109. Numeric Water Quality Standards

R18-11-110. Salinity Standards for the Colorado River

R18-11-112. Outstanding Arizona Waters

R18-11-115. Site-Specific Standards

R18-11-121. Schedules of Compliance

Appendix A. Numeric Water Quality Standards

Appendix B. Surface Waters and Designated Uses

Appendix C. Site-Specific Standards

ARTICLE 1. WATER QUALITY STANDARDS FOR SURFACE WATERS

R18-11-106. Net Ecological Benefit

A. The Director may, by rule, modify a water quality standard on the ground that there is a net ecological benefit associated with the discharge of effluent to support or create a riparian and aquatic habitat in an area where water resources are limited. The Director may modify a water quality standard for a pollutant if it is demonstrated that:

1. The discharge of effluent creates or supports an ecologically valuable aquatic, wetland, or riparian ecosystem in an area where these resources are limited;
2. The ecological benefits associated with the discharge of effluent under a modified water quality standard exceed the environmental costs associated with the elimination of the discharge of effluent;
3. The cost of treatment to achieve compliance with a water quality standard is so high that it is more cost effective to eliminate the discharge of effluent to the surface water. The discharger shall demonstrate that it is feasible to eliminate the discharge of effluent that creates or supports the ecologically valuable aquatic, wetland, or riparian ecosystem~~ and that a plan to eliminate the discharge is under active consideration~~;
4. The discharge of effluent to the surface water will not cause or contribute to a violation of a water quality standard that has been established for a downstream surface water;
5. All practicable point source discharge control programs, including local pretreatment, waste minimization, and source reduction programs are implemented; and
6. The discharge of effluent does not produce or contribute to the concentration of a pollutant in the tissues of aquatic organisms or wildlife that is likely to be harmful to humans or wildlife through food chain concentration.

B. The Director shall not modify a water quality criterion for a pollutant to be less stringent than a technology-based effluent limitation that applies to the discharge of that effluent. The discharge of effluent shall, at a minimum, comply with applicable technology-based effluent limitations.

R18-11-109. Numeric Water Quality Standards

A. *E. coli* bacteria. The following water quality standards for *Escherichia coli* (*E. coli*) are expressed in colony forming units per 100 milliliters of water (cfu / 100 ml) or as a Most Probable Number (MPN):

E. coli	**FBC**	**PBC**
Geometric mean (minimum of	126	126

four samples in 30 days)

Single sample maximum 235 575

B. pH. The following water quality standards for pH are expressed in standard units:

pH	**DWS**	**FBC, PBC, A&W** [1]	**AgI**	**AgL**
Maximum	9.0	9.0	9.0	9.0
Minimum	5.0	6.5	4.5	6.5

C. The maximum allowable increase in ambient water temperature, due to a thermal discharge is as follows:

A&Ww	**A&Wedw**	**A&Wc**
3.0° C	3.0° C	1.0° C

D. Suspended sediment concentration.

1. The following water quality standards for suspended sediment concentration, expressed in milligrams per liter (mg/L), are expressed as a median value determined from a minimum of four samples collected at least seven days apart:

A&Wc	**A&Ww**
25	80

2. The Director shall not use the results of a suspended sediment concentration sample collected during or within 48 hours after a local storm event to determine the median value.

E. Dissolved oxygen. ~~The following water quality standards for dissolved oxygen are expressed in milligrams per liter (mg/L)~~ A surface water meets the water quality standard for dissolved oxygen when either:

~~1.~~	~~**Dissolved oxygen**~~	~~**A&Ww**~~	~~**A&Wc**~~
	~~Single sample minimum~~ [2]	~~6.0~~	~~7.0~~
~~2.~~	~~**Dissolved oxygen in effluent-dependent waters**~~		
	~~**(single sample minimum)**~~	~~**A&W edw**~~	
	~~Three hours after sunrise to sunset~~	~~3.0~~	

	~~Sunset to three hours after sunrise~~	~~1.0~~
~~3.~~	~~A surface water meets with the water quality standard for dissolved oxygen if the percent saturation of dissolved oxygen is equal to or greater than 90 percent.~~	

1. The percent saturation of dissolved oxygen is equal to or greater than 90 percent, or
2. The single sample minimum concentration for the designated use, as expressed in milligrams per liter (mg/L) is as follows:

Designated Use	Single sample minimum concentration in mg/L
A&Ww	6.0
A&Wc	7.0
A&W edw for a sample taken from three hours after sunrise to sunset	3.0
A&W edw for a sample taken from sunset to three hours after sunrise	1.0
The single sample minimum concentration is the same for the designated use in a lake, but the sample must be taken from a depth no greater than one meter	

F. Nutrient criteria. The following are water quality standards for total phosphorus and total nitrogen ~~are~~ (expressed in milligrams per liter (mg/L)) that apply to the surface waters listed below. A minimum of 10 samples, each taken at least 10 days apart in a consecutive 12-month period, are required to determine a 90th percentile. Not more than 10 percent of the samples may exceed the 90th percentile value listed below. The Director will apply these water quality standards for total phosphorus and total nitrogen to a surface water listed below, and to any source discharging to a tributary (ephemeral, intermittent, effluent dependent water or perennial) based on volume, frequency, magnitude and duration of the discharge and distance to the downstream surface water listed below:

1. Verde River and its perennial tributaries from the Verde headwaters to Bartlett Lake:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.10	0.30	1.00

Total nitrogen	1.00	1.50	3.00

2. Black River, Tonto Creek and their perennial tributaries for any segments that are not located on tribal lands:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.10	0.20	0.80
Total nitrogen	0.50	1.00	2.00

3. Salt River and its perennial tributaries above Roosevelt ~~Reservoir, excluding Pinal Creek,~~ Lake for any segments that are not located on tribal lands:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.12	0.30	1.00
Total nitrogen	0.60	1.20	2.00

4. Salt River below Stewart Mountain Dam to its confluence with the Verde River:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.05	–	0.20
Total nitrogen	0.60	–	3.00

5. Little Colorado River and its perennial tributaries upstream ~~above River Reservoir in Greer, South Fork of Little Colorado River above South Fork Campground, and Water Canyon Creek above Apache-Sitgreaves National Forest boundary~~ from:
   a. The headwaters to River Reservoir,
   b. South Fork of Little Colorado River at 34°00’49”/109°24’18” to above South Fork Campground at 34°04’49”/109°24’18”, and
   c. The headwaters of Water Canyon Creek to the Apache-Sitgreaves National Forest boundary:

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	0.08	0.10	0.75
Total nitrogen	0.60	0.75	1.10

6. ~~Little Colorado River at the crossing of Apache County Road No. 124.~~

~~Surface Water~~	~~Annual Mean~~	~~90th Percentile~~	~~Single Sample Maximum~~
~~Total phosphorus~~	~~–~~	~~–~~	~~0.75~~
~~Total nitrogen~~	~~–~~	~~–~~	~~1.80~~

~~7.~~ From the Little Colorado River ~~above Lyman Lake to above the Amity Ditch diversion near crossing of Arizona Highway 273 (applies only when in-stream turbidity is less than 50 NTU):~~ and State Route 260 at 34°06’39”/109°18’55” to Lyman Lake:

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	0.20	0.30	0.75
Total nitrogen	0.70	1.20	1.50

~~8.~~ 7. Colorado River at the Northern International Boundary near Morelos Dam:

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	–	0.33	–
Total nitrogen	–	2.50	–

~~9.~~ 8. Oak Creek from its headwaters at 35°01'30"/111°44'12" to its confluence with the Verde River ~~at 34°40'41"/111°56'30"~~ and the West Fork of Oak Creek from its headwaters at 35°02'44"/111°54'48" to its confluence with Oak Creek ~~at 34°59'14"/111°44'46"~~.

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	~~1.00~~ 0.1	~~1.50~~ 0.25	~~2.50~~ 0.30
Total nitrogen	~~0.10~~ 1.00	~~0.25~~ 1.50	~~0.30~~ 2.50

~~10.~~ 9. No discharge of wastewater to Show Low Creek or its perennial tributaries upstream of and including Fools Hollow Lake shall exceed 0.16 mg/L total phosphates as P.

~~11.~~ 10. No discharge of wastewater to the San Francisco River or its perennial tributaries upstream of Luna Lake Dam shall exceed 1.0 mg/L total phosphates as P.

G. Footnotes:

1. "1" Includes A&Wc, A&Ww, A&Wedw, and A&We.

~~2. "2" The dissolved oxygen water quality standard for a lake applies below the water surface but not at a depth greater than one meter.~~

R18-11-110. Salinity Standards for the Colorado River

A. The flow-weighted average annual salinity in the lower main stem of the Colorado River shall not exceed the following criteria:

Location	Total Dissolved Solids
Below Hoover Dam	723 mg/L
Below Parker Dam	747 mg/L
At Imperial Dam	879 mg/L

B. The plan of implementation contained in the "~~2005~~ 2014 Review, Water Quality Standards for Salinity, Colorado River System," approved October ~~2005~~ 2014, is incorporated by reference to preserve the basin-wide approach to salinity control developed by the Colorado River Basin Salinity Control Forum and to ensure compliance with the numeric criteria for salinity in subsection (A). This material does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or may be obtained from the Colorado River Basin Salinity

Control Forum, 106 West 500 South, Suite 101, Bountiful, Utah 84010-6232 or at http://www.coloradoriversalinity.org/.

R18-11-112. Outstanding Arizona Waters

A. The Director shall classify a surface water as an outstanding Arizona water (OAW) by rule.

B. The Director may adopt, under R18-11-115, a site-specific standard to maintain and protect existing water quality in an OAW.

C. Any person may nominate a surface water for classification as an OAW by filing a nomination with the Director. The nomination shall include:

1. A map and a description of the surface water;
2. A written statement in support of the nomination, including specific reference to the applicable criteria for an OAW classification prescribed in subsection (D);
3. Supporting evidence demonstrating that the criteria prescribed in subsection (D) are met; and
4. Available water quality data relevant to establishing the baseline water quality of the proposed OAW.

D. The Director may classify a surface water as an OAW based upon the following criteria:

1. The surface water is a perennial or intermittent water;
2. The surface water is in a free-flowing condition. For purposes of this subsection, "in a free-flowing condition" means that a surface water does not have an impoundment, diversion, channelization, rip-rapping or other bank armor, or another hydrological modification within the reach nominated for an OAW classification;
3. The surface water has good water quality. For purposes of this subsection, "good water quality" means that the surface water has water quality that meets or is better than applicable surface water quality standards. A surface water that is listed as impaired under R18-11-604(E) is ineligible for OAW classification; and
4. The surface water meets one or both of the following conditions:
    a. The surface water is of exceptional recreational or ecological significance because of its unique attributes, such as the geology, flora and fauna, water quality, aesthetic value, or the wilderness characteristic of the surface water;
    b. An endangered or threatened species is associated with the surface water and the existing water quality is essential to the species' maintenance and propagation or the surface water provides critical habitat for the threatened or endangered species. An endangered or threatened species is identified in "Endangered and Threatened Wildlife," 50 CFR 17.11 (revised 2005), and "Endangered and Threatened Plants," 50 CFR 17.12 (revised 2005). This material is

incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or may be obtained from the National Archives and Records Administration at http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1.

E. The Director shall hold at least one public meeting in the local area of a surface water that is nominated for classification as an OAW to solicit public comment on the nomination.

F. The Director shall consider the following factors when deciding whether to classify a surface water as an OAW:

1. Whether there is the ability to manage the surface water and its watershed to maintain and protect existing water quality;
2. The social and economic impact of Tier 3 antidegradation protection;
3. The public comments in support of, or in opposition to, an OAW classification;
4. The timing of the nomination relative to the triennial review of surface water quality standards;
5. The consistency of an OAW classification with applicable water quality management plans; and
6. Whether the nominated surface water is located within a national or state park, national monument, national recreation area, wilderness area, riparian conservation area, area of critical environmental concern, or it has another special use designation (for example, Wild and Scenic River).

G. The following surface waters are classified as OAWs:

1. The West Fork of the Little Colorado River, from its headwaters ~~at 33°55'02"/109°33'30"~~ to Government Springs ~~at 33°59'33"/109°27'54"~~ (approximately 9.1 river miles);
2. Oak Creek, from its headwaters ~~at 35°01'30"/111°44'12"~~ to its confluence with the Verde River ~~at 34°40'41"/111°56'30"~~ (approximately 50.3 river miles);
3. West Fork of Oak Creek, from its headwaters ~~at 35°02'44"/111°54'48"~~ to its confluence with Oak Creek ~~at 34°59'14"/111°44'46"~~ (approximately 15.8 river miles);
4. Peeples Canyon Creek, from its headwaters ~~at 34°23'57"/113°19'45"~~ to its confluence with the Santa Maria River ~~at 34°20'36"/113°15'12"~~ (approximately 8.1 river miles);
5. Burro Creek, from its headwaters at ~~34°52'46.5"/113°05'13.5"~~ to its confluence with Boulder Creek ~~at 34°374.5"/113°18'36"~~ (approximately 29.5 miles);
6. Francis Creek, from its headwaters at ~~34°54'38"/113°20'30"~~ to its confluence with Burro Creek ~~at 34°44'29"/113°14'37"~~ (approximately 22.9 river miles);
7. Bonita Creek, from its boundary of the San Carlos Indian Reservation ~~at 33°03'08"/109°33'41"~~ to its confluence with the Gila River ~~at 32°53'36"/109°28'43"~~ (approximately 14.7 river miles);

8. Cienega Creek, from its confluence with Gardner Canyon ~~and Spring Water Canyon at 31°47'38.5"/110°35'21.5"~~ to the USGS gaging station ~~at 32°02'09"/110°40'34"~~ (#09484600) (approximately 28.3 river miles);
9. Aravaipa Creek, from its confluence with Stowe Gulch ~~at 32°52'10"/110°22'03"~~ to the downstream boundary of the Aravaipa Canyon Wilderness Area ~~at 32°54'23"/110°33'42"~~ (approximately 15.5 river miles);
10. Cave Creek, from its headwaters ~~at 31°50'30"/109°17'04.5"~~ to the Coronado National Forest boundary ~~at 31°54'38"/109°08'40"~~ (approximately 10.4 river miles);
11. South Fork of Cave Creek, from its headwaters ~~at 31°50'20"/109°16'33"~~ to its confluence with Cave Creek ~~at 31°53'04"/109°10'30"~~ (approximately 8.6 river miles);
12. Buehman Canyon Creek, from its headwaters ~~at 32°52'0.5"/110°39'54.5"~~ to its confluence with unnamed tributary at ~~32°24'31.5"/110°32'08"~~ 32°24'31"/110°32'08" (approximately 9.8 river miles);
13. Lee Valley Creek, from its headwaters ~~at 33°55'49"/109°31'34~~" to ~~its confluence with~~ Lee Valley Reservoir ~~at 33°56'28"/109°30'15.5"~~ (approximately 1.6 river miles);
14. Bear Wallow Creek, from its headwaters ~~at 33°35'54"/109°26'54.5"~~ to the boundary of the San Carlos Indian Reservation ~~at 33°37'52"/109°29'44"~~ (approximately 4.25 river miles);
15. North Fork of Bear Wallow Creek, from its headwaters ~~at 33°34'47.5"/109°21'59.5"~~ to its confluence with Bear Wallow Creek ~~at 33°35'54"/109°26'54.5"~~ (approximately 3.8 river miles);
16. South Fork of Bear Wallow Creek, from its headwaters ~~at 33°34'38.5"/109°23'58"~~ to its confluence with Bear Wallow Creek ~~at 33°35'54"/109°26'54.5"~~ (approximately 3.8 river miles);
17. Snake Creek, from its headwaters ~~at 33°37'21.5"/109°26'11"~~ to its confluence with the Black River ~~at 33°40'31.5"/109°28'58.5"~~ (approximately 6.2 river miles);
18. Hay Creek, from its headwaters ~~at 33°51'00"/109°28'48"~~ to its confluence with the West Fork of the Black River ~~at 33°48'30"/109°25'19"~~ (approximately 5.5 river miles);
19. Stinky Creek, from the White Mountain Apache Indian Reservation boundary ~~at 33°52'36.5"/109°29'45"~~ to its confluence with the West Fork of the Black River ~~at 33°51'21.5"/109°27'09.5"~~ (approximately 3.0 river miles);
20. KP Creek, from its headwaters ~~at 33°34'03"/109°21'19"~~ to its confluence with the Blue River ~~at 33°31'44"/109°12'04.5"~~ (approximately 12.7 river miles);
21. Davidson Canyon, from the unnamed spring at ~~31°59'00"/110°38'46"~~ 31°59'00"/110°38'49" to its confluence with Cienega Creek; and

22. Fossil Creek, from its headwaters at the confluence of Sandrock and Calf Pen Canyons above Fossil Springs ~~at 34°26'48.7"/111°32'25"~~ to its confluence with the Verde River ~~at 34°18'21.8"/111°40'31.6"~~ (approximately 17.2 river miles).

R18-11-115. Site-Specific Standards

A. The Director shall adopt a site-specific standard by rule.

B. The Director may adopt a site-specific standard based upon a request or upon the Director's initiative for any of the following reasons:

1. Local physical, chemical, or hydrological conditions of a surface water such as pH, hardness, fate and transport, or temperature alters the biological availability or toxicity of a pollutant;
2. The sensitivity of resident aquatic organisms that occur in a surface water to a pollutant differs from the sensitivity of the species used to derive the numeric water quality standards to protect aquatic life in Appendix A;
3. Resident aquatic organisms that occur in a surface water represent a narrower mix of species than those in the dataset used by the Department to derive numeric water quality standards to protect aquatic life in Appendix A; ~~or~~
4. The natural background concentration of a pollutant is greater than the numeric water quality standard to protect aquatic life prescribed in Appendix A. "Natural background" means the concentration of a pollutant in a surface water due only to non-anthropogenic sources.
5. Natural adaptive processes have enabled a viable, balanced population of aquatic life to exist in a surface water where the level of a pollutant is greater than the numeric water quality standard to protect aquatic life prescribed in Appendix A; or
6. Other factors or combination of factors that upon review by the Director warrant changing a numeric water quality standard for a surface water.

C. ~~Site-specific study. A person shall conduct a study to support the development of a site-specific standard using one of the following procedures:~~

~~1. The Recalculation Procedure, Appendix L, pages 90 - 98, Water Quality Standards Handbook, Second Edition, EPA 823-B-94-005b, August 1994. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. A copy of the incorporated material is available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or: may be obtained from the U.S. Environmental Protection Agency, Office of Water at http://www.epa.gov/waterscience/standards/handbook/ handbookappxL.pdf.~~

~~2. Water-Effects Ratio for Metals, Appendix L, pages 1 - 89, Water Quality Standards Handbook,~~

~~Second Edition, EPA 823-B-94-005b, August 1994. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. A copy of the incorporated material is available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or: may be obtained from the U.S. Environmental Protection Agency, Office of Water at http://www.epa.gov/waterscience/standards/handbook/ handbookappxL.pdf.~~

~~3. Streamlined Water Effects Ratio Procedure for Discharges of Copper, EPA-822-R-01-005, March 2001. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. A copy of the incorporated material is available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or: may be obtained from the U.S. Environmental Protection Agency, Office of Water at http://www.epa.gov/ost/criteria/copper/copper.pdf.~~

~~4. Natural background.~~

~~a. A person seeking to develop a site-specific standard based on natural background shall provide a study outline to the Director and obtain the Director's approval before conducting the study.~~

~~i. The person may use statistical or modeling approaches to determine natural background concentration.~~

~~ii. Modeling approaches include Better Assessment Science Integrating Source and Nonpoint Sources (Basins), Hydrologic Simulation Program-Fortran (HSPF), and Hydrologic Engineering Center (HEC) programs developed by the U.S. Army Corps of Engineers.~~

~~b. The Director may establish a site-specific standard at a concentration equal to the natural background concentration.~~

~~c. For purposes of this subsection, "natural background" means the concentration of a pollutant in a surface water due only to non-anthropogenic sources.~~

Site-specific standard by request. To request that the Director adopt a site-specific standard, a person must conduct a study to support the development of a site-specific standard using a scientifically-defensible procedure.

1. Before conducting the study, a person shall submit a study outline to the Director for approval that contains the following elements:

   a. Identifies the pollutant;

   b. Describes the reach's boundaries;

   c. Uses one of the following procedures, as defined by the most recent EPA guidance documents:

i. The recalculation procedure,

ii. The water effects ratio for metals,

iii. The streamlined water effects ratio, or

iv. The Biotic ligand model.

d. Demonstrates that all designated uses are protected.

2. Alternatively, a study outline submitted for the Director's approval must contain the following elements:

a. Identifies the pollutant;

b. Describes the reach's boundaries;

c. Describes the hydrologic regime of the waterbody;

d. Describes the scientifically-defensible procedure, which can include relevant aquatic life studies, ecological studies, laboratory tests, biological translators, fate and transport models, and risk analyses;

e. Describes and compares the taxonomic composition, distribution and density of the aquatic biota within the reach to a reference reach and describes the basis of any major taxonomic differences;

f. Describes the pollutant's effect on the affected species or appropriate surrogate species and on the other designated uses listed for the reach;

g. Demonstrates that all designated uses are protected; and

h. A person seeking to develop a site-specific standard based on natural background may use statistical or modeling approaches to determine natural background concentration. Modeling approaches include Better Assessment Science Integrating Source and Nonpoint Sources (Basins), Hydrologic Simulation Program-Fortran (HSPF), and Hydrologic Engineering Center (HEC) programs developed by the U.S. Army Corps of Engineers.

R18-11-121. Schedules of Compliance

~~**A.** The Director may establish a schedule in an AZPDES permit to bring an existing point source into compliance with a new or revised water quality standard.~~ A compliance schedule in an AZPDES permit ~~for an existing point source, other than a stormwater discharge,~~ shall require the permittee to comply with a discharge limitation based upon a new or revised water quality standard ~~no later than three years after the effective date of the AZPDES permit~~ as soon as possible to achieve compliance. The permittee shall demonstrate that all requirements under § 301(b) and § 306 of the Clean Water Act [33 U.S.C. 1311(b) and 1316] are achieved and that the point source cannot comply with a discharge limitation based upon the new or revised water quality standard through the application of existing water pollution

control technology, operational changes, or source reduction. In establishing a compliance schedule, the Director shall consider:

1. How much time the permittee has already had to meet any effluent limitations under a prior permit;
2. The extent to which the permittee has made good faith efforts to comply with the effluent limitations and other requirements in a prior permit;
3. Whether treatment facilities, operations, or measures must be modified to meet the effluent limitations;
4. How long any necessary modifications would take to implement; and
5. Whether the permittee would be expected to use the same treatment facilities, operations or other measures to meet the effluent limitations as it would have used to meet the effluent limitations in a prior permit.

~~**B.** The Director may establish a schedule of compliance in an AZPDES permit for a new point source. The first AZPDES permit issued to a new point source may contain a schedule of compliance only when necessary to allow the permittee to attain compliance with a new or revised water quality standard that becomes effective after commencement of construction but less than three years before the discharge begins. For purposes of this subsection, "commencement of construction" means that the owner or operator of the point source has obtained the federal, state, and local approvals or permits necessary to begin physical construction of the point source and either:~~

~~1. Onsite physical construction has begun; or~~

~~2. The owner or operator has entered into a contract for physical construction of the point source and the contract cannot be cancelled or modified without substantial loss. For purposes of this subsection, "substantial loss" means in excess of 10 percent of the total cost incurred for physical construction.~~

~~**C.** The Director may establish a schedule of compliance in an AZPDES permit for a recommencing point source discharge. The first AZPDES permit issued to a recommencing point source discharger may contain a schedule of compliance only when necessary to attain compliance with a new or revised water quality standard that is effective less than three years before recommencement of the discharge.~~

~~**D.** The Director may establish a schedule to bring a point source discharge of stormwater into compliance with a water quality standard in an AZPDES permit. A compliance schedule for a stormwater discharge shall require implementation of all reasonable and cost-effective best management practices to control the discharge of pollutants in stormwater.~~

APPENDIX A. NUMERIC WATER QUALITY STANDARDS

Table 1. Water Quality Criteria By Designated Use (see f)

PARAMETER	CAS NUMBER	DWS (µG/L)	FC (µG/L)	FBC (µG/L)	PBC (µG/L)	A&Wc Acute (µg/L)	A&Wc Chronic (µg/L)	A&Ww Acute (µg/L)	A&Ww Chronic (µg/L)	A&Wedw Acute| (µg/L)	A&Wedw Chronic (µg/L)	A&We Acute (µg/L)	AgI (µg/L)	AgL (µg/L)
Acenaphthene	83329	420	198	56,000	56,000	850	550	850	550	850	550			
Acrolein	107028	3.5	1.9	467	467	34	30	34	30	34	30			
Acrylonitrile	107131	0.06	0.2	3	37,333	3,800	250	3,800	250	3,800	250			
Alachlor	15972608	2		9,333	9,333	2,500	170	2,500	170	2,500	170			
Aldrin	309002	0.002	0.00005	0.08	28	3		3		3		4.5	0.003	See (b)
Alpha Particles (Gross) Radioactivity		15 pCi/L See (h)												
Ammonia	7664417					See (e) & Table ~~25~~ 11	See (e) & Table ~~26~~ 12	See (e) & Table ~~25~~ 11	See (e) & Table ~~26~~ 12	See (e) & Table ~~25~~ 11	See (e) & Table ~~26~~ 12			
Anthracene	120127	2,100	74	280,000	280,000									
Antimony	7440360	6 T	640 T	747 T	747 T	88 D	30 D	88 D	30 D	1,000 D	600 D			
Arsenic	7440382	10 T	80 T	30 T	280 T	340 D	150 D	340 D	150 D	340 D	150 D	440 D	2,000 T	200 T
Asbestos	1332214	See (a)												
Atrazine	1912249	3		32,667	32,667									
Barium	7440393	2,000 T		98,000 T	98,000 T									
Benz(a)anthracene	56553	0.005	0.02	0.2	0.2									
Benzene	71432	5	~~114~~ 140	93	3,733	2,700	180	2,700	180	8,800	560			
3, 4 Benzfluoranthene	205992	0.005	0.02	1.9	1.9									
Benzidine	92875	0.0002	0.0002	0.01	2,800	1,300	89	1,300	89	1,300	89	10,000	0.01	0.01
Benzo(a)pyrene	50328	0.2	0.02	0.2	0.2									
Benzo(k)fluoranthene	207089	0.005	0.02	1.9	1.9									
Beryllium	7440417	4 T	84 T	1,867 T	1,867 T	65 D	5.3 D	65 D	5.3 D	65 D	5.3 D			
Beta particles and photon emitters		4 millirems /year See (i)												
Bis(2-chloroethyl) ether	111444	0.03	0.5	1	1	120,000	6,700	120,000	6,700	120,000	6,700			
Bis(2-chloroisopropyl) ether	108601	280	3,441	37,333	37,333									
Boron	7440428	1,400 T		186,667 T	186,667 T								1,000 T	
Bromodichloromethane	75274	TTHM See (g)	17	~~18,667~~ TTHM	18,667									
p-Bromodiphenyl ether	101553					180	14	180	14	180	14			
Bromoform	75252	TTHM See (g)	133	180	18,667	15,000	10,000	15,000	10,000	15,000	10,000			
Bromomethane	74839	9.8	299	1,307	1,307	5,500	360	5,500	360	5,500	360			

PARAMETER	CAS NUMBER	DWS (µG/L)	FC (µG/L)	FBC (µG/L)	PBC (µG/L)	A&Wc Acute (µg/L)	A&Wc Chronic (µg/L)	A&Ww Acute (µg/L)	A&Ww Chronic (µg/L)	A&Wedw Acute| (µg/L)	A&Wedw Chronic (µg/L)	A&We Acute (µg/L)	AgI (µg/L)	AgL (µg/L)
Butyl benzyl phthalate	85687	1,400	386	186,667	186,667	1,700	130	1,700	130	1,700	130			
Cadmium	7440439	5 T	84 T	700 T	700 T	See (d) & Table 2	See (d) & Table 3	See (d) & Table ~~4~~ 2	See (d) & Table ~~5~~ 3	See (d) & Table ~~4~~ 2	See (d) & Table ~~5~~ 3	See (d) & Table ~~6~~ 2	50	50
Carbofuran	1563662	40		4,667	4,667	650	50	650	50	650	50			
Carbon tetrachloride	56235	5	2	11	~~1,307~~ 980	18,000	1,100	18,000	1,100	18,000	1,100			
Chlordane	57749	2	0.0008	4	467	2.4	0.004	2.4	0.2	2.4	0.2	3.2		
Chlorine (total residual)	7782505	4,000		4,000	4,000	19	11	19	11	19	11			
Chlorobenzene	108907	100	1,553	18,667	18,667	3,800	260	3,800	260	3,800	260			
2-Chloroethyl vinyl ether	110758					180,000	9,800	180,000	9,800	180,000	9,800			
Chloroform	67663	TTHM See (g)	~~2,133~~ 470	~~9,333~~ 230	9,333	14,000	900	14,000	900	14,000	900			
p-Chloro-m-cresol	59507					15	4.7	15	4.7	15	4.7	48,000		
Chloromethane	74873					270,000	15,000	270,000	15,000	270,000	15,000			
2-Chloronapthalene	91587	560	317	74,667	74,667									
2-Chlorophenol	95578	35	30	4,667	4,667	2,200	150	2,200	150	2,200	150			
Chloropyrifos	2921882	21		2,800	2,800	0.08	0.04	0.08	0.04	0.08	0.04			
Chromium III	16065831		75,000 T	1,400,000 T	1,400,000 T	See (d) & Table ~~7~~ 4	See (d) & Table ~~8~~ 4	See (d) & Table ~~7~~ 4	See (d) & Table ~~8~~ 4	See (d) & Table ~~7~~ 4	See (d) & Table ~~8~~ 4	See (d) & Table ~~9~~ 4		
Chromium VI	18540299	21 T	150 T	2,800 T	2,800 T	16 D	11 D	16 D	11 D	16 D	11 D	34 D		
Chromium (Total)	7440473	100 T											1,000	1,000
Chrysene	218019	0.005	0.02	19	19									
Copper	7440508	1,300 T		1,300 T	1,300 T	See (d) & Table ~~10~~ 5	See (d) & Table ~~11~~ 5	See (d) & Table ~~10~~ 5	See (d) & Table ~~11~~ 5	See (d) & Table ~~10~~ 5	See (d) & Table ~~11~~ 5	See (d) & Table ~~12~~ 5	5,000 T	500 T
Cyanide (as free cyanide)	57125	200 T	16,000 T	18,667 T	18,667 T	22 T	5.2 T	41 T	9.7 T	41 T	9.7 T	84 T		200 T
Dalapon	75990	200	8,000	28,000	28,000									
Dibenz (ah) anthracene	53703	0.005	0.02	1.9	1.9									
Dibromochloromethane	124481	TTHM See (g)	13	~~18,667~~ TTHM	18,667									
1,2-Dibromo-3-chloropropane	96128	0.2		2,800	2,800									
1,2-Dibromoethane	106934	0.05		8,400	8,400									
Dibutyl phthalate	84742	700	899	93,333	93,333	470	35	470	35	470	35	1,100		
1,2-Dichlorobenzene	95501	600	205	84,000	84,000	790	300	1,200	470	1,200	470	5,900		

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1,3-Dichlorobenzene	541731					2,500	970	2,500	970	2,500	970			
1,4-Dichlorobenzene	106467	75	5,755	373,333	373.333	560	210	2,000	780	2,000	780	6,500		
3,3'-Dichlorobenzidine	91941	0.08	0.03	3	3									
p,p'-Dichlorodiphenyltrichloroethane (DDT) and metabolites (DDD) and (DDE)	50293	0.1	0.0002	4	467	1.1	0.001	1.1	0.001	1.1	0.001	1.1	0.001	0.001
1,2-Dichloroethane	107062	5	37	15	186,667	59,000	41,000	59,000	41,000	59,000	41,000			
1,1-Dichloroethylene	75354	7	7,143	46,667	46,667	15,000	950	15,000	950	15,000	950			
1,2-cis-Dichloroethylene	156592	70		70	70									
1,2-trans-Dichloroethylene	156605	100	10,127	18,667	18,667	68,000	3,900	68,000	3,900	68,000	3,900			
Dichloromethane	75092	5	593	190	56,000	97,000	5,500	97,000	5,500	97,000	5,500			
2,4-Dichlorophenol	120832	21	59	2,800	2,800	1,000	88	1,000	88	1,000	88			
2,4-Dichlorophenoxyacetic acid (2,4-D)	94757	70		9,333	9,333									
1,2-Dichloropropane	78875	5	17,518	84,000	84,000	26,000	9,200	26,000	9,200	26,000	9,200			
1,3-Dichloropropene	542756	0.7	42	420	28,000	3,000	1,100	3,000	1,100	3,000	1,100			
Dieldrin	60571	0.002	0.00005	0.09	47	0.2	0.06	0.2	0.06	0.2	0.06	4	0.003	See (b)
Diethyl phthalate	84662	5,600	8,767	746,667	746,667	26,000	1,600	26,000	1,600	26,000	1,600			
Di (2-ethylhexyl) adipate	103231	400		560,000	560,000									
Di (2-ethylhexyl) phthalate	117817	6	3	~~1,200~~ 100	18,667	400	360	400	360	400	360	3,100		
2,4-Dimethylphenol	105679	140	171	18,667	18,667	1,000	310	1,000	310	1,000	310	150,000		
Dimethyl phthalate	131113					17,000	1,000	17,000	1,000	17,000	1,000			
4,6-Dinitro-o-cresol	534521	28	582	3,733	3.733	310	24	310	24	310	24			
2,4-Dinitrophenol	51285	14	1,067	1,867	1,867	110	9.2	110	9.2	110	9.2			
2,4-Dinitrotoluene	121142	14	421	1,867	1,867	14,000	860	14,000	860	14,000	860			
2,6-Dinitrotoluene	606202	0.05		2	3,733									
Di-n-octyl phthalate	117840	2,800		373,333	373,333									
Dinoseb	88857	7		933	933									
1,2-Diphenylhydrazine	122667	0.04	0.2	1.8	1.8	130	11	130	11	130	11			
Diquat	85007	20		2,053	2,053									
Endosulfan sulfate	1031078	42	18	5,600	5,600	0.2	0.06	0.2	0.06	0.2	0.06	3		
Endosulfan (Total)	115297	42	18	5,600	5,600	0.2	0.06	0.2	0.06	0.2	0.06	3		
Endothall	145733	100		18,667	18,667									
Endrin	72208	2	0.06	280	280	0.09	0.04	0.09	0.04	0.09	0.04	0.7	0.004	0.004
Endrin aldehyde	7421933					0.09	0.04	0.09	0.04	0.09	0.04	0.7		
Ethylbenzene	100414	700	2,133	93,333	93,333	23,000	1,400	23,000	1,400	23,000	1,400			

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Fluoranthene	206440	280	28	37,333	37,333	2,000	1,600	2,000	1,600	2,000	1,600			
Fluorene	86737	280	1,067	37,333	37,333									
Fluoride	7782414	4,000		140,000	140,000									
Glyphosate	1071836	700	266,667	93,333	93,333									
Guthion	86500						0.01		0.01		0.01			
Heptachlor	76448	0.4	0.00008	0.4	467	0.5	0.004	0.5	0.004	0.6	0.01	0.9		
Heptachlor epoxide	1024573	0.2	0.00004	0.2	12	0.5	0.004	0.5	0.004	0.6	0.01	0.9		
Hexachlorobenzene	118741	1	0.0003	1	747	6	3.7	6	3.7	6	3.7			
Hexachlorobutadiene	87683	0.4	18	18	187	45	8.2	45	8.2	45	8.2			
Hexachlorocyclohexane alpha	319846	0.006	0.005	0.22	7,467	1,600	130	1,600	130	1,600	130	1,600		
Hexachlorocyclohexane beta	319857	0.02	0.02	0.78	560	1,600	130	1,600	130	1,600	130	1,600		
Hexachlorocyclohexane delta	319868					1,600	130	1,600	130	1,600	130	1,600		
Hexachlorocyclohexane gamma (lindane)	58899	0.2	1.8	280	280	1	0.08	1	0.28	1	0.61	11		
Hexachlorocyclopentadiene	77474	50	~~74~~ 580	~~11,200~~ 9,800	~~11,200~~ 9,800	3.5	0.3	3.5	0.3	3.5	0.3			
Hexachloroethane	67721	2.5	3.3	100	933	490	350	490	350	490	350	850		
Hydrogen sulfide	7783064						2 See (c)		2 See (c)		2 See (c)			
Indeno (1,2,3-cd) pyrene	193395	0.05	~~0.2~~ 0.49	1.9	1.9									
Iron	7439896						1,000 D		1,000 D		1,000 D			
Isophorone	78591	37	961	1,500	186,667	59,000	43,000	59,000	43,000	59,000	43,000			
Lead	7439971	15 T		15 T	15 T	See (d) & Table ~~13~~ 6	See (d) & Table ~~14~~ 6	See (d) & Table ~~13~~ 6	See (d) & Table ~~14~~ 6	See (d) & Table ~~13~~ 6	See (d) & Table ~~14~~ 6	See (d) & Table ~~15~~ 6	10,000 T	100 T
Malathion	121755	140		18,667	18,667		0.1		0.1		0.1			
Manganese	7439965	980		130,667	130,667								10,000	
Mercury	7439976	2 T		280 T	280 T	2.4 D	0.01 D	2.4 D	0.01 D	2.4 D	0.01 D	5 D		10 T
Methoxychlor	72435	40		4,667	4,667		0.03		0.03		0.03			
Methylmercury			0.3 mg/kg											
Mirex	2385855	1		187	187		0.001		0.001		0.001			
Naphthalene	91203	140	1,524	18,667	18,667	1,100	210	3,200	580	3,200	580			
Nickel	7440020	~~210 T~~ 140 T	~~511 T~~ 4,600 T	28,000 T	28,000 T	See (d) & Table ~~16~~ 7	See (d) & Table ~~17~~ 7	See (d) & Table ~~16~~ 7	See (d) & Table ~~17~~ 7	See (d) & Table ~~16~~ 7	See (d) & Table ~~17~~ 7	See (d) & Table ~~18~~ 7		
Nitrate	14797558	10,000		3,733,333	3,733,333									
Nitrite	14797650	1,000		233,333	233,333									

PARAMETER	CAS NUMBER	DWS (µG/L)	FC (µG/L)	FBC (µG/L)	PBC (µG/L)	A&Wc Acute (µg/L)	A&Wc Chronic (µg/L)	A&Ww Acute (µg/L)	A&Ww Chronic (µg/L)	A&Wedw Acute| (µg/L)	A&Wedw Chronic (µg/L)	A&We Acute (µg/L)	AgI (µg/L)	AgL (µg/L)
Nitrate + Nitrite		10,000												
Nitrobenzene	98953	3.5	138	467	467	1,300	850	1,300	850	1,300	850			
p-Nitrophenol	100027					4,100	3,000	4,100	3,000	4,100	3,000			
N-nitrosodimethylamine	62759	0.001	3	0.03	0.03									
N-nitrosodi-n-phenylamine	86306	7.1	6	290	290	2,900	200	2,900	200	2,900	200			
N-nitrosodi-n-propylamine	621647	0.005	0.5	0.2	88,667									
Oxamyl	23135220	200		23,333	23,333									
Parathion	56382					0.07	0.01	0.07	0.01	0.07	0.01			
Paraquat	1910425	32		4,200	4,200	~~100~~	~~54~~	~~100~~	~~54~~	~~100~~	~~54~~			
Pentachlorophenol	87865	1	~~370~~ 1,000	12	28,000	See (e), (j) & Table ~~22~~ 10	See (e), (j) & Table ~~23~~ 10	See (e), (j) & Table ~~22~~ 10	See (e), (j) & Table ~~23~~ 10	See (e), (j) & Table ~~22~~ 10	See (e), (j) & Table ~~23~~ 10	See (e), (j) & Table ~~24~~ 10		
Permethrin	52645531	350		46,667	46,667	~~0.3~~	~~0.2~~	~~0.3~~	~~0.2~~	~~0.3~~	~~0.2~~			
Phenanthrene	85018					30	6.3	30	6.3	30	6.3			
Phenol	108952	2,100	37	280,000	280,000	5,100	730	7,000	1,000	7,000	1,000	180,000		
Picloram	1918021	500	2,710	65,333	65,333									
Polychlorinatedbiphenyls (PCBs)	1336363	0.5	0.00006	19	19	2	0.01	2	0.02	2	0.02	11	0.001	0.001
Pyrene	129000	210	800	28,000	28,000									
Radium 226 + Radium 228		5 pCi/L												
Selenium	7782492	50 T	667 T	4,667 T	4,667 T		2 T		2 T		2 T	33 T	20 T	50 T
Silver	7440224	35 T	8,000 T	4,667 T	4,667 T	See (d) & Table ~~19~~ 8		See (d) & Table ~~19~~ 8		See (d) & Table ~~19~~ 8		See (d) & Table ~~19~~ 8		
Simazine	112349	4		4,667	4,667									
Strontium		8 pCi/L												
Styrene	100425	100		186,667	186,667	5,600	370	5,600	370	5,600	370			
Sulfides												100		
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	1746016	0.00003	5x10-9	0.00003	0.0009	0.01	0.005	0.01	0.005	0.01	0.005	0.1		
1,1,2,2-Tetrachloroethane	79345	0.2	4	7	~~93,333~~ 56,000	4,700	3,200	4,700	3,200	4,700	3,200			
Tetrachloroethylene	127184	5	261	9,333	9,333	2,600	280	6,500	680	6,500	680	15,000		

PARAMETER	CAS NUMBER	DWS (µG/L)	FC (µG/L)	FBC (µG/L)	PBC (µG/L)	A&Wc Acute (µg/L)	A&Wc Chronic (µg/L)	A&Ww Acute (µg/L)	A&Ww Chronic (µg/L)	A&Wedw Acute| (µg/L)	A&Wedw Chronic (µg/L)	A&We Acute (µg/L)	AgI (µg/L)	AgL (µg/L)
Thallium	7440280	2 T	~~1 T~~ 7.2 T	75 T	75 T	700 D	150 D	700 D	150 D	700 D	150 D			
Toluene	108883	1,000	~~29,907~~ 201,000	~~373,333~~ 280,000	~~373,333~~ 280,000	8,700	180	8,700	180	8,700	180			
Toxaphene	8001352	3	0.0003	1.3	933	0.7	0.0002	0.7	0.0002	0.7	0.0002	11	0.005	0.005
Tributylin						0.5	0.07	0.5	0.07	0.5	0.07			
1,2,4-Trichlorobenzene	120821	70	70	9,333	9,333	750	130	1,700	300	1,700	300			
1,1,1-Trichloroethane	71556	200	428,571	1,866,667	1,866,667	2,600	1,600	2,600	1,600	2,600	1,600		1,000	
1,1,2-Trichloroethane	79005	5	16	25	3,733	18,000	12,000	18,000	12,000	18,000	12,000			
Trichloroethylene	79016	5	29	280,000	280	20,000	1,300	20,000	1,300	20,000	1,300			
2,4,6-Trichlorophenol	88062	3.2	2	130	130	160	25	160	25	160	25	3,000		
2,4,5-Trichlorophenoxy proprionic acid (2,4,5-TP)	93721	50		7,467	7,467									
Trihalomethanes (T)		80												
Tritium		20,000 pCi/L												
Uranium	7440611	30 D		2,800	2,800									
Vinyl chloride	75014	2	5	2	2,800									
Xylenes (T)	1330207	10,000		186,667	186,667									
Zinc	7440666	2,100 T	5,106 T	280,000 T	280,000 T	See (d) & Table ~~20~~ 9	See (d) & Table ~~20~~ 9	See (d) & Table ~~20~~ 9	See (d) & Table ~~20~~ 9	See (d) & Table ~~20~~ 9	See (d) & Table ~~20~~ 9	See (d) & Table ~~21~~ 9	10,000 T	25,000 T

Footnotes

a. The asbestos standard is 7 million fibers (longer than 10 micrometers) per liter.

b. The aldrin/dieldrin standard is exceeded when the sum of the two compounds exceeds 0.003 µg/L.

c. In lakes, the acute criteria for hydrogen sulfide apply only to water samples taken from the epilimnion, or the upper layer of a lake or reservoir.

d. Hardness, expressed as mg/L $CaCO_3$, is determined according to the following criteria:

   i. If the receiving water body has an A&Wc or A&Ww designated use, then hardness is based on the hardness of the receiving water body from a sample taken at the same time that the sample for the metal is taken, except that the hardness may not exceed 400 mg/L $CaCO_3$.

   ii. If the receiving water has an A&Wedw or A&We designated use, then the hardness is based on the hardness of the effluent from a sample taken at the same time that the sample for the metal is taken, except that the hardness may not exceed 400 mg/L $CaCO_3$.

   iii. The mathematical equations for the hardness-dependent parameter represent the water quality standards. Examples of criteria for the hardness-dependent parameters have been calculated and are presented in separate tables at the end of Appendix A for the convenience of the user.

e. pH is determined according to the following criteria:

i. If the receiving water has an A&Wc or A&Ww designated use, then pH is based on the pH of the receiving water body from a sample taken at the same time that the sample for pentachlorophenol or ammonia is taken.

ii. If the receiving water body has an A&Wedw or A&We designated use, then the pH is based on the pH of the effluent from a sample taken at the same time that the sample for pentachlorophenol or ammonia is taken.

iii. The mathematical equations for ammonia represent the water quality standards. Examples of criteria for ammonia have been calculated and are presented in separate tables at the end of Appendix A for the convenience of the user.

f. Table 1 abbreviations.

i. µg/L = micrograms per liter,

ii. mg/kg = milligrams per kilogram,

iii. pCi/L = picocuries per liter,

iv. D = dissolved,

v. T = total recoverable,

vi. TTHM indicates that the chemical is a trihalomethane.

g. The total trihalomethane (TTHM) standard is exceeded when the sum of these four compounds exceeds 80 µg/L, as a rolling annual average.

h The concentration of gross alpha particle activity includes radium-226, but excludes radon and uranium.

i. The average annual concentration of beta particle activity and photon emitters from manmade radionuclides shall not produce an annual dose equivalent to the total body or any internal organ greater than four millirems per year.

j. The mathematical equations for the pH-dependent parameters represent the water quality standards. Examples of criteria for the pH-dependent parameters have been calculated and are presented in separate tables at the end of Appendix A for the convenience of the user.

k. Abbreviations for the mathematical equations are as follows:

e = the base of the natural logarithm and is a mathematical constant equal to 2.71828

LN = is the natural logarithm

CMC = Criterion Maximum Concentration (acute)

CCC= Criterion Continuous Concentration (chronic)

~~Table 2. Acute Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife coldwater~~

~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~
~~1~~	~~0.02~~	~~41~~	~~0.85~~	~~81~~	~~1.64~~	~~121~~	~~2.42~~	~~161~~	~~3.20~~	~~201~~	~~3.97~~	~~241~~	~~4.73~~	~~281~~	~~5.49~~	~~321~~	~~6.25~~	~~361~~	~~7.00~~
~~2~~	~~0.04~~	~~42~~	~~0.87~~	~~82~~	~~1.66~~	~~122~~	~~2.44~~	~~162~~	~~3.22~~	~~202~~	~~3.99~~	~~242~~	~~4.75~~	~~282~~	~~5.51~~	~~322~~	~~6.27~~	~~362~~	~~7.02~~
~~3~~	~~0.07~~	~~43~~	~~0.89~~	~~83~~	~~1.68~~	~~123~~	~~2.46~~	~~163~~	~~3.24~~	~~203~~	~~4.01~~	~~243~~	~~4.77~~	~~283~~	~~5.53~~	~~323~~	~~6.29~~	~~363~~	~~7.04~~
~~4~~	~~0.09~~	~~44~~	~~0.91~~	~~84~~	~~1.70~~	~~124~~	~~2.48~~	~~164~~	~~3.26~~	~~204~~	~~4.03~~	~~244~~	~~4.79~~	~~284~~	~~5.55~~	~~324~~	~~6.31~~	~~364~~	~~7.06~~
~~5~~	~~0.11~~	~~45~~	~~0.93~~	~~85~~	~~1.72~~	~~125~~	~~2.50~~	~~165~~	~~3.28~~	~~205~~	~~4.04~~	~~245~~	~~4.81~~	~~285~~	~~5.57~~	~~325~~	~~6.33~~	~~365~~	~~7.08~~
~~6~~	~~0.13~~	~~46~~	~~0.95~~	~~86~~	~~1.74~~	~~126~~	~~2.52~~	~~166~~	~~3.30~~	~~206~~	~~4.06~~	~~246~~	~~4.83~~	~~286~~	~~5.59~~	~~326~~	~~6.34~~	~~366~~	~~7.10~~
~~7~~	~~0.15~~	~~47~~	~~0.97~~	~~87~~	~~1.76~~	~~127~~	~~2.54~~	~~167~~	~~3.31~~	~~207~~	~~4.08~~	~~247~~	~~4.85~~	~~287~~	~~5.61~~	~~327~~	~~6.36~~	~~367~~	~~7.12~~
~~8~~	~~0.17~~	~~48~~	~~0.99~~	~~88~~	~~1.78~~	~~128~~	~~2.56~~	~~168~~	~~3.33~~	~~208~~	~~4.10~~	~~248~~	~~4.87~~	~~288~~	~~5.63~~	~~328~~	~~6.38~~	~~368~~	~~7.14~~
~~9~~	~~0.19~~	~~49~~	~~1.01~~	~~89~~	~~1.80~~	~~129~~	~~2.58~~	~~169~~	~~3.35~~	~~209~~	~~4.12~~	~~249~~	~~4.88~~	~~289~~	~~5.64~~	~~329~~	~~6.40~~	~~369~~	~~7.15~~
~~10~~	~~0.21~~	~~50~~	~~1.03~~	~~90~~	~~1.82~~	~~130~~	~~2.60~~	~~170~~	~~3.37~~	~~210~~	~~4.14~~	~~250~~	~~4.90~~	~~290~~	~~5.66~~	~~330~~	~~6.42~~	~~370~~	~~7.17~~
~~11~~	~~0.23~~	~~51~~	~~1.05~~	~~91~~	~~1.84~~	~~131~~	~~2.62~~	~~171~~	~~3.39~~	~~211~~	~~4.16~~	~~251~~	~~4.92~~	~~291~~	~~5.68~~	~~331~~	~~6.44~~	~~371~~	~~7.19~~

~~12~~	~~0.26~~	~~52~~	~~1.07~~	~~92~~	~~1.86~~	~~132~~	~~2.64~~	~~172~~	~~3.41~~	~~212~~	~~4.18~~	~~252~~	~~4.94~~	~~292~~	~~5.70~~	~~332~~	~~6.46~~	~~372~~	~~7.21~~
~~13~~	~~0.28~~	~~53~~	~~1.09~~	~~93~~	~~1.88~~	~~133~~	~~2.66~~	~~173~~	~~3.43~~	~~213~~	~~4.20~~	~~253~~	~~4.96~~	~~293~~	~~5.72~~	~~333~~	~~6.48~~	~~373~~	~~7.23~~
~~14~~	~~0.30~~	~~54~~	~~1.11~~	~~94~~	~~1.90~~	~~134~~	~~2.68~~	~~174~~	~~3.45~~	~~214~~	~~4.22~~	~~254~~	~~4.98~~	~~294~~	~~5.74~~	~~334~~	~~6.50~~	~~374~~	~~7.25~~
~~15~~	~~0.32~~	~~55~~	~~1.13~~	~~95~~	~~1.92~~	~~135~~	~~2.70~~	~~175~~	~~3.47~~	~~215~~	~~4.24~~	~~255~~	~~5.00~~	~~295~~	~~5.76~~	~~335~~	~~6.51~~	~~375~~	~~7.27~~
~~16~~	~~0.34~~	~~56~~	~~1.15~~	~~96~~	~~1.94~~	~~136~~	~~2.72~~	~~176~~	~~3.49~~	~~216~~	~~4.26~~	~~256~~	~~5.02~~	~~296~~	~~5.78~~	~~336~~	~~6.53~~	~~376~~	~~7.29~~
~~17~~	~~0.36~~	~~57~~	~~1.17~~	~~97~~	~~1.95~~	~~137~~	~~2.73~~	~~177~~	~~3.51~~	~~217~~	~~4.27~~	~~257~~	~~5.04~~	~~297~~	~~5.80~~	~~337~~	~~6.55~~	~~377~~	~~7.30~~
~~18~~	~~0.38~~	~~58~~	~~1.19~~	~~98~~	~~1.97~~	~~138~~	~~2.75~~	~~178~~	~~3.53~~	~~218~~	~~4.29~~	~~258~~	~~5.06~~	~~298~~	~~5.81~~	~~338~~	~~6.57~~	~~378~~	~~7.32~~
~~19~~	~~0.40~~	~~59~~	~~1.21~~	~~99~~	~~1.99~~	~~139~~	~~2.77~~	~~179~~	~~3.55~~	~~219~~	~~4.31~~	~~259~~	~~5.08~~	~~299~~	~~5.83~~	~~339~~	~~6.59~~	~~379~~	~~7.34~~
~~20~~	~~0.42~~	~~60~~	~~1.23~~	~~100~~	~~2.01~~	~~140~~	~~2.79~~	~~180~~	~~3.56~~	~~220~~	~~4.33~~	~~260~~	~~5.09~~	~~300~~	~~5.85~~	~~340~~	~~6.61~~	~~380~~	~~7.36~~
~~21~~	~~0.44~~	~~61~~	~~1.25~~	~~101~~	~~2.03~~	~~141~~	~~2.81~~	~~181~~	~~3.58~~	~~221~~	~~4.35~~	~~261~~	~~5.11~~	~~301~~	~~5.87~~	~~341~~	~~6.63~~	~~381~~	~~7.38~~
~~22~~	~~0.46~~	~~62~~	~~1.26~~	~~102~~	~~2.05~~	~~142~~	~~2.83~~	~~182~~	~~3.60~~	~~222~~	~~4.37~~	~~262~~	~~5.13~~	~~302~~	~~5.89~~	~~342~~	~~6.65~~	~~382~~	~~7.40~~
~~23~~	~~0.48~~	~~63~~	~~1.28~~	~~103~~	~~2.07~~	~~143~~	~~2.85~~	~~183~~	~~3.62~~	~~223~~	~~4.39~~	~~263~~	~~5.15~~	~~303~~	~~5.91~~	~~343~~	~~6.66~~	~~383~~	~~7.42~~
~~24~~	~~0.50~~	~~64~~	~~1.30~~	~~104~~	~~2.09~~	~~144~~	~~2.87~~	~~184~~	~~3.64~~	~~224~~	~~4.41~~	~~264~~	~~5.17~~	~~304~~	~~5.93~~	~~344~~	~~6.68~~	~~384~~	~~7.44~~
~~25~~	~~0.52~~	~~65~~	~~1.32~~	~~105~~	~~2.11~~	~~145~~	~~2.89~~	~~185~~	~~3.66~~	~~225~~	~~4.43~~	~~265~~	~~5.19~~	~~305~~	~~5.95~~	~~345~~	~~6.70~~	~~385~~	~~7.45~~
~~26~~	~~0.54~~	~~66~~	~~1.34~~	~~106~~	~~2.13~~	~~146~~	~~2.91~~	~~186~~	~~3.68~~	~~226~~	~~4.45~~	~~266~~	~~5.21~~	~~306~~	~~5.97~~	~~346~~	~~6.72~~	~~386~~	~~7.47~~
~~27~~	~~0.56~~	~~67~~	~~1.36~~	~~107~~	~~2.15~~	~~147~~	~~2.93~~	~~187~~	~~3.70~~	~~227~~	~~4.47~~	~~267~~	~~5.23~~	~~307~~	~~5.99~~	~~347~~	~~6.74~~	~~387~~	~~7.49~~
~~28~~	~~0.58~~	~~68~~	~~1.38~~	~~108~~	~~2.17~~	~~148~~	~~2.95~~	~~188~~	~~3.72~~	~~228~~	~~4.48~~	~~268~~	~~5.25~~	~~308~~	~~6.00~~	~~348~~	~~6.76~~	~~388~~	~~7.51~~
~~29~~	~~0.60~~	~~69~~	~~1.40~~	~~109~~	~~2.19~~	~~149~~	~~2.97~~	~~189~~	~~3.74~~	~~229~~	~~4.50~~	~~269~~	~~5.27~~	~~309~~	~~6.02~~	~~349~~	~~6.78~~	~~389~~	~~7.53~~
~~30~~	~~0.62~~	~~70~~	~~1.42~~	~~110~~	~~2.21~~	~~150~~	~~2.99~~	~~190~~	~~3.76~~	~~230~~	~~4.52~~	~~270~~	~~5.28~~	~~310~~	~~6.04~~	~~350~~	~~6.80~~	~~390~~	~~7.55~~
~~31~~	~~0.64~~	~~71~~	~~1.44~~	~~111~~	~~2.23~~	~~151~~	~~3.01~~	~~191~~	~~3.78~~	~~231~~	~~4.54~~	~~271~~	~~5.30~~	~~311~~	~~6.06~~	~~351~~	~~6.82~~	~~391~~	~~7.57~~
~~32~~	~~0.66~~	~~72~~	~~1.46~~	~~112~~	~~2.25~~	~~152~~	~~3.03~~	~~192~~	~~3.80~~	~~232~~	~~4.56~~	~~272~~	~~5.32~~	~~312~~	~~6.08~~	~~352~~	~~6.83~~	~~392~~	~~7.59~~
~~33~~	~~0.68~~	~~73~~	~~1.48~~	~~113~~	~~2.27~~	~~153~~	~~3.04~~	~~193~~	~~3.81~~	~~233~~	~~4.58~~	~~273~~	~~5.34~~	~~313~~	~~6.10~~	~~353~~	~~6.85~~	~~393~~	~~7.60~~
~~34~~	~~0.70~~	~~74~~	~~1.50~~	~~114~~	~~2.29~~	~~154~~	~~3.06~~	~~194~~	~~3.83~~	~~234~~	~~4.60~~	~~274~~	~~5.36~~	~~314~~	~~6.12~~	~~354~~	~~6.87~~	~~394~~	~~7.62~~
~~35~~	~~0.72~~	~~75~~	~~1.52~~	~~115~~	~~2.31~~	~~155~~	~~3.08~~	~~195~~	~~3.85~~	~~235~~	~~4.62~~	~~275~~	~~5.38~~	~~315~~	~~6.14~~	~~355~~	~~6.89~~	~~395~~	~~7.64~~
~~36~~	~~0.75~~	~~76~~	~~1.54~~	~~116~~	~~2.33~~	~~156~~	~~3.10~~	~~196~~	~~3.87~~	~~236~~	~~4.64~~	~~276~~	~~5.40~~	~~316~~	~~6.16~~	~~356~~	~~6.91~~	~~396~~	~~7.66~~
~~37~~	~~0.77~~	~~77~~	~~1.56~~	~~117~~	~~2.35~~	~~157~~	~~3.12~~	~~197~~	~~3.89~~	~~237~~	~~4.66~~	~~277~~	~~5.42~~	~~317~~	~~6.17~~	~~357~~	~~6.93~~	~~397~~	~~7.68~~
~~38~~	~~0.79~~	~~78~~	~~1.58~~	~~118~~	~~2.37~~	~~158~~	~~3.14~~	~~198~~	~~3.91~~	~~238~~	~~4.68~~	~~278~~	~~5.44~~	~~318~~	~~6.19~~	~~358~~	~~6.95~~	~~398~~	~~7.70~~
~~39~~	~~0.81~~	~~79~~	~~1.60~~	~~119~~	~~2.38~~	~~159~~	~~3.16~~	~~199~~	~~3.93~~	~~239~~	~~4.69~~	~~279~~	~~5.45~~	~~319~~	~~6.21~~	~~359~~	~~6.97~~	~~399~~	~~7.72~~
~~40~~	~~0.83~~	~~80~~	~~1.62~~	~~120~~	~~2.40~~	~~160~~	~~3.18~~	~~200~~	~~3.95~~	~~240~~	~~4.71~~	~~280~~	~~5.47~~	~~320~~	~~6.23~~	~~360~~	~~6.98~~	~~400~~	~~7.74~~

Table 2. Acute Water Quality Standards for Dissolved Cadmium

Aquatic and Wildlife coldwater		**Aquatic and Wildlife warmwater, and edw**		**Aquatic and Wildlife ephemeral**	
Hard. mg/L	**Std. µg/L**	**Hard. mg/L**	**Std. µg/L**	**Hard. mg/L**	**Std. µg/L.**
20	0.42	20	0.74	20	11.3
100	2.0	100	4.3	100	64.6
400	7.7	400	19.1	400	290
$e^{(1.0166*LN(Hardness)-3.924)}*(1.136672-LN(Hardness)*0.041838)$		$e^{(1.128*LN(Hardness)-3.6867)}*(1.136672-LN(Hardness)*0.041838)$		$e^{(1.128*LN(Hardness)-0.9691)}*(1.136672-LN(Hardness)*0.041838)$	

~~Table 3. Chronic Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife coldwater~~

~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~
~~1~~	~~0.01~~	~~41~~	~~0.13~~	~~81~~	~~0.21~~	~~121~~	~~0.28~~	~~161~~	~~0.34~~	~~201~~	~~0.40~~	~~241~~	~~0.45~~	~~281~~	~~0.50~~	~~321~~	~~0.55~~	~~361~~	~~0.60~~
~~2~~	~~0.02~~	~~42~~	~~0.13~~	~~82~~	~~0.21~~	~~122~~	~~0.28~~	~~162~~	~~0.34~~	~~202~~	~~0.40~~	~~242~~	~~0.45~~	~~282~~	~~0.50~~	~~322~~	~~0.55~~	~~362~~	~~0.60~~
~~3~~	~~0.02~~	~~43~~	~~0.14~~	~~83~~	~~0.22~~	~~123~~	~~0.28~~	~~163~~	~~0.35~~	~~203~~	~~0.40~~	~~243~~	~~0.46~~	~~283~~	~~0.51~~	~~323~~	~~0.55~~	~~363~~	~~0.60~~
~~4~~	~~0.03~~	~~44~~	~~0.14~~	~~84~~	~~0.22~~	~~124~~	~~0.29~~	~~164~~	~~0.35~~	~~204~~	~~0.40~~	~~244~~	~~0.46~~	~~284~~	~~0.51~~	~~324~~	~~0.56~~	~~364~~	~~0.60~~
~~5~~	~~0.03~~	~~45~~	~~0.14~~	~~85~~	~~0.22~~	~~125~~	~~0.29~~	~~165~~	~~0.35~~	~~205~~	~~0.40~~	~~245~~	~~0.46~~	~~285~~	~~0.51~~	~~325~~	~~0.56~~	~~365~~	~~0.60~~
~~6~~	~~0.03~~	~~46~~	~~0.14~~	~~86~~	~~0.22~~	~~126~~	~~0.29~~	~~166~~	~~0.35~~	~~206~~	~~0.41~~	~~246~~	~~0.46~~	~~286~~	~~0.51~~	~~326~~	~~0.56~~	~~366~~	~~0.60~~
~~7~~	~~0.04~~	~~47~~	~~0.15~~	~~87~~	~~0.22~~	~~127~~	~~0.29~~	~~167~~	~~0.35~~	~~207~~	~~0.41~~	~~247~~	~~0.46~~	~~287~~	~~0.51~~	~~327~~	~~0.56~~	~~367~~	~~0.61~~
~~8~~	~~0.04~~	~~48~~	~~0.15~~	~~88~~	~~0.23~~	~~128~~	~~0.29~~	~~168~~	~~0.35~~	~~208~~	~~0.41~~	~~248~~	~~0.46~~	~~288~~	~~0.51~~	~~328~~	~~0.56~~	~~368~~	~~0.61~~
~~9~~	~~0.05~~	~~49~~	~~0.15~~	~~89~~	~~0.23~~	~~129~~	~~0.29~~	~~169~~	~~0.35~~	~~209~~	~~0.41~~	~~249~~	~~0.46~~	~~289~~	~~0.51~~	~~329~~	~~0.56~~	~~369~~	~~0.61~~
~~10~~	~~0.05~~	~~50~~	~~0.15~~	~~90~~	~~0.23~~	~~130~~	~~0.30~~	~~170~~	~~0.36~~	~~210~~	~~0.41~~	~~250~~	~~0.46~~	~~290~~	~~0.51~~	~~330~~	~~0.56~~	~~370~~	~~0.61~~
~~11~~	~~0.05~~	~~51~~	~~0.15~~	~~91~~	~~0.23~~	~~131~~	~~0.30~~	~~171~~	~~0.36~~	~~211~~	~~0.41~~	~~251~~	~~0.47~~	~~291~~	~~0.52~~	~~331~~	~~0.56~~	~~371~~	~~0.61~~
~~12~~	~~0.06~~	~~52~~	~~0.16~~	~~92~~	~~0.23~~	~~132~~	~~0.30~~	~~172~~	~~0.36~~	~~212~~	~~0.41~~	~~252~~	~~0.47~~	~~292~~	~~0.52~~	~~332~~	~~0.57~~	~~372~~	~~0.61~~
~~13~~	~~0.06~~	~~53~~	~~0.16~~	~~93~~	~~0.23~~	~~133~~	~~0.30~~	~~173~~	~~0.36~~	~~213~~	~~0.42~~	~~253~~	~~0.47~~	~~293~~	~~0.52~~	~~333~~	~~0.57~~	~~373~~	~~0.61~~
~~14~~	~~0.06~~	~~54~~	~~0.16~~	~~94~~	~~0.24~~	~~134~~	~~0.30~~	~~174~~	~~0.36~~	~~214~~	~~0.42~~	~~254~~	~~0.47~~	~~294~~	~~0.52~~	~~334~~	~~0.57~~	~~374~~	~~0.61~~
~~15~~	~~0.07~~	~~55~~	~~0.16~~	~~95~~	~~0.24~~	~~135~~	~~0.30~~	~~175~~	~~0.36~~	~~215~~	~~0.42~~	~~255~~	~~0.47~~	~~295~~	~~0.52~~	~~335~~	~~0.57~~	~~375~~	~~0.62~~
~~16~~	~~0.07~~	~~56~~	~~0.16~~	~~96~~	~~0.24~~	~~136~~	~~0.30~~	~~176~~	~~0.36~~	~~216~~	~~0.42~~	~~256~~	~~0.47~~	~~296~~	~~0.52~~	~~336~~	~~0.57~~	~~376~~	~~0.62~~
~~17~~	~~0.07~~	~~57~~	~~0.17~~	~~97~~	~~0.24~~	~~137~~	~~0.31~~	~~177~~	~~0.37~~	~~217~~	~~0.42~~	~~257~~	~~0.47~~	~~297~~	~~0.52~~	~~337~~	~~0.57~~	~~377~~	~~0.62~~
~~18~~	~~0.07~~	~~58~~	~~0.17~~	~~98~~	~~0.24~~	~~138~~	~~0.31~~	~~178~~	~~0.37~~	~~218~~	~~0.42~~	~~258~~	~~0.47~~	~~298~~	~~0.52~~	~~338~~	~~0.57~~	~~378~~	~~0.62~~
~~19~~	~~0.08~~	~~59~~	~~0.17~~	~~99~~	~~0.24~~	~~139~~	~~0.31~~	~~179~~	~~0.37~~	~~219~~	~~0.42~~	~~259~~	~~0.48~~	~~299~~	~~0.53~~	~~339~~	~~0.57~~	~~379~~	~~0.62~~
~~20~~	~~0.08~~	~~60~~	~~0.17~~	~~100~~	~~0.25~~	~~140~~	~~0.31~~	~~180~~	~~0.37~~	~~220~~	~~0.43~~	~~260~~	~~0.48~~	~~300~~	~~0.53~~	~~340~~	~~0.57~~	~~380~~	~~0.62~~
~~21~~	~~0.08~~	~~61~~	~~0.17~~	~~101~~	~~0.25~~	~~141~~	~~0.31~~	~~181~~	~~0.37~~	~~221~~	~~0.43~~	~~261~~	~~0.48~~	~~301~~	~~0.53~~	~~341~~	~~0.58~~	~~381~~	~~0.62~~
~~22~~	~~0.09~~	~~62~~	~~0.18~~	~~102~~	~~0.25~~	~~142~~	~~0.31~~	~~182~~	~~0.37~~	~~222~~	~~0.43~~	~~262~~	~~0.48~~	~~302~~	~~0.53~~	~~342~~	~~0.58~~	~~382~~	~~0.62~~
~~23~~	~~0.09~~	~~63~~	~~0.18~~	~~103~~	~~0.25~~	~~143~~	~~0.32~~	~~183~~	~~0.37~~	~~223~~	~~0.43~~	~~263~~	~~0.48~~	~~303~~	~~0.53~~	~~343~~	~~0.58~~	~~383~~	~~0.62~~
~~24~~	~~0.09~~	~~64~~	~~0.18~~	~~104~~	~~0.25~~	~~144~~	~~0.32~~	~~184~~	~~0.38~~	~~224~~	~~0.43~~	~~264~~	~~0.48~~	~~304~~	~~0.53~~	~~344~~	~~0.58~~	~~384~~	~~0.63~~
~~25~~	~~0.09~~	~~65~~	~~0.18~~	~~105~~	~~0.25~~	~~145~~	~~0.32~~	~~185~~	~~0.38~~	~~225~~	~~0.43~~	~~265~~	~~0.48~~	~~305~~	~~0.53~~	~~345~~	~~0.58~~	~~385~~	~~0.63~~
~~26~~	~~0.10~~	~~66~~	~~0.18~~	~~106~~	~~0.26~~	~~146~~	~~0.32~~	~~186~~	~~0.38~~	~~226~~	~~0.43~~	~~266~~	~~0.48~~	~~306~~	~~0.53~~	~~346~~	~~0.58~~	~~386~~	~~0.63~~
~~27~~	~~0.10~~	~~67~~	~~0.19~~	~~107~~	~~0.26~~	~~147~~	~~0.32~~	~~187~~	~~0.38~~	~~227~~	~~0.43~~	~~267~~	~~0.49~~	~~307~~	~~0.54~~	~~347~~	~~0.58~~	~~387~~	~~0.63~~
~~28~~	~~0.10~~	~~68~~	~~0.19~~	~~108~~	~~0.26~~	~~148~~	~~0.32~~	~~188~~	~~0.38~~	~~228~~	~~0.44~~	~~268~~	~~0.49~~	~~308~~	~~0.54~~	~~348~~	~~0.58~~	~~388~~	~~0.63~~
~~29~~	~~0.10~~	~~69~~	~~0.19~~	~~109~~	~~0.26~~	~~149~~	~~0.32~~	~~189~~	~~0.38~~	~~229~~	~~0.44~~	~~269~~	~~0.49~~	~~309~~	~~0.54~~	~~349~~	~~0.59~~	~~389~~	~~0.63~~
~~30~~	~~0.11~~	~~70~~	~~0.19~~	~~110~~	~~0.26~~	~~150~~	~~0.33~~	~~190~~	~~0.38~~	~~230~~	~~0.44~~	~~270~~	~~0.49~~	~~310~~	~~0.54~~	~~350~~	~~0.59~~	~~390~~	~~0.63~~
~~31~~	~~0.11~~	~~71~~	~~0.19~~	~~111~~	~~0.26~~	~~151~~	~~0.33~~	~~191~~	~~0.39~~	~~231~~	~~0.44~~	~~271~~	~~0.49~~	~~311~~	~~0.54~~	~~351~~	~~0.59~~	~~391~~	~~0.63~~
~~32~~	~~0.11~~	~~72~~	~~0.20~~	~~112~~	~~0.27~~	~~152~~	~~0.33~~	~~192~~	~~0.39~~	~~232~~	~~0.44~~	~~272~~	~~0.49~~	~~312~~	~~0.54~~	~~352~~	~~0.59~~	~~392~~	~~0.63~~
~~33~~	~~0.11~~	~~73~~	~~0.20~~	~~113~~	~~0.27~~	~~153~~	~~0.33~~	~~193~~	~~0.39~~	~~233~~	~~0.44~~	~~273~~	~~0.49~~	~~313~~	~~0.54~~	~~353~~	~~0.59~~	~~393~~	~~0.64~~
~~34~~	~~0.12~~	~~74~~	~~0.20~~	~~114~~	~~0.27~~	~~154~~	~~0.33~~	~~194~~	~~0.39~~	~~234~~	~~0.44~~	~~274~~	~~0.50~~	~~314~~	~~0.54~~	~~354~~	~~0.59~~	~~394~~	~~0.64~~
~~35~~	~~0.12~~	~~75~~	~~0.20~~	~~115~~	~~0.27~~	~~155~~	~~0.33~~	~~195~~	~~0.39~~	~~235~~	~~0.45~~	~~275~~	~~0.50~~	~~315~~	~~0.55~~	~~355~~	~~0.59~~	~~395~~	~~0.64~~
~~36~~	~~0.12~~	~~76~~	~~0.20~~	~~116~~	~~0.27~~	~~156~~	~~0.33~~	~~196~~	~~0.39~~	~~236~~	~~0.45~~	~~276~~	~~0.50~~	~~316~~	~~0.55~~	~~356~~	~~0.59~~	~~396~~	~~0.64~~

~~37~~	~~0.12~~	~~77~~	~~0.21~~	~~117~~	~~0.27~~	~~157~~	~~0.34~~	~~197~~	~~0.39~~	~~237~~	~~0.45~~	~~277~~	~~0.50~~	~~317~~	~~0.55~~	~~357~~	~~0.59~~	~~397~~	~~0.64~~
~~38~~	~~0.13~~	~~78~~	~~0.21~~	~~118~~	~~0.28~~	~~158~~	~~0.34~~	~~198~~	~~0.40~~	~~238~~	~~0.45~~	~~278~~	~~0.50~~	~~318~~	~~0.55~~	~~358~~	~~0.60~~	~~398~~	~~0.64~~
~~39~~	~~0.13~~	~~79~~	~~0.21~~	~~119~~	~~0.28~~	~~159~~	~~0.34~~	~~199~~	~~0.40~~	~~239~~	~~0.45~~	~~279~~	~~0.50~~	~~319~~	~~0.55~~	~~359~~	~~0.60~~	~~399~~	~~0.64~~
~~40~~	~~0.13~~	~~80~~	~~0.21~~	~~120~~	~~0.28~~	~~160~~	~~0.34~~	~~200~~	~~0.40~~	~~240~~	~~0.45~~	~~280~~	~~0.50~~	~~320~~	~~0.55~~	~~360~~	~~0.60~~	~~400~~	~~0.64~~

Table 3. Chronic Water Quality Standards for Dissolved Cadmium

Aquatic and Wildlife coldwater			Aquatic and Wildlife warmwater, and edw	
Hard. mg/L	Std. µg/L		Hard. mg/L	Std. µg/L
20	0.08		20	0.68
100	0.25		100	2.2
400	0.64		400	6.2
$e^{(0.7409*LN(Hardness)-4.719)}*(1.101672-LN(Hardness)*0.041838)$			$e^{(0.7852*LN(Hardness)-2.715)}*(1.101672-LN(Hardness)*0.041838)$	

~~**Table 4. Acute Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife warmwater, and edw**~~

~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~
~~1~~	~~0.09~~	~~41~~	~~3.30~~	~~81~~	~~6.41~~	~~121~~	~~9.47~~	~~161~~	~~12.50~~	~~201~~	~~15.51~~	~~241~~	~~18.49~~	~~281~~	~~21.47~~	~~321~~	~~24.42~~	~~361~~	~~27.37~~
~~2~~	~~0.17~~	~~42~~	~~3.38~~	~~82~~	~~6.49~~	~~122~~	~~9.55~~	~~162~~	~~12.58~~	~~202~~	~~15.58~~	~~242~~	~~18.57~~	~~282~~	~~21.54~~	~~322~~	~~24.50~~	~~362~~	~~27.44~~
~~3~~	~~0.26~~	~~43~~	~~3.46~~	~~83~~	~~6.57~~	~~123~~	~~9.62~~	~~163~~	~~12.65~~	~~203~~	~~15.66~~	~~243~~	~~18.64~~	~~283~~	~~21.61~~	~~323~~	~~24.57~~	~~363~~	~~27.52~~
~~4~~	~~0.34~~	~~44~~	~~3.54~~	~~84~~	~~6.64~~	~~124~~	~~9.70~~	~~164~~	~~12.73~~	~~204~~	~~15.73~~	~~244~~	~~18.72~~	~~284~~	~~21.69~~	~~324~~	~~24.64~~	~~364~~	~~27.59~~
~~5~~	~~0.42~~	~~45~~	~~3.62~~	~~85~~	~~6.72~~	~~125~~	~~9.78~~	~~165~~	~~12.80~~	~~205~~	~~15.81~~	~~245~~	~~18.79~~	~~285~~	~~21.76~~	~~325~~	~~24.72~~	~~365~~	~~27.66~~
~~6~~	~~0.51~~	~~46~~	~~3.70~~	~~86~~	~~6.80~~	~~126~~	~~9.85~~	~~166~~	~~12.88~~	~~206~~	~~15.88~~	~~246~~	~~18.87~~	~~286~~	~~21.84~~	~~326~~	~~24.79~~	~~366~~	~~27.74~~
~~7~~	~~0.59~~	~~47~~	~~3.77~~	~~87~~	~~6.87~~	~~127~~	~~9.93~~	~~167~~	~~12.95~~	~~207~~	~~15.96~~	~~247~~	~~18.94~~	~~287~~	~~21.91~~	~~327~~	~~24.87~~	~~367~~	~~27.81~~
~~8~~	~~0.67~~	~~48~~	~~3.85~~	~~88~~	~~6.95~~	~~128~~	~~10.00~~	~~168~~	~~13.03~~	~~208~~	~~16.03~~	~~248~~	~~19.02~~	~~288~~	~~21.98~~	~~328~~	~~24.94~~	~~368~~	~~27.88~~
~~9~~	~~0.75~~	~~49~~	~~3.93~~	~~89~~	~~7.03~~	~~129~~	~~10.08~~	~~169~~	~~13.10~~	~~209~~	~~16.11~~	~~249~~	~~19.09~~	~~289~~	~~22.06~~	~~329~~	~~25.01~~	~~369~~	~~27.96~~
~~10~~	~~0.83~~	~~50~~	~~4.01~~	~~90~~	~~7.10~~	~~130~~	~~10.16~~	~~170~~	~~13.18~~	~~210~~	~~16.18~~	~~250~~	~~19.16~~	~~290~~	~~22.13~~	~~330~~	~~25.09~~	~~370~~	~~28.03~~
~~11~~	~~0.92~~	~~51~~	~~4.09~~	~~91~~	~~7.18~~	~~131~~	~~10.23~~	~~171~~	~~13.25~~	~~211~~	~~16.26~~	~~251~~	~~19.24~~	~~291~~	~~22.21~~	~~331~~	~~25.16~~	~~371~~	~~28.10~~
~~12~~	~~1.00~~	~~52~~	~~4.17~~	~~92~~	~~7.26~~	~~132~~	~~10.31~~	~~172~~	~~13.33~~	~~212~~	~~16.33~~	~~252~~	~~19.31~~	~~292~~	~~22.28~~	~~332~~	~~25.23~~	~~372~~	~~28.18~~
~~13~~	~~1.08~~	~~53~~	~~4.24~~	~~93~~	~~7.33~~	~~133~~	~~10.38~~	~~173~~	~~13.40~~	~~213~~	~~16.40~~	~~253~~	~~19.39~~	~~293~~	~~22.35~~	~~333~~	~~25.31~~	~~373~~	~~28.25~~
~~14~~	~~1.16~~	~~54~~	~~4.32~~	~~94~~	~~7.41~~	~~134~~	~~10.46~~	~~174~~	~~13.48~~	~~214~~	~~16.48~~	~~254~~	~~19.46~~	~~294~~	~~22.43~~	~~334~~	~~25.38~~	~~374~~	~~28.32~~
~~15~~	~~1.24~~	~~55~~	~~4.40~~	~~95~~	~~7.49~~	~~135~~	~~10.53~~	~~175~~	~~13.56~~	~~215~~	~~16.55~~	~~255~~	~~19.54~~	~~295~~	~~22.50~~	~~335~~	~~25.46~~	~~375~~	~~28.40~~
~~16~~	~~1.32~~	~~56~~	~~4.48~~	~~96~~	~~7.56~~	~~136~~	~~10.61~~	~~176~~	~~13.63~~	~~216~~	~~16.63~~	~~256~~	~~19.61~~	~~296~~	~~22.58~~	~~336~~	~~25.53~~	~~376~~	~~28.47~~
~~17~~	~~1.40~~	~~57~~	~~4.55~~	~~97~~	~~7.64~~	~~137~~	~~10.69~~	~~177~~	~~13.71~~	~~217~~	~~16.70~~	~~257~~	~~19.68~~	~~297~~	~~22.65~~	~~337~~	~~25.60~~	~~377~~	~~28.54~~
~~18~~	~~1.48~~	~~58~~	~~4.63~~	~~98~~	~~7.72~~	~~138~~	~~10.76~~	~~178~~	~~13.78~~	~~218~~	~~16.78~~	~~258~~	~~19.76~~	~~298~~	~~22.72~~	~~338~~	~~25.68~~	~~378~~	~~28.62~~
~~19~~	~~1.56~~	~~59~~	~~4.71~~	~~99~~	~~7.79~~	~~139~~	~~10.84~~	~~179~~	~~13.86~~	~~219~~	~~16.85~~	~~259~~	~~19.83~~	~~299~~	~~22.80~~	~~339~~	~~25.75~~	~~379~~	~~28.69~~
~~20~~	~~1.64~~	~~60~~	~~4.79~~	~~100~~	~~7.87~~	~~140~~	~~10.91~~	~~180~~	~~13.93~~	~~220~~	~~16.93~~	~~260~~	~~19.91~~	~~300~~	~~22.87~~	~~340~~	~~25.82~~	~~380~~	~~28.77~~
~~21~~	~~1.72~~	~~61~~	~~4.87~~	~~101~~	~~7.95~~	~~141~~	~~10.99~~	~~181~~	~~14.01~~	~~221~~	~~17.00~~	~~261~~	~~19.98~~	~~301~~	~~22.95~~	~~341~~	~~25.90~~	~~381~~	~~28.84~~
~~22~~	~~1.80~~	~~62~~	~~4.94~~	~~102~~	~~8.02~~	~~142~~	~~11.07~~	~~182~~	~~14.08~~	~~222~~	~~17.08~~	~~262~~	~~20.06~~	~~302~~	~~23.02~~	~~342~~	~~25.97~~	~~382~~	~~28.91~~
~~23~~	~~1.88~~	~~63~~	~~5.02~~	~~103~~	~~8.10~~	~~143~~	~~11.14~~	~~183~~	~~14.16~~	~~223~~	~~17.15~~	~~263~~	~~20.13~~	~~303~~	~~23.09~~	~~343~~	~~26.05~~	~~383~~	~~28.99~~
~~24~~	~~1.96~~	~~64~~	~~5.10~~	~~104~~	~~8.18~~	~~144~~	~~11.22~~	~~184~~	~~14.23~~	~~224~~	~~17.23~~	~~264~~	~~20.20~~	~~304~~	~~23.17~~	~~344~~	~~26.12~~	~~384~~	~~29.06~~

~~25~~	~~2.04~~	~~65~~	~~5.18~~	~~105~~	~~8.25~~	~~145~~	~~11.29~~	~~185~~	~~14.31~~	~~225~~	~~17.30~~	~~265~~	~~20.28~~	~~305~~	~~23.24~~	~~345~~	~~26.19~~	~~385~~	~~29.13~~
~~26~~	~~2.12~~	~~66~~	~~5.25~~	~~106~~	~~8.33~~	~~146~~	~~11.37~~	~~186~~	~~14.38~~	~~226~~	~~17.38~~	~~266~~	~~20.35~~	~~306~~	~~23.32~~	~~346~~	~~26.27~~	~~386~~	~~29.21~~
~~27~~	~~2.20~~	~~67~~	~~5.33~~	~~107~~	~~8.40~~	~~147~~	~~11.44~~	~~187~~	~~14.46~~	~~227~~	~~17.45~~	~~267~~	~~20.43~~	~~307~~	~~23.39~~	~~347~~	~~26.34~~	~~387~~	~~29.28~~
~~28~~	~~2.28~~	~~68~~	~~5.41~~	~~108~~	~~8.48~~	~~148~~	~~11.52~~	~~188~~	~~14.53~~	~~228~~	~~17.53~~	~~268~~	~~20.50~~	~~308~~	~~23.46~~	~~348~~	~~26.41~~	~~388~~	~~29.35~~
~~29~~	~~2.36~~	~~69~~	~~5.49~~	~~109~~	~~8.56~~	~~149~~	~~11.59~~	~~189~~	~~14.61~~	~~229~~	~~17.60~~	~~269~~	~~20.58~~	~~309~~	~~23.54~~	~~349~~	~~26.49~~	~~389~~	~~29.43~~
~~30~~	~~2.44~~	~~70~~	~~5.56~~	~~110~~	~~8.63~~	~~150~~	~~11.67~~	~~190~~	~~14.68~~	~~230~~	~~17.67~~	~~270~~	~~20.65~~	~~310~~	~~23.61~~	~~350~~	~~26.56~~	~~390~~	~~29.50~~
~~31~~	~~2.52~~	~~71~~	~~5.64~~	~~111~~	~~8.71~~	~~151~~	~~11.75~~	~~191~~	~~14.76~~	~~231~~	~~17.75~~	~~271~~	~~20.72~~	~~311~~	~~23.69~~	~~351~~	~~26.63~~	~~391~~	~~29.57~~
~~32~~	~~2.60~~	~~72~~	~~5.72~~	~~112~~	~~8.79~~	~~152~~	~~11.82~~	~~192~~	~~14.83~~	~~232~~	~~17.82~~	~~272~~	~~20.80~~	~~312~~	~~23.76~~	~~352~~	~~26.71~~	~~392~~	~~29.65~~
~~33~~	~~2.67~~	~~73~~	~~5.79~~	~~113~~	~~8.86~~	~~153~~	~~11.90~~	~~193~~	~~14.91~~	~~233~~	~~17.90~~	~~273~~	~~20.87~~	~~313~~	~~23.83~~	~~353~~	~~26.78~~	~~393~~	~~29.72~~
~~34~~	~~2.75~~	~~74~~	~~5.87~~	~~114~~	~~8.94~~	~~154~~	~~11.97~~	~~194~~	~~14.98~~	~~234~~	~~17.97~~	~~274~~	~~20.95~~	~~314~~	~~23.91~~	~~354~~	~~26.85~~	~~394~~	~~29.79~~
~~35~~	~~2.83~~	~~75~~	~~5.95~~	~~115~~	~~9.01~~	~~155~~	~~12.05~~	~~195~~	~~15.06~~	~~235~~	~~18.05~~	~~275~~	~~21.02~~	~~315~~	~~23.98~~	~~355~~	~~26.93~~	~~395~~	~~29.87~~
~~36~~	~~2.91~~	~~76~~	~~6.03~~	~~116~~	~~9.09~~	~~156~~	~~12.12~~	~~196~~	~~15.13~~	~~236~~	~~18.12~~	~~276~~	~~21.09~~	~~316~~	~~24.05~~	~~356~~	~~27.00~~	~~396~~	~~29.94~~
~~37~~	~~2.99~~	~~77~~	~~6.10~~	~~117~~	~~9.17~~	~~157~~	~~12.20~~	~~197~~	~~15.21~~	~~237~~	~~18.20~~	~~277~~	~~21.17~~	~~317~~	~~24.13~~	~~357~~	~~27.08~~	~~397~~	~~30.01~~
~~38~~	~~3.07~~	~~78~~	~~6.18~~	~~118~~	~~9.24~~	~~158~~	~~12.27~~	~~198~~	~~15.28~~	~~238~~	~~18.27~~	~~278~~	~~21.24~~	~~318~~	~~24.20~~	~~358~~	~~27.15~~	~~398~~	~~30.08~~
~~39~~	~~3.15~~	~~79~~	~~6.26~~	~~119~~	~~9.32~~	~~159~~	~~12.35~~	~~199~~	~~15.36~~	~~239~~	~~18.35~~	~~279~~	~~21.32~~	~~319~~	~~24.28~~	~~359~~	~~27.22~~	~~399~~	~~30.16~~
~~40~~	~~3.23~~	~~80~~	~~6.33~~	~~120~~	~~9.40~~	~~160~~	~~12.43~~	~~200~~	~~15.43~~	~~240~~	~~18.42~~	~~280~~	~~21.39~~	~~320~~	~~24.35~~	~~360~~	~~27.30~~	~~400~~	~~30.23~~

Table 4. Water Quality Standards for Dissolved Chromium III

Acute Aquatic and Wildlife coldwater, warmwater and edw		Chronic Aquatic and Wildlife coldwater, warmwater and edw		Acute Aquatic and Wildlife ephemeral	
Hard. mg/L	**Std. µg/L**	**Hard. mg/L**	**Std. µg/L**	**Hard. mg/L**	**Std. µg/L**
20	152	20	19.8	20	512
100	570	100	74.1	100	1912
400	1773	400	231	400	5950
$e^{(0.819*LN(Hardness)+3.7256)}*(0.316)$		$e^{(0.819*LN(Hardness)+0.6848)}*(0.86)$		$e^{(0.819*LN(Hardness)+4.9361)}*(0.316)$	

~~**Table 5. Chronic Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife warmwater, and edw**~~

~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~STD. µG/L~~
~~1~~	~~0.02~~	~~41~~	~~0.30~~	~~81~~	~~0.48~~	~~121~~	~~0.64~~	~~161~~	~~0.78~~	~~201~~	~~0.91~~	~~241~~	~~1.03~~	~~281~~	~~1.15~~	~~321~~	~~1.26~~	~~361~~	~~1.37~~
~~2~~	~~0.04~~	~~42~~	~~0.31~~	~~82~~	~~0.49~~	~~122~~	~~0.64~~	~~162~~	~~0.78~~	~~202~~	~~0.91~~	~~242~~	~~1.04~~	~~282~~	~~1.15~~	~~322~~	~~1.26~~	~~362~~	~~1.37~~
~~3~~	~~0.05~~	~~43~~	~~0.31~~	~~83~~	~~0.49~~	~~123~~	~~0.65~~	~~163~~	~~0.79~~	~~203~~	~~0.92~~	~~243~~	~~1.04~~	~~283~~	~~1.16~~	~~323~~	~~1.27~~	~~363~~	~~1.37~~
~~4~~	~~0.06~~	~~44~~	~~0.32~~	~~84~~	~~0.50~~	~~124~~	~~0.65~~	~~164~~	~~0.79~~	~~204~~	~~0.92~~	~~244~~	~~1.04~~	~~284~~	~~1.16~~	~~324~~	~~1.27~~	~~364~~	~~1.38~~
~~5~~	~~0.07~~	~~45~~	~~0.32~~	~~85~~	~~0.50~~	~~125~~	~~0.66~~	~~165~~	~~0.79~~	~~205~~	~~0.92~~	~~245~~	~~1.05~~	~~285~~	~~1.16~~	~~325~~	~~1.27~~	~~365~~	~~1.38~~
~~6~~	~~0.08~~	~~46~~	~~0.33~~	~~86~~	~~0.51~~	~~126~~	~~0.66~~	~~166~~	~~0.80~~	~~206~~	~~0.93~~	~~246~~	~~1.05~~	~~286~~	~~1.16~~	~~326~~	~~1.27~~	~~366~~	~~1.38~~
~~7~~	~~0.09~~	~~47~~	~~0.33~~	~~87~~	~~0.51~~	~~127~~	~~0.66~~	~~167~~	~~0.80~~	~~207~~	~~0.93~~	~~247~~	~~1.05~~	~~287~~	~~1.17~~	~~327~~	~~1.28~~	~~367~~	~~1.38~~
~~8~~	~~0.10~~	~~48~~	~~0.34~~	~~88~~	~~0.51~~	~~128~~	~~0.67~~	~~168~~	~~0.80~~	~~208~~	~~0.93~~	~~248~~	~~1.05~~	~~288~~	~~1.17~~	~~328~~	~~1.28~~	~~368~~	~~1.39~~
~~9~~	~~0.10~~	~~49~~	~~0.34~~	~~89~~	~~0.52~~	~~129~~	~~0.67~~	~~169~~	~~0.81~~	~~209~~	~~0.94~~	~~249~~	~~1.06~~	~~289~~	~~1.17~~	~~329~~	~~1.28~~	~~369~~	~~1.39~~
~~10~~	~~0.11~~	~~50~~	~~0.35~~	~~90~~	~~0.52~~	~~130~~	~~0.67~~	~~170~~	~~0.81~~	~~210~~	~~0.94~~	~~250~~	~~1.06~~	~~290~~	~~1.17~~	~~330~~	~~1.28~~	~~370~~	~~1.39~~

~~11~~	~~0.12~~	~~51~~	~~0.35~~	~~91~~	~~0.53~~	~~131~~	~~0.68~~	~~171~~	~~0.81~~	~~211~~	~~0.94~~	~~251~~	~~1.06~~	~~291~~	~~1.18~~	~~331~~	~~1.29~~	~~371~~	~~1.39~~
~~12~~	~~0.13~~	~~52~~	~~0.36~~	~~92~~	~~0.53~~	~~132~~	~~0.68~~	~~172~~	~~0.82~~	~~212~~	~~0.95~~	~~252~~	~~1.07~~	~~292~~	~~1.18~~	~~332~~	~~1.29~~	~~372~~	~~1.40~~
~~13~~	~~0.14~~	~~53~~	~~0.36~~	~~93~~	~~0.53~~	~~133~~	~~0.68~~	~~173~~	~~0.82~~	~~213~~	~~0.95~~	~~253~~	~~1.07~~	~~293~~	~~1.18~~	~~333~~	~~1.29~~	~~373~~	~~1.40~~
~~14~~	~~0.14~~	~~54~~	~~0.37~~	~~94~~	~~0.54~~	~~134~~	~~0.69~~	~~174~~	~~0.82~~	~~214~~	~~0.95~~	~~254~~	~~1.07~~	~~294~~	~~1.19~~	~~334~~	~~1.30~~	~~374~~	~~1.40~~
~~15~~	~~0.15~~	~~55~~	~~0.37~~	~~95~~	~~0.54~~	~~135~~	~~0.69~~	~~175~~	~~0.83~~	~~215~~	~~0.95~~	~~255~~	~~1.07~~	~~295~~	~~1.19~~	~~335~~	~~1.30~~	~~375~~	~~1.40~~
~~16~~	~~0.16~~	~~56~~	~~0.38~~	~~96~~	~~0.55~~	~~136~~	~~0.69~~	~~176~~	~~0.83~~	~~216~~	~~0.96~~	~~256~~	~~1.08~~	~~296~~	~~1.19~~	~~336~~	~~1.30~~	~~376~~	~~1.41~~
~~17~~	~~0.16~~	~~57~~	~~0.38~~	~~97~~	~~0.55~~	~~137~~	~~0.70~~	~~177~~	~~0.83~~	~~217~~	~~0.96~~	~~257~~	~~1.08~~	~~297~~	~~1.19~~	~~337~~	~~1.30~~	~~377~~	~~1.41~~
~~18~~	~~0.17~~	~~58~~	~~0.38~~	~~98~~	~~0.55~~	~~138~~	~~0.70~~	~~178~~	~~0.84~~	~~218~~	~~0.96~~	~~258~~	~~1.08~~	~~298~~	~~1.20~~	~~338~~	~~1.31~~	~~378~~	~~1.41~~
~~19~~	~~0.18~~	~~59~~	~~0.39~~	~~99~~	~~0.56~~	~~139~~	~~0.71~~	~~179~~	~~0.84~~	~~219~~	~~0.97~~	~~259~~	~~1.09~~	~~299~~	~~1.20~~	~~339~~	~~1.31~~	~~379~~	~~1.41~~
~~20~~	~~0.18~~	~~60~~	~~0.39~~	~~100~~	~~0.56~~	~~140~~	~~0.71~~	~~180~~	~~0.84~~	~~220~~	~~0.97~~	~~260~~	~~1.09~~	~~300~~	~~1.20~~	~~340~~	~~1.31~~	~~380~~	~~1.42~~
~~21~~	~~0.19~~	~~61~~	~~0.40~~	~~101~~	~~0.57~~	~~141~~	~~0.71~~	~~181~~	~~0.85~~	~~221~~	~~0.97~~	~~261~~	~~1.09~~	~~301~~	~~1.21~~	~~341~~	~~1.31~~	~~381~~	~~1.42~~
~~22~~	~~0.20~~	~~62~~	~~0.40~~	~~102~~	~~0.57~~	~~142~~	~~0.72~~	~~182~~	~~0.85~~	~~222~~	~~0.98~~	~~262~~	~~1.10~~	~~302~~	~~1.21~~	~~342~~	~~1.32~~	~~382~~	~~1.42~~
~~23~~	~~0.20~~	~~63~~	~~0.41~~	~~103~~	~~0.57~~	~~143~~	~~0.72~~	~~183~~	~~0.85~~	~~223~~	~~0.98~~	~~263~~	~~1.10~~	~~303~~	~~1.21~~	~~343~~	~~1.32~~	~~383~~	~~1.42~~
~~24~~	~~0.21~~	~~64~~	~~0.41~~	~~104~~	~~0.58~~	~~144~~	~~0.72~~	~~184~~	~~0.86~~	~~224~~	~~0.98~~	~~264~~	~~1.10~~	~~304~~	~~1.21~~	~~344~~	~~1.32~~	~~384~~	~~1.43~~
~~25~~	~~0.21~~	~~65~~	~~0.42~~	~~105~~	~~0.58~~	~~145~~	~~0.73~~	~~185~~	~~0.86~~	~~225~~	~~0.99~~	~~265~~	~~1.10~~	~~305~~	~~1.22~~	~~345~~	~~1.32~~	~~385~~	~~1.43~~
~~26~~	~~0.22~~	~~66~~	~~0.42~~	~~106~~	~~0.58~~	~~146~~	~~0.73~~	~~186~~	~~0.86~~	~~226~~	~~0.99~~	~~266~~	~~1.11~~	~~306~~	~~1.22~~	~~346~~	~~1.33~~	~~386~~	~~1.43~~
~~27~~	~~0.23~~	~~67~~	~~0.42~~	~~107~~	~~0.59~~	~~147~~	~~0.73~~	~~187~~	~~0.87~~	~~227~~	~~0.99~~	~~267~~	~~1.11~~	~~307~~	~~1.22~~	~~347~~	~~1.33~~	~~387~~	~~1.43~~
~~28~~	~~0.23~~	~~68~~	~~0.43~~	~~108~~	~~0.59~~	~~148~~	~~0.74~~	~~188~~	~~0.87~~	~~228~~	~~0.99~~	~~268~~	~~1.11~~	~~308~~	~~1.22~~	~~348~~	~~1.33~~	~~388~~	~~1.44~~
~~29~~	~~0.24~~	~~69~~	~~0.43~~	~~109~~	~~0.60~~	~~149~~	~~0.74~~	~~189~~	~~0.87~~	~~229~~	~~1.00~~	~~269~~	~~1.12~~	~~309~~	~~1.23~~	~~349~~	~~1.34~~	~~389~~	~~1.44~~
~~30~~	~~0.24~~	~~70~~	~~0.44~~	~~110~~	~~0.60~~	~~150~~	~~0.74~~	~~190~~	~~0.88~~	~~230~~	~~1.00~~	~~270~~	~~1.12~~	~~310~~	~~1.23~~	~~350~~	~~1.34~~	~~390~~	~~1.44~~
~~31~~	~~0.25~~	~~71~~	~~0.44~~	~~111~~	~~0.60~~	~~151~~	~~0.75~~	~~191~~	~~0.88~~	~~231~~	~~1.00~~	~~271~~	~~1.12~~	~~311~~	~~1.23~~	~~351~~	~~1.34~~	~~391~~	~~1.44~~
~~32~~	~~0.25~~	~~72~~	~~0.45~~	~~112~~	~~0.61~~	~~152~~	~~0.75~~	~~192~~	~~0.88~~	~~232~~	~~1.01~~	~~272~~	~~1.12~~	~~312~~	~~1.24~~	~~352~~	~~1.34~~	~~392~~	~~1.45~~
~~33~~	~~0.26~~	~~73~~	~~0.45~~	~~113~~	~~0.61~~	~~153~~	~~0.75~~	~~193~~	~~0.89~~	~~233~~	~~1.01~~	~~273~~	~~1.13~~	~~313~~	~~1.24~~	~~353~~	~~1.35~~	~~393~~	~~1.45~~
~~34~~	~~0.26~~	~~74~~	~~0.46~~	~~114~~	~~0.61~~	~~154~~	~~0.76~~	~~194~~	~~0.89~~	~~234~~	~~1.01~~	~~274~~	~~1.13~~	~~314~~	~~1.24~~	~~354~~	~~1.35~~	~~394~~	~~1.45~~
~~35~~	~~0.27~~	~~75~~	~~0.46~~	~~115~~	~~0.62~~	~~155~~	~~0.76~~	~~195~~	~~0.89~~	~~235~~	~~1.02~~	~~275~~	~~1.13~~	~~315~~	~~1.24~~	~~355~~	~~1.35~~	~~395~~	~~1.46~~
~~36~~	~~0.28~~	~~76~~	~~0.46~~	~~116~~	~~0.62~~	~~156~~	~~0.76~~	~~196~~	~~0.90~~	~~236~~	~~1.02~~	~~276~~	~~1.14~~	~~316~~	~~1.25~~	~~356~~	~~1.35~~	~~396~~	~~1.46~~
~~37~~	~~0.28~~	~~77~~	~~0.47~~	~~117~~	~~0.63~~	~~157~~	~~0.77~~	~~197~~	~~0.90~~	~~237~~	~~1.02~~	~~277~~	~~1.14~~	~~317~~	~~1.25~~	~~357~~	~~1.36~~	~~397~~	~~1.46~~
~~38~~	~~0.29~~	~~78~~	~~0.47~~	~~118~~	~~0.63~~	~~158~~	~~0.77~~	~~198~~	~~0.90~~	~~238~~	~~1.02~~	~~278~~	~~1.14~~	~~318~~	~~1.25~~	~~358~~	~~1.36~~	~~398~~	~~1.46~~
~~39~~	~~0.29~~	~~79~~	~~0.48~~	~~119~~	~~0.63~~	~~159~~	~~0.77~~	~~199~~	~~0.91~~	~~239~~	~~1.03~~	~~279~~	~~1.14~~	~~319~~	~~1.26~~	~~359~~	~~1.36~~	~~399~~	~~1.47~~
~~40~~	~~0.30~~	~~80~~	~~0.48~~	~~120~~	~~0.64~~	~~160~~	~~0.78~~	~~200~~	~~0.91~~	~~240~~	~~1.03~~	~~280~~	~~1.15~~	~~320~~	~~1.26~~	~~360~~	~~1.36~~	~~400~~	~~1.47~~

Table 5. Water Quality Standards for Dissolved Copper

Acute Aquatic and Wildlife coldwater, warmwater and edw		Chronic Aquatic and Wildlife coldwater, warmwater and edw		Acute Aquatic and Wildlife ephemeral	
Hard. mg/L	**Std. µg/L**	**Hard. mg/L**	**Std. µg/L**	**Hard. mg/L**	**Std. µg/L**
20	2.9	20	2.3	20	5.1
100	13.4	100	9.0	100	23.3
400	49.6	400	29.3	400	85.9
$e^{(0.9422*LN(Hardness)-1.702)}*(0.96)$		$e^{(0.8545*LN(Hardness)-1.702)}*(0.96)$		$e^{(0.9422*LN(Hardness)-1.1514)}*(0.96)$	

~~Table 6. Acute Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife ephemeral~~

~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~
~~1~~	~~0.25~~	~~41~~	~~9.58~~	~~81~~	~~18.58~~	~~121~~	~~27.45~~	~~161~~	~~36.23~~	~~201~~	~~44.94~~	~~241~~	~~53.59~~	~~281~~	~~62.21~~	~~321~~	~~70.78~~	~~361~~	~~79.32~~
~~2~~	~~0.50~~	~~42~~	~~9.80~~	~~82~~	~~18.80~~	~~122~~	~~27.67~~	~~162~~	~~36.45~~	~~202~~	~~45.15~~	~~242~~	~~53.81~~	~~282~~	~~62.42~~	~~322~~	~~70.99~~	~~362~~	~~79.53~~
~~3~~	~~0.75~~	~~43~~	~~10.03~~	~~83~~	~~19.03~~	~~123~~	~~27.89~~	~~163~~	~~36.66~~	~~203~~	~~45.37~~	~~243~~	~~54.03~~	~~283~~	~~62.64~~	~~323~~	~~71.21~~	~~363~~	~~79.74~~
~~4~~	~~0.99~~	~~44~~	~~10.26~~	~~84~~	~~19.25~~	~~124~~	~~28.11~~	~~164~~	~~36.88~~	~~204~~	~~45.59~~	~~244~~	~~54.24~~	~~284~~	~~62.85~~	~~324~~	~~71.42~~	~~364~~	~~79.95~~
~~5~~	~~1.23~~	~~45~~	~~10.49~~	~~85~~	~~19.47~~	~~125~~	~~28.33~~	~~165~~	~~37.10~~	~~205~~	~~45.81~~	~~245~~	~~54.46~~	~~285~~	~~63.06~~	~~325~~	~~71.63~~	~~365~~	~~80.17~~
~~6~~	~~1.47~~	~~46~~	~~10.71~~	~~86~~	~~19.69~~	~~126~~	~~28.55~~	~~166~~	~~37.32~~	~~206~~	~~46.02~~	~~246~~	~~54.67~~	~~286~~	~~63.28~~	~~326~~	~~71.85~~	~~366~~	~~80.38~~
~~7~~	~~1.71~~	~~47~~	~~10.94~~	~~87~~	~~19.92~~	~~127~~	~~28.77~~	~~167~~	~~37.54~~	~~207~~	~~46.24~~	~~247~~	~~54.89~~	~~287~~	~~63.49~~	~~327~~	~~72.06~~	~~367~~	~~80.59~~
~~8~~	~~1.95~~	~~48~~	~~11.17~~	~~88~~	~~20.14~~	~~128~~	~~28.99~~	~~168~~	~~37.76~~	~~208~~	~~46.46~~	~~248~~	~~55.10~~	~~288~~	~~63.71~~	~~328~~	~~72.27~~	~~368~~	~~80.81~~
~~9~~	~~2.18~~	~~49~~	~~11.39~~	~~89~~	~~20.36~~	~~129~~	~~29.21~~	~~169~~	~~37.97~~	~~209~~	~~46.67~~	~~249~~	~~55.32~~	~~289~~	~~63.92~~	~~329~~	~~72.49~~	~~369~~	~~81.02~~
~~10~~	~~2.42~~	~~50~~	~~11.62~~	~~90~~	~~20.58~~	~~130~~	~~29.43~~	~~170~~	~~38.19~~	~~210~~	~~46.89~~	~~250~~	~~55.54~~	~~290~~	~~64.14~~	~~330~~	~~72.70~~	~~370~~	~~81.23~~
~~11~~	~~2.65~~	~~51~~	~~11.84~~	~~91~~	~~20.81~~	~~131~~	~~29.65~~	~~171~~	~~38.41~~	~~211~~	~~47.11~~	~~251~~	~~55.75~~	~~291~~	~~64.35~~	~~331~~	~~72.92~~	~~371~~	~~81.44~~
~~12~~	~~2.89~~	~~52~~	~~12.07~~	~~92~~	~~21.03~~	~~132~~	~~29.87~~	~~172~~	~~38.63~~	~~212~~	~~47.32~~	~~252~~	~~55.97~~	~~292~~	~~64.57~~	~~332~~	~~73.13~~	~~372~~	~~81.66~~
~~13~~	~~3.13~~	~~53~~	~~12.30~~	~~93~~	~~21.25~~	~~133~~	~~30.09~~	~~173~~	~~38.85~~	~~213~~	~~47.54~~	~~253~~	~~56.18~~	~~293~~	~~64.78~~	~~333~~	~~73.34~~	~~373~~	~~81.87~~
~~14~~	~~3.36~~	~~54~~	~~12.52~~	~~94~~	~~21.47~~	~~134~~	~~30.31~~	~~174~~	~~39.06~~	~~214~~	~~47.76~~	~~254~~	~~56.40~~	~~294~~	~~65.00~~	~~334~~	~~73.56~~	~~374~~	~~82.08~~
~~15~~	~~3.59~~	~~55~~	~~12.75~~	~~95~~	~~21.70~~	~~135~~	~~30.53~~	~~175~~	~~39.28~~	~~215~~	~~47.97~~	~~255~~	~~56.61~~	~~295~~	~~65.21~~	~~335~~	~~73.77~~	~~375~~	~~82.30~~
~~16~~	~~3.83~~	~~56~~	~~12.97~~	~~96~~	~~21.92~~	~~136~~	~~30.75~~	~~176~~	~~39.50~~	~~216~~	~~48.19~~	~~256~~	~~56.83~~	~~296~~	~~65.42~~	~~336~~	~~73.98~~	~~376~~	~~82.51~~
~~17~~	~~4.06~~	~~57~~	~~13.20~~	~~97~~	~~22.14~~	~~137~~	~~30.97~~	~~177~~	~~39.72~~	~~217~~	~~48.41~~	~~257~~	~~57.04~~	~~297~~	~~65.64~~	~~337~~	~~74.20~~	~~377~~	~~82.72~~
~~18~~	~~4.29~~	~~58~~	~~13.42~~	~~98~~	~~22.36~~	~~138~~	~~31.19~~	~~178~~	~~39.94~~	~~218~~	~~48.62~~	~~258~~	~~57.26~~	~~298~~	~~65.85~~	~~338~~	~~74.41~~	~~378~~	~~82.93~~
~~19~~	~~4.53~~	~~59~~	~~13.65~~	~~99~~	~~22.58~~	~~139~~	~~31.41~~	~~179~~	~~40.15~~	~~219~~	~~48.84~~	~~259~~	~~57.48~~	~~299~~	~~66.07~~	~~339~~	~~74.62~~	~~379~~	~~83.15~~
~~20~~	~~4.76~~	~~60~~	~~13.87~~	~~100~~	~~22.81~~	~~140~~	~~31.63~~	~~180~~	~~40.37~~	~~220~~	~~49.06~~	~~260~~	~~57.69~~	~~300~~	~~66.28~~	~~340~~	~~74.84~~	~~380~~	~~83.36~~
~~21~~	~~4.99~~	~~61~~	~~14.10~~	~~101~~	~~23.03~~	~~141~~	~~31.85~~	~~181~~	~~40.59~~	~~221~~	~~49.27~~	~~261~~	~~57.91~~	~~301~~	~~66.50~~	~~341~~	~~75.05~~	~~381~~	~~83.57~~
~~22~~	~~5.22~~	~~62~~	~~14.32~~	~~102~~	~~23.25~~	~~142~~	~~32.07~~	~~182~~	~~40.81~~	~~222~~	~~49.49~~	~~262~~	~~58.12~~	~~302~~	~~66.71~~	~~342~~	~~75.26~~	~~382~~	~~83.78~~
~~23~~	~~5.45~~	~~63~~	~~14.55~~	~~103~~	~~23.47~~	~~143~~	~~32.29~~	~~183~~	~~41.03~~	~~223~~	~~49.71~~	~~263~~	~~58.34~~	~~303~~	~~66.93~~	~~343~~	~~75.48~~	~~383~~	~~84.00~~
~~24~~	~~5.68~~	~~64~~	~~14.77~~	~~104~~	~~23.69~~	~~144~~	~~32.50~~	~~184~~	~~41.24~~	~~224~~	~~49.92~~	~~264~~	~~58.55~~	~~304~~	~~67.14~~	~~344~~	~~75.69~~	~~384~~	~~84.21~~
~~25~~	~~5.91~~	~~65~~	~~15.00~~	~~105~~	~~23.91~~	~~145~~	~~32.72~~	~~185~~	~~41.46~~	~~225~~	~~50.14~~	~~265~~	~~58.77~~	~~305~~	~~67.35~~	~~345~~	~~75.90~~	~~385~~	~~84.42~~
~~26~~	~~6.14~~	~~66~~	~~15.22~~	~~106~~	~~24.13~~	~~146~~	~~32.94~~	~~186~~	~~41.68~~	~~226~~	~~50.35~~	~~266~~	~~58.98~~	~~306~~	~~67.57~~	~~346~~	~~76.12~~	~~386~~	~~84.64~~
~~27~~	~~6.37~~	~~67~~	~~15.45~~	~~107~~	~~24.36~~	~~147~~	~~33.16~~	~~187~~	~~41.90~~	~~227~~	~~50.57~~	~~267~~	~~59.20~~	~~307~~	~~67.78~~	~~347~~	~~76.33~~	~~387~~	~~84.85~~
~~28~~	~~6.60~~	~~68~~	~~15.67~~	~~108~~	~~24.58~~	~~148~~	~~33.38~~	~~188~~	~~42.11~~	~~228~~	~~50.79~~	~~268~~	~~59.41~~	~~308~~	~~68.00~~	~~348~~	~~76.54~~	~~388~~	~~85.06~~
~~29~~	~~6.83~~	~~69~~	~~15.90~~	~~109~~	~~24.80~~	~~149~~	~~33.60~~	~~189~~	~~42.33~~	~~229~~	~~51.00~~	~~269~~	~~59.63~~	~~309~~	~~68.21~~	~~349~~	~~76.76~~	~~389~~	~~85.27~~
~~30~~	~~7.06~~	~~70~~	~~16.12~~	~~110~~	~~25.02~~	~~150~~	~~33.82~~	~~190~~	~~42.55~~	~~230~~	~~51.22~~	~~270~~	~~59.84~~	~~310~~	~~68.42~~	~~350~~	~~76.97~~	~~390~~	~~85.49~~
~~31~~	~~7.29~~	~~71~~	~~16.34~~	~~111~~	~~25.24~~	~~151~~	~~34.04~~	~~191~~	~~42.77~~	~~231~~	~~51.44~~	~~271~~	~~60.06~~	~~311~~	~~68.64~~	~~351~~	~~77.18~~	~~391~~	~~85.70~~
~~32~~	~~7.52~~	~~72~~	~~16.57~~	~~112~~	~~25.46~~	~~152~~	~~34.26~~	~~192~~	~~42.98~~	~~232~~	~~51.65~~	~~272~~	~~60.27~~	~~312~~	~~68.85~~	~~352~~	~~77.40~~	~~392~~	~~85.91~~
~~33~~	~~7.75~~	~~73~~	~~16.79~~	~~113~~	~~25.68~~	~~153~~	~~34.48~~	~~193~~	~~43.20~~	~~233~~	~~51.87~~	~~273~~	~~60.49~~	~~313~~	~~69.07~~	~~353~~	~~77.61~~	~~393~~	~~86.12~~
~~34~~	~~7.98~~	~~74~~	~~17.02~~	~~114~~	~~25.90~~	~~154~~	~~34.70~~	~~194~~	~~43.42~~	~~234~~	~~52.08~~	~~274~~	~~60.70~~	~~314~~	~~69.28~~	~~354~~	~~77.82~~	~~394~~	~~86.33~~
~~35~~	~~8.21~~	~~75~~	~~17.24~~	~~115~~	~~26.12~~	~~155~~	~~34.91~~	~~195~~	~~43.63~~	~~235~~	~~52.30~~	~~275~~	~~60.92~~	~~315~~	~~69.49~~	~~355~~	~~78.04~~	~~395~~	~~86.55~~
~~36~~	~~8.44~~	~~76~~	~~17.46~~	~~116~~	~~26.34~~	~~156~~	~~35.13~~	~~196~~	~~43.85~~	~~236~~	~~52.52~~	~~276~~	~~61.13~~	~~316~~	~~69.71~~	~~356~~	~~78.25~~	~~396~~	~~86.76~~

~~37~~	~~8.67~~	~~77~~	~~17.69~~	~~117~~	~~26.57~~	~~157~~	~~35.35~~	~~197~~	~~44.07~~	~~237~~	~~52.73~~	~~277~~	~~61.35~~	~~317~~	~~69.92~~	~~357~~	~~78.46~~	~~397~~	~~86.97~~
~~38~~	~~8.89~~	~~78~~	~~17.91~~	~~118~~	~~26.79~~	~~158~~	~~35.57~~	~~198~~	~~44.29~~	~~238~~	~~52.95~~	~~278~~	~~61.56~~	~~318~~	~~70.14~~	~~358~~	~~78.68~~	~~398~~	~~87.18~~
~~39~~	~~9.12~~	~~79~~	~~18.13~~	~~119~~	~~27.01~~	~~159~~	~~35.79~~	~~199~~	~~44.50~~	~~239~~	~~53.16~~	~~279~~	~~61.78~~	~~319~~	~~70.35~~	~~359~~	~~78.89~~	~~399~~	~~87.40~~
~~40~~	~~9.35~~	~~80~~	~~18.36~~	~~120~~	~~27.23~~	~~160~~	~~36.01~~	~~200~~	~~44.72~~	~~240~~	~~53.38~~	~~280~~	~~61.99~~	~~320~~	~~70.56~~	~~360~~	~~79.10~~	~~400~~	~~87.61~~

Table 6. Water Quality Standards for Dissolved Lead

Acute Aquatic and Wildlife coldwater, warmwater and edw		Chronic Aquatic and Wildlife coldwater, warmwater and edw		Acute Aquatic and Wildlife ephemeral	
Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
20	10.8	20	0.4	20	22.8
100	64.6	100	2.5	100	136.3
400	281	400	10.9	400	592.7
$e^{(1.273*LN(Hardness)-1.46)}*(1.46203-(LN(Hardness))*(0.145712))$		$e^{(1.273*LN(Hardness)-4.705)}*(1.46203-(LN(Hardness))*(0.145712))$		$e^{(1.273*(LN(Hardness))-0.7131)}*(1.46203-(LN(Hardness))*(0.145712))$	

~~**Table 7. Acute Water Quality Standards for Dissolved Chromium III Aquatic and Wildlife coldwater, warmwater and edw**~~

~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~	~~Hard mg/L~~	~~Std. µg/L~~
~~1~~	~~13~~	~~41~~	~~275~~	~~81~~	~~479~~	~~121~~	~~666~~	~~161~~	~~842~~	~~201~~	~~1009~~	~~241~~	~~1171~~	~~281~~	~~1328~~	~~321~~	~~1481~~	~~361~~	~~1630~~
~~2~~	~~23~~	~~42~~	~~280~~	~~82~~	~~484~~	~~122~~	~~671~~	~~162~~	~~846~~	~~202~~	~~1013~~	~~242~~	~~1175~~	~~282~~	~~1332~~	~~322~~	~~1485~~	~~362~~	~~1634~~
~~3~~	~~32~~	~~43~~	~~285~~	~~83~~	~~489~~	~~123~~	~~675~~	~~163~~	~~850~~	~~203~~	~~1017~~	~~243~~	~~1179~~	~~283~~	~~1336~~	~~323~~	~~1488~~	~~363~~	~~1638~~
~~4~~	~~41~~	~~44~~	~~291~~	~~84~~	~~494~~	~~124~~	~~680~~	~~164~~	~~854~~	~~204~~	~~1022~~	~~244~~	~~1183~~	~~284~~	~~1340~~	~~324~~	~~1492~~	~~364~~	~~1641~~
~~5~~	~~49~~	~~45~~	~~296~~	~~85~~	~~499~~	~~125~~	~~684~~	~~165~~	~~859~~	~~205~~	~~1026~~	~~245~~	~~1187~~	~~285~~	~~1343~~	~~325~~	~~1496~~	~~365~~	~~1645~~
~~6~~	~~57~~	~~46~~	~~302~~	~~86~~	~~504~~	~~126~~	~~688~~	~~166~~	~~863~~	~~206~~	~~1030~~	~~246~~	~~1191~~	~~286~~	~~1347~~	~~326~~	~~1500~~	~~366~~	~~1649~~
~~7~~	~~65~~	~~47~~	~~307~~	~~87~~	~~508~~	~~127~~	~~693~~	~~167~~	~~867~~	~~207~~	~~1034~~	~~247~~	~~1195~~	~~287~~	~~1351~~	~~327~~	~~1504~~	~~367~~	~~1653~~
~~8~~	~~72~~	~~48~~	~~312~~	~~88~~	~~513~~	~~128~~	~~697~~	~~168~~	~~871~~	~~208~~	~~1038~~	~~248~~	~~1199~~	~~288~~	~~1355~~	~~328~~	~~1507~~	~~368~~	~~1656~~
~~9~~	~~79~~	~~49~~	~~318~~	~~89~~	~~518~~	~~129~~	~~702~~	~~169~~	~~876~~	~~209~~	~~1042~~	~~249~~	~~1203~~	~~289~~	~~1359~~	~~329~~	~~1511~~	~~369~~	~~1660~~
~~10~~	~~86~~	~~50~~	~~323~~	~~90~~	~~523~~	~~130~~	~~706~~	~~170~~	~~880~~	~~210~~	~~1046~~	~~250~~	~~1207~~	~~290~~	~~1363~~	~~330~~	~~1515~~	~~370~~	~~1664~~
~~11~~	~~93~~	~~51~~	~~328~~	~~91~~	~~527~~	~~131~~	~~711~~	~~171~~	~~884~~	~~211~~	~~1050~~	~~251~~	~~1211~~	~~291~~	~~1367~~	~~331~~	~~1519~~	~~371~~	~~1667~~
~~12~~	~~100~~	~~52~~	~~334~~	~~92~~	~~532~~	~~132~~	~~715~~	~~172~~	~~888~~	~~212~~	~~1054~~	~~252~~	~~1215~~	~~292~~	~~1370~~	~~332~~	~~1522~~	~~372~~	~~1671~~
~~13~~	~~107~~	~~53~~	~~339~~	~~93~~	~~537~~	~~133~~	~~720~~	~~173~~	~~893~~	~~213~~	~~1058~~	~~253~~	~~1219~~	~~293~~	~~1374~~	~~333~~	~~1526~~	~~373~~	~~1675~~
~~14~~	~~114~~	~~54~~	~~344~~	~~94~~	~~542~~	~~134~~	~~724~~	~~174~~	~~897~~	~~214~~	~~1062~~	~~254~~	~~1223~~	~~294~~	~~1378~~	~~334~~	~~1530~~	~~374~~	~~1678~~
~~15~~	~~120~~	~~55~~	~~349~~	~~95~~	~~546~~	~~135~~	~~729~~	~~175~~	~~901~~	~~215~~	~~1067~~	~~255~~	~~1226~~	~~295~~	~~1382~~	~~335~~	~~1534~~	~~375~~	~~1682~~
~~16~~	~~127~~	~~56~~	~~354~~	~~96~~	~~551~~	~~136~~	~~733~~	~~176~~	~~905~~	~~216~~	~~1071~~	~~256~~	~~1230~~	~~296~~	~~1386~~	~~336~~	~~1537~~	~~376~~	~~1686~~
~~17~~	~~133~~	~~57~~	~~360~~	~~97~~	~~556~~	~~137~~	~~737~~	~~177~~	~~909~~	~~217~~	~~1075~~	~~257~~	~~1234~~	~~297~~	~~1390~~	~~337~~	~~1541~~	~~377~~	~~1689~~
~~18~~	~~140~~	~~58~~	~~365~~	~~98~~	~~560~~	~~138~~	~~742~~	~~178~~	~~914~~	~~218~~	~~1079~~	~~258~~	~~1238~~	~~298~~	~~1393~~	~~338~~	~~1545~~	~~378~~	~~1693~~
~~19~~	~~146~~	~~59~~	~~370~~	~~99~~	~~565~~	~~139~~	~~746~~	~~179~~	~~918~~	~~219~~	~~1083~~	~~259~~	~~1242~~	~~299~~	~~1397~~	~~339~~	~~1549~~	~~379~~	~~1697~~
~~20~~	~~152~~	~~60~~	~~375~~	~~100~~	~~570~~	~~140~~	~~751~~	~~180~~	~~922~~	~~220~~	~~1087~~	~~260~~	~~1246~~	~~300~~	~~1401~~	~~340~~	~~1552~~	~~380~~	~~1700~~
~~21~~	~~159~~	~~61~~	~~380~~	~~101~~	~~574~~	~~141~~	~~755~~	~~181~~	~~926~~	~~221~~	~~1091~~	~~261~~	~~1250~~	~~301~~	~~1405~~	~~341~~	~~1556~~	~~381~~	~~1704~~

~~22~~	~~165~~	~~62~~	~~385~~	~~102~~	~~579~~	~~142~~	~~759~~	~~182~~	~~930~~	~~222~~	~~1095~~	~~262~~	~~1254~~	~~302~~	~~1409~~	~~342~~	~~1560~~	~~382~~	~~1708~~
~~23~~	~~171~~	~~63~~	~~390~~	~~103~~	~~584~~	~~143~~	~~764~~	~~183~~	~~935~~	~~223~~	~~1099~~	~~263~~	~~1258~~	~~303~~	~~1413~~	~~343~~	~~1564~~	~~383~~	~~1711~~
~~24~~	~~177~~	~~64~~	~~395~~	~~104~~	~~588~~	~~144~~	~~768~~	~~184~~	~~939~~	~~224~~	~~1103~~	~~264~~	~~1262~~	~~304~~	~~1416~~	~~344~~	~~1567~~	~~384~~	~~1715~~
~~25~~	~~183~~	~~65~~	~~400~~	~~105~~	~~593~~	~~145~~	~~772~~	~~185~~	~~943~~	~~225~~	~~1107~~	~~265~~	~~1266~~	~~305~~	~~1420~~	~~345~~	~~1571~~	~~385~~	~~1719~~
~~26~~	~~189~~	~~66~~	~~405~~	~~106~~	~~598~~	~~146~~	~~777~~	~~186~~	~~947~~	~~226~~	~~1111~~	~~266~~	~~1270~~	~~306~~	~~1424~~	~~346~~	~~1575~~	~~386~~	~~1722~~
~~27~~	~~195~~	~~67~~	~~410~~	~~107~~	~~602~~	~~147~~	~~781~~	~~187~~	~~951~~	~~227~~	~~1115~~	~~267~~	~~1274~~	~~307~~	~~1428~~	~~347~~	~~1578~~	~~387~~	~~1726~~
~~28~~	~~201~~	~~68~~	~~415~~	~~108~~	~~607~~	~~148~~	~~785~~	~~188~~	~~955~~	~~228~~	~~1119~~	~~268~~	~~1277~~	~~308~~	~~1432~~	~~348~~	~~1582~~	~~388~~	~~1730~~
~~29~~	~~207~~	~~69~~	~~420~~	~~109~~	~~611~~	~~149~~	~~790~~	~~189~~	~~960~~	~~229~~	~~1123~~	~~269~~	~~1281~~	~~309~~	~~1435~~	~~349~~	~~1586~~	~~389~~	~~1733~~
~~30~~	~~213~~	~~70~~	~~425~~	~~110~~	~~616~~	~~150~~	~~794~~	~~190~~	~~964~~	~~230~~	~~1127~~	~~270~~	~~1285~~	~~310~~	~~1439~~	~~350~~	~~1590~~	~~390~~	~~1737~~
~~31~~	~~218~~	~~71~~	~~430~~	~~111~~	~~621~~	~~151~~	~~799~~	~~191~~	~~968~~	~~231~~	~~1131~~	~~271~~	~~1289~~	~~311~~	~~1443~~	~~351~~	~~1593~~	~~391~~	~~1741~~
~~32~~	~~224~~	~~72~~	~~435~~	~~112~~	~~625~~	~~152~~	~~803~~	~~192~~	~~972~~	~~232~~	~~1135~~	~~272~~	~~1293~~	~~312~~	~~1447~~	~~352~~	~~1597~~	~~392~~	~~1744~~
~~33~~	~~230~~	~~73~~	~~440~~	~~113~~	~~630~~	~~153~~	~~807~~	~~193~~	~~976~~	~~233~~	~~1139~~	~~273~~	~~1297~~	~~313~~	~~1451~~	~~353~~	~~1601~~	~~393~~	~~1748~~
~~34~~	~~235~~	~~74~~	~~445~~	~~114~~	~~634~~	~~154~~	~~811~~	~~194~~	~~980~~	~~234~~	~~1143~~	~~274~~	~~1301~~	~~314~~	~~1454~~	~~354~~	~~1604~~	~~394~~	~~1751~~
~~35~~	~~241~~	~~75~~	~~450~~	~~115~~	~~639~~	~~155~~	~~816~~	~~195~~	~~985~~	~~235~~	~~1147~~	~~275~~	~~1305~~	~~315~~	~~1458~~	~~355~~	~~1608~~	~~395~~	~~1755~~
~~36~~	~~247~~	~~76~~	~~455~~	~~116~~	~~643~~	~~156~~	~~820~~	~~196~~	~~989~~	~~236~~	~~1151~~	~~276~~	~~1309~~	~~316~~	~~1462~~	~~356~~	~~1612~~	~~396~~	~~1759~~
~~37~~	~~252~~	~~77~~	~~460~~	~~117~~	~~648~~	~~157~~	~~824~~	~~197~~	~~993~~	~~237~~	~~1155~~	~~277~~	~~1312~~	~~317~~	~~1466~~	~~357~~	~~1616~~	~~397~~	~~1762~~
~~38~~	~~258~~	~~78~~	~~465~~	~~118~~	~~652~~	~~158~~	~~829~~	~~198~~	~~997~~	~~238~~	~~1159~~	~~278~~	~~1316~~	~~318~~	~~1470~~	~~358~~	~~1619~~	~~398~~	~~1766~~
~~39~~	~~263~~	~~79~~	~~470~~	~~119~~	~~657~~	~~159~~	~~833~~	~~199~~	~~1001~~	~~239~~	~~1163~~	~~279~~	~~1320~~	~~319~~	~~1473~~	~~359~~	~~1623~~	~~399~~	~~1770~~
~~40~~	~~269~~	~~80~~	~~475~~	~~120~~	~~662~~	~~160~~	~~837~~	~~200~~	~~1005~~	~~240~~	~~1167~~	~~280~~	~~1324~~	~~320~~	~~1477~~	~~360~~	~~1627~~	~~400~~	~~1773~~

Table 7. Water Quality Standards for Dissolved Nickel

Acute Aquatic and Wildlife coldwater, warmwater and edw		Chronic Aquatic and Wildlife coldwater, warmwater and edw		Acute Aquatic and Wildlife ephemeral	
Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
20	120.0	20	13.3	20	1066
100	468	100	52.0	100	4158
400	1513	400	168	400	13436
$e^{(0.846*LN(Hardness)+2.255)}*(0.998)$		$e^{(0.846*LN(Hardness)+0.0584)}*(0.997)$		$e^{(0.846*LN(Hardness)+4.4389)}*(0.998)$	

~~**Table 8. Chronic Water Quality Standards for Dissolved Chromium III Aquatic and Wildlife coldwater, warmwater and edw**~~

~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~
~~1~~	~~1.71~~	~~41~~	~~35.71~~	~~81~~	~~62.37~~	~~121~~	~~86.64~~	~~161~~	~~109.47~~	~~201~~	~~131.29~~	~~241~~	~~152.33~~	~~281~~	~~172.74~~	~~321~~	~~192.63~~	~~361~~	~~212.08~~
~~2~~	~~3.01~~	~~42~~	~~36.42~~	~~82~~	~~63.00~~	~~122~~	~~87.22~~	~~162~~	~~110.03~~	~~202~~	~~131.82~~	~~242~~	~~152.84~~	~~282~~	~~173.24~~	~~322~~	~~193.12~~	~~362~~	~~212.56~~
~~3~~	~~4.19~~	~~43~~	~~37.13~~	~~83~~	~~63.63~~	~~123~~	~~87.81~~	~~163~~	~~110.58~~	~~203~~	~~132.36~~	~~243~~	~~153.36~~	~~283~~	~~173.75~~	~~323~~	~~193.62~~	~~363~~	~~213.04~~
~~4~~	~~5.31~~	~~44~~	~~37.83~~	~~84~~	~~64.25~~	~~124~~	~~88.39~~	~~164~~	~~111.14~~	~~204~~	~~132.89~~	~~244~~	~~153.88~~	~~284~~	~~174.25~~	~~324~~	~~194.11~~	~~364~~	~~213.52~~
~~5~~	~~6.37~~	~~45~~	~~38.54~~	~~85~~	~~64.88~~	~~125~~	~~88.98~~	~~165~~	~~111.69~~	~~205~~	~~133.42~~	~~245~~	~~154.39~~	~~285~~	~~174.75~~	~~325~~	~~194.60~~	~~365~~	~~214.00~~
~~6~~	~~7.40~~	~~46~~	~~39.24~~	~~86~~	~~65.50~~	~~126~~	~~89.56~~	~~166~~	~~112.25~~	~~206~~	~~133.96~~	~~246~~	~~154.91~~	~~286~~	~~175.25~~	~~326~~	~~195.09~~	~~366~~	~~214.48~~
~~7~~	~~8.40~~	~~47~~	~~39.93~~	~~87~~	~~66.13~~	~~127~~	~~90.14~~	~~167~~	~~112.80~~	~~207~~	~~134.49~~	~~247~~	~~155.43~~	~~287~~	~~175.76~~	~~327~~	~~195.58~~	~~367~~	~~214.96~~
~~8~~	~~9.37~~	~~48~~	~~40.63~~	~~88~~	~~66.75~~	~~128~~	~~90.72~~	~~168~~	~~113.35~~	~~208~~	~~135.02~~	~~248~~	~~155.94~~	~~288~~	~~176.26~~	~~328~~	~~196.07~~	~~368~~	~~215.44~~
~~9~~	~~10.31~~	~~49~~	~~41.32~~	~~89~~	~~67.37~~	~~129~~	~~91.30~~	~~169~~	~~113.90~~	~~209~~	~~135.55~~	~~249~~	~~156.46~~	~~289~~	~~176.76~~	~~329~~	~~196.56~~	~~369~~	~~215.92~~

~~10~~	~~11.24~~	~~50~~	~~42.01~~	~~90~~	~~67.99~~	~~130~~	~~91.88~~	~~170~~	~~114.46~~	~~210~~	~~136.08~~	~~250~~	~~156.97~~	~~290~~	~~177.26~~	~~330~~	~~197.05~~	~~370~~	~~216.40~~
~~11~~	~~12.16~~	~~51~~	~~42.70~~	~~91~~	~~68.61~~	~~131~~	~~92.46~~	~~171~~	~~115.01~~	~~211~~	~~136.61~~	~~251~~	~~157.48~~	~~291~~	~~177.76~~	~~331~~	~~197.53~~	~~371~~	~~216.88~~
~~12~~	~~13.05~~	~~52~~	~~43.38~~	~~92~~	~~69.22~~	~~132~~	~~93.04~~	~~172~~	~~115.56~~	~~212~~	~~137.14~~	~~252~~	~~158.00~~	~~292~~	~~178.26~~	~~332~~	~~198.02~~	~~372~~	~~217.36~~
~~13~~	~~13.94~~	~~53~~	~~44.06~~	~~93~~	~~69.84~~	~~133~~	~~93.61~~	~~173~~	~~116.11~~	~~213~~	~~137.67~~	~~253~~	~~158.51~~	~~293~~	~~178.76~~	~~333~~	~~198.51~~	~~373~~	~~217.84~~
~~14~~	~~14.81~~	~~54~~	~~44.74~~	~~94~~	~~70.45~~	~~134~~	~~94.19~~	~~174~~	~~116.66~~	~~214~~	~~138.20~~	~~254~~	~~159.02~~	~~294~~	~~179.26~~	~~334~~	~~199.00~~	~~374~~	~~218.32~~
~~15~~	~~15.67~~	~~55~~	~~45.42~~	~~95~~	~~71.07~~	~~135~~	~~94.76~~	~~175~~	~~117.21~~	~~215~~	~~138.73~~	~~255~~	~~159.54~~	~~295~~	~~179.76~~	~~335~~	~~199.49~~	~~375~~	~~218.79~~
~~16~~	~~16.52~~	~~56~~	~~46.10~~	~~96~~	~~71.68~~	~~136~~	~~95.34~~	~~176~~	~~117.75~~	~~216~~	~~139.26~~	~~256~~	~~160.05~~	~~296~~	~~180.26~~	~~336~~	~~199.97~~	~~376~~	~~219.27~~
~~17~~	~~17.36~~	~~57~~	~~46.77~~	~~97~~	~~72.29~~	~~137~~	~~95.91~~	~~177~~	~~118.30~~	~~217~~	~~139.79~~	~~257~~	~~160.56~~	~~297~~	~~180.76~~	~~337~~	~~200.46~~	~~377~~	~~219.75~~
~~18~~	~~18.20~~	~~58~~	~~47.44~~	~~98~~	~~72.90~~	~~138~~	~~96.49~~	~~178~~	~~118.85~~	~~218~~	~~140.31~~	~~258~~	~~161.07~~	~~298~~	~~181.25~~	~~338~~	~~200.95~~	~~378~~	~~220.23~~
~~19~~	~~19.02~~	~~59~~	~~48.11~~	~~99~~	~~73.51~~	~~139~~	~~97.06~~	~~179~~	~~119.40~~	~~219~~	~~140.84~~	~~259~~	~~161.58~~	~~299~~	~~181.75~~	~~339~~	~~201.44~~	~~379~~	~~220.70~~
~~20~~	~~19.84~~	~~60~~	~~48.78~~	~~100~~	~~74.11~~	~~140~~	~~97.63~~	~~180~~	~~119.94~~	~~220~~	~~141.37~~	~~260~~	~~162.09~~	~~300~~	~~182.25~~	~~340~~	~~201.92~~	~~380~~	~~221.18~~
~~21~~	~~20.64~~	~~61~~	~~49.44~~	~~101~~	~~74.72~~	~~141~~	~~98.20~~	~~181~~	~~120.49~~	~~221~~	~~141.89~~	~~261~~	~~162.60~~	~~301~~	~~182.75~~	~~341~~	~~202.41~~	~~381~~	~~221.66~~
~~22~~	~~21.45~~	~~62~~	~~50.10~~	~~102~~	~~75.33~~	~~142~~	~~98.77~~	~~182~~	~~121.03~~	~~222~~	~~142.42~~	~~262~~	~~163.11~~	~~302~~	~~183.24~~	~~342~~	~~202.89~~	~~382~~	~~222.13~~
~~23~~	~~22.24~~	~~63~~	~~50.76~~	~~103~~	~~75.93~~	~~143~~	~~99.34~~	~~183~~	~~121.58~~	~~223~~	~~142.94~~	~~263~~	~~163.62~~	~~303~~	~~183.74~~	~~343~~	~~203.38~~	~~383~~	~~222.61~~
~~24~~	~~23.03~~	~~64~~	~~51.42~~	~~104~~	~~76.53~~	~~144~~	~~99.91~~	~~184~~	~~122.12~~	~~224~~	~~143.47~~	~~264~~	~~164.13~~	~~304~~	~~184.24~~	~~344~~	~~203.87~~	~~384~~	~~223.09~~
~~25~~	~~23.81~~	~~65~~	~~52.08~~	~~105~~	~~77.14~~	~~145~~	~~100.48~~	~~185~~	~~122.66~~	~~225~~	~~143.99~~	~~265~~	~~164.64~~	~~305~~	~~184.73~~	~~345~~	~~204.35~~	~~385~~	~~223.56~~
~~26~~	~~24.59~~	~~66~~	~~52.74~~	~~106~~	~~77.74~~	~~146~~	~~101.04~~	~~186~~	~~123.21~~	~~226~~	~~144.52~~	~~266~~	~~165.15~~	~~306~~	~~185.23~~	~~346~~	~~204.84~~	~~386~~	~~224.04~~
~~27~~	~~25.36~~	~~67~~	~~53.39~~	~~107~~	~~78.34~~	~~147~~	~~101.61~~	~~187~~	~~123.75~~	~~227~~	~~145.04~~	~~267~~	~~165.66~~	~~307~~	~~185.72~~	~~347~~	~~205.32~~	~~387~~	~~224.51~~
~~28~~	~~26.13~~	~~68~~	~~54.04~~	~~108~~	~~78.94~~	~~148~~	~~102.18~~	~~188~~	~~124.29~~	~~228~~	~~145.56~~	~~268~~	~~166.17~~	~~308~~	~~186.22~~	~~348~~	~~205.81~~	~~388~~	~~224.99~~
~~29~~	~~26.89~~	~~69~~	~~54.69~~	~~109~~	~~79.53~~	~~149~~	~~102.74~~	~~189~~	~~124.83~~	~~229~~	~~146.09~~	~~269~~	~~166.67~~	~~309~~	~~186.72~~	~~349~~	~~206.29~~	~~389~~	~~225.46~~
~~30~~	~~27.65~~	~~70~~	~~55.34~~	~~110~~	~~80.13~~	~~150~~	~~103.31~~	~~190~~	~~125.37~~	~~230~~	~~146.61~~	~~270~~	~~167.18~~	~~310~~	~~187.21~~	~~350~~	~~206.77~~	~~390~~	~~225.94~~
~~31~~	~~28.40~~	~~71~~	~~55.99~~	~~111~~	~~80.73~~	~~151~~	~~103.87~~	~~191~~	~~125.91~~	~~231~~	~~147.13~~	~~271~~	~~167.69~~	~~311~~	~~187.70~~	~~351~~	~~207.26~~	~~391~~	~~226.41~~
~~32~~	~~29.15~~	~~72~~	~~56.63~~	~~112~~	~~81.32~~	~~152~~	~~104.43~~	~~192~~	~~126.45~~	~~232~~	~~147.65~~	~~272~~	~~168.20~~	~~312~~	~~188.20~~	~~352~~	~~207.74~~	~~392~~	~~226.88~~
~~33~~	~~29.89~~	~~73~~	~~57.27~~	~~113~~	~~81.92~~	~~153~~	~~104.99~~	~~193~~	~~126.99~~	~~233~~	~~148.17~~	~~273~~	~~168.70~~	~~313~~	~~188.69~~	~~353~~	~~208.22~~	~~393~~	~~227.36~~
~~34~~	~~30.63~~	~~74~~	~~57.92~~	~~114~~	~~82.51~~	~~154~~	~~105.56~~	~~194~~	~~127.53~~	~~234~~	~~148.69~~	~~274~~	~~169.21~~	~~314~~	~~189.19~~	~~354~~	~~208.71~~	~~394~~	~~227.83~~
~~35~~	~~31.37~~	~~75~~	~~58.56~~	~~115~~	~~83.10~~	~~155~~	~~106.12~~	~~195~~	~~128.07~~	~~235~~	~~149.21~~	~~275~~	~~169.71~~	~~315~~	~~189.68~~	~~355~~	~~209.19~~	~~395~~	~~228.31~~
~~36~~	~~32.10~~	~~76~~	~~59.20~~	~~116~~	~~83.69~~	~~156~~	~~106.68~~	~~196~~	~~128.61~~	~~236~~	~~149.73~~	~~276~~	~~170.22~~	~~316~~	~~190.17~~	~~356~~	~~209.67~~	~~396~~	~~228.78~~
~~37~~	~~32.83~~	~~77~~	~~59.83~~	~~117~~	~~84.28~~	~~157~~	~~107.24~~	~~197~~	~~129.14~~	~~237~~	~~150.25~~	~~277~~	~~170.72~~	~~317~~	~~190.66~~	~~357~~	~~210.15~~	~~397~~	~~229.25~~
~~38~~	~~33.55~~	~~78~~	~~60.47~~	~~118~~	~~84.87~~	~~158~~	~~107.80~~	~~198~~	~~129.68~~	~~238~~	~~150.77~~	~~278~~	~~171.23~~	~~318~~	~~191.16~~	~~358~~	~~210.64~~	~~398~~	~~229.72~~
~~39~~	~~34.28~~	~~79~~	~~61.10~~	~~119~~	~~85.46~~	~~159~~	~~108.35~~	~~199~~	~~130.22~~	~~239~~	~~151.29~~	~~279~~	~~171.73~~	~~319~~	~~191.65~~	~~359~~	~~211.12~~	~~399~~	~~230.20~~
~~40~~	~~34.99~~	~~80~~	~~61.74~~	~~120~~	~~86.05~~	~~160~~	~~108.91~~	~~200~~	~~130.75~~	~~240~~	~~151.81~~	~~280~~	~~172.24~~	~~320~~	~~192.14~~	~~360~~	~~211.60~~	~~400~~	~~230.67~~

Table 8. Water Quality Standards for Dissolved Silver

Acute Aquatic and Wildlife coldwater, warmwater, edw, and ephemeral	
Hard. mg/L	**Std. µg/L**
20	0.20
100	3.2
400	34.9
$e^{(1.72*LN(Hardness)-6.59)}*(0.85)$	

~~**Table 9. Acute Water Quality Standards for Dissolved Chromium III Aquatic and Wildlife ephemeral**~~

~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~
~~1~~	~~44~~	~~41~~	~~921~~	~~81~~	~~1609~~	~~121~~	~~2235~~	~~161~~	~~2824~~	~~201~~	~~3386~~	~~241~~	~~3929~~	~~281~~	~~4456~~	~~321~~	~~4969~~	~~361~~	~~5470~~
~~2~~	~~78~~	~~42~~	~~939~~	~~82~~	~~1625~~	~~122~~	~~2250~~	~~162~~	~~2838~~	~~202~~	~~3400~~	~~242~~	~~3942~~	~~282~~	~~4469~~	~~322~~	~~4981~~	~~362~~	~~5483~~
~~3~~	~~108~~	~~43~~	~~958~~	~~83~~	~~1641~~	~~123~~	~~2265~~	~~163~~	~~2852~~	~~203~~	~~3414~~	~~243~~	~~3956~~	~~283~~	~~4481~~	~~323~~	~~4994~~	~~363~~	~~5495~~
~~4~~	~~137~~	~~44~~	~~976~~	~~84~~	~~1657~~	~~124~~	~~2280~~	~~164~~	~~2867~~	~~204~~	~~3428~~	~~244~~	~~3969~~	~~284~~	~~4494~~	~~324~~	~~5007~~	~~364~~	~~5507~~
~~5~~	~~164~~	~~45~~	~~994~~	~~85~~	~~1673~~	~~125~~	~~2295~~	~~165~~	~~2881~~	~~205~~	~~3441~~	~~245~~	~~3982~~	~~285~~	~~4507~~	~~325~~	~~5019~~	~~365~~	~~5520~~
~~6~~	~~191~~	~~46~~	~~1012~~	~~86~~	~~1690~~	~~126~~	~~2310~~	~~166~~	~~2895~~	~~206~~	~~3455~~	~~246~~	~~3996~~	~~286~~	~~4520~~	~~326~~	~~5032~~	~~366~~	~~5532~~
~~7~~	~~217~~	~~47~~	~~1030~~	~~87~~	~~1706~~	~~127~~	~~2325~~	~~167~~	~~2909~~	~~207~~	~~3469~~	~~247~~	~~4009~~	~~287~~	~~4533~~	~~327~~	~~5045~~	~~367~~	~~5545~~
~~8~~	~~242~~	~~48~~	~~1048~~	~~88~~	~~1722~~	~~128~~	~~2340~~	~~168~~	~~2924~~	~~208~~	~~3483~~	~~248~~	~~4022~~	~~288~~	~~4546~~	~~328~~	~~5057~~	~~368~~	~~5557~~
~~9~~	~~266~~	~~49~~	~~1066~~	~~89~~	~~1738~~	~~129~~	~~2355~~	~~169~~	~~2938~~	~~209~~	~~3496~~	~~249~~	~~4035~~	~~289~~	~~4559~~	~~329~~	~~5070~~	~~369~~	~~5569~~
~~10~~	~~290~~	~~50~~	~~1084~~	~~90~~	~~1754~~	~~130~~	~~2370~~	~~170~~	~~2952~~	~~210~~	~~3510~~	~~250~~	~~4049~~	~~290~~	~~4572~~	~~330~~	~~5082~~	~~370~~	~~5582~~
~~11~~	~~314~~	~~51~~	~~1101~~	~~91~~	~~1770~~	~~131~~	~~2385~~	~~171~~	~~2966~~	~~211~~	~~3524~~	~~251~~	~~4062~~	~~291~~	~~4585~~	~~331~~	~~5095~~	~~371~~	~~5594~~
~~12~~	~~337~~	~~52~~	~~1119~~	~~92~~	~~1785~~	~~132~~	~~2400~~	~~172~~	~~2981~~	~~212~~	~~3537~~	~~252~~	~~4075~~	~~292~~	~~4598~~	~~332~~	~~5108~~	~~372~~	~~5606~~
~~13~~	~~360~~	~~53~~	~~1137~~	~~93~~	~~1801~~	~~133~~	~~2415~~	~~173~~	~~2995~~	~~213~~	~~3551~~	~~253~~	~~4088~~	~~293~~	~~4611~~	~~333~~	~~5120~~	~~373~~	~~5619~~
~~14~~	~~382~~	~~54~~	~~1154~~	~~94~~	~~1817~~	~~134~~	~~2429~~	~~174~~	~~3009~~	~~214~~	~~3565~~	~~254~~	~~4102~~	~~294~~	~~4624~~	~~334~~	~~5133~~	~~374~~	~~5631~~
~~15~~	~~404~~	~~55~~	~~1172~~	~~95~~	~~1833~~	~~135~~	~~2444~~	~~175~~	~~3023~~	~~215~~	~~3578~~	~~255~~	~~4115~~	~~295~~	~~4637~~	~~335~~	~~5145~~	~~375~~	~~5643~~
~~16~~	~~426~~	~~56~~	~~1189~~	~~96~~	~~1849~~	~~136~~	~~2459~~	~~176~~	~~3037~~	~~216~~	~~3592~~	~~256~~	~~4128~~	~~296~~	~~4649~~	~~336~~	~~5158~~	~~376~~	~~5656~~
~~17~~	~~448~~	~~57~~	~~1206~~	~~97~~	~~1865~~	~~137~~	~~2474~~	~~177~~	~~3051~~	~~217~~	~~3606~~	~~257~~	~~4141~~	~~297~~	~~4662~~	~~337~~	~~5171~~	~~377~~	~~5668~~
~~18~~	~~469~~	~~58~~	~~1224~~	~~98~~	~~1880~~	~~138~~	~~2489~~	~~178~~	~~3066~~	~~218~~	~~3619~~	~~258~~	~~4155~~	~~298~~	~~4675~~	~~338~~	~~5183~~	~~378~~	~~5680~~
~~19~~	~~491~~	~~59~~	~~1241~~	~~99~~	~~1896~~	~~139~~	~~2503~~	~~179~~	~~3080~~	~~219~~	~~3633~~	~~259~~	~~4168~~	~~299~~	~~4688~~	~~339~~	~~5196~~	~~379~~	~~5693~~
~~20~~	~~512~~	~~60~~	~~1258~~	~~100~~	~~1912~~	~~140~~	~~2518~~	~~180~~	~~3094~~	~~220~~	~~3646~~	~~260~~	~~4181~~	~~300~~	~~4701~~	~~340~~	~~5208~~	~~380~~	~~5705~~
~~21~~	~~532~~	~~61~~	~~1275~~	~~101~~	~~1927~~	~~141~~	~~2533~~	~~181~~	~~3108~~	~~221~~	~~3660~~	~~261~~	~~4194~~	~~301~~	~~4714~~	~~341~~	~~5221~~	~~381~~	~~5717~~
~~22~~	~~553~~	~~62~~	~~1292~~	~~102~~	~~1943~~	~~142~~	~~2548~~	~~182~~	~~3122~~	~~222~~	~~3673~~	~~262~~	~~4207~~	~~302~~	~~4726~~	~~342~~	~~5233~~	~~382~~	~~5730~~
~~23~~	~~574~~	~~63~~	~~1309~~	~~103~~	~~1958~~	~~143~~	~~2562~~	~~183~~	~~3136~~	~~223~~	~~3687~~	~~263~~	~~4220~~	~~303~~	~~4739~~	~~343~~	~~5246~~	~~383~~	~~5742~~
~~24~~	~~594~~	~~64~~	~~1326~~	~~104~~	~~1974~~	~~144~~	~~2577~~	~~184~~	~~3150~~	~~224~~	~~3701~~	~~264~~	~~4234~~	~~304~~	~~4752~~	~~344~~	~~5258~~	~~384~~	~~5754~~
~~25~~	~~614~~	~~65~~	~~1343~~	~~105~~	~~1990~~	~~145~~	~~2592~~	~~185~~	~~3164~~	~~225~~	~~3714~~	~~265~~	~~4247~~	~~305~~	~~4765~~	~~345~~	~~5271~~	~~385~~	~~5766~~
~~26~~	~~634~~	~~66~~	~~1360~~	~~106~~	~~2005~~	~~146~~	~~2606~~	~~186~~	~~3178~~	~~226~~	~~3728~~	~~266~~	~~4260~~	~~306~~	~~4778~~	~~346~~	~~5283~~	~~386~~	~~5779~~
~~27~~	~~654~~	~~67~~	~~1377~~	~~107~~	~~2021~~	~~147~~	~~2621~~	~~187~~	~~3192~~	~~227~~	~~3741~~	~~267~~	~~4273~~	~~307~~	~~4790~~	~~347~~	~~5296~~	~~387~~	~~5791~~
~~28~~	~~674~~	~~68~~	~~1394~~	~~108~~	~~2036~~	~~148~~	~~2635~~	~~188~~	~~3206~~	~~228~~	~~3755~~	~~268~~	~~4286~~	~~308~~	~~4803~~	~~348~~	~~5308~~	~~388~~	~~5803~~
~~29~~	~~694~~	~~69~~	~~1411~~	~~109~~	~~2051~~	~~149~~	~~2650~~	~~189~~	~~3220~~	~~229~~	~~3768~~	~~269~~	~~4299~~	~~309~~	~~4816~~	~~349~~	~~5321~~	~~389~~	~~5815~~
~~30~~	~~713~~	~~70~~	~~1427~~	~~110~~	~~2067~~	~~150~~	~~2665~~	~~190~~	~~3234~~	~~230~~	~~3781~~	~~270~~	~~4312~~	~~310~~	~~4829~~	~~350~~	~~5333~~	~~390~~	~~5828~~
~~31~~	~~733~~	~~71~~	~~1444~~	~~111~~	~~2082~~	~~151~~	~~2679~~	~~191~~	~~3248~~	~~231~~	~~3795~~	~~271~~	~~4325~~	~~311~~	~~4841~~	~~351~~	~~5346~~	~~391~~	~~5840~~
~~32~~	~~752~~	~~72~~	~~1461~~	~~112~~	~~2098~~	~~152~~	~~2694~~	~~192~~	~~3262~~	~~232~~	~~3808~~	~~272~~	~~4338~~	~~312~~	~~4854~~	~~352~~	~~5358~~	~~392~~	~~5852~~
~~33~~	~~771~~	~~73~~	~~1477~~	~~113~~	~~2113~~	~~153~~	~~2708~~	~~193~~	~~3276~~	~~233~~	~~3822~~	~~273~~	~~4351~~	~~313~~	~~4867~~	~~353~~	~~5371~~	~~393~~	~~5864~~
~~34~~	~~790~~	~~74~~	~~1494~~	~~114~~	~~2128~~	~~154~~	~~2723~~	~~194~~	~~3289~~	~~234~~	~~3835~~	~~274~~	~~4364~~	~~314~~	~~4880~~	~~354~~	~~5383~~	~~394~~	~~5877~~
~~35~~	~~809~~	~~75~~	~~1510~~	~~115~~	~~2143~~	~~155~~	~~2737~~	~~195~~	~~3303~~	~~235~~	~~3849~~	~~275~~	~~4377~~	~~315~~	~~4892~~	~~355~~	~~5396~~	~~395~~	~~5889~~
~~36~~	~~828~~	~~76~~	~~1527~~	~~116~~	~~2159~~	~~156~~	~~2752~~	~~196~~	~~3317~~	~~236~~	~~3862~~	~~276~~	~~4390~~	~~316~~	~~4905~~	~~356~~	~~5408~~	~~396~~	~~5901~~
~~37~~	~~847~~	~~77~~	~~1543~~	~~117~~	~~2174~~	~~157~~	~~2766~~	~~197~~	~~3331~~	~~237~~	~~3875~~	~~277~~	~~4404~~	~~317~~	~~4918~~	~~357~~	~~5421~~	~~397~~	~~5913~~

~~38~~	~~865~~	~~78~~	~~1560~~	~~118~~	~~2189~~	~~158~~	~~2780~~	~~198~~	~~3345~~	~~238~~	~~3889~~	~~278~~	~~4417~~	~~318~~	~~4931~~	~~358~~	~~5433~~	~~398~~	~~5925~~
~~39~~	~~884~~	~~79~~	~~1576~~	~~119~~	~~2204~~	~~159~~	~~2795~~	~~199~~	~~3359~~	~~239~~	~~3902~~	~~279~~	~~4430~~	~~319~~	~~4943~~	~~359~~	~~5445~~	~~399~~	~~5938~~
~~40~~	~~903~~	~~80~~	~~1592~~	~~120~~	~~2220~~	~~160~~	~~2809~~	~~200~~	~~3372~~	~~240~~	~~3916~~	~~280~~	~~4443~~	~~320~~	~~4956~~	~~360~~	~~5458~~	~~400~~	~~5950~~

Table 9. Water Quality Standards for Dissolved Zinc

Acute and Chronic Aquatic and Wildlife coldwater, warmwater and edw		Acute Aquatic and Wildlife ephemeral	
Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
20	30.0	20	284
100	117	100	1112
400	379	400	3599
$e^{(0.8473*LN(Hardness)+0.884)}*(0.978)$		$e^{(0.8473*LN(Hardness)+3.1342)}*(0.978)$	

~~**Table 10. Acute Water Quality Standards for Dissolved Copper Aquatic and Wildlife coldwater, warmwater and edw**~~

~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~
~~1~~	~~0.18~~	~~41~~	~~5.80~~	~~81~~	~~11.02~~	~~121~~	~~16.08~~	~~161~~	~~21.05~~	~~201~~	~~25.94~~	~~241~~	~~30.78~~	~~281~~	~~35.57~~	~~321~~	~~40.33~~	~~361~~	~~45.05~~
~~2~~	~~0.34~~	~~42~~	~~5.93~~	~~82~~	~~11.15~~	~~122~~	~~16.21~~	~~162~~	~~21.17~~	~~202~~	~~26.07~~	~~242~~	~~30.90~~	~~282~~	~~35.69~~	~~322~~	~~40.45~~	~~362~~	~~45.16~~
~~3~~	~~0.49~~	~~43~~	~~6.07~~	~~83~~	~~11.28~~	~~123~~	~~16.33~~	~~163~~	~~21.30~~	~~203~~	~~26.19~~	~~243~~	~~31.02~~	~~283~~	~~35.81~~	~~323~~	~~40.56~~	~~363~~	~~45.28~~
~~4~~	~~0.65~~	~~44~~	~~6.20~~	~~84~~	~~11.40~~	~~124~~	~~16.46~~	~~164~~	~~21.42~~	~~204~~	~~26.31~~	~~244~~	~~31.14~~	~~284~~	~~35.93~~	~~324~~	~~40.68~~	~~364~~	~~45.40~~
~~5~~	~~0.80~~	~~45~~	~~6.33~~	~~85~~	~~11.53~~	~~125~~	~~16.58~~	~~165~~	~~21.54~~	~~205~~	~~26.43~~	~~245~~	~~31.26~~	~~285~~	~~36.05~~	~~325~~	~~40.80~~	~~365~~	~~45.52~~
~~6~~	~~0.95~~	~~46~~	~~6.47~~	~~86~~	~~11.66~~	~~126~~	~~16.71~~	~~166~~	~~21.66~~	~~206~~	~~26.55~~	~~246~~	~~31.38~~	~~286~~	~~36.17~~	~~326~~	~~40.92~~	~~366~~	~~45.63~~
~~7~~	~~1.10~~	~~47~~	~~6.60~~	~~87~~	~~11.79~~	~~127~~	~~16.83~~	~~167~~	~~21.79~~	~~207~~	~~26.67~~	~~247~~	~~31.50~~	~~287~~	~~36.29~~	~~327~~	~~41.04~~	~~367~~	~~45.75~~
~~8~~	~~1.24~~	~~48~~	~~6.73~~	~~88~~	~~11.91~~	~~128~~	~~16.96~~	~~168~~	~~21.91~~	~~208~~	~~26.79~~	~~248~~	~~31.62~~	~~288~~	~~36.41~~	~~328~~	~~41.16~~	~~368~~	~~45.87~~
~~9~~	~~1.39~~	~~49~~	~~6.86~~	~~89~~	~~12.04~~	~~129~~	~~17.08~~	~~169~~	~~22.03~~	~~209~~	~~26.92~~	~~249~~	~~31.74~~	~~289~~	~~36.53~~	~~329~~	~~41.27~~	~~369~~	~~45.99~~
~~10~~	~~1.54~~	~~50~~	~~6.99~~	~~90~~	~~12.17~~	~~130~~	~~17.21~~	~~170~~	~~22.16~~	~~210~~	~~27.04~~	~~250~~	~~31.86~~	~~290~~	~~36.65~~	~~330~~	~~41.39~~	~~370~~	~~46.10~~
~~11~~	~~1.68~~	~~51~~	~~7.13~~	~~91~~	~~12.30~~	~~131~~	~~17.33~~	~~171~~	~~22.28~~	~~211~~	~~27.16~~	~~251~~	~~31.98~~	~~291~~	~~36.77~~	~~331~~	~~41.51~~	~~371~~	~~46.22~~
~~12~~	~~1.82~~	~~52~~	~~7.26~~	~~92~~	~~12.42~~	~~132~~	~~17.46~~	~~172~~	~~22.40~~	~~212~~	~~27.28~~	~~252~~	~~32.10~~	~~292~~	~~36.89~~	~~332~~	~~41.63~~	~~372~~	~~46.34~~
~~13~~	~~1.97~~	~~53~~	~~7.39~~	~~93~~	~~12.55~~	~~133~~	~~17.58~~	~~173~~	~~22.52~~	~~213~~	~~27.40~~	~~253~~	~~32.22~~	~~293~~	~~37.00~~	~~333~~	~~41.75~~	~~373~~	~~46.46~~
~~14~~	~~2.11~~	~~54~~	~~7.52~~	~~94~~	~~12.68~~	~~134~~	~~17.71~~	~~174~~	~~22.65~~	~~214~~	~~27.52~~	~~254~~	~~32.34~~	~~294~~	~~37.12~~	~~334~~	~~41.86~~	~~374~~	~~46.57~~
~~15~~	~~2.25~~	~~55~~	~~7.65~~	~~95~~	~~12.81~~	~~135~~	~~17.83~~	~~175~~	~~22.77~~	~~215~~	~~27.64~~	~~255~~	~~32.46~~	~~295~~	~~37.24~~	~~335~~	~~41.98~~	~~375~~	~~46.69~~
~~16~~	~~2.39~~	~~56~~	~~7.78~~	~~96~~	~~12.93~~	~~136~~	~~17.96~~	~~176~~	~~22.89~~	~~216~~	~~27.76~~	~~256~~	~~32.58~~	~~296~~	~~37.36~~	~~336~~	~~42.10~~	~~376~~	~~46.81~~
~~17~~	~~2.53~~	~~57~~	~~7.91~~	~~97~~	~~13.06~~	~~137~~	~~18.08~~	~~177~~	~~23.02~~	~~217~~	~~27.89~~	~~257~~	~~32.70~~	~~297~~	~~37.48~~	~~337~~	~~42.22~~	~~377~~	~~46.92~~
~~18~~	~~2.67~~	~~58~~	~~8.04~~	~~98~~	~~13.19~~	~~138~~	~~18.20~~	~~178~~	~~23.14~~	~~218~~	~~28.01~~	~~258~~	~~32.82~~	~~298~~	~~37.60~~	~~338~~	~~42.34~~	~~378~~	~~47.04~~
~~19~~	~~2.81~~	~~59~~	~~8.17~~	~~99~~	~~13.31~~	~~139~~	~~18.33~~	~~179~~	~~23.26~~	~~219~~	~~28.13~~	~~259~~	~~32.94~~	~~299~~	~~37.72~~	~~339~~	~~42.45~~	~~379~~	~~47.16~~
~~20~~	~~2.95~~	~~60~~	~~8.31~~	~~100~~	~~13.44~~	~~140~~	~~18.45~~	~~180~~	~~23.38~~	~~220~~	~~28.25~~	~~260~~	~~33.06~~	~~300~~	~~37.84~~	~~340~~	~~42.57~~	~~380~~	~~47.28~~
~~21~~	~~3.09~~	~~61~~	~~8.44~~	~~101~~	~~13.57~~	~~141~~	~~18.58~~	~~181~~	~~23.50~~	~~221~~	~~28.37~~	~~261~~	~~33.18~~	~~301~~	~~37.96~~	~~341~~	~~42.69~~	~~381~~	~~47.39~~
~~22~~	~~3.23~~	~~62~~	~~8.57~~	~~102~~	~~13.69~~	~~142~~	~~18.70~~	~~182~~	~~23.63~~	~~222~~	~~28.49~~	~~262~~	~~33.30~~	~~302~~	~~38.07~~	~~342~~	~~42.81~~	~~382~~	~~47.51~~

~~23~~	~~3.37~~	~~63~~	~~8.70~~	~~103~~	~~13.82~~	~~143~~	~~18.82~~	~~183~~	~~23.75~~	~~223~~	~~28.61~~	~~263~~	~~33.42~~	~~303~~	~~38.19~~	~~343~~	~~42.93~~	~~383~~	~~47.63~~
~~24~~	~~3.50~~	~~64~~	~~8.83~~	~~104~~	~~13.95~~	~~144~~	~~18.95~~	~~184~~	~~23.87~~	~~224~~	~~28.73~~	~~264~~	~~33.54~~	~~304~~	~~38.31~~	~~344~~	~~43.04~~	~~384~~	~~47.74~~
~~25~~	~~3.64~~	~~65~~	~~8.96~~	~~105~~	~~14.07~~	~~145~~	~~19.07~~	~~185~~	~~23.99~~	~~225~~	~~28.85~~	~~265~~	~~33.66~~	~~305~~	~~38.43~~	~~345~~	~~43.16~~	~~385~~	~~47.86~~
~~26~~	~~3.78~~	~~66~~	~~9.09~~	~~106~~	~~14.20~~	~~146~~	~~19.20~~	~~186~~	~~24.12~~	~~226~~	~~28.97~~	~~266~~	~~33.78~~	~~306~~	~~38.55~~	~~346~~	~~43.28~~	~~386~~	~~47.98~~
~~27~~	~~3.91~~	~~67~~	~~9.22~~	~~107~~	~~14.32~~	~~147~~	~~19.32~~	~~187~~	~~24.24~~	~~227~~	~~29.09~~	~~267~~	~~33.90~~	~~307~~	~~38.67~~	~~347~~	~~43.40~~	~~387~~	~~48.10~~
~~28~~	~~4.05~~	~~68~~	~~9.34~~	~~108~~	~~14.45~~	~~148~~	~~19.44~~	~~188~~	~~24.36~~	~~228~~	~~29.22~~	~~268~~	~~34.02~~	~~308~~	~~38.79~~	~~348~~	~~43.52~~	~~388~~	~~48.21~~
~~29~~	~~4.19~~	~~69~~	~~9.47~~	~~109~~	~~14.58~~	~~149~~	~~19.57~~	~~189~~	~~24.48~~	~~229~~	~~29.34~~	~~269~~	~~34.14~~	~~309~~	~~38.91~~	~~349~~	~~43.63~~	~~389~~	~~48.33~~
~~30~~	~~4.32~~	~~70~~	~~9.60~~	~~110~~	~~14.70~~	~~150~~	~~19.69~~	~~190~~	~~24.60~~	~~230~~	~~29.46~~	~~270~~	~~34.26~~	~~310~~	~~39.02~~	~~350~~	~~43.75~~	~~390~~	~~48.45~~
~~31~~	~~4.46~~	~~71~~	~~9.73~~	~~111~~	~~14.83~~	~~151~~	~~19.82~~	~~191~~	~~24.73~~	~~231~~	~~29.58~~	~~271~~	~~34.38~~	~~311~~	~~39.14~~	~~351~~	~~43.87~~	~~391~~	~~48.56~~
~~32~~	~~4.59~~	~~72~~	~~9.86~~	~~112~~	~~14.95~~	~~152~~	~~19.94~~	~~192~~	~~24.85~~	~~232~~	~~29.70~~	~~272~~	~~34.50~~	~~312~~	~~39.26~~	~~352~~	~~43.99~~	~~392~~	~~48.68~~
~~33~~	~~4.73~~	~~73~~	~~9.99~~	~~113~~	~~15.08~~	~~153~~	~~20.06~~	~~193~~	~~24.97~~	~~233~~	~~29.82~~	~~273~~	~~34.62~~	~~313~~	~~39.38~~	~~353~~	~~44.10~~	~~393~~	~~48.80~~
~~34~~	~~4.86~~	~~74~~	~~10.12~~	~~114~~	~~15.20~~	~~154~~	~~20.19~~	~~194~~	~~25.09~~	~~234~~	~~29.94~~	~~274~~	~~34.74~~	~~314~~	~~39.50~~	~~354~~	~~44.22~~	~~394~~	~~48.92~~
~~35~~	~~5.00~~	~~75~~	~~10.25~~	~~115~~	~~15.33~~	~~155~~	~~20.31~~	~~195~~	~~25.21~~	~~235~~	~~30.06~~	~~275~~	~~34.86~~	~~315~~	~~39.62~~	~~355~~	~~44.34~~	~~395~~	~~49.03~~
~~36~~	~~5.13~~	~~76~~	~~10.38~~	~~116~~	~~15.46~~	~~156~~	~~20.43~~	~~196~~	~~25.34~~	~~236~~	~~30.18~~	~~276~~	~~34.98~~	~~316~~	~~39.74~~	~~356~~	~~44.46~~	~~396~~	~~49.15~~
~~37~~	~~5.27~~	~~77~~	~~10.51~~	~~117~~	~~15.58~~	~~157~~	~~20.56~~	~~197~~	~~25.46~~	~~237~~	~~30.30~~	~~277~~	~~35.10~~	~~317~~	~~39.85~~	~~357~~	~~44.58~~	~~397~~	~~49.27~~
~~38~~	~~5.40~~	~~78~~	~~10.63~~	~~118~~	~~15.71~~	~~158~~	~~20.68~~	~~198~~	~~25.58~~	~~238~~	~~30.42~~	~~278~~	~~35.22~~	~~318~~	~~39.97~~	~~358~~	~~44.69~~	~~398~~	~~49.38~~
~~39~~	~~5.53~~	~~79~~	~~10.76~~	~~119~~	~~15.83~~	~~159~~	~~20.80~~	~~199~~	~~25.70~~	~~239~~	~~30.54~~	~~279~~	~~35.34~~	~~319~~	~~40.09~~	~~359~~	~~44.81~~	~~399~~	~~49.50~~
~~40~~	~~5.67~~	~~80~~	~~10.89~~	~~120~~	~~15.96~~	~~160~~	~~20.93~~	~~200~~	~~25.82~~	~~240~~	~~30.66~~	~~280~~	~~35.46~~	~~320~~	~~40.21~~	~~360~~	~~44.93~~	~~400~~	~~49.62~~

Table 10. Water Quality Standards for Pentachlorophenol

Acute Aquatic and Wildlife coldwater, warmwater and edw		Chronic Aquatic and Wildlife coldwater, warmwater and edw		Acute Aquatic and Wildlife ephemeral	
pH	µg/L	pH	µg/L	pH	µg/L
3	0.16	3	0.1	3	0.66
6	3.3	6	2.1	6	13.5
9	67.7	9	42.7	9	274
$e^{(1.005*(pH)}$-4.83)		$e^{(1.005*(pH)}$-5.29)		$e^{(1.005*(pH)-3.4306)}$	

~~**Table 11. Chronic Water Quality Standards for Dissolved Copper Aquatic and Wildlife coldwater, warmwater and edw**~~

~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~	~~Hard. mg/L~~	~~Std. µg/L~~
~~1~~	~~0.18~~	~~41~~	~~4.18~~	~~81~~	~~7.48~~	~~121~~	~~10.54~~	~~161~~	~~13.45~~	~~201~~	~~16.26~~	~~241~~	~~18.99~~	~~281~~	~~21.65~~	~~321~~	~~24.26~~	~~361~~	~~26.82~~
~~2~~	~~0.32~~	~~42~~	~~4.27~~	~~82~~	~~7.56~~	~~122~~	~~10.61~~	~~162~~	~~13.52~~	~~202~~	~~16.33~~	~~242~~	~~19.06~~	~~282~~	~~21.72~~	~~322~~	~~24.33~~	~~362~~	~~26.89~~
~~3~~	~~0.45~~	~~43~~	~~4.35~~	~~83~~	~~7.64~~	~~123~~	~~10.69~~	~~163~~	~~13.60~~	~~203~~	~~16.40~~	~~243~~	~~19.13~~	~~283~~	~~21.78~~	~~323~~	~~24.39~~	~~363~~	~~26.95~~
~~4~~	~~0.57~~	~~44~~	~~4.44~~	~~84~~	~~7.72~~	~~124~~	~~10.76~~	~~164~~	~~13.67~~	~~204~~	~~16.47~~	~~244~~	~~19.19~~	~~284~~	~~21.85~~	~~324~~	~~24.45~~	~~364~~	~~27.01~~
~~5~~	~~0.69~~	~~45~~	~~4.53~~	~~85~~	~~7.79~~	~~125~~	~~10.84~~	~~165~~	~~13.74~~	~~205~~	~~16.54~~	~~245~~	~~19.26~~	~~285~~	~~21.92~~	~~325~~	~~24.52~~	~~365~~	~~27.08~~
~~6~~	~~0.81~~	~~46~~	~~4.61~~	~~86~~	~~7.87~~	~~126~~	~~10.91~~	~~166~~	~~13.81~~	~~206~~	~~16.61~~	~~246~~	~~19.33~~	~~286~~	~~21.98~~	~~326~~	~~24.58~~	~~366~~	~~27.14~~
~~7~~	~~0.92~~	~~47~~	~~4.70~~	~~87~~	~~7.95~~	~~127~~	~~10.99~~	~~167~~	~~13.88~~	~~207~~	~~16.68~~	~~247~~	~~19.39~~	~~287~~	~~22.05~~	~~327~~	~~24.65~~	~~367~~	~~27.20~~
~~8~~	~~1.03~~	~~48~~	~~4.78~~	~~88~~	~~8.03~~	~~128~~	~~11.06~~	~~168~~	~~13.95~~	~~208~~	~~16.75~~	~~248~~	~~19.46~~	~~288~~	~~22.11~~	~~328~~	~~24.71~~	~~368~~	~~27.27~~
~~9~~	~~1.14~~	~~49~~	~~4.87~~	~~89~~	~~8.11~~	~~129~~	~~11.13~~	~~169~~	~~14.02~~	~~209~~	~~16.81~~	~~249~~	~~19.53~~	~~289~~	~~22.18~~	~~329~~	~~24.78~~	~~369~~	~~27.33~~
~~10~~	~~1.25~~	~~50~~	~~4.95~~	~~90~~	~~8.18~~	~~130~~	~~11.21~~	~~170~~	~~14.09~~	~~210~~	~~16.88~~	~~250~~	~~19.59~~	~~290~~	~~22.24~~	~~330~~	~~24.84~~	~~370~~	~~27.39~~

11	1.36	51	5.04	91	8.26	131	11.28	171	14.16	211	16.95	251	19.66	291	22.31	331	24.91	371	27.46
12	1.46	52	5.12	92	8.34	132	11.35	172	14.24	212	17.02	252	19.73	292	22.38	332	24.97	372	27.52
13	1.57	53	5.21	93	8.42	133	11.43	173	14.31	213	17.09	253	19.80	293	22.44	333	25.03	373	27.58
14	1.67	54	5.29	94	8.49	134	11.50	174	14.38	214	17.16	254	19.86	294	22.51	334	25.10	374	27.65
15	1.77	55	5.37	95	8.57	135	11.57	175	14.45	215	17.23	255	19.93	295	22.57	335	25.16	375	27.71
16	1.87	56	5.46	96	8.65	136	11.65	176	14.52	216	17.29	256	20.00	296	22.64	336	25.23	376	27.77
17	1.97	57	5.54	97	8.73	137	11.72	177	14.59	217	17.36	257	20.06	297	22.70	337	25.29	377	27.83
18	2.07	58	5.62	98	8.80	138	11.79	178	14.66	218	17.43	258	20.13	298	22.77	338	25.35	378	27.90
19	2.17	59	5.71	99	8.88	139	11.87	179	14.73	219	17.50	259	20.20	299	22.83	339	25.42	379	27.96
20	2.26	60	5.79	100	8.96	140	11.94	180	14.80	220	17.57	260	20.26	300	22.90	340	25.48	380	28.02
21	2.36	61	5.87	101	9.03	141	12.01	181	14.87	221	17.64	261	20.33	301	22.96	341	25.55	381	28.09
22	2.46	62	5.95	102	9.11	142	12.08	182	14.94	222	17.70	262	20.40	302	23.03	342	25.61	382	28.15
23	2.55	63	6.03	103	9.18	143	12.16	183	15.01	223	17.77	263	20.46	303	23.09	343	25.68	383	28.21
24	2.65	64	6.12	104	9.26	144	12.23	184	15.08	224	17.84	264	20.53	304	23.16	344	25.74	384	28.28
25	2.74	65	6.20	105	9.34	145	12.30	185	15.15	225	17.91	265	20.60	305	23.22	345	25.80	385	28.34
26	2.83	66	6.28	106	9.41	146	12.37	186	15.22	226	17.98	266	20.66	306	23.29	346	25.87	386	28.40
27	2.93	67	6.36	107	9.49	147	12.45	187	15.29	227	18.04	267	20.73	307	23.35	347	25.93	387	28.46
28	3.02	68	6.44	108	9.56	148	12.52	188	15.36	228	18.11	268	20.79	308	23.42	348	25.99	388	28.53
29	3.11	69	6.52	109	9.64	149	12.59	189	15.43	229	18.18	269	20.86	309	23.48	349	26.06	389	28.59
30	3.20	70	6.60	110	9.72	150	12.66	190	15.50	230	18.25	270	20.93	310	23.55	350	26.12	390	28.65
31	3.29	71	6.68	111	9.79	151	12.74	191	15.57	231	18.32	271	20.99	311	23.61	351	26.19	391	28.72
32	3.38	72	6.76	112	9.87	152	12.81	192	15.64	232	18.38	272	21.06	312	23.68	352	26.25	392	28.78
33	3.47	73	6.84	113	9.94	153	12.88	193	15.71	233	18.45	273	21.13	313	23.74	353	26.31	393	28.84
34	3.56	74	6.92	114	10.02	154	12.95	194	15.78	234	18.52	274	21.19	314	23.81	354	26.38	394	28.90
35	3.65	75	7.00	115	10.09	155	13.02	195	15.85	235	18.59	275	21.26	315	23.87	355	26.44	395	28.97
36	3.74	76	7.08	116	10.17	156	13.10	196	15.92	236	18.65	276	21.32	316	23.94	356	26.50	396	29.03
37	3.83	77	7.16	117	10.24	157	13.17	197	15.99	237	18.72	277	21.39	317	24.00	357	26.57	397	29.09
38	3.92	78	7.24	118	10.32	158	13.24	198	16.05	238	18.79	278	21.46	318	24.07	358	26.63	398	29.15
39	4.01	79	7.32	119	10.39	159	13.31	199	16.12	239	18.86	279	21.52	319	24.13	359	26.70	399	29.22
40	4.09	80	7.40	120	10.47	160	13.38	200	16.19	240	18.92	280	21.59	320	24.20	360	26.76	400	29.28

Table 12.Acute Water Quality Standards for Dissolved Copper Aquatic and Wildlife ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.30	41	10.04	81	19.07	121	27.84	161	36.43	201	44.91	241	53.28	281	61.57	321	69.80	361	77.97
2	0.58	42	10.27	82	19.29	122	28.05	162	36.65	202	45.12	242	53.49	282	61.78	322	70.00	362	78.17
3	0.85	43	10.50	83	19.52	123	28.27	163	36.86	203	45.33	243	53.70	283	61.99	323	70.21	363	78.37
4	1.12	44	10.73	84	19.74	124	28.49	164	37.07	204	45.54	244	53.90	284	62.19	324	70.41	364	78.58
5	1.38	45	10.96	85	19.96	125	28.70	165	37.29	205	45.75	245	54.11	285	62.40	325	70.62	365	78.78
6	1.64	46	11.19	86	20.18	126	28.92	166	37.50	206	45.96	246	54.32	286	62.61	326	70.82	366	78.98
7	1.90	47	11.42	87	20.40	127	29.14	167	37.71	207	46.17	247	54.53	287	62.81	327	71.03	367	79.19

8	2.15	48	11.65	88	20.62	128	29.35	168	37.92	208	46.38	248	54.74	288	63.02	328	71.23	368	79.39
9	2.41	49	11.88	89	20.84	129	29.57	169	38.14	209	46.59	249	54.94	289	63.22	329	71.44	369	79.59
10	2.66	50	12.11	90	21.06	130	29.78	170	38.35	210	46.80	250	55.15	290	63.43	330	71.64	370	79.80
11	2.91	51	12.33	91	21.28	131	30.00	171	38.56	211	47.01	251	55.36	291	63.64	331	71.85	371	80.00
12	3.16	52	12.56	92	21.50	132	30.22	172	38.77	212	47.22	252	55.57	292	63.84	332	72.05	372	80.20
13	3.40	53	12.79	93	21.72	133	30.43	173	38.99	213	47.43	253	55.78	293	64.05	333	72.26	373	80.41
14	3.65	54	13.02	94	21.94	134	30.65	174	39.20	214	47.64	254	55.98	294	64.25	334	72.46	374	80.61
15	3.89	55	13.24	95	22.16	135	30.86	175	39.41	215	47.85	255	56.19	295	64.46	335	72.66	375	80.81
16	4.14	56	13.47	96	22.38	136	31.08	176	39.62	216	48.06	256	56.40	296	64.67	336	72.87	376	81.02
17	4.38	57	13.70	97	22.60	137	31.29	177	39.84	217	48.27	257	56.61	297	64.87	337	73.07	377	81.22
18	4.62	58	13.92	98	22.82	138	31.51	178	40.05	218	48.48	258	56.81	298	65.08	338	73.28	378	81.42
19	4.86	59	14.15	99	23.04	139	31.72	179	40.26	219	48.68	259	57.02	299	65.28	339	73.48	379	81.62
20	5.11	60	14.37	100	23.26	140	31.94	180	40.47	220	48.89	260	57.23	300	65.49	340	73.69	380	81.83
21	5.35	61	14.60	101	23.48	141	32.15	181	40.68	221	49.10	261	57.44	301	65.69	341	73.89	381	82.03
22	5.59	62	14.83	102	23.70	142	32.37	182	40.89	222	49.31	262	57.64	302	65.90	342	74.09	382	82.23
23	5.82	63	15.05	103	23.92	143	32.58	183	41.11	223	49.52	263	57.85	303	66.11	343	74.30	383	82.44
24	6.06	64	15.28	104	24.14	144	32.80	184	41.32	224	49.73	264	58.06	304	66.31	344	74.50	384	82.64
25	6.30	65	15.50	105	24.36	145	33.01	185	41.53	225	49.94	265	58.26	305	66.52	345	74.71	385	82.84
26	6.54	66	15.73	106	24.57	146	33.23	186	41.74	226	50.15	266	58.47	306	66.72	346	74.91	386	83.04
27	6.77	67	15.95	107	24.79	147	33.44	187	41.95	227	50.36	267	58.68	307	66.93	347	75.11	387	83.25
28	7.01	68	16.17	108	25.01	148	33.65	188	42.16	228	50.57	268	58.89	308	67.13	348	75.32	388	83.45
29	7.25	69	16.40	109	25.23	149	33.87	189	42.37	229	50.78	269	59.09	309	67.34	349	75.52	389	83.65
30	7.48	70	16.62	110	25.45	150	34.08	190	42.59	230	50.99	270	59.30	310	67.54	350	75.73	390	83.85
31	7.72	71	16.85	111	25.66	151	34.30	191	42.80	231	51.19	271	59.51	311	67.75	351	75.93	391	84.06
32	7.95	72	17.07	112	25.88	152	34.51	192	43.01	232	51.40	272	59.71	312	67.95	352	76.13	392	84.26
33	8.18	73	17.29	113	26.10	153	34.72	193	43.22	233	51.61	273	59.92	313	68.16	353	76.34	393	84.46
34	8.42	74	17.52	114	26.32	154	34.94	194	43.43	234	51.82	274	60.13	314	68.36	354	76.54	394	84.66
35	8.65	75	17.74	115	26.53	155	35.15	195	43.64	235	52.03	275	60.33	315	68.57	355	76.74	395	84.87
36	8.88	76	17.96	116	26.75	156	35.37	196	43.85	236	52.24	276	60.54	316	68.77	356	76.95	396	85.07
37	9.12	77	18.18	117	26.97	157	35.58	197	44.06	237	52.45	277	60.75	317	68.98	357	77.15	397	85.27
38	9.35	78	18.41	118	27.19	158	35.79	198	44.27	238	52.65	278	60.95	318	69.18	358	77.36	398	85.47
39	9.58	79	18.63	119	27.40	159	36.01	199	44.48	239	52.86	279	61.16	319	69.39	359	77.56	399	85.68
40	9.81	80	18.85	120	27.62	160	36.22	200	44.69	240	53.07	280	61.37	320	69.59	360	77.76	400	85.88

Table 13.Acute Water Quality Standards for Dissolved Lead Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.34	41	24.17	81	51.30	121	79.43	161	108.02	201	136.86	241	165.82	281	194.81	321	223.79	361	252.72
2	0.76	42	24.82	82	52.00	122	80.14	162	108.74	202	137.59	242	166.55	282	195.54	322	224.52	362	253.44
3	1.22	43	25.48	83	52.69	123	80.85	163	109.46	203	138.31	243	167.27	283	196.26	323	225.24	363	254.16
4	1.71	44	26.14	84	53.39	124	81.56	164	110.18	204	139.03	244	167.99	284	196.99	324	225.96	364	254.89
5	2.21	45	26.81	85	54.08	125	82.27	165	110.90	205	139.76	245	168.72	285	197.71	325	226.69	365	255.61
6	2.73	46	27.47	86	54.78	126	82.98	166	111.62	206	140.48	246	169.44	286	198.44	326	227.41	366	256.33
7	3.26	47	28.13	87	55.48	127	83.69	167	112.34	207	141.20	247	170.17	287	199.16	327	228.14	367	257.05

8	3.80	48	28.80	88	56.17	128	84.41	168	113.06	208	141.93	248	170.89	288	199.89	328	228.86	368	257.77
9	4.35	49	29.47	89	56.87	129	85.12	169	113.78	209	142.65	249	171.62	289	200.61	329	229.58	369	258.50
10	4.91	50	30.14	90	57.57	130	85.83	170	114.50	210	143.37	250	172.34	290	201.34	330	230.31	370	259.22
11	5.47	51	30.81	91	58.27	131	86.54	171	115.22	211	144.10	251	173.07	291	202.06	331	231.03	371	259.94
12	6.04	52	31.48	92	58.97	132	87.26	172	115.94	212	144.82	252	173.79	292	202.79	332	231.75	372	260.66
13	6.62	53	32.15	93	59.67	133	87.97	173	116.66	213	145.54	253	174.52	293	203.51	333	232.48	373	261.38
14	7.20	54	32.82	94	60.37	134	88.68	174	117.38	214	146.27	254	175.24	294	204.24	334	233.20	374	262.10
15	7.79	55	33.49	95	61.07	135	89.40	175	118.10	215	146.99	255	175.97	295	204.96	335	233.92	375	262.83
16	8.38	56	34.17	96	61.77	136	90.11	176	118.82	216	147.71	256	176.69	296	205.69	336	234.65	376	263.55
17	8.98	57	34.84	97	62.47	137	90.83	177	119.54	217	148.44	257	177.42	297	206.41	337	235.37	377	264.27
18	9.58	58	35.52	98	63.18	138	91.54	178	120.26	218	149.16	258	178.14	298	207.13	338	236.09	378	264.99
19	10.18	59	36.20	99	63.88	139	92.25	179	120.98	219	149.89	259	178.87	299	207.86	339	236.82	379	265.71
20	10.79	60	36.88	100	64.58	140	92.97	180	121.70	220	150.61	260	179.59	300	208.58	340	237.54	380	266.43
21	11.40	61	37.56	101	65.28	141	93.68	181	122.42	221	151.33	261	180.32	301	209.31	341	238.26	381	267.15
22	12.02	62	38.24	102	65.99	142	94.40	182	123.14	222	152.06	262	181.04	302	210.03	342	238.99	382	267.88
23	12.64	63	38.92	103	66.69	143	95.12	183	123.87	223	152.78	263	181.77	303	210.76	343	239.71	383	268.60
24	13.26	64	39.60	104	67.40	144	95.83	184	124.59	224	153.51	264	182.49	304	211.48	344	240.43	384	269.32
25	13.88	65	40.28	105	68.10	145	96.55	185	125.31	225	154.23	265	183.22	305	212.21	345	241.16	385	270.04
26	14.51	66	40.97	106	68.81	146	97.26	186	126.03	226	154.95	266	183.94	306	212.93	346	241.88	386	270.76
27	15.14	67	41.65	107	69.51	147	97.98	187	126.75	227	155.68	267	184.67	307	213.65	347	242.60	387	271.48
28	15.77	68	42.33	108	70.22	148	98.70	188	127.47	228	156.40	268	185.39	308	214.38	348	243.33	388	272.20
29	16.40	69	43.02	109	70.93	149	99.41	189	128.20	229	157.13	269	186.12	309	215.10	349	244.05	389	272.92
30	17.04	70	43.71	110	71.63	150	100.13	190	128.92	230	157.85	270	186.84	310	215.83	350	244.77	390	273.64
31	17.68	71	44.39	111	72.34	151	100.85	191	129.64	231	158.58	271	187.57	311	216.55	351	245.49	391	274.36
32	18.32	72	45.08	112	73.05	152	101.56	192	130.36	232	159.30	272	188.29	312	217.28	352	246.22	392	275.08
33	18.96	73	45.77	113	73.75	153	102.28	193	131.08	233	160.02	273	189.02	313	218.00	353	246.94	393	275.80
34	19.61	74	46.46	114	74.46	154	103.00	194	131.81	234	160.75	274	189.74	314	218.72	354	247.66	394	276.52
35	20.25	75	47.15	115	75.17	155	103.72	195	132.53	235	161.47	275	190.47	315	219.45	355	248.38	395	277.25
36	20.90	76	47.84	116	75.88	156	104.43	196	133.25	236	162.20	276	191.19	316	220.17	356	249.11	396	277.97
37	21.55	77	48.53	117	76.59	157	105.15	197	133.97	237	162.92	277	191.92	317	220.90	357	249.83	397	278.69
38	22.20	78	49.22	118	77.30	158	105.87	198	134.70	238	163.65	278	192.64	318	221.62	358	250.55	398	279.41
39	22.86	79	49.92	119	78.01	159	106.59	199	135.42	239	164.37	279	193.36	319	222.34	359	251.27	399	280.13
40	23.51	80	50.61	120	78.72	160	107.31	200	136.14	240	165.10	280	194.09	320	223.07	360	252.00	400	280.85

Table 14.Chronic Water Quality Standards for Dissolved Lead Aquatic and Wildlife coldwater, warmwater and cdw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.01	41	0.94	81	2.00	121	3.10	161	4.21	201	5.33	241	6.46	281	7.59	321	8.72	361	9.85
2	0.03	42	0.97	82	2.03	122	3.12	162	4.24	202	5.36	242	6.49	282	7.62	322	8.75	362	9.88
3	0.05	43	0.99	83	2.05	123	3.15	163	4.27	203	5.39	243	6.52	283	7.65	323	8.78	363	9.90
4	0.07	44	1.02	84	2.08	124	3.18	164	4.29	204	5.42	244	6.55	284	7.68	324	8.81	364	9.93
5	0.09	45	1.04	85	2.11	125	3.21	165	4.32	205	5.45	245	6.57	285	7.70	325	8.83	365	9.96
6	0.11	46	1.07	86	2.13	126	3.23	166	4.35	206	5.47	246	6.60	286	7.73	326	8.86	366	9.99
7	0.13	47	1.10	87	2.16	127	3.26	167	4.38	207	5.50	247	6.63	287	7.76	327	8.89	367	10.02

8	0.15	48	1.12	88	2.19	128	3.29	168	4.41	208	5.53	248	6.66	288	7.79	328	8.92	368	10.05
9	0.17	49	1.15	89	2.22	129	3.32	169	4.43	209	5.56	249	6.69	289	7.82	329	8.95	369	10.07
10	0.19	50	1.17	90	2.24	130	3.34	170	4.46	210	5.59	250	6.72	290	7.85	330	8.97	370	10.10
11	0.21	51	1.20	91	2.27	131	3.37	171	4.49	211	5.62	251	6.74	291	7.87	331	9.00	371	10.13
12	0.24	52	1.23	92	2.30	132	3.40	172	4.52	212	5.64	252	6.77	292	7.90	332	9.03	372	10.16
13	0.26	53	1.25	93	2.33	133	3.43	173	4.55	213	5.67	253	6.80	293	7.93	333	9.06	373	10.19
14	0.28	54	1.28	94	2.35	134	3.46	174	4.57	214	5.70	254	6.83	294	7.96	334	9.09	374	10.21
15	0.30	55	1.31	95	2.38	135	3.48	175	4.60	215	5.73	255	6.86	295	7.99	335	9.12	375	10.24
16	0.33	56	1.33	96	2.41	136	3.51	176	4.63	216	5.76	256	6.89	296	8.02	336	9.14	376	10.27
17	0.35	57	1.36	97	2.43	137	3.54	177	4.66	217	5.78	257	6.91	297	8.04	337	9.17	377	10.30
18	0.37	58	1.38	98	2.46	138	3.57	178	4.69	218	5.81	258	6.94	298	8.07	338	9.20	378	10.33
19	0.40	59	1.41	99	2.49	139	3.60	179	4.71	219	5.84	259	6.97	299	8.10	339	9.23	379	10.35
20	0.42	60	1.44	100	2.52	140	3.62	180	4.74	220	5.87	260	7.00	300	8.13	340	9.26	380	10.38
21	0.44	61	1.46	101	2.54	141	3.65	181	4.77	221	5.90	261	7.03	301	8.16	341	9.28	381	10.41
22	0.47	62	1.49	102	2.57	142	3.68	182	4.80	222	5.93	262	7.05	302	8.18	342	9.31	382	10.44
23	0.49	63	1.52	103	2.60	143	3.71	183	4.83	223	5.95	263	7.08	303	8.21	343	9.34	383	10.47
24	0.52	64	1.54	104	2.63	144	3.73	184	4.85	224	5.98	264	7.11	304	8.24	344	9.37	384	10.49
25	0.54	65	1.57	105	2.65	145	3.76	185	4.88	225	6.01	265	7.14	305	8.27	345	9.40	385	10.52
26	0.57	66	1.60	106	2.68	146	3.79	186	4.91	226	6.04	266	7.17	306	8.30	346	9.43	386	10.55
27	0.59	67	1.62	107	2.71	147	3.82	187	4.94	227	6.07	267	7.20	307	8.33	347	9.45	387	10.58
28	0.61	68	1.65	108	2.74	148	3.85	188	4.97	228	6.09	268	7.22	308	8.35	348	9.48	388	10.61
29	0.64	69	1.68	109	2.76	149	3.87	189	5.00	229	6.12	269	7.25	309	8.38	349	9.51	389	10.64
30	0.66	70	1.70	110	2.79	150	3.90	190	5.02	230	6.15	270	7.28	310	8.41	350	9.54	390	10.66
31	0.69	71	1.73	111	2.82	151	3.93	191	5.05	231	6.18	271	7.31	311	8.44	351	9.57	391	10.69
32	0.71	72	1.76	112	2.85	152	3.96	192	5.08	232	6.21	272	7.34	312	8.47	352	9.59	392	10.72
33	0.74	73	1.78	113	2.87	153	3.99	193	5.11	233	6.24	273	7.37	313	8.50	353	9.62	393	10.75
34	0.76	74	1.81	114	2.90	154	4.01	194	5.14	234	6.26	274	7.39	314	8.52	354	9.65	394	10.78
35	0.79	75	1.84	115	2.93	155	4.04	195	5.16	235	6.29	275	7.42	315	8.55	355	9.68	395	10.80
36	0.81	76	1.86	116	2.96	156	4.07	196	5.19	236	6.32	276	7.45	316	8.58	356	9.71	396	10.83
37	0.84	77	1.89	117	2.98	157	4.10	197	5.22	237	6.35	277	7.48	317	8.61	357	9.74	397	10.86
38	0.87	78	1.92	118	3.01	158	4.13	198	5.25	238	6.38	278	7.51	318	8.64	358	9.76	398	10.89
39	0.89	79	1.95	119	3.04	159	4.15	199	5.28	239	6.41	279	7.54	319	8.66	359	9.79	399	10.92
40	0.92	80	1.97	120	3.07	160	4.18	200	5.31	240	6.43	280	7.56	320	8.69	360	9.82	400	10.94

Table 15.Acute Water Quality Standards for Dissolved Lead Aquatic and Wildlife ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.72	41	51.00	81	108.27	121	167.63	161	227.98	201	288.85	241	349.96	281	411.15	321	472.30	361	533.35
2	1.61	42	52.39	82	109.74	122	169.13	162	229.50	202	290.37	242	351.49	282	412.68	322	473.83	362	534.87
3	2.58	43	53.78	83	111.21	123	170.63	163	231.01	203	291.90	243	353.02	283	414.21	323	475.36	363	536.40
4	3.61	44	55.18	84	112.67	124	172.13	164	232.53	204	293.42	244	354.54	284	415.73	324	476.89	364	537.92
5	4.67	45	56.57	85	114.14	125	173.63	165	234.05	205	294.95	245	356.07	285	417.26	325	478.41	365	539.45

6	5.76	46	57.97	86	115.61	126	175.13	166	235.57	206	296.48	246	357.60	286	418.79	326	479.94	366	540.97
7	6.88	47	59.38	87	117.08	127	176.63	167	237.08	207	298.00	247	359.13	287	420.32	327	481.47	367	542.49
8	8.02	48	60.78	88	118.55	128	178.13	168	238.60	208	299.53	248	360.66	288	421.85	328	483.00	368	544.02
9	9.18	49	62.19	89	120.03	129	179.64	169	240.12	209	301.05	249	362.19	289	423.38	329	484.52	369	545.54
10	10.35	50	63.60	90	121.50	130	181.14	170	241.64	210	302.58	250	363.72	290	424.91	330	486.05	370	547.06
11	11.54	51	65.01	91	122.98	131	182.65	171	243.16	211	304.11	251	365.25	291	426.44	331	487.58	371	548.59
12	12.75	52	66.43	92	124.45	132	184.15	172	244.68	212	305.64	252	366.78	292	427.97	332	489.10	372	550.11
13	13.97	53	67.85	93	125.93	133	185.66	173	246.20	213	307.16	253	368.31	293	429.50	333	490.63	373	551.63
14	15.20	54	69.26	94	127.41	134	187.16	174	247.72	214	308.69	254	369.84	294	431.03	334	492.16	374	553.16
15	16.44	55	70.69	95	128.89	135	188.67	175	249.24	215	310.22	255	371.37	295	432.56	335	493.68	375	554.68
16	17.69	56	72.11	96	130.37	136	190.17	176	250.76	216	311.74	256	372.90	296	434.09	336	495.21	376	556.20
17	18.95	57	73.54	97	131.85	137	191.68	177	252.28	217	313.27	257	374.43	297	435.62	337	496.74	377	557.72
18	20.21	58	74.96	98	133.33	138	193.19	178	253.80	218	314.80	258	375.96	298	437.15	338	498.26	378	559.25
19	21.49	59	76.39	99	134.81	139	194.70	179	255.32	219	316.33	259	377.49	299	438.68	339	499.79	379	560.77
20	22.77	60	77.83	100	136.30	140	196.21	180	256.85	220	317.85	260	379.02	300	440.20	340	501.32	380	562.29
21	24.07	61	79.26	101	137.78	141	197.72	181	258.37	221	319.38	261	380.55	301	441.73	341	502.84	381	563.81
22	25.36	62	80.70	102	139.27	142	199.23	182	259.89	222	320.91	262	382.08	302	443.26	342	504.37	382	565.34
23	26.67	63	82.13	103	140.75	143	200.74	183	261.41	223	322.44	263	383.61	303	444.79	343	505.90	383	566.86
24	27.98	64	83.57	104	142.24	144	202.25	184	262.93	224	323.97	264	385.14	304	446.32	344	507.42	384	568.38
25	29.30	65	85.01	105	143.73	145	203.76	185	264.46	225	325.49	265	386.67	305	447.85	345	508.95	385	569.90
26	30.62	66	86.46	106	145.21	146	205.27	186	265.98	226	327.02	266	388.20	306	449.38	346	510.47	386	571.42
27	31.95	67	87.90	107	146.70	147	206.78	187	267.50	227	328.55	267	389.73	307	450.91	347	512.00	387	572.94
28	33.28	68	89.35	108	148.19	148	208.29	188	269.03	228	330.08	268	391.26	308	452.44	348	513.53	388	574.47
29	34.62	69	90.79	109	149.68	149	209.80	189	270.55	229	331.61	269	392.79	309	453.96	349	515.05	389	575.99
30	35.96	70	92.24	110	151.18	150	211.32	190	272.07	230	333.14	270	394.32	310	455.49	350	516.58	390	577.51
31	37.31	71	93.69	111	152.67	151	212.83	191	273.60	231	334.67	271	395.85	311	457.02	351	518.10	391	579.03
32	38.66	72	95.14	112	154.16	152	214.34	192	275.12	232	336.19	272	397.38	312	458.55	352	519.63	392	580.55
33	40.02	73	96.60	113	155.65	153	215.86	193	276.65	233	337.72	273	398.91	313	460.08	353	521.15	393	582.07
34	41.38	74	98.05	114	157.15	154	217.37	194	278.17	234	339.25	274	400.44	314	461.61	354	522.68	394	583.59
35	42.74	75	99.51	115	158.64	155	218.89	195	279.69	235	340.78	275	401.97	315	463.13	355	524.20	395	585.11
36	44.11	76	100.97	116	160.14	156	220.40	196	281.22	236	342.31	276	403.50	316	464.66	356	525.73	396	586.63
37	45.48	77	102.43	117	161.64	157	221.92	197	282.74	237	343.84	277	405.03	317	466.19	357	527.25	397	588.15
38	46.86	78	103.89	118	163.13	158	223.43	198	284.27	238	345.37	278	406.56	318	467.72	358	528.78	398	589.67
39	48.24	79	105.35	119	164.63	159	224.95	199	285.79	239	346.90	279	408.09	319	469.25	359	530.30	399	591.19
40	49.62	80	106.81	120	166.13	160	226.46	200	287.32	240	348.43	280	409.62	320	470.77	360	531.83	400	592.71

Table 16.Acute Water Quality Standards for Dissolved Nickel Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	10	41	220	81	392	121	550	161	701	201	845	241	985	281	1122	321	1256	361	1387
2	17	42	225	82	396	122	554	162	704	202	849	242	989	282	1126	322	1259	362	1390
3	24	43	229	83	400	123	558	163	708	203	852	243	992	283	1129	323	1263	363	1394
4	31	44	234	84	404	124	562	164	712	204	856	244	996	284	1132	324	1266	364	1397
5	37	45	238	85	408	125	566	165	715	205	859	245	999	285	1136	325	1269	365	1400
6	43	46	243	86	412	126	569	166	719	206	863	246	1003	286	1139	326	1272	366	1403
7	49	47	247	87	416	127	573	167	723	207	867	247	1006	287	1142	327	1276	367	1407
8	55	48	252	88	420	128	577	168	726	208	870	248	1010	288	1146	328	1279	368	1410
9	61	49	256	89	424	129	581	169	730	209	874	249	1013	289	1149	329	1282	369	1413
10	67	50	260	90	428	130	585	170	734	210	877	250	1017	290	1153	330	1286	370	1416

11	72	51	265	91	432	131	588	171	737	211	881	251	1020	291	1156	331	1289	371	1420
12	78	52	269	92	436	132	592	172	741	212	884	252	1023	292	1159	332	1292	372	1423
13	83	53	274	93	440	133	596	173	744	213	888	253	1027	293	1163	333	1296	373	1426
14	89	54	278	94	444	134	600	174	748	214	891	254	1030	294	1166	334	1299	374	1429
15	94	55	282	95	448	135	604	175	752	215	895	255	1034	295	1169	335	1302	375	1433
16	99	56	287	96	452	136	607	176	755	216	898	256	1037	296	1173	336	1305	376	1436
17	105	57	291	97	456	137	611	177	759	217	902	257	1041	297	1176	337	1309	377	1439
18	110	58	295	98	460	138	615	178	763	218	905	258	1044	298	1179	338	1312	378	1442
19	115	59	300	99	464	139	619	179	766	219	909	259	1047	299	1183	339	1315	379	1445
20	120	60	304	100	468	140	622	180	770	220	912	260	1051	300	1186	340	1319	380	1449
21	125	61	308	101	472	141	626	181	774	221	916	261	1054	301	1189	341	1322	381	1452
22	130	62	312	102	476	142	630	182	777	222	919	262	1058	302	1193	342	1325	382	1455
23	135	63	317	103	480	143	634	183	781	223	923	263	1061	303	1196	343	1328	383	1458
24	140	64	321	104	484	144	637	184	784	224	926	264	1064	304	1199	344	1332	384	1462
25	145	65	325	105	488	145	641	185	788	225	930	265	1068	305	1203	345	1335	385	1465
26	150	66	329	106	492	146	645	186	792	226	933	266	1071	306	1206	346	1338	386	1468
27	155	67	334	107	496	147	649	187	795	227	937	267	1075	307	1209	347	1341	387	1471
28	159	68	338	108	500	148	652	188	799	228	940	268	1078	308	1213	348	1345	388	1474
29	164	69	342	109	504	149	656	189	802	229	944	269	1082	309	1216	349	1348	389	1478
30	169	70	346	110	508	150	660	190	806	230	947	270	1085	310	1219	350	1351	390	1481
31	174	71	350	111	511	151	664	191	810	231	951	271	1088	311	1223	351	1355	391	1484
32	179	72	355	112	515	152	667	192	813	232	954	272	1092	312	1226	352	1358	392	1487
33	183	73	359	113	519	153	671	193	817	233	958	273	1095	313	1229	353	1361	393	1490
34	188	74	363	114	523	154	675	194	820	234	961	274	1099	314	1233	354	1364	394	1494
35	193	75	367	115	527	155	678	195	824	235	965	275	1102	315	1236	355	1368	395	1497
36	197	76	371	116	531	156	682	196	827	236	968	276	1105	316	1239	356	1371	396	1500
37	202	77	375	117	535	157	686	197	831	237	972	277	1109	317	1243	357	1374	397	1503
38	207	78	379	118	539	158	689	198	835	238	975	278	1112	318	1246	358	1377	398	1506
39	211	79	384	119	542	159	693	199	838	239	979	279	1115	319	1249	359	1381	399	1510
40	216	80	388	120	546	160	697	200	842	240	982	280	1119	320	1253	360	1384	400	1513

Table 17.Chronic Water Quality Standards for Dissolved Nickel Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	1.06	41	24.46	81	43.51	121	61.11	161	77.81	201	93.88	241	109.46	281	124.64	321	139.50	361	154.07
2	1.90	42	24.96	82	43.97	122	61.53	162	78.22	202	94.27	242	109.84	282	125.02	322	139.86	362	154.43
3	2.68	43	25.47	83	44.42	123	61.96	163	78.63	203	94.67	243	110.23	283	125.39	323	140.23	363	154.79
4	3.42	44	25.97	84	44.87	124	62.39	164	79.03	204	95.06	244	110.61	284	125.77	324	140.60	364	155.15
5	4.12	45	26.47	85	45.33	125	62.81	165	79.44	205	95.46	245	110.99	285	126.14	325	140.96	365	155.51
6	4.81	46	26.96	86	45.78	126	63.24	166	79.85	206	95.85	246	111.38	286	126.52	326	141.33	366	155.87
7	5.48	47	27.46	87	46.23	127	63.66	167	80.26	207	96.24	247	111.76	287	126.89	327	141.70	367	156.23
8	6.14	48	27.95	88	46.68	128	64.09	168	80.66	208	96.64	248	112.14	288	127.26	328	142.07	368	156.59
9	6.78	49	28.44	89	47.12	129	64.51	169	81.07	209	97.03	249	112.52	289	127.64	329	142.43	369	156.95
10	7.41	50	28.93	90	47.57	130	64.93	170	81.47	210	97.42	250	112.91	290	128.01	330	142.80	370	157.31
11	8.04	51	29.42	91	48.02	131	65.35	171	81.88	211	97.81	251	113.29	291	128.38	331	143.16	371	157.67
12	8.65	52	29.91	92	48.46	132	65.78	172	82.28	212	98.21	252	113.67	292	128.76	332	143.53	372	158.03
13	9.26	53	30.39	93	48.91	133	66.20	173	82.69	213	98.60	253	114.05	293	129.13	333	143.90	373	158.39

14	9.86	54	30.88	94	49.35	134	66.62	174	83.09	214	98.99	254	114.43	294	129.50	334	144.26	374	158.75
15	10.45	55	31.36	95	49.80	135	67.04	175	83.50	215	99.38	255	114.81	295	129.88	335	144.63	375	159.11
16	11.03	56	31.84	96	50.24	136	67.46	176	83.90	216	99.77	256	115.19	296	130.25	336	144.99	376	159.47
17	11.61	57	32.32	97	50.68	137	67.88	177	84.30	217	100.16	257	115.57	297	130.62	337	145.36	377	159.82
18	12.19	58	32.80	98	51.13	138	68.30	178	84.71	218	100.55	258	115.95	298	130.99	338	145.72	378	160.18
19	12.76	59	33.28	99	51.57	139	68.71	179	85.11	219	100.94	259	116.33	299	131.36	339	146.09	379	160.54
20	13.33	60	33.76	100	52.01	140	69.13	180	85.51	220	101.33	260	116.71	300	131.74	340	146.45	380	160.90
21	13.89	61	34.23	101	52.45	141	69.55	181	85.91	221	101.72	261	117.09	301	132.11	341	146.81	381	161.26
22	14.45	62	34.71	102	52.89	142	69.97	182	86.31	222	102.11	262	117.47	302	132.48	342	147.18	382	161.62
23	15.00	63	35.18	103	53.32	143	70.38	183	86.71	223	102.50	263	117.85	303	132.85	343	147.54	383	161.97
24	15.55	64	35.65	104	53.76	144	70.80	184	87.12	224	102.89	264	118.23	304	133.22	344	147.91	384	162.33
25	16.10	65	36.12	105	54.20	145	71.22	185	87.52	225	103.28	265	118.61	305	133.59	345	148.27	385	162.69
26	16.64	66	36.59	106	54.63	146	71.63	186	87.92	226	103.67	266	118.99	306	133.96	346	148.63	386	163.05
27	17.18	67	37.06	107	55.07	147	72.05	187	88.32	227	104.05	267	119.37	307	134.33	347	149.00	387	163.40
28	17.72	68	37.53	108	55.51	148	72.46	188	88.71	228	104.44	268	119.75	308	134.70	348	149.36	388	163.76
29	18.25	69	37.99	109	55.94	149	72.87	189	89.11	229	104.83	269	120.12	309	135.07	349	149.72	389	164.12
30	18.78	70	38.46	110	56.37	150	73.29	190	89.51	230	105.22	270	120.50	310	135.44	350	150.09	390	164.47
31	19.31	71	38.92	111	56.81	151	73.70	191	89.91	231	105.60	271	120.88	311	135.81	351	150.45	391	164.83
32	19.83	72	39.39	112	57.24	152	74.11	192	90.31	232	105.99	272	121.26	312	136.18	352	150.81	392	165.19
33	20.36	73	39.85	113	57.67	153	74.53	193	90.71	233	106.38	273	121.63	313	136.55	353	151.17	393	165.54
34	20.88	74	40.31	114	58.10	154	74.94	194	91.10	234	106.76	274	122.01	314	136.92	354	151.54	394	165.90
35	21.40	75	40.77	115	58.53	155	75.35	195	91.50	235	107.15	275	122.39	315	137.29	355	151.90	395	166.26
36	21.91	76	41.23	116	58.96	156	75.76	196	91.90	236	107.53	276	122.76	316	137.66	356	152.26	396	166.61
37	22.43	77	41.69	117	59.39	157	76.17	197	92.29	237	107.92	277	123.14	317	138.02	357	152.62	397	166.97
38	22.94	78	42.15	118	59.82	158	76.58	198	92.69	238	108.30	278	123.52	318	138.39	358	152.98	398	167.32
39	23.45	79	42.60	119	60.25	159	76.99	199	93.09	239	108.69	279	123.89	319	138.76	359	153.34	399	167.68
40	23.96	80	43.06	120	60.68	160	77.40	200	93.48	240	109.07	280	124.27	320	139.13	360	153.71	400	168.04

Table 18.Acute Water Quality Standards for Dissolved Nickel Aquatic and Wildlife ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	85	41	1956	81	3479	121	4886	161	6221	201	7506	241	8752	281	9966	321	11154	361	12319
2	152	42	1996	82	3516	122	4920	162	6254	202	7538	242	8783	282	9996	322	11183	362	12348
3	214	43	2036	83	3552	123	4954	163	6287	203	7569	243	8813	283	10026	323	11213	363	12377
4	273	44	2076	84	3588	124	4988	164	6319	204	7601	244	8844	284	10056	324	11242	364	12405
5	330	45	2116	85	3624	125	5022	165	6352	205	7632	245	8875	285	10086	325	11271	365	12434
6	385	46	2156	86	3660	126	5056	166	6385	206	7664	246	8905	286	10116	326	11301	366	12463
7	438	47	2195	87	3696	127	5090	167	6417	207	7695	247	8936	287	10146	327	11330	367	12492
8	491	48	2235	88	3732	128	5124	168	6450	208	7727	248	8967	288	10176	328	11359	368	12521
9	542	49	2274	89	3768	129	5158	169	6482	209	7758	249	8997	289	10206	329	11389	369	12549
10	593	50	2313	90	3804	130	5192	170	6514	210	7790	250	9028	290	10235	330	11418	370	12578
11	643	51	2352	91	3839	131	5226	171	6547	211	7821	251	9058	291	10265	331	11447	371	12607
12	692	52	2391	92	3875	132	5259	172	6579	212	7852	252	9089	292	10295	332	11476	372	12636
13	740	53	2430	93	3911	133	5293	173	6612	213	7884	253	9119	293	10325	333	11506	373	12664
14	788	54	2469	94	3946	134	5327	174	6644	214	7915	254	9150	294	10355	334	11535	374	12693

15	835	55	2508	95	3982	135	5360	175	6676	215	7946	255	9180	295	10385	335	11564	375	12722
16	882	56	2546	96	4017	136	5394	176	6708	216	7978	256	9211	296	10414	336	11593	376	12751
17	929	57	2585	97	4053	137	5427	177	6741	217	8009	257	9241	297	10444	337	11622	377	12779
18	975	58	2623	98	4088	138	5461	178	6773	218	8040	258	9272	298	10474	338	11652	378	12808
19	1020	59	2661	99	4123	139	5494	179	6805	219	8071	259	9302	299	10504	339	11681	379	12837
20	1066	60	2699	100	4158	140	5528	180	6837	220	8102	260	9332	300	10533	340	11710	380	12865
21	1110	61	2737	101	4193	141	5561	181	6869	221	8133	261	9363	301	10563	341	11739	381	12894
22	1155	62	2775	102	4229	142	5594	182	6901	222	8165	262	9393	302	10593	342	11768	382	12922
23	1199	63	2813	103	4264	143	5628	183	6934	223	8196	263	9423	303	10622	343	11797	383	12951
24	1243	64	2851	104	4299	144	5661	184	6966	224	8227	264	9454	304	10652	344	11826	384	12980
25	1287	65	2888	105	4334	145	5694	185	6998	225	8258	265	9484	305	10682	345	11855	385	13008
26	1330	66	2926	106	4368	146	5727	186	7030	226	8289	266	9514	306	10711	346	11884	386	13037
27	1374	67	2963	107	4403	147	5761	187	7062	227	8320	267	9544	307	10741	347	11913	387	13065
28	1416	68	3001	108	4438	148	5794	188	7093	228	8351	268	9575	308	10770	348	11943	388	13094
29	1459	69	3038	109	4473	149	5827	189	7125	229	8382	269	9605	309	10800	349	11972	389	13123
30	1502	70	3075	110	4508	150	5860	190	7157	230	8413	270	9635	310	10830	350	12001	390	13151
31	1544	71	3112	111	4542	151	5893	191	7189	231	8444	271	9665	311	10859	351	12030	391	13180
32	1586	72	3149	112	4577	152	5926	192	7221	232	8475	272	9695	312	10889	352	12059	392	13208
33	1628	73	3186	113	4611	153	5959	193	7253	233	8506	273	9726	313	10918	353	12088	393	13237
34	1669	74	3223	114	4646	154	5992	194	7285	234	8536	274	9756	314	10948	354	12116	394	13265
35	1711	75	3260	115	4680	155	6025	195	7316	235	8567	275	9786	315	10977	355	12145	395	13294
36	1752	76	3297	116	4715	156	6058	196	7348	236	8598	276	9816	316	11007	356	12174	396	13322
37	1793	77	3333	117	4749	157	6090	197	7380	237	8629	277	9846	317	11036	357	12203	397	13350
38	1834	78	3370	118	4783	158	6123	198	7411	238	8660	278	9876	318	11066	358	12232	398	13379
39	1875	79	3407	119	4818	159	6156	199	7443	239	8691	279	9906	319	11095	359	12261	399	13407
40	1915	80	3443	120	4852	160	6189	200	7475	240	8721	280	9936	320	11124	360	12290	400	13436

Table 19.Water Quality Standards for Dissolved Silver Aquatic and Wildlife coldwater, warmwater, edw, and ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.001	41	0.69	81	2.24	121	4.46	161	7.30	201	10.69	241	14.60	281	19.02	321	23.91	361	29.26
2	0.004	42	0.72	82	2.29	122	4.53	162	7.38	202	10.78	242	14.71	282	19.14	322	24.04	362	29.40
3	0.01	43	0.75	83	2.33	123	4.59	163	7.45	203	10.87	243	14.81	283	19.25	323	24.17	363	29.54
4	0.01	44	0.78	84	2.38	124	4.66	164	7.53	204	10.96	244	14.92	284	19.37	324	24.30	364	29.68
5	0.02	45	0.81	85	2.43	125	4.72	165	7.61	205	11.06	245	15.02	285	19.49	325	24.43	365	29.82
6	0.03	46	0.85	86	2.48	126	4.79	166	7.69	206	11.15	246	15.13	286	19.61	326	24.56	366	29.96
7	0.03	47	0.88	87	2.53	127	4.85	167	7.77	207	11.24	247	15.24	287	19.72	327	24.69	367	30.11
8	0.04	48	0.91	88	2.58	128	4.92	168	7.85	208	11.34	248	15.34	288	19.84	328	24.82	368	30.25
9	0.05	49	0.94	89	2.63	129	4.98	169	7.93	209	11.43	249	15.45	289	19.96	329	24.95	369	30.39
10	0.06	50	0.98	90	2.68	130	5.05	170	8.01	210	11.52	250	15.56	290	20.08	330	25.08	370	30.53
11	0.07	51	1.01	91	2.74	131	5.12	171	8.09	211	11.62	251	15.66	291	20.20	331	25.21	371	30.67
12	0.08	52	1.04	92	2.79	132	5.19	172	8.18	212	11.71	252	15.77	292	20.32	332	25.34	372	30.81
13	0.10	53	1.08	93	2.84	133	5.25	173	8.26	213	11.81	253	15.88	293	20.44	333	25.47	373	30.96
14	0.11	54	1.11	94	2.89	134	5.32	174	8.34	214	11.91	254	15.99	294	20.56	334	25.60	374	31.10
15	0.12	55	1.15	95	2.95	135	5.39	175	8.42	215	12.00	255	16.09	295	20.68	335	25.73	375	31.24

16	0.14	56	1.19	96	3.00	136	5.46	176	8.51	216	12.10	256	16.20	296	20.80	336	25.87	376	31.39
17	0.15	57	1.22	97	3.05	137	5.53	177	8.59	217	12.19	257	16.31	297	20.92	337	26.00	377	31.53
18	0.17	58	1.26	98	3.11	138	5.60	178	8.67	218	12.29	258	16.42	298	21.04	338	26.13	378	31.67
19	0.18	59	1.30	99	3.16	139	5.67	179	8.76	219	12.39	259	16.53	299	21.16	339	26.26	379	31.82
20	0.20	60	1.34	100	3.22	140	5.74	180	8.84	220	12.48	260	16.64	300	21.28	340	26.40	380	31.96
21	0.22	61	1.37	101	3.27	141	5.81	181	8.93	221	12.58	261	16.75	301	21.41	341	26.53	381	32.11
22	0.24	62	1.41	102	3.33	142	5.88	182	9.01	222	12.68	262	16.86	302	21.53	342	26.67	382	32.25
23	0.26	63	1.45	103	3.38	143	5.95	183	9.10	223	12.78	263	16.97	303	21.65	343	26.80	383	32.40
24	0.28	64	1.49	104	3.44	144	6.02	184	9.18	224	12.88	264	17.08	304	21.78	344	26.93	384	32.54
25	0.30	65	1.53	105	3.50	145	6.09	185	9.27	225	12.98	265	17.19	305	21.90	345	27.07	385	32.69
26	0.32	66	1.57	106	3.56	146	6.17	186	9.35	226	13.08	266	17.31	306	22.02	346	27.20	386	32.84
27	0.34	67	1.62	107	3.61	147	6.24	187	9.44	227	13.18	267	17.42	307	22.15	347	27.34	387	32.98
28	0.36	68	1.66	108	3.67	148	6.31	188	9.53	228	13.28	268	17.53	308	22.27	348	27.47	388	33.13
29	0.38	69	1.70	109	3.73	149	6.39	189	9.61	229	13.38	269	17.64	309	22.39	349	27.61	389	33.28
30	0.41	70	1.74	110	3.79	150	6.46	190	9.70	230	13.48	270	17.76	310	22.52	350	27.75	390	33.42
31	0.43	71	1.78	111	3.85	151	6.54	191	9.79	231	13.58	271	17.87	311	22.64	351	27.88	391	33.57
32	0.45	72	1.83	112	3.91	152	6.61	192	9.88	232	13.68	272	17.98	312	22.77	352	28.02	392	33.72
33	0.48	73	1.87	113	3.97	153	6.68	193	9.97	233	13.78	273	18.10	313	22.90	353	28.16	393	33.87
34	0.50	74	1.92	114	4.03	154	6.76	194	10.06	234	13.88	274	18.21	314	23.02	354	28.29	394	34.02
35	0.53	75	1.96	115	4.09	155	6.84	195	10.15	235	13.98	275	18.33	315	23.15	355	28.43	395	34.16
36	0.55	76	2.01	116	4.15	156	6.91	196	10.24	236	14.09	276	18.44	316	23.27	356	28.57	396	34.31
37	0.58	77	2.05	117	4.21	157	6.99	197	10.33	237	14.19	277	18.56	317	23.40	357	28.71	397	34.46
38	0.61	78	2.10	118	4.28	158	7.06	198	10.42	238	14.29	278	18.67	318	23.53	358	28.85	398	34.61
39	0.64	79	2.14	119	4.34	159	7.14	199	10.51	239	14.40	279	18.79	319	23.66	359	28.99	399	34.76
40	0.67	80	2.19	120	4.40	160	7.22	200	10.60	240	14.50	280	18.90	320	23.78	360	29.12	400	34.91

Table 20.Acute and Chronic Water Quality Standards for Dissolved Zinc Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	2.4	41	55.1	81	98.0	121	137.7	161	175.4	201	211.7	241	246.9	281	281.2	321	314.8	361	347.7
2	4.3	42	56.2	82	99.0	122	138.7	162	176.4	202	212.6	242	247.8	282	282.1	322	315.6	362	348.5
3	6.0	43	57.3	83	100.1	123	139.6	163	177.3	203	213.5	243	248.6	283	282.9	323	316.4	363	349.4
4	7.7	44	58.4	84	101.1	124	140.6	164	178.2	204	214.4	244	249.5	284	283.8	324	317.3	364	350.2
5	9.3	45	59.6	85	102.1	125	141.6	165	179.1	205	215.3	245	250.4	285	284.6	325	318.1	365	351.0
6	10.8	46	60.7	86	103.1	126	142.5	166	180.0	206	216.2	246	251.2	286	285.5	326	318.9	366	351.8
7	12.3	47	61.8	87	104.1	127	143.5	167	181.0	207	217.1	247	252.1	287	286.3	327	319.8	367	352.6
8	13.8	48	62.9	88	105.2	128	144.4	168	181.9	208	217.9	248	253.0	288	287.1	328	320.6	368	353.4
9	15.2	49	64.0	89	106.2	129	145.4	169	182.8	209	218.8	249	253.8	289	288.0	329	321.4	369	354.2
10	16.7	50	65.1	90	107.2	130	146.4	170	183.7	210	219.7	250	254.7	290	288.8	330	322.2	370	355.1

11	18.1	51	66.2	91	108.2	131	147.3	171	184.6	211	220.6	251	255.6	291	289.7	331	323.1	371	355.9
12	19.4	52	67.3	92	109.2	132	148.3	172	185.5	212	221.5	252	256.4	292	290.5	332	323.9	372	356.7
13	20.8	53	68.4	93	110.2	133	149.2	173	186.4	213	222.4	253	257.3	293	291.4	333	324.7	373	357.5
14	22.1	54	69.5	94	111.2	134	150.2	174	187.4	214	223.3	254	258.1	294	292.2	334	325.6	374	358.3
15	23.5	55	70.6	95	112.2	135	151.1	175	188.3	215	224.1	255	259.0	295	293.0	335	326.4	375	359.1
16	24.8	56	71.7	96	113.2	136	152.1	176	189.2	216	225.0	256	259.9	296	293.9	336	327.2	376	359.9
17	26.1	57	72.8	97	114.2	137	153.0	177	190.1	217	225.9	257	260.7	297	294.7	337	328.0	377	360.7
18	27.4	58	73.9	98	115.2	138	153.9	178	191.0	218	226.8	258	261.6	298	295.6	338	328.9	378	361.5
19	28.7	59	74.9	99	116.2	139	154.9	179	191.9	219	227.7	259	262.4	299	296.4	339	329.7	379	362.4
20	30.0	60	76.0	100	117.2	140	155.8	180	192.8	220	228.6	260	263.3	300	297.2	340	330.5	380	363.2
21	31.2	61	77.1	101	118.2	141	156.8	181	193.7	221	229.4	261	264.2	301	298.1	341	331.3	381	364.0
22	32.5	62	78.2	102	119.2	142	157.7	182	194.6	222	230.3	262	265.0	302	298.9	342	332.2	382	364.8
23	33.7	63	79.2	103	120.2	143	158.7	183	195.5	223	231.2	263	265.9	303	299.8	343	333.0	383	365.6
24	35.0	64	80.3	104	121.1	144	159.6	184	196.4	224	232.1	264	266.7	304	300.6	344	333.8	384	366.4
25	36.2	65	81.3	105	122.1	145	160.5	185	197.3	225	232.9	265	267.6	305	301.4	345	334.6	385	367.2
26	37.4	66	82.4	106	123.1	146	161.5	186	198.3	226	233.8	266	268.4	306	302.3	346	335.4	386	368.0
27	38.6	67	83.5	107	124.1	147	162.4	187	199.2	227	234.7	267	269.3	307	303.1	347	336.3	387	368.8
28	39.9	68	84.5	108	125.1	148	163.3	188	200.1	228	235.6	268	270.2	308	304.0	348	337.1	388	369.6
29	41.1	69	85.6	109	126.1	149	164.3	189	201.0	229	236.5	269	271.0	309	304.8	349	337.9	389	370.4
30	42.2	70	86.6	110	127.0	150	165.2	190	201.9	230	237.3	270	271.9	310	305.6	350	338.7	390	371.2
31	43.4	71	87.7	111	128.0	151	166.2	191	202.8	231	238.2	271	272.7	311	306.5	351	339.5	391	372.1
32	44.6	72	88.7	112	129.0	152	167.1	192	203.7	232	239.1	272	273.6	312	307.3	352	340.4	392	372.9
33	45.8	73	89.8	113	130.0	153	168.0	193	204.6	233	239.9	273	274.4	313	308.1	353	341.2	393	373.7
34	47.0	74	90.8	114	130.9	154	168.9	194	205.5	234	240.8	274	275.3	314	309.0	354	342.0	394	374.5
35	48.1	75	91.8	115	131.9	155	169.9	195	206.3	235	241.7	275	276.1	315	309.8	355	342.8	395	375.3
36	49.3	76	92.9	116	132.9	156	170.8	196	207.2	236	242.6	276	277.0	316	310.6	356	343.6	396	376.1
37	50.5	77	93.9	117	133.9	157	171.7	197	208.1	237	243.4	277	277.8	317	311.5	357	344.5	397	376.9
38	51.6	78	94.9	118	134.8	158	172.7	198	209.0	238	244.3	278	278.7	318	312.3	358	345.3	398	377.7
39	52.8	79	96.0	119	135.8	159	173.6	199	209.9	239	245.2	279	279.5	319	313.1	359	346.1	399	378.5
40	53.9	80	97.0	120	136.8	160	174.5	200	210.8	240	246.0	280	280.4	320	314.0	360	346.9	400	379.3

Table 21.Acute Water Quality Standards for Dissolved Zinc Aquatic and Wildlife ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	22	41	522	81	930	121	1307	161	1665	201	2009	241	2343	281	2669	321	2987	361	3300
2	40	42	533	82	940	122	1316	162	1674	202	2018	242	2351	282	2677	322	2995	362	3307
3	57	43	544	83	950	123	1325	163	1682	203	2026	243	2360	283	2685	323	3003	363	3315
4	73	44	555	84	959	124	1334	164	1691	204	2034	244	2368	284	2693	324	3011	364	3323
5	88	45	565	85	969	125	1343	165	1700	205	2043	245	2376	285	2701	325	3019	365	3331
6	103	46	576	86	979	126	1353	166	1708	206	2051	246	2384	286	2709	326	3027	366	3338
7	117	47	587	87	988	127	1362	167	1717	207	2060	247	2392	287	2717	327	3034	367	3346

8	131	48	597	88	998	128	1371	168	1726	208	2068	248	2401	288	2725	328	3042	368	3354
9	145	49	608	89	1007	129	1380	169	1735	209	2077	249	2409	289	2733	329	3050	369	3362
10	158	50	618	90	1017	130	1389	170	1743	210	2085	250	2417	290	2741	330	3058	370	3369
11	171	51	629	91	1027	131	1398	171	1752	211	2093	251	2425	291	2749	331	3066	371	3377
12	184	52	639	92	1036	132	1407	172	1761	212	2102	252	2433	292	2757	332	3074	372	3385
13	197	53	649	93	1046	133	1416	173	1769	213	2110	253	2442	293	2765	333	3082	373	3392
14	210	54	660	94	1055	134	1425	174	1778	214	2119	254	2450	294	2773	334	3089	374	3400
15	223	55	670	95	1065	135	1434	175	1787	215	2127	255	2458	295	2781	335	3097	375	3408
16	235	56	680	96	1074	136	1443	176	1795	216	2135	256	2466	296	2789	336	3105	376	3416
17	248	57	691	97	1084	137	1452	177	1804	217	2144	257	2474	297	2797	337	3113	377	3423
18	260	58	701	98	1093	138	1461	178	1813	218	2152	258	2482	298	2805	338	3121	378	3431
19	272	59	711	99	1103	139	1470	179	1821	219	2161	259	2491	299	2813	339	3129	379	3439
20	284	60	721	100	1112	140	1479	180	1830	220	2169	260	2499	300	2821	340	3136	380	3446
21	296	61	732	101	1121	141	1488	181	1838	221	2177	261	2507	301	2829	341	3144	381	3454
22	308	62	742	102	1131	142	1497	182	1847	222	2186	262	2515	302	2837	342	3152	382	3462
23	320	63	752	103	1140	143	1506	183	1856	223	2194	263	2523	303	2845	343	3160	383	3469
24	332	64	762	104	1150	144	1515	184	1864	224	2202	264	2531	304	2853	344	3168	384	3477
25	344	65	772	105	1159	145	1523	185	1873	225	2211	265	2539	305	2861	345	3175	385	3485
26	355	66	782	106	1168	146	1532	186	1881	226	2219	266	2547	306	2869	346	3183	386	3492
27	367	67	792	107	1178	147	1541	187	1890	227	2227	267	2556	307	2876	347	3191	387	3500
28	378	68	802	108	1187	148	1550	188	1898	228	2236	268	2564	308	2884	348	3199	388	3508
29	390	69	812	109	1196	149	1559	189	1907	229	2244	269	2572	309	2892	349	3207	389	3515
30	401	70	822	110	1206	150	1568	190	1916	230	2252	270	2580	310	2900	350	3214	390	3523
31	412	71	832	111	1215	151	1577	191	1924	231	2260	271	2588	311	2908	351	3222	391	3531
32	423	72	842	112	1224	152	1586	192	1933	232	2269	272	2596	312	2916	352	3230	392	3538
33	435	73	852	113	1233	153	1594	193	1941	233	2277	273	2604	313	2924	353	3238	393	3546
34	446	74	862	114	1243	154	1603	194	1950	234	2285	274	2612	314	2932	354	3245	394	3554
35	457	75	871	115	1252	155	1612	195	1958	235	2294	275	2620	315	2940	355	3253	395	3561
36	468	76	881	116	1261	156	1621	196	1967	236	2302	276	2628	316	2948	356	3261	396	3569
37	479	77	891	117	1270	157	1630	197	1975	237	2310	277	2636	317	2956	357	3269	397	3577
38	490	78	901	118	1279	158	1638	198	1984	238	2318	278	2645	318	2964	358	3276	398	3584
39	501	79	911	119	1289	159	1647	199	1992	239	2327	279	2653	319	2971	359	3284	399	3592
40	512	80	920	120	1298	160	1656	200	2001	240	2335	280	2661	320	2979	360	3292	400	3599

Table 22. Acute Water Quality Standards for Pentachlorophenol Aquatic and Wildlife coldwater, warmwater, and edw

pH	µg/L	pH	µg/L
3	0.163	7	9.070
3.1	0.180	7.1	10.029

Table 23. Chronic Water Quality Standards for Pentachlorophenol Aquatic and Wildlife coldwater, warmwater, and edw

pH	µg/L	pH	µg/L
3	0.103	7	5.726
3.1	0.114	7.1	6.331

Table 24. Acute Water Quality Standards for Pentachlorophenol Aquatic and Wildlife ephemeral

pH	µg/L	pH	µg/L
3	0.660	7	36.760
3.1	0.730	7.1	40.646

~~3.2~~	~~0.199~~	~~7.2~~	~~11.090~~		~~3.2~~	~~0.126~~	~~7.2~~	~~7.001~~		~~3.2~~	~~0.807~~	~~7.2~~	~~44.943~~
~~3.3~~	~~0.220~~	~~7.3~~	~~12.262~~		~~3.3~~	~~0.139~~	~~7.3~~	~~7.741~~		~~3.3~~	~~0.892~~	~~7.3~~	~~49.695~~
~~3.4~~	~~0.243~~	~~7.4~~	~~13.558~~		~~3.4~~	~~0.154~~	~~7.4~~	~~8.559~~		~~3.4~~	~~0.986~~	~~7.4~~	~~54.949~~
~~3.5~~	~~0.269~~	~~7.5~~	~~14.992~~		~~3.5~~	~~0.170~~	~~7.5~~	~~9.464~~		~~3.5~~	~~1.091~~	~~7.5~~	~~60.758~~
~~3.6~~	~~0.298~~	~~7.6~~	~~16.577~~		~~3.6~~	~~0.188~~	~~7.6~~	~~10.465~~		~~3.6~~	~~1.206~~	~~7.6~~	~~67.182~~
~~3.7~~	~~0.329~~	~~7.7~~	~~18.329~~		~~3.7~~	~~0.208~~	~~7.7~~	~~11.571~~		~~3.7~~	~~1.334~~	~~7.7~~	~~74.284~~
~~3.8~~	~~0.364~~	~~7.8~~	~~20.267~~		~~3.8~~	~~0.230~~	~~7.8~~	~~12.794~~		~~3.8~~	~~1.475~~	~~7.8~~	~~82.138~~
~~3.9~~	~~0.402~~	~~7.9~~	~~22.410~~		~~3.9~~	~~0.254~~	~~7.9~~	~~14.147~~		~~3.9~~	~~1.631~~	~~7.9~~	~~90.822~~
~~4~~	~~0.445~~	~~8~~	~~24.779~~		~~4~~	~~0.281~~	~~8~~	~~15.643~~		~~4~~	~~1.803~~	~~8~~	~~100.424~~
~~4.1~~	~~0.492~~	~~8.1~~	~~27.399~~		~~4.1~~	~~0.311~~	~~8.1~~	~~17.296~~		~~4.1~~	~~1.994~~	~~8.1~~	~~111.041~~
~~4.2~~	~~0.544~~	~~8.2~~	~~30.296~~		~~4.2~~	~~0.343~~	~~8.2~~	~~19.125~~		~~4.2~~	~~2.204~~	~~8.2~~	~~122.781~~
~~4.3~~	~~0.601~~	~~8.3~~	~~33.498~~		~~4.3~~	~~0.380~~	~~8.3~~	~~21.147~~		~~4.3~~	~~2.437~~	~~8.3~~	~~135.762~~
~~4.4~~	~~0.665~~	~~8.4~~	~~37.040~~		~~4.4~~	~~0.420~~	~~8.4~~	~~23.383~~		~~4.4~~	~~2.695~~	~~8.4~~	~~150.115~~
~~4.5~~	~~0.735~~	~~8.5~~	~~40.956~~		~~4.5~~	~~0.464~~	~~8.5~~	~~25.855~~		~~4.5~~	~~2.980~~	~~8.5~~	~~165.985~~
~~4.6~~	~~0.813~~	~~8.6~~	~~45.286~~		~~4.6~~	~~0.513~~	~~8.6~~	~~28.588~~		~~4.6~~	~~3.295~~	~~8.6~~	~~183.534~~
~~4.7~~	~~0.899~~	~~8.7~~	~~50.074~~		~~4.7~~	~~0.568~~	~~8.7~~	~~31.611~~		~~4.7~~	~~3.643~~	~~8.7~~	~~202.938~~
~~4.8~~	~~0.994~~	~~8.8~~	~~55.368~~		~~4.8~~	~~0.628~~	~~8.8~~	~~34.953~~		~~4.8~~	~~4.029~~	~~8.8~~	~~224.393~~
~~4.9~~	~~1.099~~	~~8.9~~	~~61.222~~		~~4.9~~	~~0.694~~	~~8.9~~	~~38.648~~		~~4.9~~	~~4.454~~	~~8.9~~	~~248.117~~
~~5~~	~~1.215~~	~~9~~	~~67.694~~		~~5~~	~~0.767~~	~~9~~	~~42.734~~		~~5~~	~~4.925~~	~~9~~	~~274.349~~
~~5.1~~	~~1.344~~	~~9.1~~	~~74.851~~		~~5.1~~	~~0.848~~	~~9.1~~	~~47.252~~		~~5.1~~	~~5.446~~	~~9.1~~	~~303.354~~
~~5.2~~	~~1.486~~	~~9.2~~	~~82.765~~		~~5.2~~	~~0.938~~	~~9.2~~	~~52.248~~		~~5.2~~	~~6.022~~	~~9.2~~	~~335.426~~
~~5.3~~	~~1.643~~	~~9.3~~	~~91.515~~		~~5.3~~	~~1.037~~	~~9.3~~	~~57.772~~		~~5.3~~	~~6.659~~	~~9.3~~	~~370.888~~
~~5.4~~	~~1.817~~	~~9.4~~	~~101.190~~		~~5.4~~	~~1.147~~	~~9.4~~	~~63.880~~		~~5.4~~	~~7.363~~	~~9.4~~	~~410.100~~
~~5.5~~	~~2.009~~	~~9.5~~	~~111.888~~		~~5.5~~	~~1.268~~	~~9.5~~	~~70.633~~		~~5.5~~	~~8.141~~	~~9.5~~	~~453.457~~
~~5.6~~	~~2.221~~	~~9.6~~	~~123.717~~		~~5.6~~	~~1.4022~~	~~9.6~~	~~78.101~~		~~5.6~~	~~9.002~~	~~9.6~~	~~501.398~~
~~5.7~~	~~2.456~~	~~9.7~~	~~136.797~~		~~5.7~~	~~1.550~~	~~9.7~~	~~86.358~~		~~5.7~~	~~9.953~~	~~9.7~~	~~554.408~~
~~5.8~~	~~2.716~~	~~9.8~~	~~151.260~~		~~5.8~~	~~1.714~~	~~9.8~~	~~95.488~~		~~5.8~~	~~11.006~~	~~9.8~~	~~613.021~~
~~5.9~~	~~3.003~~	~~9.9~~	~~167.252~~		~~5.9~~	~~1.896~~	~~9.9~~	~~105.583~~		~~5.9~~	~~12.169~~	~~9.9~~	~~677.832~~
~~6~~	~~3.320~~	~~10~~	~~184.934~~		~~6~~	~~2.096~~	~~10~~	~~116.746~~		~~6~~	~~13.456~~	~~10~~	~~749.495~~
~~6.1~~	~~3.671~~	~~10.1~~	~~204.486~~		~~6.1~~	~~2.318~~	~~10.1~~	~~129.089~~		~~6.1~~	~~14.878~~	~~10.1~~	~~828.735~~
~~6.2~~	~~4.059~~	~~10.2~~	~~226.105~~		~~6.2~~	~~2.563~~	~~10.2~~	~~142.736~~		~~6.2~~	~~16.451~~	~~10.2~~	~~916.351~~
~~6.3~~	~~4.488~~	~~10.3~~	~~250.010~~		~~6.3~~	~~2.833~~	~~10.3~~	~~157.827~~		~~6.3~~	~~18.191~~	~~10.3~~	~~1013.231~~
~~6.4~~	~~4.963~~	~~10.4~~	~~276.442~~		~~6.4~~	~~3.133~~	~~10.4~~	~~174.513~~		~~6.4~~	~~20.114~~	~~10.4~~	~~1120.354~~
~~6.5~~	~~5.488~~	~~10.5~~	~~305.668~~		~~6.5~~	~~3.464~~	~~10.5~~	~~192.963~~		~~6.5~~	~~22.240~~	~~10.5~~	~~1238.802~~

~~6.6~~	~~6.068~~	~~10.6~~	~~337.984~~		~~6.6~~	~~3.831~~	~~10.6~~	~~213.364~~		~~6.6~~	~~24.591~~	~~10.6~~	~~1369.773~~
~~6.7~~	~~6.709~~	~~10.7~~	~~373.717~~		~~6.7~~	~~4.235~~	~~10.7~~	~~235.922~~		~~6.7~~	~~27.191~~	~~10.7~~	~~1514.590~~
~~6.8~~	~~7.419~~	~~10.8~~	~~413.228~~		~~6.8~~	~~4.683~~	~~10.8~~	~~260.864~~		~~6.8~~	~~30.066~~	~~10.8~~	~~1674.718~~
~~6.9~~	~~8.203~~	~~10.9~~	~~456.916~~		~~6.9~~	~~5.178~~	~~10.9~~	~~288.444~~		~~6.9~~	~~33.245~~	~~10.9~~	~~1851.775~~
		~~11~~	~~505.223~~				~~11~~	~~318.939~~				~~11~~	~~2047.552~~

Table ~~25~~ 11. Acute Criteria for Total Ammonia (in mg/L as N) Aquatic and Wildlife coldwater, warmwater, and edw

pH	A&Wc	A&Ww and A&W edw
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	~~9.65~~ 9.7	14.4
7.8	~~8.11~~ 8.1	12.1
7.9	~~6.77~~ 6.8	10.1
8.0	~~5.62~~ 5.6	~~8.40~~ 8.4
8.1	~~4.64~~ 4.6	~~6.95~~ 7.0
8.2	~~3.83~~ 3.8	~~5.72~~ 5.7
8.3	~~3.15~~ 3.2	~~4.71~~ 4.7
8.4	~~2.59~~ 2.6	~~3.88~~ 3.9
8.5	~~2.14~~ 2.1	~~3.20~~ 3.2
8.6	~~1.77~~ 1.8	~~2.65~~ 2.7
8.7	~~1.47~~ 1.5	~~2.20~~ 2.2
8.8	~~1.23~~ 1.2	~~1.84~~ 1.8
8.9	~~1.04~~ 1.0	~~1.56~~ 1.6
9.0	~~0.885~~ 0.9	~~1.32~~ 1.3

Formula:	$CMC = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$	$CMC = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$

Table ~~26~~ 12. Chronic Criteria for Total Ammonia (mg/L as N) Aquatic and Wildlife coldwater, warmwater, and edw

	~~Temperature, °C~~									
~~pH~~	~~0~~	~~14~~	~~16~~	~~18~~	~~20~~	~~22~~	~~24~~	~~26~~	~~28~~	~~30~~
~~6.5~~	~~6.67~~	~~6.67~~	~~6.06~~	~~5.33~~	~~4.68~~	~~4.12~~	~~3.62~~	~~3.18~~	~~2.80~~	~~2.46~~
~~6.6~~	~~6.57~~	~~6.57~~	~~5.97~~	~~5.25~~	~~4.61~~	~~4.05~~	~~3.56~~	~~3.13~~	~~2.75~~	~~2.42~~
~~6.7~~	~~6.44~~	~~6.44~~	~~5.86~~	~~5.15~~	~~4.52~~	~~3.98~~	~~3.50~~	~~3.07~~	~~2.70~~	~~2.37~~
~~6.8~~	~~6.29~~	~~6.29~~	~~5.72~~	~~5.03~~	~~4.42~~	~~3.89~~	~~3.42~~	~~3.00~~	~~2.64~~	~~2.32~~
~~6.9~~	~~6.12~~	~~6.12~~	~~5.56~~	~~4.89~~	~~4.30~~	~~3.78~~	~~3.32~~	~~2.92~~	~~2.57~~	~~2.25~~
~~7.0~~	~~5.91~~	~~5.91~~	~~5.37~~	~~4.72~~	~~4.15~~	~~3.65~~	~~3.21~~	~~2.82~~	~~2.48~~	~~2.18~~
~~7.1~~	~~5.67~~	~~5.67~~	~~5.15~~	~~4.53~~	~~3.98~~	~~3.50~~	~~3.08~~	~~2.70~~	~~2.38~~	~~2.09~~
~~7.2~~	~~5.39~~	~~5.39~~	~~4.90~~	~~4.31~~	~~3.78~~	~~3.33~~	~~2.92~~	~~2.57~~	~~2.26~~	~~1.99~~
~~7.3~~	~~5.08~~	~~5.08~~	~~4.61~~	~~4.06~~	~~3.57~~	~~3.13~~	~~2.76~~	~~2.42~~	~~2.13~~	~~1.87~~
~~7.4~~	~~4.73~~	~~4.73~~	~~4.30~~	~~3.78~~	~~3.33~~	~~2.92~~	~~2.57~~	~~2.26~~	~~1.98~~	~~1.74~~
~~7.5~~	~~4.36~~	~~4.36~~	~~3.97~~	~~3.49~~	~~3.06~~	~~2.69~~	~~2.37~~	~~2.08~~	~~1.83~~	~~1.61~~
~~7.6~~	~~3.98~~	~~3.98~~	~~3.61~~	~~3.18~~	~~2.79~~	~~2.45~~	~~2.16~~	~~1.90~~	~~1.67~~	~~1.47~~
~~7.7~~	~~3.58~~	~~3.58~~	~~3.25~~	~~2.86~~	~~2.51~~	~~2.21~~	~~1.94~~	~~1.71~~	~~1.50~~	~~1.32~~
~~7.8~~	~~3.18~~	~~3.18~~	~~2.89~~	~~2.54~~	~~2.23~~	~~1.96~~	~~1.73~~	~~1.52~~	~~1.33~~	~~1.17~~
~~7.9~~	~~2.80~~	~~2.80~~	~~2.54~~	~~2.24~~	~~1.96~~	~~1.73~~	~~1.52~~	~~1.33~~	~~1.17~~	~~1.03~~
~~8.0~~	~~2.43~~	~~2.43~~	~~2.21~~	~~1.94~~	~~1.71~~	~~1.50~~	~~1.32~~	~~1.16~~	~~1.02~~	~~0.897~~
~~8.1~~	~~2.10~~	~~2.10~~	~~1.91~~	~~1.68~~	~~1.47~~	~~1.29~~	~~1.14~~	~~1.00~~	~~0.879~~	~~0.773~~
~~8.2~~	~~1.79~~	~~1.79~~	~~1.63~~	~~1.43~~	~~1.26~~	~~1.11~~	~~0.973~~	~~0.855~~	~~0.752~~	~~0.661~~
~~8.3~~	~~1.52~~	~~1.52~~	~~1.39~~	~~1.22~~	~~1.07~~	~~0.941~~	~~0.827~~	~~0.727~~	~~0.639~~	~~0.562~~
~~8.4~~	~~1.29~~	~~1.29~~	~~1.17~~	~~1.03~~	~~0.906~~	~~0.796~~	~~0.700~~	~~0.615~~	~~0.541~~	~~0.475~~
~~8.5~~	~~1.09~~	~~1.09~~	~~0.990~~	~~0.870~~	~~0.765~~	~~0.672~~	~~0.591~~	~~0.520~~	~~0.457~~	~~0.401~~
~~8.6~~	~~0.920~~	~~0.920~~	~~0.836~~	~~0.735~~	~~0.646~~	~~0.568~~	~~0.499~~	~~0.439~~	~~0.386~~	~~0.339~~
~~8.7~~	~~0.778~~	~~0.778~~	~~0.707~~	~~0.622~~	~~0.547~~	~~0.480~~	~~0.422~~	~~0.371~~	~~0.326~~	~~0.287~~
~~8.8~~	~~0.661~~	~~0.661~~	~~0.601~~	~~0.528~~	~~0.464~~	~~0.408~~	~~0.359~~	~~0.315~~	~~0.277~~	~~0.244~~
~~8.9~~	~~0.565~~	~~0.565~~	~~0.513~~	~~0.451~~	~~0.397~~	~~0.349~~	~~0.306~~	~~0.269~~	~~0.237~~	~~0.208~~
~~9.0~~	~~0.486~~	~~0.486~~	~~0.442~~	~~0.389~~	~~0.342~~	~~0.300~~	~~0.264~~	~~0.232~~	~~0.204~~	~~0.179~~

	Temperature, °C									
pH	**0**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**
6.5	6.7	6.7	6.1	5.3	4.7	4.1	3.6	3.2	2.8	2.5
6.6	6.6	6.6	6.0	5.3	4.6	4.1	3.6	3.1	2.8	2.4
6.7	6.4	6.4	5.9	5.2	4.5	4.0	3.5	3.1	2.7	2.4
6.8	6.3	6.3	5.7	5.0	4.4	3.9	3.4	3.0	2.6	2.3

6.9	6.1	6.1	5.6	4.9	4.3	3.8	3.3	2.9	2.6	2.3
7.0	5.9	5.9	5.4	4.7	4.2	3.6	3.2	2.8	2.5	2.2
7.1	5.7	5.7	5.2	4.5	4.0	3.5	3.1	2.7	2.4	2.1
7.2	5.4	5.4	4.9	4.3	3.8	3.3	2.9	2.6	2.3	2.0
7.3	5.1	5.1	4.6	4.1	3.6	3.1	2.8	2.4	2.1	1.9
7.4	4.7	4.7	4.3	3.8	3.3	2.9	2.6	2.3	2.0	1.7
7.5	4.4	4.4	4.0	3.5	3.1	2.7	2.4	2.1	1.8	1.6
7.6	4.0	4.0	3.6	3.2	2.8	2.5	2.2	1.9	1.7	1.5
7.7	3.6	3.6	3.3	2.9	2.5	2.2	1.9	1.7	1.5	1.3
7.8	3.1	3.2	2.9	2.5	2.2	2.0	1.7	1.5	1.3	1.2
7.9	2.8	2.8	2.5	2.2	2.0	1.7	1.5	1.3	1.2	1.0
8.0	2.4	2.4	2.2	1.9	1.7	1.5	1.3	1.2	1.0	0.90
8.1	2.1	2.1	1.9	1.7	1.5	1.3	1.1	1.0	0.88	0.77
8.2	1.8	1.8	1.6	1.4	1.3	1.1	0.97	0.86	0.75	0.66
8.3	1.5	1.5	1.4	1.2	1.1	0.94	0.83	0.73	0.64	0.56
8.4	1.3	1.3	1.2	1.0	0.91	0.80	0.70	0.62	0.54	0.48
8.5	1.1	1.1	1.0	0.90	0.77	0.67	0.59	0.52	0.46	0.40
8.6	0.92	0.92	0.84	0.74	0.65	0.57	0.50	0.44	0.37	0.34
8.7	0.78	0.78	0.71	0.62	0.55	0.48	0.42	0.37	0.33	0.29
8.8	0.66	0.66	0.60	0.53	0.46	0.41	0.36	0.32	0.28	0.24
8.9	0.57	0.57	0.51	0.45	0.40	0.35	0.31	0.27	0.24	0.21
9.0	0.49	0.49	0.44	0.39	0.34	0.30	0.26	0.23	0.20	0.18

$$CCC = \left(\frac{0.0577}{1+10^{7.688 - pH}} + \frac{2.487}{1+10^{pH - 7.688}} \right) - MIN\ (2.85,\ 1.45*10^{0.028-(25-T)})$$

APPENDIX B. SURFACE WATERS AND DESIGNATED USES

(Coordinates are from the North American Datum of 1983 (NAD83). All latitudes in Arizona are north and all longitudes are west, but the negative signs are not included in the Appendix B table. Some web-based mapping systems require a negative sign before the longitude values to indicate it is a west longitude.)

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
BW	Alamo Lake	~~34°14'45"/113°35'00"~~ 34°14'06"/113°35'00"	Deep		A&Ww			FBC			FC		AgL
BW	Big Sandy River	Headwaters to ~~confluence at~~ Alamo Lake ~~at 34°18'36"/113°31'34"~~			A&Ww			FBC			FC		AgL
BW	Bill Williams River	Alamo Lake to confluence with Colorado River ~~at 34°18'04"/114°08'10"~~			A&Ww			FBC			FC		AgL
BW	Blue Tank	~~34°40'14"/112°58'16"~~ 34°40'14"/112°58'17"			A&Ww			FBC			FC		AgL
BW	Boulder Creek	Headwaters to confluence with unnamed tributary at ~~34°41'14"/113°03'34"~~ 34°41'13"/113°03'37"		A&Wc				FBC			FC	~~AgI~~	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
BW	Boulder Creek	Below confluence with unnamed tributary to confluence with Burro Creek ~~at 34°36'47"/113°18'00"~~			A&Ww			FBC			FC	~~AgI~~	AgL
BW	Burro Creek (OAW)	Headwaters to confluence with Boulder Creek ~~at 34°36'47"/113°18'00"~~			A&Ww			FBC			FC		AgL
BW	Burro Creek	Below confluence with Boulder Creek to confluence with Big Sandy River ~~at 34°32'24"/113°34'19.2"~~			A&Ww			FBC			FC		AgL
BW	Carter Tank	34°52'27"/112°57'31"			A&Ww			FBC			FC		AgL
BW	Conger Creek	Headwaters to confluence with unnamed tributary at ~~34°45'13"/113°05'45"~~ 34°45'15"/113°05'46"		A&Wc				FBC			FC		AgL
BW	Conger Creek	Below confluence with unnamed tributary to confluence with Burro Creek ~~at 34°46"05"/113°12'54"~~			A&Ww			FBC			FC		AgL
~~BW~~	~~Coors Lake~~	~~34°36'20"/113°11'25"~~	~~Igneous~~		~~A&Ww~~			~~FBC~~			~~FC~~		
BW	Copper Basin Wash	Headwaters to confluence with unnamed tributary at ~~34°28'11"/112°35'31"~~ 34°28'12"/112°35'33"		A&Wc				FBC			FC		AgL
BW	Copper Basin Wash	Below confluence with unnamed tributary to confluence with Skull Valley Wash ~~at 34°25'55"/112°41'42"~~				A&We			PBC				AgL
BW	Cottonwood Canyon	Headwaters to Bear Trap Spring ~~at 34°45'10"/112°52'32"~~		A&Wc				FBC			FC		AgL
BW	Cottonwood Canyon	Below Bear Trap Spring to confluence at Smith Canyon ~~at 34°37'34"/112°54'46.8"~~			A&Ww			FBC			FC		AgL
BW	Date Creek	Headwaters to confluence with Santa Maria River ~~at 34°18'11"/113°29'53"~~			A&Ww			FBC			FC		AgL
BW	Francis Creek (OAW)	Headwaters to confluence with Burro Creek ~~at 34°44'28"/113°14'35"~~			A&Ww			FBC		DWS	FC	AgI	AgL
BW	Kirkland Creek	Headwaters to confluence with Santa Maria River ~~at 34°32'02"/112°59'38"~~			A&Ww			FBC			FC	AgI	AgL
BW	Knight Creek	Headwaters to confluence with Big Sandy River ~~at 34°55'16"/113°37'30"~~			A&Ww			FBC			FC		AgL
BW	Peeples Canyon (OAW)	Headwaters to confluence with Santa Maria River ~~at 34°20'35"/113°15'11"~~			A&Ww			FBC			FC		AgL
BW	Red Lake	35°12'18"/113°03'57"	Sedimentary		A&Ww			FBC			FC		AgL
BW	Santa Maria River	Headwaters to ~~confluence with~~ Alamo Lake ~~at 34°18'36"/113°31'34"~~			A&Ww			FBC			FC	AgI	AgL
BW	Trout Creek	Headwaters to confluence with unnamed tributary at 35°06'47"/113°13'01"		A&Wc				FBC			FC		AgL
BW	Trout Creek	Below confluence with unnamed tributary to confluence with Knight Creek ~~at 34°55'16"/113°37'30"~~			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CG	Agate Canyon Creek	Headwaters to confluence with the Colorado River ~~at 36°08'38"/112°16'48"~~			A&Ww			FBC			FC		
CG	Beaver Dam Wash	Headwaters to confluence with the Virgin River ~~at 36°53'42"/113°55'09"~~			A&Ww			FBC			FC		AgL
CG	Big Springs Tank	~~36°36'10"/112°20'58"~~ 36°36'08"/112°21'01"		A&Wc				FBC			FC		AgL
CG	Boucher Creek	Headwaters to confluence with the Colorado River ~~at 36°06'54"/112°13'44"~~			A&Ww			FBC			FC		
CG	Bright Angel Creek	Headwaters to confluence with Roaring Springs ~~Canyon at 36°11'34"/112°01'54"~~ Creek		A&Wc				FBC			FC		
CG	Bright Angel Creek	Below Roaring Spring Springs ~~Canyon~~ Creek to confluence with Colorado River ~~at 36°05'56"/112°05'27.6"~~			A&Ww			FBC			FC		
CG	Bright Angel Wash	Headwaters to Grand Canyon National Park South Rim ~~of Grand Canyon~~ WWTP outfall at 36°02'59"/112°09'02"				A&We			PBC				
CG	Bright Angel Wash (EDW)	Grand Canyon National Park South Rim ~~Grand Canyon~~ WWTP outfall ~~at 36°00'11"/112°39'06"~~ to Coconino Wash					A&Wedw		PBC				AgL
CG	Bulrush Canyon Wash	Headwaters to confluence with Kanab Creek ~~at 36°46'55"/112°37'08"~~				A&We			PBC				
CG	Cataract Creek	Headwaters to Santa Fe Reservoir		A&Wc				FBC		DWS	FC	AgI	AgL
CG	Cataract Creek	Santa Fe Reservoir to City of Williams WWTP outfall at ~~35°15'40"/112°10'40"~~ 35°14'40"/112°11'18"		A&Wc				FBC			FC	AgI	AgL
CG	Cataract Creek (EDW)	City of Williams WWTP outfall to 1 km downstream					A&Wedw		PBC				
CG	Cataract Creek	Red Lake Wash to Havasupai Indian Reservation ~~at 33°56'52"/112°30'38.3"~~ boundary				A&We			PBC				AgL
CG	Cataract Lake	~~35°15'05"/112°12'58"~~ 35°15'04"/112°12'58"	Igneous	A&Wc				FBC		DWS	FC		AgL
CG	Chuar Creek	Headwaters to confluence with unnamed tributary at ~~36°11'36"/111°52'17"~~ 36°11'35"/111°52'20"		A&Wc				FBC			FC		
CG	Chuar Creek	Below unnamed tributary ~~at 36°11'36.4"/111°52'17"~~ to confluence with the Colorado River ~~at 36°08'20.4"/111°48'58.7"~~			A&Ww			FBC			FC		
CG	City Reservoir	~~35°13'57"/112°11'23"~~ 35°13'57"/112°11'25"	Igneous	A&Wc				FBC		DWS	FC		
CG	Clear Creek	Headwaters to confluence with unnamed tributary at ~~36°09'12"/111°58'25"~~ 36°07'33"/112°00'03"		A&Wc				FBC			FC		
CG	Clear Creek	Below confluence with unnamed tributary to confluence with Colorado River ~~at 36°04'55"/112°02'09.6"~~			A&Ww			FBC			FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CG	Coconino Wash (EDW)	South Grand Canyon Sanitary District Tusayan WRF outfall at 35°58'39"/112°08'25" to 1 km downstream ~~at 35°58'36"/112°08'54"~~					A&Wedw		PBC				
CG	Colorado River	Lake Powell to Lake Mead		A&Wc				FBC		DWS	FC	AgI	AgL
CG	Cottonwood Creek	Headwaters to confluence with unnamed tributary at ~~35°20'45.5"/113°35'31"~~ 35°20'46"/113°35'31"		A&Wc				FBC			FC		AgL
CG	Cottonwood Creek	Below confluence with unnamed tributary to confluence with Colorado River ~~at 35°22'05"/113°40'04.8"~~			A&Ww			FBC			FC		AgL
CG	Crystal Creek	Headwaters to confluence with unnamed tributary at ~~36°13'42"/112°11'48"~~ 36°13'41"/112°11'49"		A&Wc				FBC			FC		
CG	Crystal Creek	Below confluence with unnamed tributary to confluence with Colorado River ~~at 36°08'06"/112°14'34.8"~~			A&Ww			FBC			FC		
CG	Deer Creek	Headwaters to confluence with unnamed tributary at ~~36°26'16"/112°28'15.5"~~ 36°26'15"/112°28'20"		A&Wc				FBC			FC		
CG	Deer Creek	Below confluence with unnamed tributary to confluence with Colorado River ~~at 36°23'20"/112°30'28.8"~~			A&Ww			FBC			FC		
CG	Detrital Wash	Headwaters to Lake Mead ~~at 36°02'20"/114°27'47"~~				A&We			PBC				
CG	Dogtown Reservoir	~~35°12'40"/112°07'46"~~ 35°12'40"/112°07'54"	Igneous	A&Wc				FBC		DWS	FC	AgI	AgL
CG	Dragon Creek	Headwaters to confluence with Milk Creek ~~at 36°12'25"/112°09'33"~~		A&Wc				FBC			FC		
CG	Dragon Creek	Below confluence with Milk Creek to confluence with Crystal Creek ~~at 36°10'12"/112°12'10.8"~~			A&Ww			FBC			FC		
CG	Garden Creek	Headwaters to confluence with Pipe Creek ~~at 36°05'35"/112°06'40"~~			A&Ww			FBC			FC		
CG	Gonzalez Lake	~~35°15'26"/112°12'07"~~ 35°15'26"/112°12'09"	Shallow		A&Ww			FBC			FC	AgI	AgL
CG	Grand Wash	Headwaters to Lake Mead ~~at 36°15'29"/114°00'18"~~				A&We			PBC				
CG	Grapevine Creek	Headwaters to confluence with the Colorado River ~~at 36°03'29"/112°00'00"~~			A&Ww			FBC			FC		
CG	Grapevine Wash	Headwaters to Lake Mead ~~at 36°06'29"/114°00'07"~~				A&We			PBC				
CG	Hakatai Canyon Creek	Headwaters to confluence with the Colorado River ~~at 36°14'42"/112°22'59"~~			A&Ww			FBC			FC		
CG	Hance Creek	Headwaters to confluence with the Colorado River ~~at 36°02'46"/111°57'07"~~			A&Ww			FBC			FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CG	Havasu Canyon Creek	From the Havasupai Indian Reservation ~~;~~ boundary to confluence with the Colorado River ~~at 36°18'29"/112°45'43"~~			A&Ww			FBC			FC		
CG	Hermit Creek	Headwaters to Hermit Pack Trail crossing at ~~36°03'23"/112°13'25"~~ 36°03'38"/112°14'00"		A&Wc				FBC			FC		
CG	Hermit Creek	Below Hermit Pack Trail crossing to confluence with the Colorado River ~~at 36°06'00"/112°32'04"~~			A&Ww			FBC			FC		
CG	Horn Creek	Headwaters to confluence with the Colorado River ~~at 36°05'56"/112°07'59"~~			A&Ww			FBC			FC		
CG	Hualapai Wash	Headwaters to Lake Mead ~~at 36°00'40"/114°07'37"~~				A&We			PBC				
CG	Jacob Lake	~~36°42'26"/112°13'48"~~ 36°42'27"/112°13'50"	Sedimentary	A&Wc				FBC			FC		
CG	Kaibab Lake	~~35°17'04"/112°09'17"~~ 35°17'04"/112°09'32"	Igneous	A&Wc				FBC		DWS	FC	AgI	AgL
CG	Kanab Creek	Headwaters to confluence with the Colorado River ~~at 36°23'31"/112°37'44"~~			A&Ww			FBC		DWS	FC		AgL
CG	Kwagunt Creek	Headwaters to confluence with unnamed tributary at ~~36°13'29"/111°55'24"~~ 36°13'37"/111°54'50"		A&Wc				FBC			FC		
CG	Kwagunt Creek	Below confluence with unnamed tributary to confluence with the Colorado River ~~at 36°15'47"/111°49'40.8"~~			A&Ww			FBC			FC		
CG	Lake Mead	~~36°01'00"/114°44'15"~~ 36°06'18"/114°26'33"	Deep	A&Wc				FBC		DWS	FC	AgI	AgL
CG	Lake Powell	~~36°57'00"/111°29'15"~~ 36°59'53"/111°08'17"	Deep	A&Wc				FBC		DWS	FC	AgI	AgL
CG	Lonetree Canyon Creek	Headwaters to confluence with the Colorado River ~~at 36°04'48"/112°01'52"~~			A&Ww			FBC			FC		
CG	Matkatamiba Creek	Below Havasupai Indian Reservation ~~;~~ boundary to confluence with the Colorado River ~~at 36°20'38"/112°40'19"~~			A&Ww			FBC			FC		
CG	Monument Creek	Headwaters to confluence with the Colorado River ~~at 36°05'53"/112°10'55"~~			A&Ww			FBC			FC		
CG	Nankoweap Creek	Headwaters to confluence with unnamed tributary at ~~36°15'30"/111°57'23"~~ 36°15'29"/111°57'26"		A&Wc				FBC			FC		
CG	Nankoweap Creek	Below confluence with unnamed tributary to confluence with Colorado River ~~at 36°18'25"/111°51'28.8"~~			A&Ww			FBC			FC		
CG	National Canyon Creek	~~Portion of the creek that flows into the Colorado River at 36°15'25"/112°53'34.8" that is not located on the~~ Headwaters to Hualapai Indian Reservation boundary at 36°15'15"/112°52'34"			A&Ww			FBC			FC		
CG	North Canyon Creek	Headwaters to confluence with unnamed tributary at ~~36°33'57"/111°55'39"~~ 36°33'58"/111°55'41"		A&Wc				FBC			FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CG	North Canyon Creek	Below confluence with unnamed tributary to confluence with Colorado River ~~at 36°37'48"/111°45'46.8"~~			A&Ww			FBC			FC		
CG	Olo Creek	Headwaters to confluence with the Colorado River ~~at 36°22'16"/112°38'56"~~			A&Ww			FBC			FC		
CG	Parashant Canyon	Headwaters to confluence with unnamed tributary at ~~36°21'26"/113°28'10"~~ 36°21'02"/113°27'56"		A&Wc				FBC			FC		
CG	Parashant Canyon	Below confluence with unnamed tributary to confluence with the Colorado River			A&Ww			FBC			FC		
CG	Paria River	Utah border to confluence with the Colorado River ~~at 36°51'29"/111°36'04"~~			A&Ww			FBC			FC		
CG	Phantom Creek	Headwaters to confluence with unnamed tributary at ~~36°10'04"/112°07'50"~~ 36°09'29"/112°08'13"		A&Wc				FBC			FC		
CG	Phantom Creek	Below confluence with unnamed tributary to ~~Colorado River at 36°06'58"/112°05'09.6"~~ confluence with Bright Angel Creek			A&Ww			FBC			FC		
CG	Pipe Creek	Headwaters to confluence with the Colorado River ~~at 36°05'56"/112°06'36"~~			A&Ww			FBC			FC		
CG	Red Canyon Creek	Headwaters to confluence with the Colorado River ~~at 36°02'42"/111°55'08"~~			A&Ww			FBC			FC		
CG	Red Lake	~~35°40'00"/114°03'45"~~ 35°40'03"/114°04'07"			A&Ww			FBC			FC		AgL
~~CG~~	~~Redondo Lake~~	~~32°44'32"/114°29'02"~~	~~Shallow~~		~~A&Ww~~			~~FBC~~			~~FC~~		
CG	Roaring Springs	~~Headwaters of Roaring Springs Creek at 36°11'35"/112°01'55.2"~~ 36°11'45"/112°02'06"		A&Wc				FBC		DWS	FC		
CG	Roaring Springs ~~Canyon~~ Creek	Headwaters to confluence with Bright Angel Creek ~~at 36°11'35"/112°01'55"~~		A&Wc				FBC			FC		
CG	Rock Canyon	~~Tributary~~ Headwaters to confluence with Truxton Wash ~~at 35°26'56"/113°36'29"~~				A&We			PBC				
CG	Royal Arch Creek	~~Tributary~~ Headwaters to confluence with the Colorado River ~~at 36°11'53"/112°26'56"~~			A&Ww			FBC			FC		
CG	Ruby Canyon Creek	~~Tributary~~ Headwaters to confluence with the Colorado River ~~at 36°11'24"/112°18'54"~~			A&Ww			FBC			FC		
CG	Russell Tank	~~34°52'22"/111°52'44"~~ 35°52'21"/111°52'45"		A&Wc				FBC			FC		AgL
CG	Saddle Canyon Creek	Headwaters to confluence with unnamed tributary at ~~36°21'35.5"/112°22'46"~~ 36°21'36"/112°22'43"		A&Wc				FBC			FC		
CG	Saddle Canyon Creek	Below confluence with unnamed tributary to confluence with Colorado River ~~at 36°22'52"/112°23'16.8"~~			A&Ww			FBC			FC		
CG	Santa Fe Reservoir	~~35°14'26"/112°11'04"~~ 35°14'31"/112°11'10"	Igneous	A&Wc				FBC		DWS	FC		
CG	Sapphire Canyon Creek	Headwaters to confluence with the Colorado River ~~at 36°08'49"/112°17'28"~~			A&Ww			FBC			FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CG	Serpentine Canyon Creek	Headwaters to confluence with the Colorado River ~~at 36°12'22"/112°19'37"~~			A&Ww			FBC			FC		
CG	Shinumo Creek	Headwaters to confluence with unnamed tributary at ~~36°18'21"/112°18'03"~~ 36°18'18"/112°18'07"		A&Wc				FBC			FC		
CG	Shinumo Creek	Below confluence with unnamed tributary to confluence with the Colorado River ~~at 36°14'13"/112°20'52.8"~~			A&Ww			FBC			FC		
CG	Short Creek	~~Tributary~~ Headwaters to confluence with the Virgin River ~~at 36°58'23"/113°16'08"~~				A&We			PBC				
CG	Slate Creek	Headwaters to confluence with the Colorado River ~~at 36°08'06"/112°14'42"~~			A&Ww			FBC			FC		
CG	Spring Canyon Creek	Headwaters to confluence with the Colorado River ~~at 36°01'08"/113°21'00"~~			A&Ww			FBC			FC		
CG	Stone Creek	Headwaters to confluence with the Colorado River ~~at 36°20'49"/112°27'14"~~			A&Ww			FBC			FC		
CG	Tapeats Creek	Headwaters to confluence with the Colorado River ~~at 36°22'16"/112°28'05"~~		A&Wc				FBC			FC		
CG	Thunder River	~~Tributary~~ Headwaters to confluence with Tapeats Creek ~~at 36°23'31"/112°27'00"~~		A&Wc				FBC			FC		
CG	Trail Canyon Creek	Headwaters to confluence with the Colorado River ~~at 35°50'20"/113°19'37"~~			A&Ww			FBC			FC		
CG	Transept Canyon	Headwaters to Grand Canyon National Park North Rim WWTP outfall at ~~36°12'20"/112°03'35"~~ 36°12'20"/112°03'35"				A&We			PBC				
CG	Transept Canyon (EDW)	Grand Canyon National Park North Rim WWTP outfall to 1 km downstream					A&Wedw		PBC				
CG	Transept Canyon	From 1 km downstream of the Grand Canyon National Park North Rim WWTP outfall to confluence with Bright Angel Creek				A&We			PBC				
CG	Travertine Canyon Creek	~~Tributary~~ Headwaters to confluence with the Colorado River ~~at 36°06'11"/112°13'05"~~			A&Ww			FBC			FC		
CG	Truxton Wash	~~Tributary~~ Headwaters to Red Lake ~~at 35°37'23"/114°03'00"~~				A&We			PBC				
CG	Turquoise Canyon Creek	~~Tributary~~ Headwaters to confluence with the Colorado River ~~at 36°09'14"/112°18'07"~~			A&Ww			FBC			FC		
CG	Unkar Creek	Below confluence with unnamed tributary at 36°07'54"/111°54'06" to confluence with Colorado River ~~at 36°04'48"/111°52'22.8"~~			A&Ww			FBC			FC		
CG	Unnamed Wash (EDW)	Grand Canyon ~~NP~~ National Park Desert View WWTP outfall at 36°02'06"/111°49'13" to confluence with Cedar Canyon					A&Wedw		PBC				
CG	Unnamed Wash (EDW)	Valle Airpark WRF outfall at 35°38'34"/112°09'22" to confluence with Spring Valley Wash ~~at 35°38'29"/112°10'47"~~					A&Wedw		PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CG	Vasey's Paradise	A spring at ~~36°26'49"/111°50'46"~~ 36°29'52"/111°51'26"		A&Wc				FBC			FC		
CG	Virgin River	~~Tributary~~ Headwaters to confluence with the Colorado River ~~at 36°47'28"/114°06'11"~~			A&Ww			FBC			FC	AgI	AgL
CG	Vishnu Creek	~~Tributary~~ Headwaters to confluence with the Colorado River ~~at 36°03'18"/111°59'42"~~			A&Ww			FBC			FC		
CG	Warm Springs Creek	~~Tributary~~ Headwaters to confluence with the Colorado River ~~at 36°11'49"/113°04'55"~~			A&Ww			FBC			FC		
CG	West Cataract Creek	~~Tributary~~ Headwaters to confluence with Cataract Creek ~~at 35°15'40"/112°11'38"~~		A&Wc				FBC			FC		AgL
CG	White Creek	Headwaters to confluence with unnamed tributary at ~~36°18'42"/112°21'03"~~ 36°18'45"/112°21'03"		A&Wc				FBC			FC		
CG	White Creek	Below confluence with unnamed tributary to confluence with the Colorado River ~~at 36°15'22"/112°19'30"~~			A&Ww			FBC			FC		
CG	Wright Canyon Creek	Headwaters to confluence with unnamed tributary at ~~35°20'54"/113°30'35"~~ 35°20'48"/113°30'40"		A&Wc				FBC			FC		AgL
CG	Wright Canyon Creek	Below confluence with unnamed tributary to confluence with Truxton Wash			A&Ww			FBC			FC		AgL
CL	A10 Backwater	~~33°31'38"/114°33'19"~~ 33°31'45"/114°33'19"	Shallow		A&Ww			FBC			FC		
CL	A7 Backwater	~~33°34'39"/114°39'42"~~ 33°34'27"/114°32'04"	Shallow		A&Ww			FBC			FC		
CL	Adobe Lake	~~33°02'39"/114°39'19"~~ 33°02'36"/114°39'26"	Shallow		A&Ww			FBC			FC		
CL	Cibola Lake	~~33°31'38"/114°33'19"~~ 33°14'01"/114°40'31"	Shallow		A&Ww			FBC			FC		
CL	Clear Lake	~~33°01'57"/114°31'26"~~ 33°01'59"/114°31'19"	Shallow		A&Ww			FBC			FC		
CL	Columbus Wash	~~Tributary~~ Headwaters to confluence with the Gila River ~~at 33°00'25"/113°16'08"~~				A&We			PBC				
CL	Colorado River	Lake Mead to Topock Marsh		A&Wc				FBC		DWS	FC	AgI	AgL
CL	Colorado River	Topock Marsh to Morelos Dam			A&Ww			FBC		DWS	FC	AgI	AgL
CL	Gila River	Painted Rock Dam to confluence with the Colorado River ~~at 32°43'12"/114°33'14"~~			A&Ww			FBC			FC	AgI	AgL
CL	Holy Moses Wash	Headwaters to City of Kingman Downtown WWTP outfall at ~~35°10'30"/114°03'43"~~ 35°10'33"/114°03'46"				A&We			PBC				
CL	Holy Moses Wash (EDW)	City of Kingman Downtown WWTP outfall to 3 km downstream					A&Wedw		PBC				
CL	Holy Moses Wash	From 3 km downstream of City of Kingman Downtown WWTP outfall to confluence with Sawmill Wash ~~at 35°09'43"/114°04'20"~~				A&We			PBC				
CL	Hunter's Hole Backwater	~~32°31'15"/114°48'03"~~ 32°31'13"/114°48'07"	Shallow		A&Ww			FBC			FC		AgL
CL	Imperial Reservoir	~~32°53'04"/114°27'40"~~ 32°53'02"/114°27'54"	Shallow		A&Ww			FBC		DWS	FC	AgI	AgL
CL	Island Lake	~~33°01'52"/114°35'07"~~ 33°01'44"/114°36'42"	Shallow		A&Ww			FBC			FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CL	Laguna Reservoir	~~32°51'15"/114°28'38"~~ 32°51'35"/114°28'29"	Shallow		A&Ww			FBC		DWS	FC	AgI	AgL
CL	Lake Havasu	~~34°18'15"/114°08'15"~~ 34°35'18"/114°25'47"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
CL	Lake Mohave	~~35°11'45"/114°34'00"~~ 35°26'58"/114°38'30"	Deep	A&Wc				FBC		DWS	FC	AgI	AgL
CL	Martinez Lake	~~32°58'52"/114°28'23"~~ 32°58'49"/114°28'09"	Shallow		A&Ww			FBC			FC	AgI	AgL
CL	Mittry Lake	~~32°49'11"/114°27'41"~~ 32°49'17"/114°27'54"	Shallow		A&Ww			FBC			FC		
CL	Mohave Wash	Headwaters to Lake Havasu ~~at 33°28'55"/114°35'56"~~				A&We			PBC				
CL	Nortons Lake	~~33°02'35"/114°37'58"~~ 33°02'30"/114°37'59"	Shallow		A&Ww			FBC			FC		
CL	Painted Rock (Borrow Pit) Lake	~~33°05'00"/113°01'20"~~ 33°04'55"/113°01'17"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
CL	Pretty Water Lake	~~33°19'45"/114°42'15"~~ 33°19'51"/114°42'19"	Shallow		A&Ww			FBC			FC		
CL	Quigley Ponds	~~32°43'00"/113°58'00"~~ 32°43'40"/113°57'44"	Shallow		A&Ww			FBC			FC		
CL	Redondo Lake	32°44'32"/114°29'03"	Shallow		A&Ww			FBC			FC		
CL	Sacramento Wash	~~Tributary~~ Headwaters toTopock Marsh ~~at 34°43'48"/114°29'13"~~				A&We			PBC				
CL	Sawmill Canyon	Headwaters to abandoned gaging station at ~~35°09'46.5"/113°57'51"~~ 35°09'45"/113°57'56"			A&Ww			FBC			FC		AgL
CL	Sawmill Canyon	Below abandoned gaging station to confluence with ~~Sacramento~~ Holy Moses Wash ~~at 35°09'43"/113°58'01.2"~~				A&We			PBC				AgL
CL	Topock Marsh	~~34°47'30"/114°31'00"~~ 34°43'27"/114°28'59"	Shallow		A&Ww			FBC		DWS	FC	AgI	AgL
CL	Tyson Wash (EDW)	Town of Quartzsite WWTP outfall at ~~33°42'30"/114°13'14"~~ 33°42'39"/114°13'10" to 1 km downstream ~~at 33°42'30"/114°13'45"~~					A&Wedw		PBC				
CL	Wellton Canal	Wellton-Mohawk Irrigation District								DWS		AgI	AgL
CL	Wellton Ponds	~~32°42'15"/114°06'15"~~ 32°40'32"/114°00'26"			A&Ww			FBC			FC		
CL	YPG Pond	~~32°50'22"/114°26'25"~~ 32°50'58"/114°26'14"			A&Ww			FBC			FC		
CL	Yuma Area Canals	Above municipal water treatment plant intakes								DWS		AgI	AgL
CL	Yuma Area Canals	Below municipal water treatment plant intakes and all drains										AgI	AgL
LC	Als Lake	~~35°02'17"/111°25'13"~~ 35°02'10"/111°25'17"	Igneous		A&Ww			FBC			FC		AgL
LC	Ashurst Lake	~~35°01'10"/111°24'09"~~ 35°01'06"/111°24'18"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Atcheson Reservoir	~~34°00'00"/109°20'41"~~ 33°59'59"/109°20'43"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Auger Creek	~~Tributary~~ Headwaters to confluence with Nutrioso Creek ~~at 33°57'22"/109°12'58"~~		A&Wc				FBC			FC		AgL
LC	Barbershop Canyon Creek	~~Tributary~~ Headwaters to confluence with East Clear Creek ~~at 34°33'00"/111°09'43"~~		A&Wc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
LC	Bear Canyon Creek	~~Tributary~~ Headwaters to confluence with General Springs Canyon ~~at 34°32'18"/111°12'15"~~		A&Wc				FBC			FC		AgL
LC	Bear Canyon Creek	~~Tributary~~ Headwaters to confluence with Willow Creek ~~at 34°27'29"/111°00'00"~~		A&Wc				FBC			FC		AgL
LC	Bear Canyon Lake	~~34°24'10"/111°00'09"~~ 34°24'00"/111°00'06"	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Becker Lake	~~34°09'16"/109°18'18"~~ 34°09'11"/109°18'23"	Shallow	A&Wc				FBC			FC		AgL
LC	Billy Creek	~~Tributary~~ Headwaters to confluence with Show Low Creek ~~at 34°12'25"/110°00'00"~~		A&Wc				FBC			FC		AgL
LC	Black Canyon Creek	~~Tributary~~ Headwaters to confluence with Chevelon Creek ~~at 34°47'38"/110°36'22"~~		A&Wc				FBC			FC	AgI	AgL
LC	Black Canyon Lake	~~34°19'50"/110°41'59"~~ 34°20'32"/110°40'13"	Sedimentary	A&Wc				FBC		DWS	FC	AgI	AgL
LC	Blue Ridge Reservoir	~~34°33'15"/111°11'01"~~ 34°32'40"/111°11'33"	Deep	A&Wc				FBC			FC	AgI	AgL
LC	Boot Lake	~~34°58'53"/111°20'00"~~ 34°58'54"/111°20'11"	Igneous	A&Wc				FBC			FC		AgL
LC	Bow and Arrow Wash ~~(EDW)~~	~~Estates at Pine Canyon WWTP outfall #1 at 35°09'31"/111°38'24"~~ Headwaters to confluence with Rio de Flag ~~at 35°10'35"/111°36'42"~~				A&We	~~A&Wedw~~		PBC				
LC	Buck Springs Canyon Creek	~~Tributary~~ Headwaters to confluence with Leonard Canyon Creek ~~at 34°28'52"/111°05'24"~~		A&Wc				FBC			FC		AgL
LC	Bunch Reservoir	~~34°02'12"/109°26'45"~~ 34°02'20"/109°26'48"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Camillo Tank	~~34°55'03"/111°22'41"~~ 34°55'03"/111°22'40"	Igneous		A&Ww			FBC			FC		AgL
LC	Carnero Lake	~~34°06'57"/109°31'39"~~ 34°06'57"/109°31'42"	Shallow	A&Wc				FBC			FC		AgL
LC	Chevelon Canyon Lake	~~34°30'39"/110°49'28"~~ 34°29'18"/110°49'30"	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Chevelon Creek	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°57'04"/110°31'30"~~		A&Wc				FBC			FC	AgI	AgL
LC	Chevelon Creek, West Fork	~~Tributary~~ Headwaters to confluence with Chevelon Creek ~~at 34°36'58"/110°46'05"~~		A&Wc				FBC			FC		AgL
LC	Chilson Tank	~~34°51'46"/111°22'52"~~ 34°51'43"/111°22'54"	Igneous		A&Ww			FBC			FC		AgL
LC	Clear Creek	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°59'13"/110°38'17"~~		A&Wc				FBC		DWS	FC		AgL
LC	Clear Creek Reservoir	~~34°58'10"/110°38'33"~~ 34°57'09"/110°39'14"	Shallow	A&Wc				FBC		DWS	FC	AgI	AgL
LC	Coconino Reservoir	~~35°00'16"/111°23'52"~~ 35°00'05"/111°24'10"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Colter Creek	~~Tributary~~ Headwaters to confluence with Nutrioso Creek ~~at 33°58'19"/109°12'29"~~		A&Wc				FBC			FC		AgL
LC	Colter Reservoir	~~33°56'40"/109°28'50"~~ 33°56'39"/109°28'53"	Shallow	A&Wc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
LC	Concho Creek	~~Tributary~~ Headwaters to confluence with Carrizo Wash ~~at 34°36'25"/109°33'54"~~		A&Wc				FBC			FC		AgL
LC	Concho Lake	~~34°26'36"/109°37'40"~~ 34°26'37"/109°37'40"	Shallow	A&Wc				FBC			FC	AgI	AgL
LC	Cow Lake	~~34°53'19"/111°18'49"~~ 34°53'14"/111°18'51"	Igneous		A&Ww			FBC			FC		AgL
LC	Coyote Creek	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°18'22"/109°20'53"~~		A&Wc				FBC			FC	AgI	AgL
LC	Crisis Lake (Snake Tank #2)	~~34°47'51"/111°17'01"~~ 34°47'51"/111°17'32"			A&Ww			FBC			FC		AgL
LC	Dane Canyon Creek	~~Tributary~~ Headwaters to confluence with Barbershop Canyon Creek ~~at 34°30'29"/111°09'07"~~		A&Wc				FBC			FC		AgL
LC	Daves Tank	~~34°44'23"/111°17'08"~~ 34°44'22"/111°17'15"			A&Ww			FBC			FC		AgL
LC	Deep Lake	~~35°03'30"/111°24'55"~~ 35°03'34"/111°25'00"	Igneous		A&Ww			FBC			FC		AgL
LC	Dry Lake (EDW)	~~34°37'52"/110°23'40"~~ 34°38'02"/110°23'40"	~~Igneous~~ EDW				A&Wedw		PBC				
LC	Ducksnest Lake	~~34°59'15"/111°23'53"~~ 34°59'14"/111°23'57"			A&Ww			FBC			FC		AgL
LC	East Clear Creek	~~Tributary~~ Headwaters to confluence with Clear Creek ~~at 34°38'31"/110°59'49"~~		A&Wc				FBC			FC	AgI	AgL
LC	Ellis Wiltbank Reservoir	~~34°05'25"/109°28'24"~~ 34°05'25"/109°28'25"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Estates at Pine Canyon lakes (EDW)	35°09'32"/111°38'26"	EDW				A&Wedw		PBC				
LC	Fish Creek	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°04'05"/109°26'49"~~		A&Wc				FBC			FC		AgL
LC	Fool's Hollow Lake	~~34°16'14"/110°04'15"~~ 34°16'30"/110°03'43"	Igneous	A&Wc				FBC			FC		AgL
LC	General Springs Canyon Creek	~~Tributary~~ Headwaters to confluence with East Clear Creek ~~at 34°32'17"/111°12'18"~~		A&Wc				FBC			FC		AgL
LC	Geneva Reservoir	~~34°01'44"/109°31'44"~~ 34°01'45"/109°31'46"	Igneous		A&Ww			FBC			FC		AgL
LC	Hall Creek	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°03'58"/109°27'07"~~		A&Wc				FBC			FC	AgI	AgL
LC	Hart Canyon Creek	~~Tributary~~ Headwaters to confluence with Willow Creek ~~at 34°30'40"/110°59'28"~~		A&Wc				FBC			FC		AgL
LC	Hay Lake	~~34°00'11"/109°25'55"~~ 34°00'11"/109°25'57"	Igneous	A&Wc				FBC			FC		AgL
LC	Hog Wallow Lake	~~33°58'57"/109°25'38"~~ 33°58'57"/109°25'39"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Horse Lake	~~35°03'53"/111°27'51"~~ 35°03'55"/111°27'50"			A&Ww			FBC			FC		AgL
~~LC~~	~~Huffer Tank~~	~~34°27'45"/111°23'09"~~			~~A&Ww~~			~~FBC~~			~~FC~~		~~AgL~~
LC	Hulsey Creek	~~Tributary~~ Headwaters to confluence with Nutrioso Creek ~~at 33°56'28"/109°11'28"~~		A&Wc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
LC	Hulsey Lake	~~33°55'57"/109°09'33"~~ 33°55'58"/109°09'40"	Sedimentary	A&Wc				FBC			FC		AgL
LC	Indian Lake	~~35°00'38"/111°22'37"~~ 35°00'39"/111°22'41"			A&Ww			FBC			FC		AgL
LC	Jack's Canyon Creek	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 35°00'07"/110°39'07"~~		A&Wc				FBC			FC	AgI	AgL
LC	Jarvis Lake	~~33°58'59"/109°12'33"~~ 33°58'59"/109°12'36"	Sedimentary		A&Ww			FBC			FC		AgL
LC	Kinnikinick Lake	~~34°53'52"/111°18'20"~~ 34°53'53"/111°18'18"	Igneous	A&Wc				FBC			FC		AgL
LC	Knoll Lake	~~34°25'38"/111°05'10"~~ 34°25'38"/111°05'13"	Sedimentary	A&Wc				FBC			FC		AgL
LC	Lake Humphreys (EDW)	~~35°11'51"/111°35'16"~~ 35°11'51"/111°35'19"	EDW				A&Wedw		PBC				
LC	Lake Mary, Lower	~~35°06'22"/111°34'20"~~ 35°06'21"/111°34'38"	Igneous	A&Wc				FBC		DWS	FC		AgL
LC	Lake Mary, Upper	~~35°04'45"/111°31'56"~~ 35°03'23"/111°28'34"	Igneous	A&Wc				FBC		DWS	FC		AgL
LC	Lake of the Woods	~~34°09'39"/109°58'45"~~ 34°09'40"/109°58'47"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Lee Valley Creek (OAW)	Headwaters to Lee Valley Reservoir		A&Wc				FBC			FC		
LC	Lee Valley Creek	From Lee Valley Reservoir to confluence with the East Fork of the Little Colorado River ~~at 33°56'35"/109°29'06"~~		A&Wc				FBC			FC		AgL
LC	Lee Valley Reservoir	~~33°56'30"/109°30'00"~~ 33°56'29"/109°30'04"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Leonard Canyon Creek	~~Tributary~~ Headwaters to confluence with Clear Creek ~~at 34°37'26"/111°02'20"~~		A&Wc				FBC			FC		AgL
LC	Leonard Canyon Creek, East Fork	~~Tributary~~ Headwaters to confluence with Leonard Canyon Creek ~~at 34°25'52"/111°05'06"~~		A&Wc				FBC			FC		AgL
LC	Leonard Canyon Creek, Middle Fork	~~Tributary~~ Headwaters to confluence with Leonard Canyon, West Fork ~~at 34°26'17"/111°06'47"~~		A&Wc				FBC			FC		AgL
LC	Leonard Canyon Creek, West Fork	~~Tributary~~ Headwaters to confluence with Leonard Canyon, East Fork ~~at 34°28'01"/111°05'28"~~		A&Wc				FBC			FC		AgL
LC	Lily Creek	~~Tributary~~ Headwaters to confluence with Coyote Creek ~~at 33°59'46"/109°03'58"~~		A&Wc				FBC			FC		AgL
LC	Little Colorado River	Headwaters to Lyman Reservoir		A&Wc				FBC			FC	AgI	AgL
LC	Little Colorado River	Below Lyman Reservoir~~,~~ to confluence with the Puerco River ~~at 34°53'20"/110°07'41"~~		A&Wc				FBC		DWS	FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
LC	Little Colorado River	Below confluence with the Puerco River to ~~the boundary of~~ the Navajo Nation Reservation boundary			A&Ww			FBC		DWS	FC	AgI	AgL
LC	Little Colorado River, East Fork	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°00'14"/109°27'22"~~		A&Wc				FBC			FC		AgL
LC	Little Colorado River, South Fork	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°05'20"/109°24'58"~~		A&Wc				FBC			FC		AgL
LC	Little Colorado River, West Fork (OAW)	Headwaters to Government Springs ~~at 33°59'33"/109°27'52"~~		A&Wc				FBC			FC		
LC	Little Colorado River, West Fork	Below Government Springs to confluence with the Little Colorado River ~~at 34°00'14"/109°27'21.6"~~		A&Wc				FBC			FC		AgL
LC	Little George Reservoir	34°00'37"/109°19'15"	Igneous		A&Ww			FBC			FC	AgI	
LC	Little Mormon Lake	~~34°17'00"/109°58'03"~~ 34°17'00"/109°58'06"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Little Ortega Lake	~~34°22'45"/109°40'00"~~ 34°22'47"/109°40'06"	Igneous	A&Wc				FBC			FC		
LC	Long Lake, Lower	~~34°46'45"/111°12'00"~~ 34°47'16"/111°12'40"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Long Lake, Upper	~~35°00'00"/111°21'00"~~ 35°00'08"/111°21'23"	Igneous	A&Wc				FBC			FC		AgL
LC	Long Tom Tank	~~34°20'37"/110°49'20"~~ 34°20'35"/110°49'22"		A&Wc				FBC			FC		AgL
LC	Lower Walnut Canyon Lake (EDW)	35°12'04"/111°34'07"	EDW				A&Wedw		PBC				
LC	Lyman Reservoir	~~34°21'30"/109°21'30"~~ 34°21'21"/109°21'35"	Deep	A&Wc				FBC			FC	AgI	AgL
LC	Mamie Creek	~~Tributary~~ Headwaters to confluence with Coyote Creek ~~at 33°59'24"/109°03'50"~~		A&Wc				FBC			FC		AgL
LC	Marshall Lake	~~35°07'10"/111°32'01"~~ 35°07'18"/111°32'07"	Igneous	A&Wc				FBC			FC		AgL
LC	McKay Reservoir	~~34°01'27"/110°29'07"~~ 34°01'27"/109°13'48"		A&Wc				FBC			FC	AgI	AgL
LC	Merritt Draw Creek	~~Tributary~~ Headwaters to confluence with Barbershop Canyon Creek ~~at 34°29'38"/111°09'54"~~		A&Wc				FBC			FC		AgL
LC	Mexican Hay Lake	~~34°01'57"/109°21'25"~~ 34°01'58"/109°21'25"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Milk Creek	~~Tributary~~ Headwaters to confluence with Hulsey Creek ~~at 33°56'31"/109°11'17"~~		A&Wc				FBC			FC		AgL
LC	Miller Canyon Creek	~~Tributary~~ Headwaters to confluence with East Clear Creek ~~at 34°33'00"/111°14'17"~~		A&Wc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
LC	Miller Canyon Creek, East Fork	~~Tributary~~ Headwaters to confluence with Miller Canyon Creek ~~at 34°30'18"/111°14'53"~~		A&Wc				FBC			FC		AgL
LC	Mineral Creek	~~Tributary~~ Headwaters to Little Ortega Lake ~~at 34°22'52"/109°39'50"~~		A&Wc				FBC			FC	AgI	AgL
LC	Mormon Lake	~~34°56'40"/111°27'10"~~ 34°56'38"/111°27'25"	Shallow	A&Wc				FBC		DWS	FC	AgI	AgL
LC	Morton Lake	~~34°53'36"/111°17'39"~~ 34°53'37"/111°17'41"	Igneous	A&Wc				FBC			FC		AgL
LC	Mud Lake	~~34°55'24"/111°21'18"~~ 34°55'19"/111°21'29"	Shallow		A&Ww			FBC			FC		AgL
LC	Ned Lake (EDW)	~~32°17'18"/110°03'20"~~ 34°17'17"/110°03'22"	EDW				A&Wedw		PBC				
LC	Nelson Reservoir	~~34°03'12"/109°11'18"~~ 34°02'52"/109°11'19"	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Norton Reservoir	~~34°03'57"/109°31'21"~~ 34°03'57"/109°31'27"	Igneous		A&Ww			FBC			FC		AgL
LC	Nutrioso Creek	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°09'04"/109°17'35"~~		A&Wc				FBC			FC	AgI	AgL
LC	Paddy Creek	~~Tributary~~ Headwaters to confluence with Nutrioso Creek ~~at 33°54'47"/109°10'16"~~		A&Wc				FBC			FC		AgL
LC	Phoenix Park Wash	~~Tributary~~ Headwaters to Dry Lake ~~at 34°37'30"/110°22'12"~~				A&We			PBC				
LC	Pierce Seep	~~34°23'35"/110°31'22"~~ 34°23'39"/110°31'17"		A&Wc					PBC				
LC	Pine Tank	~~34°46'49"/111°17'17"~~ 34°46'49"/111°17'21"	Igneous		A&Ww			FBC			FC		AgL
LC	Pintail Lake (EDW)	~~34°18'06"/110°01'17"~~ 34°18'05"/110°01'21"	EDW				A&Wedw		PBC				
~~LC~~	~~Pool Corral Lake~~	~~33°58'16"/109°24'53"~~	~~Igneous~~		~~A&Ww~~			~~FBC~~			~~FC~~	~~AgI~~	~~AgL~~
LC	Porter Creek	~~Tributary~~ Headwaters to confluence with Show Low Creek ~~at 34°10'16"/109°58'48"~~		A&Wc				FBC			FC		AgL
LC	Potato Lake	~~34°27'44"/111°20'42"~~ 35°03'15"/111°24'13"	Igneous	A&Wc				FBC			FC		AgL
LC	Pratt Lake	~~34°01'31"/109°04'16"~~ 34°01'32"/109°04'18"	Sedimentary	A&Wc				FBC			FC		
LC	Puerco River	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°53'20"/110°07'41"~~			A&Ww			FBC		DWS	FC	AgI	AgL
LC	Puerco River (EDW)	Sanders Unified School District WWTP outfall at 35°12'52"/109°19'40" to 0.5 km downstream ~~at 35°12'39"/109°19'52"~~					A&Wedw		PBC				
LC	Rainbow Lake	~~34°09'03"/109°59'01"~~ 34°09'00"/109°59'09"	Shallow Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Reagan Reservoir	~~34°02'09"/109°08'43"~~ 34°02'09"/109°08'41"	Igneous		A&Ww			FBC			FC		AgL
LC	Rio de Flag	Headwaters to City of Flagstaff WWTP outfall at 35°12'21"/111°39'17"				A&We			PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
LC	Rio de Flag (EDW)	From City of Flagstaff WWTP outfall ~~at 35°12'21"/111°39'17"~~ to the confluence with San Francisco Wash					A&Wedw		PBC				
LC	River Reservoir	34°02'01"/109°26'07"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Rogers Reservoir	~~33°58'30"/109°16'18"~~ 33°56'30"/109°16'20"	Igneous		A&Ww			FBC			FC		AgL
LC	Rudd Creek	~~Tributary~~ Headwaters to confluence with Nutrioso Creek ~~at 34°04'12"/109°11'56"~~		A&Wc				FBC			FC		AgL
LC	Russel Reservoir	~~33°59'29"/109°20'00"~~ 33°59'29"/109°20'01"	Igneous		A&Ww			FBC			FC	AgI	AgL
~~LC~~	~~Salt House Lake~~	~~33°57'06"/109°20'12"~~	~~Igneous~~		~~A&Ww~~			~~FBC~~			~~FC~~		~~AgL~~
LC	San Salvador Reservoir	~~33°58'51"/109°19'51"~~ 33°58'51"/109°19'55"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Scott Reservoir	~~34°10'27"/109°57'27"~~ 34°10'31"/109°57'31"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Show Low Creek	~~Tributary~~ Headwaters to confluence with Silver Creek ~~at 34°25'26"/110°04'05"~~		A&Wc				FBC			FC	AgI	AgL
LC	Show Low Lake	~~34°11'25"/109°59'55"~~ 34°11'36"/110°00'12"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Silver Creek	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°44'24"/110°02'17"~~		A&Wc				FBC			FC	AgI	AgL
LC	Slade Reservoir	~~33°59'50"/109°20'00"~~ 33°59'41"/109°20'26"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Soldiers Annex Lake	~~34°47'13"/111°13'48"~~ 34°47'15"/111°13'51"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Soldiers Lake	~~34°47'49"/110°13'59"~~ 34°47'47"/111°14'04"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Spaulding Tank	~~34°30'17"/111°02'03"~~ 34°30'17"/111°02'06"			A&Ww			FBC			FC		AgL
LC	Sponseller Lake	~~34°14'10"/109°50'42"~~ 34°14'09"/109°50'45"	Igneous	A&Wc				FBC			FC		AgL
LC	St Johns Reservoir (Little Reservoir)	~~34°29'14"/109°21'57"~~ 34°29'10"/109°22'06"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Telephone Lake (EDW)	~~34°17'35"/110°02'39"~~ 34°17'35"/110°02'42"	EDW				A&Wedw		PBC				
LC	Tremaine Lake	~~34°46'00"/111°14'10"~~ 34°46'02"/111°13'51"	Igneous	A&Wc				FBC			FC		AgL
LC	Tunnel Reservoir	~~34°01'51"/109°26'32"~~ 34°01'53"/109°26'34"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Turkey Draw (EDW)	High Country Pines II WWTP outfall at ~~34°25'35"/110°38'13"~~ 33°25'35"/110°38'13" to confluence ~~of Turkey Draw~~ with Black Canyon Creek ~~at 34°25'20"/110°36'36"~~					A&Wedw		PBC				
LC	Unnamed Wash (EDW)	Bison Ranch WWTP outfall at ~~34°23'31"/110°31'41"~~ 34°23'31"/110°31'29" to Pierce Seep ~~at 34°23'35"/110°31'22"~~					A&Wedw		PBC				
LC	Unnamed Wash (EDW)	Black Mesa Ranger Station WWTP outfall at ~~34°23'32"/110°53'32"~~ 34°23'35"/110°33'36" to confluence of Oklahoma Flat Draw ~~with Pierce Wash at 34°26'47"/110°29'25"~~					A&Wedw		PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
~~LC~~	~~Unnamed Wash (EDW)~~	~~Estates at Pine Canyon WWTP outfall at 35°09'17"/111°38'22" to confluence of unnamed wash with Bow Wash and Arrow Wash at 35°09'51"/111°37'29"~~					~~A&Wedw~~		~~PBC~~				
~~LC~~	~~Unnamed Wash (EDW)~~	~~Estates at Pine Canyon WWTP outfall #3 at 35°09'45"/111°38'48" to confluence with Rio de Flag at 35°10'05"/111°38'37~~					~~A&Wedw~~		~~PBC~~				
LC	Vail Lake	~~35°05'24"/111°30'42"~~ 35°05'23"/111°30'46"	Igneous	A&Wc				FBC			FC		AgL
LC	Walnut Creek	~~Tributary~~ Headwaters to confluence with Billy Creek ~~at 34°09'50"/109°58'48"~~		A&Wc				FBC			FC		AgL
LC	Water Canyon Creek	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°06'47"/109°18'43"~~		A&Wc				FBC			FC		AgL
LC	Water Canyon Reservoir	~~34°00'15"/109°20'05"~~ 34°00'16"/109°20'05"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Whale Lake (EDW)	~~35°12'32"/111°34'42"~~ 35°11'13"/111°35'21"	EDW				A&Wedw		PBC				
LC	Whipple Lake	~~34°16'47"/109°58'28"~~ 34°16'49"/109°58'29"	Igneous		A&Ww			FBC			FC		AgL
LC	White Mountain Lake	~~34°21'54"/109°59'38"~~ 34°21'57"/109°59'21"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	White Mountain Reservoir	~~34°00'15"/109°30'48"~~ 34°00'12"/109°30'39"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Willow Creek	~~Tributary~~ Headwaters to confluence with Clear Creek ~~at 34°38'31"/110°59'49"~~		A&Wc				FBC			FC		AgL
LC	Willow Springs Canyon Creek	~~Tributary~~ Headwaters to confluence with Chevelon Creek ~~at 34°21'32"/110°53'20"~~		A&Wc				FBC			FC		AgL
LC	Willow Springs Lake	~~34°18'45"/110°52'34"~~ 34°18'13"/110°52'16"	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Woodland Reservoir	~~34°07'36"/109°57'06"~~ 34°07'35"/109°57'01"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Woods Canyon Creek	~~Tributary~~ Headwaters to confluence with Chevelon Creek ~~at 34°21'32"/110°53'20"~~		A&Wc				FBC			FC		AgL
LC	Woods Canyon Lake	~~34°20'05"/110°56'35"~~ 34°20'09"/110°56'45"	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Zuni River	~~Tributary~~ Headwaters to confluence with the Little Colorado River ~~at 34°38'42"/109°40'26"~~		A&Wc				FBC			FC	AgI	AgL
MG	Agua Fria River	Headwaters to confluence with unnamed ~~EDW wash~~ tributary at ~~34°35'43"/112°16'29", receiving treated wastewater from the Prescott Valley WWTP~~ 34°35'14"/112°16'18"				A&We			PBC				AgL
MG	Agua Fria River (EDW)	Below confluence with unnamed ~~wash receiving treated wastewater from the Prescott Valley WWTP~~ tributary to State Route 169 ~~at 34°31'43"/112°14'7.5"~~					A&Wedw		PBC				AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
MG	Agua Fria River	From State Route 169 to Lake Pleasant ~~at 34°54'54.7"/112°14'7.5"~~			A&Ww			FBC		DWS	FC	AgI	AgL
MG	Agua Fria River	Below Lake Pleasant to the City of El Mirage WWTP at ~~33°34'36"/112°48'45"~~ 33°34'20"/112°18'32"				A&We			PBC				AgL
MG	Agua Fria River (EDW)	From City of El Mirage WWTP outfall to 2 km downstream					A&Wedw		PBC				
MG	Agua Fria River	Below 2 km downstream of the City of El Mirage WWTP to City of Avondale WWTP outfall at 33°23'55"/112°21'16"				A&We			PBC				
MG	Agua Fria River	From City of Avondale WWTP outfall ~~at 33°23'24"/112°21'50.4"~~ to confluence with Gila River ~~at 33°23'22"/112°21'48"~~					A&Wedw		PBC				
MG	Alvord Park Lake	~~Urban Lake:~~ 35th Avenue & Baseline Road, Phoenix at ~~33°22'34"/112°08'11"~~ 33°22'23"/112°08'20"	Urban		A&Ww				PBC		FC		
MG	Andorra Wash ~~(EDW)~~	~~Town of Cave Creek WWTP outfall #1 at 33°50'00"/111°56'32"~~ Headwaters to confluence with Cave Creek Wash ~~at 33°49'54"/111°57'57.4"~~				A&We	~~A&Wedw~~		PBC				
MG	Antelope Creek	~~Tributary~~ Headwaters to confluence with Martinez Creek ~~at 34°16'37"/112°08'46"~~			A&Ww			FBC			FC		AgL
MG	Arlington Canal	From Gila River at 33°20'54"/112°35'39" to Gila River at 33°13'44"/112°46'15"											AgL
MG	Ash Creek	Headwaters to confluence with Tex Canyon ~~at 34°34'44"/112°07'18"~~		A&Wc				FBC			FC	AgI	AgL
MG	Ash Creek	Below confluence with Tex Canyon to confluence with Agua Fria ~~at 34°19'34"/112°04'30"~~ River			A&Ww			FBC			FC	AgI	AgL
MG	Beehive Tank	~~32°52'36"/111°02'19"~~ 32°52'37"/111°02'20"			A&Ww			FBC			FC		AgL
MG	Big Bug Creek	Headwaters to confluence with Eugene Gulch ~~at 34°27'11"/112°18'28.5"~~		A&Wc				FBC			FC	AgI	AgL
MG	Big Bug Creek	Below confluence with Eugene Gulch to confluence with Agua Fria River ~~at 34°18'54"/112°03'58"~~			A&Ww			FBC			FC	AgI	AgL
MG	Black Canyon Creek	~~Tributary~~ Headwaters to confluence with the Agua Fria River ~~at 34°04'12"/112°09'29"~~			A&Ww			FBC			FC		AgL
MG	Blind Indian Creek	~~Tributary~~ Headwaters to confluence with the Hassayampa River ~~at 34°12'40"/112°32'17"~~			A&Ww			FBC			FC		AgL
MG	Bonsall Park Lake	~~Urban Lake;~~ 59th Avenue & Bethany Home Road, Phoenix at ~~33°31'23"/112°11'05"~~ 33°31'24"/112°11'08"	Urban		A&Ww				PBC		FC		
MG	Canal Park Lake	~~Urban Lake;~~ College Avenue & Curry Road, Tempe at ~~33°26'57"/111°56'14"~~ 33°26'54"/111°56'19"	Urban		A&Ww				PBC		FC		
MG	Cave Creek	Headwaters to the Cave Creek Dam			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
MG	Cave Creek	Cave Creek Dam to the Arizona Canal ~~at 33°34'24"/112°06'25"~~				A&We			PBC				
MG	Centennial Wash	~~Tributary~~ Headwaters to confluence with the Gila River at ~~33°13'44"/112°46'16"~~ 33°16'32"/112°48'08"				A&We			PBC				AgL
MG	Centennial Wash Ponds	~~33°55'10"/113°23'05"~~ 33°54'52"/113°23'47"			A&Ww			FBC			FC		AgL
MG	Chaparral Park Lake	~~Urban Lake;~~ Hayden Road & Chaparral Road, Scottsdale at ~~33°30'41"/111°54'25"~~ 33°30'40"/111°54'27"	Urban		A&Ww				PBC		FC	AgI	
MG	Cortez Park Lake	~~Urban Lake;~~ 35th Avenue & Dunlap, Glendale at ~~33°34'13"/112°07'51"~~ 33°34'13"/112°07'52"	Urban		A&Ww				PBC		FC	AgI	
MG	Desert Breeze Lake	~~Urban Lake;~~ Galaxy Drive, West Chandler at ~~33°18'47.5"/111°55'08"~~ 33°18'47"/111°55'10"	Urban		A&Ww				PBC		FC		
MG	Devils Canyon	~~Tributary~~ Headwaters to confluence with Mineral Creek ~~at 33°12'58"/110°59'42"~~			A&Ww				FBC		FC		AgL
MG	Dobson Lake	~~Urban Lake;~~ Dobson Road & Los Lagos Vista Avenue, Mesa at ~~33°22'17"/111°53'12"~~ 33°22'48"/111°52'35"	Urban		A&Ww				PBC		FC		
MG	East Maricopa Floodway	From Brown and Greenfield Rds to the Gila River Indian Reservation Boundary			A&We				PBS				AgL
MG	Eldorado Park Lake	~~Urban Lake;~~ Miller Road & Oak Street, Tempe at ~~33°28'25"/111°54'51"~~ 33°28'25"/111°54'53"	Urban		A&Ww				PBC		FC		
MG	Encanto Park Lake	~~Urban Lake;~~ 15th Avenue & Encanto Blvd., Phoenix at ~~33°28'36"/112°05'17"~~ 33°28'28"/112°05'18"	Urban		A&Ww				PBC		FC	AgI	
MG	Fain Lake	~~City~~ Town of Prescott Valley Park Lake ~~34°34'29"/112°21'03"~~ 34°34'29"/112°21'06"	Urban		A&Ww				PBC		FC		
MG	French Gulch	Headwaters to confluence with Hassayampa River			A&Ww				PBC				AgL
MG	Galena Gulch	~~Tributary~~ Headwaters to confluence with the Agua Fria River ~~at 34°28'37"/112°15'14"~~				A&We			PBC				AgL
MG	~~Gallaway~~ Galloway Wash (EDW)	Town of Cave Creek WWTP outfall ~~#2~~ at ~~33°49'58"/111°57'30"~~ 33°50'15"/111°57'35" to confluence with ~~Andorra Wash at 33°49'59"/111°57'41"~~ Cave Creek					A&Wedw		PBC				
MG	Gila River	San Carlos Indian Reservation boundary to the Ashurst-Hayden Dam ~~at 33°06'01"/111°14'46"~~			A&Ww			FBC			FC	AgI	AgL
MG	Gila River	~~AshurstHayden~~ Ashurst-Hayden Dam to the Town of Florence WWTP outfall at ~~33°02'30"/111°24'16"~~ 33°02'20"/111°24'19"				A&We			PBC				AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
MG	Gila River (EDW)	Town of Florence WWTP outfall to Felix Road ~~at 33°01'49"/111°17'16"~~					A&Wedw		PBC				
MG	Gila River	Felix Road to the Gila River Indian Reservation boundary				A&We			PBC				AgL
MG	Gila River (EDW)	From the confluence with the Salt River to ~~the~~ Gillespie Dam ~~at 33°13'45"/112°46'07"~~					A&Wedw		PBC		FC	AgI	AgL
MG	Gila River	Gillespie Dam to confluence with Painted Rock Dam ~~at 33°04'23"/113°00'40"~~			A&Ww			FBC			FC	AgI	AgL
MG	Granada Park Lake	~~Urban Lake;~~ 6505 North 20th Street, Phoenix at ~~33°31'58.6"/112°02'06"~~ 33°31'56"/112°02'16"	Urban		A&Ww				PBC		FC		
MG	Groom Creek	~~Tributary~~ Headwaters to confluence with the Hassayampa River ~~at 34°27'14"/112°29'24"~~		A&Wc				FBC		DWS	FC		AgL
MG	~~Hank Raymond Lake~~ Lower Lake Pleasant	~~33°50'18"/112°16'07"~~ 33°50'32"/112°16'03"			A&Ww			FBC			FC	AgI	AgL
MG	Hassayampa Lake	~~34°25'45"/112°25'29"~~ 34°25'45"/112°25'33"	Igneous	A&Wc				FBC		DWS	FC		
MG	Hassayampa River	Headwaters to confluence with unnamed tributary at 34°26'09"/112°30'32"		A&Wc				FBC			FC	AgI	AgL
MG	Hassayampa River	Below confluence with unnamed tributary to ~~8 miles south of Wickenberg~~ confluence with unnamed tributary at 33°51'52"/112°39'56"			A&Ww			FBC			FC	AgI	AgL
MG	Hassayampa River	~~8 miles south of Wickenburg~~ Below unnamed tributary to the Buckeye Irrigation Company Canal ~~at 33°23'38"/112°22'22.8"~~				A&We			PBC				AgL
MG	Hassayampa River	Below Buckeye Irrigation Company canal to the Gila River ~~at 33°19'34"/112°42'39.6"~~			A&Ww			FBC			FC		AgL
MG	Horsethief Lake	~~34°09'42"/112°17'56"~~ 34°09'42"/112°17'57"	Igneous	A&Wc				FBC		DWS	FC		AgL
MG	Indian Bend Wash	~~Tributary~~ Headwaters to confluence with the Salt River ~~at 33°26'13"/111°54'58"~~				A&We			PBC				
MG	Indian Bend Wash Lakes	~~Urban Lakes;~~ Scottsdale at ~~33°30'31"/111°54'24"~~ 33°30'32"/111°54'24"	Urban		A&Ww				PBC		FC		
MG	Indian School Park Lake	~~Urban Lake;~~ Indian School Road & Hayden Road, Scottsdale at ~~33°29'45"/111°54'33"~~ 33°29'39"/111°54'37"	Urban		A&Ww				PBC		FC		
MG	Kiwanis Park Lake	~~Urban Lake;~~ 6000 South Mill Avenue, Tempe at ~~33°22'27"/111°56'21"~~ 33°22'27"/111°56'22"	Urban		A&Ww				PBC		FC	AgI	
MG	Lake Pleasant	~~33°51'15"/112°16'15"~~ 33°53'46"/112°16'29"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
MG	The Lake Tank	32°54'14"/111°04'15"			A&Ww			FBC			FC		AgL
MG	Lion Canyon	~~Tributary~~ Headwaters to confluence with Weaver Creek ~~at 34°10'12"/112°41'49"~~			A&Ww			FBC			FC		AgL
MG	Little Ash Creek	~~Tributary~~ Headwaters to confluence with Ash Creek at ~~34°20'46"/112°04'16"~~			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
MG	Lynx Creek	Headwaters to confluence with unnamed tributary at ~~34°34'29"/112°21'05"~~ 34°34'29"/112°21'07"		A&Wc				FBC			FC		AgL
MG	Lynx Creek	Below confluence with unnamed tributary to confluence with Agua Fria River ~~at 34°37'49"/112°14'42"~~			A&Ww			FBC			FC		AgL
MG	Lynx Lake	~~34°31'08"/112°23'05"~~ 34°31'07"/112°23'07"	Deep	A&Wc				FBC		DWS	FC	AgI	AgL
MG	Maricopa Park Lake	~~33°35'30"/112°18'16"~~ 33°35'28"/112°18'15"	Urban		A&Ww				PBC		FC		
MG	Martinez Canyon	~~Tributary~~ Headwaters to confluence with Box Canyon ~~at 33°06'33"/111°12'48"~~			A&Ww			FBC			FC		AgL
MG	Martinez Creek	~~Tributary~~ Headwaters to confluence with the Hassayampa River ~~at 33°59'56"/112°44'38"~~			A&Ww			FBC			FC	AgI	AgL
MG	McKellips Park Lake	~~Urban Lake;~~ Miller Road & McKellips Road, Scottsdale at ~~33°27'14"/111°54'45"~~ 33°27'14"/111°54'49"	Urban		A&Ww				PBC		FC	AgI	
MG	McMicken Wash (EDW)	City of Peoria Jomax WWTP outfall at ~~33°43'30"/112°20'11"~~ 33°43'31"/112°20'15" to confluence ~~of McMicken Wash~~ with Agua Fria River ~~at 33°39'39"/112°18'56"~~					A&Wedw		PBC				
MG	Mineral Creek	~~Tributary~~ Headwaters to ~~the Gila River at 34°17'42"/112°13'34"~~ 33°12'34"/110°59'58"			A&Ww			FBC			FC		AgL
MG	Mineral Creek (diversion tunnel and lined channel)	33°12'24"/110°59'58" to 33°07'56"/110°58'34"						PBC					
MG	Mineral Creek	End of diversion channel to confluence with Gila River			A&Ww			FBC			FC		AgL
MG	Minnehaha Creek	~~Tributary~~ Headwaters to confluence with the Hassayampa River ~~at 34°11'49"/112°32'24"~~			A&Ww			FBC			FC		AgL
MG	Mountain Valley Park Ponds (EDW)	Town of Prescott Valley WWTP outfall 002 at ~~34°26'07"/112°18'48"~~ 34°36'07"/112°18'48" to Navajo Wash	EDW				A&Wedw		PBC				
MG	New River	Headwaters to ~~I17 at 33°54'19.5"/112°08'46"~~ Interstate 17			A&Ww			FBC			FC	AgI	AgL
MG	New River	Below ~~I17~~ Interstate 17 to confluence with Agua Fria River ~~at 33°30'47"/112°18'14"~~				A&We			PBC				AgL
MG	Painted Rock Reservoir	~~33°04'15"/113°00'30"~~ 33°04'23"/113°00'38"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
MG	Papago Park Ponds	~~Urban Lake;~~ Galvin Parkway, Phoenix at ~~33°26'56"/111°56'50"~~ 33°27'15"/111°56'45"	Urban		A&Ww				PBC		FC		
MG	Papago Park South Pond	~~Urban Lake;~~ Curry Road, Tempe 33°26'22"/111°55'55"	Urban		A&Ww				PBC		FC		
MG	Perry Mesa Tank	~~34°11'03"/112°01'59"~~ 34°11'03"/112°02'01"			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
MG	Phoenix Area Canals	Granite Reef Dam to all municipal WTP intakes								DWS		AgI	AgL
MG	Phoenix Area Canals	Below municipal WTP intakes and all other locations										AgI	AgL
MG	Picacho Reservoir	~~32°51'17"/111°28'49"~~ 32°51'10"/111°28'25"	Shallow		A&Ww			FBC			FC	AgI	AgL
MG	Poland Creek	Headwaters to confluence with Lorena Gulch ~~at 34°12'32"/112°19'07"~~		A&Wc				FBC			FC		AgL
MG	Poland Creek	Below confluence with Lorena Gulch to confluence with Black Canyon Creek ~~at 34°14'20"/112°12'54"~~			A&Ww			FBC			FC		AgL
MG	Queen Creek	Headwaters to the Town of Superior WWTP outfall at ~~33°16'45"/111°17'25"~~ 33°16’33”/111°07’44”			A&Ww				PBC				AgL
MG	Queen Creek (EDW)	Below Town of Superior WWTP outfall to confluence with Potts Canyon ~~at 33°17'17"/111°11'36"~~					A&Wedw		PBC				
MG	Queen Creek	Below Potts Canyon to ~~Queen Valley golf course at 33°17'55"/111°17'17"~~ Whitlow Dam			A&Ww			FBC			FC		AgL
MG	Queen Creek	Below ~~Queen Valley golf course~~ Whitlow Dam to confluence with Gila River ~~at 33°09'50"/111°53'16.8"~~				A&We			PBC				
MG	Riverview Park Lake	~~Urban Lake;~~ Dobson Road & 8th Street, Mesa at ~~33°25'50"/111°52'29"~~ 33°25'50"/111°52'29"	Urban		A&Ww				PBC		FC		
MG	Roadrunner Park Lake	~~Urban Lake;~~ 36th Street & Cactus, Phoenix at ~~33°35'57"/112°00'18"~~ 33°35'56"/112°00'21"	Urban		A&Ww				PBC		FC		
MG	Salt River	Verde River to 2 km below Granite Reef Dam ~~(Granite Reef Dam is at 31°26'23"/111°12'40")~~			A&Ww			FBC		DWS	FC	AgI	AgL
MG	Salt River	2 km below Granite Reef Dam to City of Mesa NW WRF outfall at ~~33°26'45"/111°56'35"~~ 33°26'22"/111°53'14"				A&We			PBC				
MG	Salt River (EDW)	City of Mesa NW WRF outfall ~~at 33°26'45"/111°56'35"~~ to Tempe Town Lake ~~at 33°26'01"/111°54'55"~~					A&Wedw		PBC				
MG	Salt River	Below Tempe Town Lake to ~~I-10~~ Interstate 10 bridge				A&We			PBC				
MG	Salt River	~~I-10~~ Below Interstate 10 bridge to the City of Phoenix 23rd Avenue WWTP outfall at ~~33°25'03"/112°06'41.6"~~ 33°24'44"/112°07'59"			A&Ww				PBC		FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
MG	Salt River (EDW)	From City of Phoenix 23rd Avenue WWTP outfall to confluence with Gila River ~~at 33°22'55"/112°18'21.6"~~					A&Wedw		PBC		FC	AgI	AgL
MG	Siphon Draw (EDW)	Superstition Mountains CFD WWTP outfall at 33°21'40"/111°33'30" to 6 km downstream ~~at 32°21'01"/111°36'59"~~					A&Wedw		PBC				
MG	Sycamore Creek	Headwaters to confluence with Tank Canyon ~~at 34°19'32"/111°50'12"~~		A&Wc				FBC			FC		AgL
MG	Sycamore Creek	Below confluence with Tank Canyon to ~~the~~ confluence with Agua Fria River ~~at 34°19'30"/112°04'12"~~			A&Ww			FBC			FC		AgL
MG	Tempe Town Lake	At Mill Avenue Bridge at ~~33°26'30"/111°53'30"~~ 33°26'00"/111°56'26"	Urban		A&Ww			FBC			FC		
MG	Tule Creek	~~Tributary~~ Headwaters to confluence with the Agua Fria River ~~at 33°57'25"/112°14'13"~~			A&Ww			FBC			FC		AgL
MG	Turkey Creek	Headwaters to confluence with unnamed tributary at ~~34°19'28"/112°21'28"~~ 34°19'28"/112°21'33"		A&Wc				FBC			FC	AgI	AgL
MG	Turkey Creek	Below confluence with unnamed tributary to confluence with Poland Creek ~~at 34°14'20"/112°12'54"~~			A&Ww			FBC			FC	AgI	AgL
~~MG~~	~~Unnamed Wash (EDW)~~	~~City of Phoenix Cave Creek WRF outfall at 33°45'20"/112°00'59" to unnamed wash to 0.5 km downstream at 33°35'07"/112°01'12"~~					~~A&Wedw~~		~~PBC~~				
MG	Unnamed Wash (EDW)	Gila Bend WWTP outfall to confluence with the Gila River ~~at 32°58'13"/112°43'46"~~					A&Wedw		PBC				
MG	Unnamed Wash (EDW)	Luke Air Force Base WWTP outfall at 33°32'00"/112°19'03" to confluence with the Agua Fria River ~~at 33°32'21"/112°19'15"~~					A&Wedw		PBC				
MG	Unnamed Wash (EDW)	North Florence ~~Gardens~~ WWTP outfall at ~~33°03'49.54"/111°23'13.28"~~ 33°03'50"/111°23'13" to confluence with Gila River ~~at 33°02'59"/111°23'15"~~					A&Wedw		PBC				
MG	Unnamed Wash (EDW)	Town of Prescott Valley WWTP outfall at 34°35'16"/112°16'18" to confluence with the Agua Fria River ~~at 34°35'16"/112°16'18"~~					A&Wedw		PBC				
MG	Unnamed Wash (EDW)	Town of Cave Creek WRF outfall at 33°48'02"/111°59'22" to confluence with Cave Creek					A&Wedw		PBC				
~~MG~~	~~Unnamed Wash (EDW)~~	~~Queen Valley Sanitary District WWTP outfall at 33°17'38"/111°18'31" to the confluence with Queen Creek~~					~~A&Wedw~~		~~PBC~~				
MG	Wagner Wash (EDW)	City of Buckeye Festival Ranch WRF outfall at 33°39'14"/112°40'18" to 2 km downstream					A&Wedw		PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
MG	Vista Del Camino Park North	~~Urban Lake;~~ 7700 East Roosevelt Street, Scottsdale at ~~33°27'33"/111°54'49.3"~~ 33°27'33"/111°54'52"	Urban		A&Ww				PBC		FC		
MG	Walnut Canyon Creek	~~Tributary~~ Headwaters to confluence with the Gila River ~~at 33°06'47"/111°05'20"~~			A&Ww			FBC			FC		AgL
MG	Weaver Creek	~~Tributary to Martinez Creek at 34°03'18"/112°46'48"~~ Headwaters to confluence with Antelope Creek			A&Ww			FBC			FC		AgL
MG	White Canyon Creek	~~Tributary~~ Headwaters to confluence with Walnut Canyon Creek ~~at 33°09'25"/111°04'48"~~			A&Ww			FBC			FC		AgL
SC	Agua Caliente Lake	~~Urban Lake;~~ 12325 East Roger Road, Tucson 32°16'51"/110°43'52"	Urban		A&Ww				PBC		FC		
SC	Agua Caliente Wash	Headwaters to confluence with Soldier Trail ~~at 32°17'48"/110°42'58.5"~~			A&Ww			FBC			FC		AgL
SC	Agua Caliente Wash	Below Soldier Trail to confluence with Tanque Verde Creek ~~at 32°14'35"/110°47'17"~~				A&We			PBC				AgL
SC	Aguirre Wash	~~Those reaches not located on~~ From the Tohono O'odham Indian Reservation boundary to 32°28'38"/111°46'51"				A&We			PBC				
SC	Alambre Wash	~~Tributary~~ Headwaters to confluence with Brawley Wash ~~at 31°57'47"/111°23'28"~~				A&We			PBC				
SC	Alamo Wash	~~Tributary~~ Headwaters to confluence with Rillito Creek ~~at 32°16'23"/110°54'18"~~				A&We			PBC				
SC	Altar Wash	~~Tributary~~ Headwaters to confluence with Brawley Wash ~~at 31°57'47"/111°23'28"~~				A&We			PBC				
SC	Alum Gulch	Headwaters to 31°28'20"/110°43'51"				A&We			PBC				AgL
SC	Alum Gulch	From 31°28'20"/110°43'51" to 31°29'17"/110°44'25"			A&Ww			FBC			FC		AgL
SC	Alum Gulch	Below 31°29'17"/110°44'25" to confluence with Sonoita Creek ~~at 31°30'58"/110°47'06"~~				A&We			PBC				AgL
SC	Arivaca Creek	~~Tributary~~ Headwaters to confluence with Altar Wash ~~at 31°43'01"/111°25'41"~~			A&Ww			FBC			FC		AgL
SC	Arivaca Lake	~~31°31'50"/111°15'05"~~ 31°31'52"/111°15'06"	Igneous		A&Ww			FBC			FC	AgI	AgL
SC	Atterbury Wash	~~Tributary~~ Headwaters to confluence with Pantano Wash ~~at 32°10'52"/110°48'50"~~				A&We			PBC				AgL
SC	Bear Grass Tank	~~31°33'01"/111°11'32"~~ 31°33'01"/111°11'03"			A&Ww			FBC			FC		AgL
SC	Big Wash	~~Tributary~~ Headwaters to confluence with Cañada del Oro ~~at 32°24'47"/110°56'28"~~				A&We			PBC				
SC	Black Wash (EDW)	Pima County WWMD Avra Valley WWTP outfall at ~~32°09'50"/111°10'49"~~ 32°09'58"/111°11'17" to confluence with Brawley Wash ~~at 32°15'00"/111°14'34"~~					A&Wedw		PBC				
SC	Bog Hole Tank	~~31°28'34"/110°37'07"~~ 31°28'36"/110°37'09"			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SC	Brawley Wash	~~Tributary~~ Headwaters to confluence with Los Robles Wash ~~at 32°21'54"/111°17'31"~~				A&We			PBC				
SC	California Gulch	~~South of Ruby~~ Headwaters To U.S./Mexico border			A&Ww			FBC			FC		AgL
SC	Cañada del Oro	Headwaters to ~~Highway 89 at 32°24'48"/110°56'14"~~ State Route 77			A&Ww			FBC			FC	AgI	AgL
SC	Cañada del Oro	Below ~~Highway 89~~ State Route 77 to confluence with the Santa Cruz River ~~at 32°19'30"/111°03'47"~~				A&We			PBC				AgL
SC	Cienega Creek	Headwaters to confluence with Gardner Canyon ~~and Spring Water Canyon at 31°47'38"/110°35'17"~~			A&Ww			FBC			FC		AgL
SC	Cienega Creek (OAW)	From confluence with Gardner Canyon ~~and Spring Water Canyon~~ to USGS gaging station ~~at 32°02'09"/110°40'34" (becomes Pantano Wash below this point)~~ (#09484600)			A&Ww			FBC			FC		AgL
SC	Davidson Canyon	Headwaters to unnamed spring at ~~31°59'00"/110°38'46"~~ 31°59'00"/110°38'49"				A&We			PBC				AgL
SC	Davidson Canyon (OAW)	~~Unnamed~~ From unnamed Spring to confluence with unnamed tributary at ~~31°59'32.5"/110°38'43.5"~~ 31°59'09"/110°38'44"			A&Ww			FBC			FC		AgL
SC	Davidson Canyon (OAW)	~~From~~ Below confluence with unnamed tributary to unnamed spring at ~~32°00'54"/110°38'54"~~ 32°00'40"/110°38'36"				A&We			PBC				AgL
SC	Davidson Canyon (OAW)	From unnamed spring ~~at 32°00'54"/110°38'54"~~ to confluence with Cienega Creek ~~at 32°01'05"/110°38'32"~~			A&Ww			FBC			FC		AgL
SC	Empire Gulch	Headwaters to unnamed spring at ~~31°47'14"/110°38'13"~~ 31°47'18"/110°38'17"				A&We			PBC				
SC	Empire Gulch	From ~~31°47'14"/110°38'13"~~ 31°47'18"/110°38'17" to ~~31°47'11" / 110°00'39"~~ 31°47'03"/110°37'35"			A&Ww			FBC			FC		
SC	Empire Gulch	~~Below 31°47'11" / 110°00'39"~~ From 31°47'03"/110°37'35" to ~~31°47'18" / 110°36'57"~~ 31°47'05"/110°36'58"				A&We			PBC				AgL
SC	Empire Gulch	From ~~31°47'18" / 110°36'57"~~ 31°47'05"/110°36'58" to confluence with Cienega Creek ~~at 31°48'32"/110°35'20"~~			A&Ww			FBC			FC		
SC	Flux Canyon	~~Tributary~~ Headwaters to confluence with Alum Canyon ~~at 31°30'22"/110°46'41"~~				A&We			PBC				AgL
SC	Gardner Canyon Creek	Headwaters to confluence with Sawmill Canyon ~~at 31°42'51"/110°44'43"~~		A&Wc				FBC			FC		
SC	Gardner Canyon Creek	Below Sawmill Canyon to confluence with Cienega Creek ~~at 31°47'38"/110°35'17"~~			A&Ww			FBC			FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SC	Greene Wash	~~Tributary~~ Greene Reservoir at 32°37'09"/111°41'12" to the ~~Santa Cruz River at 33°00'54"/111°59'46"~~ Tohono O'odham Indian Reservation boundary				A&We			PBC				
SC	Greene Wash	Tohono O'odham Indian Reservation boundary to confluence with Santa Rosa Wash at 32°53'52"/111°56'48"				A&We			PBC				
SC	Harshaw Creek	~~Tributary~~ Headwaters to confluence with Sonoita Creek at ~~31°32'35"/110°44'42"~~				A&We			PBC				AgL
SC	Hit Tank	32°43'57"/111°03'18"			A&Ww			FBC			FC		AgL
SC	Holden Canyon Creek	Headwaters to U.S./Mexico border ~~at 31°23'38"/111°15'54" in the Coronado National Forest~~			A&Ww			FBC			FC		
SC	Huachuca Tank	~~31°21'11"/110°30'12"~~ 31°21'11"/110°30'18"			A&Ww			FBC			FC		AgL
SC	Julian Wash	~~Tributary~~ Headwaters to confluence with the Santa Cruz River ~~at 32°11'20"/110°59'13"~~				A&We			PBC				
SC	Kennedy Lake	~~Urban Lake;~~ Mission Road & Ajo Road, Tucson at ~~32°10'48.5"/111°00'27"~~ 32°10'49"/111°00'27"	Urban		A&Ww				PBC		FC		
SC	Lakeside Lake	~~Urban Lake;~~ 8300 East Stella Road, Tucson at ~~32°11'10.5"/110°49'00"~~ 32°11'11"/110°49'00"	Urban		A&Ww				PBC		FC		
SC	Lemmon Canyon Creek	Headwaters to confluence with unnamed tributary at ~~32°23'47"/110°47'46"~~ 32°23'48"/110°47'49"		A&Wc				FBC			FC		
SC	Lemmon Canyon Creek	Below unnamed tributary to confluence with Sabino Canyon Creek ~~at 32°23'02"/110°47'28"~~			A&Ww			FBC			FC		
SC	Los Robles Wash	~~Tributary~~ Headwaters to confluence with the Santa Cruz River ~~at 32°32'13"/111°23'53"~~				A&We			PBC				
SC	Madera Canyon Creek	Headwaters to confluence with unnamed tributary at ~~31°43'42"/110°52'50"~~ 31°43'42"/110°52'51"		A&Wc				FBC			FC		AgL
SC	Madera Canyon Creek	Below unnamed tributary to confluence with the Santa Cruz River ~~at 31°46'55"/111°00'58"~~			A&Ww			FBC			FC		AgL
SC	Mattie Canyon	~~Tributary~~ Headwaters to confluence with Cienega Creek ~~at 31°51'31"/110°34'25"~~ "			A&Ww			FBC			FC		AgL
SC	Nogales Wash	~~Tributary~~ Headwaters to confluence with Potrero Creek ~~at 31°24'07"/110°57'11"~~			A&Ww				PBC		FC		
SC	Oak Tree Canyon	~~Tributary~~ Headwaters to confluence with Cienega Creek ~~at 31°48'43"/110°35'24"~~				A&We			PBC				
SC	Palisade Canyon Creek	Headwaters to confluence with unnamed tributary at ~~32°22'34"/110°45'35"~~ 32°21'59"/110°46'16"		A&Wc				FBC			FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SC	Palisade Canyon Creek	Below unnamed tributary to confluence with Sabino Canyon Creek ~~at 32°21'54"/110°46'23"~~			A&Ww			FBC			FC		
SC	Pantano Wash	~~Tributary~~ Headwaters to confluence with Tanque Verde Creek ~~at 32°16'23"/110°54'18"~~				A&We			PBC				
~~SC~~	~~Paradise Lake~~	~~32°44'18"/111°40'42"~~	~~Urban~~		~~A&Ww~~				~~PBC~~			~~AgI~~	
SC	Parker Canyon Creek	Headwaters to confluence with unnamed tributary at ~~31°24'17"/110°28'44.5"~~ 31°24'17"/110°28'47"		A&Wc				FBC			FC		
SC	Parker Canyon Creek	Below unnamed tributary to U.S./Mexico border ~~at 31°19'59"/110°33'58"~~			A&Ww			FBC			FC		
SC	Parker Canyon Lake	31°25'35"/110°27'15"	Deep	A&Wc				FBC			FC	AgI	AgL
SC	Patagonia Lake	~~31°29'30"/110°52'00"~~ 31°29'56"/110°50'49"	Deep		A&Ww			FBC			FC	AgI	AgL
SC	Peña Blanca Lake	~~31°24'12"/111°05'04"~~ 31°24'15"/111°05'12"	Igneous		A&Ww			FBC			FC	AgI	AgL
SC	Potrero Creek	Headwaters to Interstate 19 ~~at 31°23'24"/110°57'30"~~				A&We			PBC				AgL
SC	Potrero Creek	Below Interstate 19 to confluence with Santa Cruz River ~~at 31°27'07"/110°57'40"~~			A&Ww			FBC			FC		AgL
SC	Puertocito Wash	~~Tributary~~ Headwaters to confluence with Altar Wash ~~at 31°43'01"/111°25'41"~~				A&We			PBC				
SC	Quitobaquito Spring	(Pond and Springs) 31°56'39"/113°01'06"			A&Ww			FBC			FC		AgL
SC	Redrock Canyon Creek	~~Tributary~~ Headwaters to confluence with Harshaw Creek ~~at 31°32'35"/110°44'13"~~			A&Ww			FBC			FC		
SC	Rillito Creek	~~Tributary~~ Headwaters to confluence with the Santa Cruz River ~~at 32°18'50"/111°03'18"~~				A&We			PBC				AgL
SC	Romero Canyon Creek	Headwaters to confluence with unnamed tributary at ~~32°24'30"/110°50'35"~~ 32°24'29"/110°50'39"		A&Wc				FBC			FC		
SC	Romero Canyon Creek	Below unnamed tributary to confluence with Sutherland Wash ~~at 32°25'52"/110°53'56"~~			A&Ww			FBC			FC		
SC	Rose Canyon Creek	~~Tributary~~ Headwaters to Rose Canyon Lake ~~at 32°23'10"/110°43'01"~~		A&Wc				FBC			FC		
SC	Rose Canyon Lake	32°23'13"/110°42'38"	Igneous	A&Wc				FBC			FC		AgL
SC	Ruby Lakes	~~Near the town of Ruby at 31°26'28.5"/111°14'19"~~ 31°26'29"/111°14'22"	Igneous		A&Ww			FBC			FC		AgL
SC	Sabino Canyon Creek	Headwaters to confluence with unnamed tributary at ~~32°23'28"/110°47'00"~~ 32°23'28"/110°47'03"		A&Wc				FBC		DWS	FC	AgI	
SC	Sabino Canyon Creek	Below unnamed tributary to confluence with Tanque Verde River ~~at 32°15'40"/110°49'30"~~			A&Ww			FBC		DWS	FC	AgI	

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SC	Salero Ranch Tank	~~31°35'42"/110°53'22"~~ 31°35'43"/110°53'25"			A&Ww			FBC			FC		AgL
SC	Santa Cruz River	Headwaters to the ~~International Boundary~~ at ~~31°19'58"/110°35'48"~~ U.S./Mexico border			A&Ww			FBC			FC	AgI	AgL
SC	Santa Cruz River	~~International Boundary~~ U.S./Mexico border to the Nogales International WWTP outfall at ~~31°27'24"/110°58'05"~~ 31°27'25"/110°58'04"			A&Ww			FBC		DWS	FC	AgI	AgL
SC	Santa Cruz River (EDW)	Nogales International WWTP outfall to the Tubac Bridge ~~at 31°36'25"/110°02'00"~~					A&Wedw		PBC				AgL
SC	Santa Cruz River	~~The~~ Tubac Bridge to ~~Roger Road WWTP~~ Agua Nueva WRF outfall at 32°17'04"/111°01'45"				A&We			PBC				AgL
SC	Santa Cruz River (EDW)	~~Roger Road WWTP~~ Agua Nueva WRF outfall to Baumgartner Road ~~at 32°35'37"/111°28'08"~~					A&Wedw		PBC				
SC	Santa Cruz River, West Branch	Headwaters to the confluence with Santa Cruz River				A&We			PBC				AgL
SC	Santa Cruz Wash	Baumgartner Road to the Ak Chin Indian Reservation boundary				A&We			PBC				AgL
~~SC~~	~~Santa Cruz Wash, West Branch~~	~~Tributary to the Santa Cruz Wash at 32°12'07"/110°59'20"~~				~~A&We~~			~~PBC~~				~~AgL~~
SC	Santa Cruz Wash, North Branch	~~Tributary to the Santa Cruz Wash at 32°55'55"/111°53'10"~~ Headwaters to City of Casa Grande WRF outfall at 32°54'57"/111°47'13"				A&We			PBC				
SC	Santa Cruz Wash, North Branch (EDW)	City of Casa Grande WRF outfall ~~at 32°54'57"/111°47'13"~~ to 1 km downstream ~~at 32°54'49"/111°47'48"~~					A&Wedw		PBC				
SC	Santa Rosa Wash	Below Tohono O'odham Indian Reservation to the Ak Chin Indian Reservation				A&We			PBC				
SC	Santa Rosa Wash (EDW)	Palo Verde Utilities WWTP outfall at 33°04'20"/112°01'47" to the Gila River Indian Reservation					A&Wedw		PBC				
SC	Soldier Lake	~~32°25'34"/110°44'41"~~ 32°25'34"/110°44'43"		A&Wc				FBC			FC		AgL
SC	Sonoita Creek	Headwaters to the Town of Patagonia WWTP outfall at ~~31°32'15"/110°45'30"~~ 31°32'25"/110°45'31"				A&We			PBC				AgL
SC	Sonoita Creek (EDW)	Town of Patagonia WWTP outfall to permanent groundwater upwelling point approximately 1600 feet downstream of outfall					A&Wedw		PBC				AgL
SC	Sonoita Creek	Below ~~1600 feet downstream of Town of Patagonia WWTP outfall~~ groundwater			A&Ww			FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
		upwelling point to confluence with the Santa Cruz River ~~at 31°29'43"/110°58'37"~~											
SC	Split Tank	~~31°28'15"/111°05'15"~~ 31°28'11"/111°05'12"			A&Ww			FBC			FC		AgL
SC	Sutherland Wash	~~Tributary~~ Headwaters to confluence with Cañada del Oro ~~at 32°25'05"/110°55'26"~~			A&Ww			FBC			FC		
SC	Sycamore Canyon	Headwaters to 32°21'60" / 110°44'48"		A&Wc				FBC			FC		
SC	Sycamore Canyon	From ~~32°21'36" / 110°45'21"~~ 32°21'60" / 110°44'48" to Sycamore Reservoir			A&Ww			FBC			FC		
SC	Sycamore Canyon Creek	Headwaters to the U.S./Mexico border ~~at 31°22'48"/111°13'19"~~			A&Ww			FBC			FC		AgL
SC	Sycamore Reservoir	~~32°20'57"/110°44'52"~~ 32°20'57'/110°47'38"		A&Wc				FBC			FC		AgL
SC	Tanque Verde Creek	Headwaters to Houghton Road ~~at 32°14'13"/110°46'04"~~			A&Ww			FBC			FC		AgL
SC	Tanque Verde Creek	Below Houghton Road to confluence with Rillito Creek ~~at 32°16'08"/110°52'30"~~				A&We			PBC				AgL
~~SC~~	~~The Lake Tank~~	~~32°54'14"/111°04'14"~~			~~A&Ww~~			~~FBC~~			~~FC~~		~~AgL~~
SC	Three R Canyon	Headwaters to ~~31°28'35"/110°46'19"~~ 31°28'26"/110°46'04"				A&We			PBC				AgL
SC	Three R Canyon	From ~~31°28'35"/110°46'19"~~ 31°28'26"/110°46'04" to ~~31°28'27"/110°47'12"~~ 31°28'28"/110°47'15"			A&Ww			FBC			FC		AgL
SC	Three R Canyon	From ~~31°28'27"/110°47'12"~~ 31°28'28"/110°47'15" to confluence with Sonoita Creek ~~at 31°29'56"/110°48'54"~~				A&We			PBC				AgL
SC	Tinaja Wash	Headwaters to confluence with the Santa Cruz River ~~at 31°32'58.4"/111°02'45.7"~~				A&We			PBC				AgL
SC	Unnamed Wash (EDW)	Oracle Sanitary District WWTP outfall at 32°36'54"/110°48'02" to 5 km downstream					A&Wedw		PBC				
~~SC~~	~~Unnamed Wash~~	~~5 km downstream of the Oracle Sanitary District WWTP outfall~~				~~A&We~~			~~PBC~~				
SC	Unnamed Wash (EDW)	Arizona City Sanitary District WWTP outfall at ~~32°45'47"/111°44'20"~~ 32°45'43"/111°44'24" to confluence with Santa Cruz Wash ~~at 35°45'45"/111°46'43"~~					A&Wedw		PBC				
SC	Unnamed Wash (EDW)	Saddlebrook WWTP outfall at ~~32°32'00"/110°52'59"~~ 32°32'00"/110°53'01" to confluence with Cañada del Oro ~~at 32°30'20"/110°52'27"~~					A&Wedw		PBC				
SC	Vekol Wash	Those reaches not located on the Ak-Chin, Tohono O'odham and Gila River Indian Reservations				A&We			PBC				
SC	Wakefield Canyon	Headwaters to confluence with unnamed tributary ~~31°52'47"/110°26'25"~~ at 31°52'48"/110°26'27"		A&Wc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SC	Wakefield Canyon	Below confluence with unnamed tributary to confluence with Cienega Creek ~~at 31°52'47.5"/110°26'25"~~			A&Ww			FBC			FC		AgL
SC	Wild Burro Canyon	Headwaters to confluence with unnamed tributary at ~~32°28'36"/111°05'18"~~ 32°27'43"/111°05'47"			A&Ww			FBC			FC		AgL
SC	Wild Burro Canyon	Below confluence with unnamed tributary to confluence with Santa Cruz River ~~at 32°28'34"/111°05'15.5"~~				A&We			PBC				AgL
SC	Williams Ranch Tanks	~~31°55'15"/110°25'30"~~ 31°55'14"/110°25'31"			A&Ww			FBC			FC		AgL
SP	Abbot Canyon	Headwaters to confluence with Whitewater Draw ~~at 31°33'32"/109°48'39.6"~~			A&Ww			FBC			FC		AgL
SP	Aravaipa Creek	Headwaters to confluence with Stowe Gulch ~~at 32°52'10"/110°22'00"~~			A&Ww			FBC			FC		AgL
SP	Aravaipa Creek (OAW)	Stowe Gulch ~~confluence~~ to downstream boundary of Aravaipa Canyon Wilderness Area ~~at 32°54'23"/110°33'40"~~			A&Ww			FBC			FC		AgL
SP	Aravaipa Creek	Below downstream boundary of Aravaipa Canyon Wilderness Area to confluence with the San Pedro River ~~at 32°50'20"/110°42'50"~~			A&Ww			FBC			FC		AgL
SP	Ash Creek	~~Chiricahua Mountains, near Whitewater Draw at 31°50'28"/109°40'01.2"~~ Headwaters to 31°50'28"/109°40'04"			A&Ww			FBC			FC	AgI	AgL
SP	Babocomari River	~~Tributary~~ Headwaters to confluence with the San Pedro River ~~at 31°43'19"/110°11'35"~~			A&Ww			FBC			FC		AgL
SP	Bass Canyon Creek	Headwaters to confluence with unnamed tributary at ~~32°26'06"/110°13'18"~~ 32°26'06"/110°13'22"		A&Wc				FBC			FC		AgL
SP	Bass Canyon Creek	Below confluence with unnamed tributary to confluence with Hot Springs Canyon Creek ~~at 32°20'53"/110°15'14"~~			A&Ww			FBC			FC		AgL
SP	Bass Canyon Tank	32°24'00"/110°13'00"			A&Ww			FBC			FC		AgL
SP	Bear Creek	Headwaters to U.S./Mexico border ~~at 31°19'59"/110°22'58.5"~~			A&Ww			FBC			FC		AgL
SP	Big Creek	~~Tributary~~ Headwaters to confluence with Pitchfork Canyon ~~at 32°35'24"/109°57'07"~~		A&Wc				FBC			FC		AgL
SP	Blacktail Pond	Fort Huachuca Military Reservation at ~~31°24'13"/110°17'21"~~ 31°24'13"/110°17'23"			A&Ww			FBC			FC		
SP	Blackwater Draw	Headwaters to the U.S./Mexico border ~~at 31°20'02"/109°15'36" in the San Bernardino Valley~~			A&Ww			FBC			FC		AgL
SP	Booger Canyon Creek	~~Tributary~~ Headwaters to confluence with Aravaipa Creek ~~at 32°54'54"/110°29'35"~~			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SP	Buck Canyon	Headwaters to confluence with Buck Creek Tank ~~at 31°33'06"/109°52'43"~~			A&Ww			FBC			FC		AgL
SP	Buck Canyon	Below Buck Creek Tank to confluence with Dry Creek ~~at 31°31'08"/109°18'25"~~				A&We			PBC				AgL
SP	Buehman Canyon Creek (OAW)	Headwaters to confluence with unnamed tributary at ~~32°24'31.5"/110°32'08"~~ 32°24'54"/110°32'10"			A&Ww			FBC			FC		AgL
SP	Buehman Canyon Creek	Below confluence with unnamed tributary ~~at 32°25'41"/110°29'53"~~ to confluence with San Pedro River			A&Ww			FBC			FC		AgL
SP	Bull Tank	~~32°31'15"/110°12'45"~~ 32°31'13"/110°12'52"			A&Ww			FBC			FC		AgL
SP	Bullock Canyon	~~Tributary~~ Headwaters to confluence with Buehman Canyon ~~at 32°23'00"/110°33'04"~~			A&Ww			FBC			FC		AgL
SP	Carr Canyon Creek	Headwaters to confluence with unnamed tributary at ~~31°27'00"/110°15'45"~~ 31°27'01"/110°15'48"		A&Wc				FBC			FC		AgL
SP	Carr Canyon Creek	Below confluence with unnamed tributary to confluence with the San Pedro River ~~at 31°30'32"/110°07'37"~~			A&Ww			FBC			FC		AgL
SP	Copper Creek	Headwaters to confluence with Prospect Canyon ~~at 32°44'48"/110°30'18"~~			A&Ww			FBC			FC		AgL
SP	Copper Creek	Below confluence with Prospect Canyon to confluence with the San Pedro River ~~at 32°41'17"/110°36'43"~~				A&We			PBC				AgL
SP	Deer Creek	Headwaters to confluence with unnamed tributary at ~~32°59'56"/110°20'09"~~ 32°59'57"/110°20'11"		A&Wc				FBC			FC		AgL
SP	Deer Creek	Below confluence with unnamed tributary to confluence with Aravaipa Creek ~~at 32°54'25"/110°28'01"~~			A&Ww			FBC			FC		AgL
SP	Dixie Canyon	Headwaters to confluence with Mexican Canyon ~~at 31°29'02"/109°45'04" in the Mule Mountains~~			A&Ww			FBC			FC		AgL
SP	Double R Canyon Creek	~~Tributary~~ Headwaters to confluence with Bass Canyon ~~at 32°21'06"/110°14'23"~~			A&Ww			FBC			FC		
SP	Dry Canyon	Headwaters to confluence with Abbot Canyon ~~at 31°33'25"/109°43'23" in the Mule Mountains~~			A&Ww			FBC			FC		AgL
SP	East Gravel Pit Pond	Fort Huachuca Military Reservation at ~~31°30'54"/110°19'42"~~ 31°30'54"/110°19'44"	Sedimentary		A&Ww			FBC			FC		
SP	Espiritu Canyon Creek	~~Tributary~~ Headwaters to confluence with Soza Wash ~~at 32°18'52"/110°28'35"~~			A&Ww			FBC			FC		AgL
SP	Fly Pond	Fort Huachuca Military Reservation at ~~31°32'53"/110°21'14"~~ 31°32'53"/110°21'16"			A&Ww			FBC			FC		
SP	Fourmile Canyon Creek	~~Tributary~~ Headwaters to confluence with Aravaipa Creek ~~at 32°50'14"/110°20'08"~~			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SP	Fourmile Canyon, Left Prong	Headwaters to confluence with unnamed tributary at ~~32°43'14"/110°23'43"~~ 32°43'15"/110°23'46"		A&Wc				FBC			FC		AgL
SP	Fourmile Canyon, Left Prong	Below confluence with unnamed tributary to confluence with Fourmile Canyon Creek ~~at 32°47'33"/110°22'36"~~			A&Ww			FBC			FC		AgL
SP	Fourmile Canyon, Right Prong	~~Tributary~~ Headwaters to confluence with Fourmile Canyon ~~at 32°47'33"/110°22'36"~~			A&Ww			FBC			FC		AgL
SP	Gadwell Canyon	Headwaters to confluence with Whitewater Draw ~~at 31°36'50"/109°43'41" in the Mule Mountains~~			A&Ww			FBC			FC		AgL
SP	Garden Canyon Creek	Headwaters to confluence with unnamed tributary at ~~31°29'00"/110°19'42"~~ 31°29'01"/110°19'44"		A&Wc				FBC		DWS	FC	AgI	
SP	Garden Canyon Creek	Below confluence with unnamed tributary to confluence with the San Pedro River ~~at 31°41'46"/110°12'40"~~			A&Ww			FBC		DWS	FC	AgI	
SP	Glance Creek	Headwaters to confluence with Whitewater Draw ~~at 31°27'04"/109°42'29" in the Mule Mountains~~			A&Ww			FBC			FC		AgL
SP	Gold Gulch	Headwaters to U.S./Mexico border ~~at 31°20'10"/109°50'06" in the Mule Mountains~~			A&Ww			FBC			FC		AgL
SP	Golf Course Pond	Fort Huachuca Military Reservation at ~~31°32'14"/110°18'49"~~ 31°32'14"/110°18'52"	Sedimentary		A&Ww				PBC		FC		
SP	Goudy Canyon Creek	~~Headwaers~~ Headwaters to confluence with Grant Creek ~~at 32°35'13"/109°58'37" in the Pinaleno Mountains~~		A&Wc				FBC			FC		AgL
SP	Grant Creek	Headwaters to confluence with unnamed tributary at ~~32°38'09.5"/109°56'35"~~ 32°38'10"/109°56'37"		A&Wc				FBC		DWS	FC		AgL
SP	Grant Creek	Below confluence with unnamed tributary to terminus near Willcox Playa ~~at 32°33'43"/109°58'55"~~			A&Ww			FBC			FC		AgL
SP	Gravel Pit Pond	Fort Huachuca Military Reservation at ~~31°30'51"/110°19'47.6"~~ 31°30'52"/110°19'49"	Sedimentary		A&Ww			FBC			FC		
SP	Greenbrush Draw	From ~~Mexican~~ U.S./Mexico border to confluence with San Pedro River				A&We			PBC				
SP	Hidden Pond	Fort Huachuca Military Reservation at 32°30'30"/109°22'17"			A&Ww			FBC			FC		
SP	High Creek	Headwaters to confluence with unnamed tributary at ~~32°33'07"/110°14'40"~~ 32°33'08"/110°14'42"		A&Wc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SP	High Creek	Below confluence with unnamed tributary to terminus near Willcox Playa ~~at 32°31'41"/109°02'38"~~			A&Ww			FBC			FC		AgL
SP	Horse Camp Canyon Creek	~~Tributary~~ Headwaters to confluence with Aravaipa Creek ~~at 32°55'07"/110°30'56"~~			A&Ww			FBC			FC		AgL
SP	Hot Springs Canyon Creek	~~Tributary~~ Headwaters to confluence with the San Pedro River ~~at 32°17'24"/110°22'55"~~			A&Ww			FBC			FC		AgL
SP	Johnson Canyon	Headwaters to Whitewater Draw at ~~31°32'56"/109°46'19" in the Chiricahua Mountains~~ 31°32'46"/109°43'32"			A&Ww			FBC			FC		AgL
SP	Lake Cochise (EDW)	South of Twin Lakes Municipal Golf Course at ~~32°13"58"/109°49'25"~~ 32°13'50"/109°49'27"	EDW				A&Wedw		PBC				
SP	Leslie Canyon Creek	Headwaters to confluence with Whitewater Draw ~~at 31°32'10"/109°40'12" in the Chiricahua Mountains~~			A&Ww			FBC			FC		AgL
SP	Lower Garden Canyon Pond	Fort Huachuca Military Reservation at 31°29'39"/110°18'34"			A&Ww			FBC			FC		
SP	Mexican Canyon	Headwaters to ~~Whitewater Draw at 31°29'13"/109°46'30" in the Mule Mountains~~ confluence with Dixie Canyon			A&Ww			FBC			FC		AgL
SP	Miller Canyon Creek	Headwaters to Broken Arrow Ranch Road at ~~31°25'33"/110°15'08"~~ 31°25'35"/110°15'04"		A&Wc				FBC		DWS	FC		AgL
SP	Miller Canyon Creek	Below Broken Arrow Ranch Road to confluence with the San Pedro River ~~at 31°29'56"/110°07'37"~~			A&Ww			FBC		DWS	FC		AgL
SP	Moonshine Creek	~~Tributary~~ Headwaters to confluence with Post Creek ~~at 32°40'52"/109°54'25"~~		A&Wc				FBC			FC		AgL
SP	Mule Gulch	Headwaters to ~~just above~~ the Lavender Pit at ~~31°26'23.7"/109°45'36.7"~~ 31°26'11"/109°54'02"			A&Ww				PBC		FC		
SP	Mule Gulch	~~Just above the~~ The Lavender Pit to the ~~Bisbee WWTP outfall at 31°25'30"/109°52'40"~~ Highway 80 bridge at 31°26'30"/109°49'28"				A&We			PBC				
~~SP~~	~~Mule Gulch (EDW)~~	~~Below the Bisbee WWTP outfall to the Highway 80 bridge at 31°26'30"/109°49'28"~~					~~A&Wedw~~		~~PBC~~				
SP	Mule Gulch	Below the Highway 80 bridge to confluence with Whitewater Draw ~~at 31°28'03"/109°42'21"~~				A&We			PBC				AgL
SP	Oak Grove ~~Creek~~ Canyon	~~Tributary~~ Headwaters to confluence with Turkey Creek ~~at 32°45'32"/110°14'06"~~			A&Ww			FBC			FC		AgL
SP	Officers Club Pond	Fort Huachuca Military Reservation at ~~31°32'51"/110°21'35"~~ 31°32'51"/110°21'37"	Sedimentary		A&Ww				PBC		FC		
SP	Paige Canyon Creek	~~Tributary~~ Headwaters to confluence with the San Pedro River ~~at 32°17'10"/110°22'48"~~			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SP	Parsons Canyon Creek	~~Tributary~~ Headwaters to confluence with Aravaipa Creek ~~at 32°54'11"/110°27'40"~~			A&Ww			FBC			FC		AgL
SP	Pinery Creek	Headwaters to State Highway 181 ~~at 32°00'24"/109°25'16"~~		A&Wc				FBC		DWS	FC		AgL
SP	Pinery Creek	Below State Highway 181 to terminus near Willcox Playa ~~at 32°01'05"/109°34'23"~~			A&Ww			FBC		DWS	FC		AgL
SP	Post Creek	~~Tributary~~ Headwaters to confluence with Grant Creek ~~at 32°40'05"/109°54'58"~~		A&Wc				FBC			FC	AgI	AgL
SP	Ramsey Canyon Creek	Headwaters to Forest Service Road #110 at ~~31°27'44"/110°17'27"~~ 31°27'44"/110°17'30"		A&Wc				FBC			FC	AgI	AgL
SP	Ramsey Canyon Creek	Below Forest Service Road #110 to confluence with Carr Wash ~~at 31°30'04"/110°09'11"~~			A&Ww			FBC			FC	AgI	AgL
SP	Rattlesnake Canyon	Headwaters to confluence with Brush Canyon ~~at 32°38'27"/110°21'24"~~		A&Wc				FBC			FC		AgL
SP	Rattlesnake Canyon	Below confluence with Brush Canyon to confluence with Aravaipa Creek ~~at 32°48'00"/110°17'32"~~			A&Ww			FBC			FC		AgL
SP	Redfield Canyon Creek	Headwaters to confluence with unnamed tributary at ~~32°33'39"/110°18'41"~~ 32°33'40"/110°18'42"		A&Wc				FBC			FC		AgL
SP	Redfield Canyon Creek	Below confluence with unnamed tributary to confluence with the San Pedro River ~~at 32°09'32"/110°17'56"~~			A&Ww			FBC			FC		AgL
SP	Riggs ~~Flat~~ Lake	~~32°42'27"/109°57'51"~~ 32°42'28"/109°57'53"	Igneous	A&Wc				FBC			FC	AgI	AgL
SP	Rock Creek	~~Tributary~~ Headwaters to confluence with Turkey Creek ~~at 31°53'20"/109°30'00"~~ Alc						FBC			FC		AgL
SP	Rucker Canyon Creek	Headwaters to confluence with Whitewater Draw ~~at 31°44'46"/109°26'06"~~	~~Igneous~~	A&Wc				FBC			FC		AgL
SP	Rucker Canyon Lake	31°46'46"/109°18'30"	Shallow	A&Wc				FBC			FC		AgL
SP	San Pedro River	U.S./ Mexico Border to Redington ~~at 32°25'39"/110°29'33"~~			A&Ww			FBC			FC	AgI	AgL
SP	San Pedro River	From Redington to confluence with the Gila River ~~at 32°59'02"/110°46'55"~~			A&Ww			FBC			FC		AgL
SP	Snow Flat Lake	~~32°39'09"/109°51'52"~~ 32°39'10"/109°51'54"	Igneous	A&Wc				FBC			FC	AgI	AgL
SP	Soldier Creek	~~Tributary~~ Headwaters to confluence with Post Creek at ~~32°40'52"/109°54'40"~~ 32°40'50"/109°54'41"		A&Wc				FBC			FC		AgL
~~SP~~	~~Soldier Creek (EDW)~~	~~Fort Huachuca WWTP outfall to unnamed wash at 31°34'48"/110°18'35" to confluence with Soldier Creek to confluence with Babocomari River at 31°39'46"/110°17'24"~~					~~A&Wedw~~		~~PBC~~				
SP	Soto Canyon	Headwaters to confluence with Dixie Canyon ~~at 31°29'46"/109°55'37" in the Mule Mountains~~			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SP	Swamp Springs Canyon Creek	~~Tributary~~ Headwaters to confluence with Redfield Canyon ~~at 32°26'10"/110°19'30"~~			A&Ww			FBC			FC		AgL
SP	Sycamore Pond I	Fort Huachuca Military Reservation at ~~31°35'12"/110°26'09"~~ 31°35'12"/110°26'11"	Sedimentary		A&Ww			FBC			FC		
SP	Sycamore Pond II	Fort Huachuca Military Reservation at ~~31°34'38.6"/110°26'07"~~ 31°34'39"/110°26'10"	Sedimentary		A&Ww			FBC			FC		
SP	Turkey Creek	~~Tributary~~ Headwaters to confluence with Aravaipa Creek ~~at 32°53'49"/110°26'35"~~			A&Ww			FBC			FC		AgL
SP	Turkey Creek	Headwaters to confluence with Rock Creek ~~at 31°53'20"/109°30'00"~~		A&Wc				FBC			FC	AgI	AgL
SP	Turkey Creek	Below confluence with Rock Creek to terminus near Willcox Playa ~~at 31°59'56"/109°49'01"~~			A&Ww			FBC			FC	AgI	AgL
SP	Unnamed Wash (EDW)	Mt. Lemmon WWTP outfall at 32°26'51"/110°45'08" to 0.25 km downstream					A&Wedw		PBC				
SP	Virgus Canyon Creek	~~Tributary~~ Headwaters to confluence with Aravaipa Creek ~~at 32°54'58"/110°31'16"~~			A&Ww			FBC			FC		AgL
SP	Walnut Gulch	Headwaters to Tombstone WWTP outfall at 31°43'47"/110°04'06"				A&We			PBC				
SP	Walnut Gulch (EDW)	Tombstone WWTP outfall to the confluence ~~of~~ with Tombstone Wash ~~at 31°44'02"/110°05'58"~~					A&Wedw		PBC				
SP	Walnut Gulch	Tombstone Wash to confluence with San Pedro River ~~at 31°43'19"/110°11'35"~~				A&We			PBC				
SP	Ward Canyon Creek	~~Tributary~~ Headwaters to confluence with Turkey Creek ~~at 31°51'47"/109°20'13"~~		A&Wc				FBC			FC		AgL
SP	Whitewater Draw	Headwaters to confluence with unnamed tributary at ~~31°20'36"/109°34'46"~~ 31°20'36"/109°43'48"				A&We			PBC				AgL
SP	Whitewater Draw	Below confluence with unnamed tributary to U.S./Mexico border ~~at 31°20'02"/109°34'44"~~			A&Ww			FBC			FC		AgL
SP	Willcox Playa	From 32°08'19"/109°50'59" in the Sulphur Springs Valley	Sedimentary		A&Ww			FBC			FC		AgL
SP	Woodcutters Pond	Fort Huachuca Military Reservation at ~~31°31'11.5"/110°20'15"~~ 31°30'09"/110°20'12"	Igneous		A&Ww			FBC			FC		
SR	Ackre ~~(Judge)~~ Lake	~~33°37'00"/109°20'37"~~ 33°37'01"/109°20'40"		A&Wc				FBC			FC	AgI	AgL
SR	Apache Lake	~~33°35'30"/111°20'30"~~ 33°37'23"/111°12'26"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
SR	Barnhardt Creek	Headwaters to confluence with unnamed tributary at ~~34°05'36"/111°26'38"~~ 34°05'37/111°26'40"		A&Wc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SR	Barnhardt Creek	Below confluence with unnamed tributary to confluence with Rye Creek ~~at 34°06'58"/111°21'32"~~			A&Ww			FBC			FC		AgL
SR	Basin Lake	~~33°55'00"/109°26'05"~~ 33°55'00"/109°26'09"	Igneous		A&Ww			FBC			FC		AgL
SR	Bear Creek	~~Tributary~~ Headwaters to confluence with the Black River ~~at 33°43'26"/109°22'30"~~		A&Wc				FBC			FC	AgI	AgL
SR	Bear Wallow Creek (OAW)	~~Tributary~~ Headwaters to confluence with the Black River ~~at 33°37'44"/109°31'23"~~		A&Wc				FBC			FC		AgL
SR	Bear Wallow Creek, North Fork (OAW)	~~Tributary~~ Headwaters to confluence with Bear Wallow Creek ~~at 33°35'53"/109°26'49"~~		A&Wc				FBC			FC		AgL
SR	Bear Wallow Creek, South Fork (OAW)	~~Tributary~~ Headwaters to confluence with Bear Wallow Creek ~~at 33°35'53"/109°26'49"~~		A&Wc				FBC			FC		AgL
SR	Beaver Creek	~~Tributary~~ Headwaters to ~~the~~ confluence with Black River ~~at 33°43'44"/109°21'07"~~		A&Wc				FBC			FC	AgI	AgL
SR	Big Lake	~~33°52'45"/109°25'00"~~ 33°52'36"/109°25'33"	Igneous	A&Wc				FBC		DWS	FC	AgI	AgL
SR	Black River	~~Tributary~~ Headwaters to ~~the~~ confluence with Salt River ~~at 33°44'20"/110°13'30"~~		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Black River, East Fork	~~Tributary~~ From 33°51'19"/109°18'54" to confluence with the Black River ~~at 33°45'07"/109°21'43"~~		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Black River, North Fork of East Fork	~~Tributary~~ Headwaters to confluence with Black River, East Fork ~~at 33°56'17"/109°24'11"~~		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Black River, West Fork	~~Tributary~~ Headwaters to confluence with the Black River ~~at 33°45'07"/109°21'43"~~		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Bloody Tanks Wash	Headwaters to Schultze Ranch ~~at 33°22'29"/110°54'39"~~ Road				A&We			PBC				AgL
SR	Bloody Tanks Wash	Schultze Ranch Road to confluence with Miami Wash ~~at 33°25'05"/110°50'02"~~				A&We			PBC				
SR	Boggy Creek	~~Tributary to the Black River~~ Headwaters to confluence with Centerfire Creek ~~at 33°44'31"/109°26'20"~~		A&Wc				FBC			FC	AgI	AgL
SR	Boneyard Creek	~~Tributary~~ Headwaters to confluence with Black River, East Fork ~~at 33°51'22"/109°18'50"~~		A&Wc				FBC			FC	AgI	AgL
SR	Boulder Creek	~~Tributary~~ Headwaters to confluence with LaBarge Creek ~~at 33°30'54"/111°24'40"~~			A&Ww			FBC			FC		
SR	Campaign Creek	~~Tributary~~ Headwaters to Roosevelt Lake ~~at 33°37'30"/111°00'04"~~			A&Ww			FBC			FC		AgL
SR	Canyon Creek	Headwaters to the White Mountain Apache Reservation ~~at 33°57'53"/110°47'00"~~ boundary		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Canyon Lake	~~33°33'15"/111°26'30"~~ 33°32'44"/111°26'19"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SR	Centerfire Creek	~~Tributary~~ Headwaters to confluence with the Black River ~~at 33°42'47"/109°26'17"~~		A&Wc				FBC			FC	AgI	AgL
SR	Chambers Draw Creek	~~Tributary~~ Headwaters to confluence with the North Fork of the East Fork of Black River ~~at 33°53'03"/109°20'13"~~		A&Wc				FBC			FC		AgL
SR	Cherry Creek	Headwaters to confluence with unnamed tributary at ~~34°05'09"/110°56'04"~~ 34°05'09"/110°56'07"		A&Wc				FBC			FC	AgI	AgL
SR	Cherry Creek	Below unnamed tributary to confluence with the Salt River ~~at 33°40'16"/110°48'03.6"~~			A&Ww			FBC			FC	AgI	AgL
SR	Christopher Creek	~~Tributary~~ Headwaters to confluence with Tonto Creek ~~at 34°18'36"/111°04'23"~~		A&Wc				FBC			FC	AgI	AgL
SR	Cold Spring Canyon Creek	Headwaters to confluence with unnamed tributary at ~~33°49'50"/110°52'55"~~ 33°49'50"/110°52'58"		A&Wc				FBC			FC		AgL
SR	Cold Spring Canyon Creek	Below confluence with unnamed tributary to confluence with Cherry Creek ~~at 33°50'06"/110°51'28.8"~~			A&Ww			FBC			FC		AgL
SR	Conklin Creek	~~Tributary~~ Headwaters to confluence with the Black River ~~at 33°41'49"/109°27'36"~~		A&Wc				FBC			FC	AgI	AgL
SR	Coon Creek	Headwaters to confluence with unnamed tributary at ~~33°46'42"/110°54'25"~~ 33°46'41"/110°54'26"		A&Wc				FBC			FC		AgL
SR	Coon Creek	Below confluence with unnamed tributary to confluence with Salt River ~~at 33°39'47"/110°50'24"~~			A&Ww			FBC			FC		AgL
SR	Corduroy Creek	~~Tributary~~ Headwaters to confluence with Fish Creek ~~at 33°59'46"/110°17'31"~~		A&Wc				FBC			FC	AgI	AgL
SR	Coyote Creek	~~Tributary~~ Headwaters to confluence with the Black River, East Fork ~~at 33°50'53"/109°18'18"~~		A&Wc				FBC			FC	AgI	AgL
SR	Crescent Lake	~~33°54'36"/109°25'08"~~ 33°54'38"/109°25'18"	Shallow	A&Wc				FBC			FC	AgI	AgL
SR	Deer Creek	~~Tributary~~ Headwaters to confluence with the Black River, East Fork ~~at 33°48'07"/109°19'26"~~		A&Wc				FBC			FC		AgL
SR	Del Shay Creek	~~Tributary~~ Headwaters to confluence with Gun Creek ~~at 34°00'22"/111°15'43"~~			A&Ww			FBC			FC		AgL
SR	Devils Chasm Creek	Headwaters to confluence with unnamed tributary at ~~33°48'46"/110°52'33"~~ 33°48'46" /110°52'35"		A&Wc				FBC			FC		AgL
SR	Devils Chasm Creek	Below confluence with unnamed tributary to confluence with Cherry Creek ~~at 33°49'34"/110°54'18"~~			A&Ww			FBC			FC		AgL
SR	Dipping Vat Reservoir	~~33°55'54"/109°25'15"~~ 33°55'47"/109°25'31"	Igneous		A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SR	Double Cienega Creek	~~Tributary~~ Headwaters to confluence with Fish Creek ~~at 33°38'35"/109°22'08"~~		A&Wc				FBC			FC		AgL
SR	Fish Creek	~~Tributary~~ Headwaters to confluence with the Black River ~~at 33°42'40"/109°26'31"~~		A&Wc				FBC			FC	AgI	AgL
SR	Fish Creek	~~Tributary~~ Headwaters to confluence with the Salt River ~~at 33°34'37"/111°21'11"~~			A&Ww			FBC			FC		
SR	Gold Creek	Headwaters to confluence with unnamed tributary at ~~33°59'47"/111°25'07"~~ 33°59'47"/111°25'10"		A&Wc				FBC			FC		AgL
SR	Gold Creek	Below confluence with unnamed tributary to confluence with Tonto Creek ~~at 33°58'55"/111°18'03.6"~~			A&Ww			FBC			FC		AgL
SR	Gordon Canyon Creek	Headwaters to confluence with Hog Canyon ~~at 34°13'49"/111°00'27"~~		A&Wc				FBC			FC		AgL
SR	Gordon Canyon Creek	Below confluence with Hog Canyon to confluence with Haigler Creek ~~at 34°11'56"/111°03'21"~~			A&Ww			FBC			FC		AgL
SR	Greenback Creek	~~Tributary~~ Headwaters to confluence with Tonto Creek ~~at 33°47'38"/111°15'22"~~			A&Ww			FBC			FC		AgL
SR	Haigler Creek	Headwaters to confluence with unnamed tributary at ~~34°12'23.5"/111°00'11"~~ 34°12'23"/111°00'15"		A&Wc				FBC			FC	AgI	AgL
SR	Haigler Creek	Below confluence with unnamed tributary to confluence with Tonto Creek ~~at 34°12'54"/111°05'45.6"~~			A&Ww			FBC			FC	AgI	AgL
SR	Hannagan Creek	~~Tributary~~ Headwaters to confluence with Beaver Creek ~~at 33°42'07"/109°14'46"~~		A&Wc				FBC			FC		AgL
SR	Hay Creek (OAW)	~~Tributary~~ Headwaters to confluence with the Black River, West Fork ~~at 33°48'32"/109°25'16"~~		A&Wc				FBC			FC		AgL
SR	Home Creek	~~Tributary~~ Headwaters to confluence with the Black River, West Fork ~~at 33°45'43"/109°22'48"~~		A&Wc				FBC			FC		AgL
SR	Horse Creek	~~Tributary~~ Headwaters to confluence with the Black River, West Fork ~~at 33°45'11"/109°21'50"~~		A&Wc				FBC			FC		AgL
SR	Horse Camp Creek	Headwaters to confluence with unnamed tributary at ~~33°53'53"/110°50'10"~~ 33°54'00"/110°50'07"		A&Wc				FBC			FC		AgL
SR	Horse Camp Creek	Below confluence with unnamed tributary to confluence with Cherry Creek ~~at 33°52'08"/110°52'33.6"~~			A&Ww			FBC			FC		AgL
SR	Horton Creek	~~Tributary~~ Headwaters to confluence with Tonto Creek ~~at 34°20'24"/111°05'42"~~		A&Wc				FBC			FC	AgI	AgL
SR	Houston Creek	~~Tributary~~ Headwaters to confluence with Tonto Creek ~~at 34°07'30"/111°15'25"~~			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SR	Hunter Creek	~~Tributary~~ Headwaters to confluence with Christopher Creek ~~at 34°18'29"/111°01'55"~~		A&Wc				FBC			FC		AgL
SR	LaBarge Creek	Headwaters to Canyon Lake ~~at 33°31'34"/111°25'15.6"~~			A&Ww			FBC			FC		
SR	Lake Sierra Blanca	33°52'25"/109°16'05"		A&Wc				FBC			FC	AgI	AgL
SR	Miami Wash	~~Tributary~~ Headwaters to confluence with Pinal Creek ~~at 33°27'04"/110°50'17"~~				A&We			PBC				
SR	Mule Creek	~~Tributary~~ Headwaters to confluence with Canyon Creek ~~at 34°16'34"/110°48'00"~~		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Open Draw Creek	~~Tributary~~ Headwaters to confluence with the East Fork of Black River ~~at 33°49'52"/109°18'18"~~		A&Wc				FBC			FC		AgL
SR	P B Creek	Headwaters to Forest Service Road #203 at ~~33°57'08"/110°56'09"~~ 33°57'08"/110°56'12"		A&Wc				FBC			FC		AgL
SR	P B Creek	Below Forest Service Road #203 to Cherry Creek ~~at 33°55'34"/110°54'18"~~			A&Ww			FBC			FC		AgL
SR	Pinal Creek	Headwaters to confluence with unnamed EDW wash (Globe WWTP) at ~~33°25'29"/110°48'18"~~ 33°25'29"/110°48'20"				A&We			PBC				AgL
SR	Pinal Creek (EDW)	~~Globe WWTP outfall on unnamed wash at 33°25'46"/110°47'28" to confluence with Pinal Creek to Radium at 33°26'54"/110°49'02"~~ Confluence with unnamed EDW wash (Globe WWTP) to 33°26'55"/110°49' 25"					A&Wedw		PBC				
SR	Pinal Creek	~~Radium~~ From 33°26'55"/110°49'25" to ~~lower~~ Lower Pinal Creek water treatment plant ~~discharge at 33°32'05"/110°52'17"~~ outfall #001 at 33°31'04"/110°51'55"				A&We			PBC				AgL
SR	Pinal Creek	From Lower Pinal Creek WTP outfall #~~1 at 33°31'56"/110°52'14"~~ to See Ranch Crossing at 33°32'25"/110°52'28"					A&Wedw		PBC				
SR	Pinal Creek	From See Ranch Crossing to ~~33°35'33"/110°54'33"~~ confluence with unnamed tributary at 33°35'28"/110°54'31"			A&Ww			FBC					
SR	Pinal Creek	From ~~33°35'33"/110°54'33"~~ unnamed tributary to confluence with Salt River			A&Ww			FBC			FC		
SR	Pine Creek	~~Tributary~~ Headwaters to confluence with the Salt River ~~at 33°36'04"/111°12'36"~~			A&Ww			FBC			FC		
SR	Pinto Creek	Headwaters to confluence with unnamed tributary at ~~33°19'27"/110°54'56"~~ 33°19'27"/110°54'58"		A&Wc				FBC			FC	AgI	AgL
SR	Pinto Creek	Below confluence with unnamed tributary to Roosevelt Lake ~~at 33°39'11"/111°00'43"~~			A&Ww			FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SR	Pool Corral Lake	33°30'38"/110°00'15"	Igneous		A&Ww			FBC			FC	AgI	AgL
SR	Pueblo Canyon Creek	Headwaters to confluence with unnamed tributary at ~~33°50'30"/110°53'13"~~ 33°50'23"/110°51'37"		A&Wc				FBC			FC		AgL
SR	Pueblo Canyon Creek	Below confluence with unnamed tributary to confluence with Cherry Creek ~~at 33°52'30"/110°52'55"~~			A&Ww			FBC			FC		AgL
SR	Reevis Creek	~~Tributary~~ Headwaters to confluence with Pine Creek ~~at 33°33'07"/111°09'40"~~			A&Ww			FBC			FC		
SR	Reservation Creek	~~Tributary~~ Headwaters to confluence with the Black River ~~at 33°41'42"/109°28'26"~~		A&Wc				FBC			FC		AgL
SR	Reynolds Creek	~~Tributary~~ Headwaters to confluence with Workman Creek ~~at 33°52'16"/111°00'14"~~		A&Wc				FBC			FC		AgL
SR	Roosevelt Lake	~~33°40'45"/111°09'15"~~ 33°52'17"/111°00'17"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
SR	Russell Gulch	From headwaters to confluence with Miami Wash				A&We			PBC				
SR	Rye Creek	~~Tributary~~ Headwaters to confluence with Tonto Creek ~~at 34°01'41"/111°17'06"~~			A&Ww			FBC			FC		AgL
SR	Saguaro Lake	~~33°34'00"/111°32'06"~~ 33°33'44"/111°30'55"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
SR	Salome Creek	~~Tributary~~ Headwaters to confluence with the Salt River ~~at 33°41'56"/111°05'46"~~			A&Ww			FBC			FC	AgI	AgL
SR	Salt House Lake	33°57'04"/109°20'11"	Igneous		A&Ww			FBC			FC		AgL
SR	Salt River	Theodore Roosevelt Dam to 2 km below Granite Reef Dam			A&Ww			FBC		DWS	FC	AgI	AgL
SR	Slate Creek	~~Tributary~~ Headwaters to confluence with Tonto Creek ~~at 33°56'24"/111°18'25"~~			A&Ww			FBC			FC		AgL
SR	Snake Creek (OAW)	~~Tributary~~ Headwaters to confluence with the Black River ~~at 33°40'30"/109°28'55"~~		A&Wc				FBC			FC		AgL
SR	Spring Creek	~~Tributary~~ Headwaters to confluence with Tonto Creek ~~at 34°09'54"/111°10'08"~~			A&Ww			FBC			FC		AgL
SR	Stinky Creek (OAW)	~~Tributary~~ Headwaters to confluence with the Black River, West Fork ~~at 33°51'22"/109°27'07"~~		A&Wc				FBC			FC		AgL
SR	Thomas Creek	~~Tributary~~ Headwaters to confluence with Beaver Creek ~~at 33°42'29"/109°15'11"~~		A&Wc				FBC			FC		AgL
SR	Thompson Creek	~~Tributary~~ Headwaters to confluence with the West Fork of the Black River ~~at 33°53'24"/109°28'48"~~		A&Wc				FBC			FC		AgL
SR	Tonto Creek	Headwaters to confluence with unnamed tributary at ~~34°18'10"/111°04'14"~~ 34°18'11"/111°04'18"		A&Wc				FBC			FC	AgI	AgL
SR	Tonto Creek	Below confluence with unnamed tributary to Roosevelt Lake ~~at 33°45'14"/111°14'17"~~			A&Ww			FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SR	Turkey Creek	~~Tributary~~ Headwaters to confluence with Rock Creek ~~at 33°58'30"/111°06'47"~~		A&Wc				FBC			FC		
~~SR~~	~~Unnamed Wash (EDW)~~	~~Cobre Valley Plaza WWTP at 33°24'56"/110°49'43" to confluence with Russell Gulch~~					~~A&Wedw~~		~~PBC~~				
SR	Wildcat Creek	~~Tributary~~ Headwaters to confluence with Centerfire Creek ~~at 33°43'41"/109°26'28"~~		A&Wc				FBC			FC		AgL
SR	Willow Creek	~~Tributary~~ Headwaters to confluence with Beaver Creek ~~at 33°43'52"/109°18'04"~~		A&Wc				FBC			FC		AgL
SR	Workman Creek	Headwaters to confluence with Reynolds Creek ~~at 33°52'17"/111°00'14.5"~~		A&Wc				FBC			FC	AgI	AgL
SR	Workman Creek	Below confluence with Reynolds Creek to confluence with Salome Creek ~~at 33°52'37"/111°02'20"~~			A&Ww			FBC			FC	AgI	AgL
UG	Apache Creek	~~Tributary~~ Headwaters to confluence with the Gila River ~~at 32°52'08"/109°11'53"~~			A&Ww			FBC			FC		AgL
UG	Ash Creek	Headwaters to confluence with unnamed tributary at ~~32°45'37"/109°52'22"~~ 32°46'15"/109°51'45"		A&Wc				FBC			FC		AgL
UG	Ash Creek	Below confluence with unnamed tributary to confluence with the Gila River ~~at 32°53'35"/109°47'34.8"~~			A&Ww			FBC			FC		AgL
UG	Bennett Wash ~~(EDW)~~	~~ADOC Safford WWTP outfall at 32°50'20"/109°34'44"~~ Headwaters to the Gila River				A&We	~~A&Wedw~~		PBC				
UG	Bitter Creek	~~Tributary~~ Headwaters to confluence with the Gila River ~~at 32°50'17"/109°10'59"~~			A&Ww			FBC			FC		
UG	Blue River	Headwaters to confluence with Strayhorse Creek at ~~33°29'02"/110°12'12"~~ 33°29'02"/109°12'14"		A&Wc				FBC			FC	AgI	AgL
UG	Blue River	Below confluence with Strayhorse Creek to confluence with San Francisco River ~~at 33°12'36"/109°11'27.6"~~			A&Ww			FBC			FC	AgI	AgL
UG	Bonita Creek (OAW)	San Carlos Indian Reservation boundary to confluence with the Gila River ~~at 32°53'35"/109°28'41"~~			A&Ww			FBC		DWS	FC		AgL
UG	Buckalou Creek	~~Tributary~~ Headwaters to confluence with Castle Creek ~~at 33°43'34"/109°09'07"~~		A&Wc				FBC			FC		AgL
UG	Campbell Blue Creek	~~Tributary~~ Headwaters to confluence with the Blue River ~~at 33°43'30"/109°02'46"~~		A&Wc				FBC			FC		AgL
UG	Castle Creek	~~Tributary~~ Headwaters to confluence with Campbell Blue Creek ~~at 33°44'06"/109°08'10"~~		A&Wc				FBC			FC		AgL
UG	Cave Creek (OAW)	Headwaters to confluence with South Fork Cave Creek ~~at 31°53'04"/109°10'27"~~		A&Wc				FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
UG	Cave Creek (OAW)	Below confluence with South Fork Cave Creek to Coronado National Forest boundary			A&Ww			FBC			FC	AgI	AgL
UG	Cave Creek	Below Coronado National Forest boundary to New Mexico border ~~at 31°58'19"/109°03'00"~~			A&Ww			FBC			FC	AgI	AgL
UG	Cave Creek, South Fork	~~Tributary~~ Headwaters to confluence with Cave Creek ~~at 31°53'04"/109°10'27"~~		A&Wc				FBC			FC	AgI	AgL
UG	Chase Creek	Headwaters to the Phelps-Dodge Morenci Mine			A&Ww			FBC			FC		AgL
UG	Chase Creek	Below the Phelps-Dodge Morenci Mine to confluence with San Francisco River				A&We			PBC				
UG	Chitty Canyon Creek	~~Tributary~~ Headwaters to confluence with Salt House Creek ~~at 33°30'32"/109°24'04"~~		A&Wc				FBC			FC		AgL
UG	Cima Creek	~~Tributary~~ Headwaters to confluence with Cave Creek ~~at 31°52'19"/109°14'02"~~		A&Wc				FBC			FC		AgL
UG	Cluff Ranch Pond #1	~~32°48'55"/109°49'15"~~ 32°48'55"/109°50'46"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
~~UG~~	~~Cluff Ranch Pond #2~~	~~32°49'15"/109°50'33"~~	~~Sedimentary~~		~~A&Ww~~			~~FBC~~			~~FC~~	~~AgI~~	~~AgL~~
UG	Cluff Ranch Pond #3	~~32°48'20"/109°51'43"~~ 32°48'21"/109°51'46"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
UG	Coleman Creek	~~Tributary~~ Headwaters to confluence with Campbell Blue Creek ~~at 33°44'20"/109°09'32"~~		A&Wc				FBC			FC		AgL
UG	Dankworth ~~Ponds~~ Lake	~~32°43'15"/109°42'15"~~ 32°43'13"/109°42'17"	Sedimentary	A&Wc				FBC			FC		
UG	Deadman Canyon Creek	Headwaters to confluence with unnamed tributary at ~~32°43'50"/109°49'01"~~ 32°43'50"/109°49'03"		A&Wc				FBC		DWS	FC		AgL
UG	Deadman Canyon Creek	Below confluence with unnamed tributary to confluence with Graveyard Wash ~~at 32°46'48"/109°44'13"~~			A&Ww			FBC		DWS	FC		AgL
UG	Eagle Creek	Headwaters to confluence with unnamed tributary at ~~33°23'24"/109°29'35"~~ 33°22'32"/109°29'43"		A&Wc				FBC		DWS	FC	AgI	AgL
UG	Eagle Creek	Below confluence with unnamed tributary to ~~Eagle Creek at 32°57'36"/109°24'21.6"~~ confluence with the Gila River			A&Ww			FBC		DWS	FC	AgI	AgL
UG	East Eagle Creek	~~Tributary~~ Headwaters to confluence with Eagle Creek ~~at 33°29'38"/109°28'05"~~		A&Wc				FBC			FC		AgL
UG	East Turkey Creek	Headwaters to confluence with unnamed tributary at ~~31°58'22"/109°12'17"~~ 31°58'22"/109°12'20"		A&Wc				FBC			FC		AgL
UG	East Turkey Creek	Below confluence with unnamed tributary to terminus near San Simon River ~~at 31°59'53"/109°07'37"~~			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
UG	East Whitetail	Headwaters to terminus near San Simon River ~~at 32°08'52"/109°09'25" in the Chiricahua Mountains~~			A&Ww			FBC			FC		AgL
UG	Emigrant Canyon	Headwaters to terminus near San Simon River ~~at 32°17'02"/109°20'27.6" in the Chiricahua Mountains~~			A&Ww			FBC			FC		AgL
UG	Evans Pond #1	~~32°49'15"/109°51'15"~~ 32°49'19"/109°51'12"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
UG	Evans Pond #2	32°49'14"/109°51'09"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
UG	Fishhook Creek	~~Tributary~~ Headwaters to confluence with the Blue River ~~at 33°35'13"/109°10'01"~~		A&Wc				FBC			FC		AgL
UG	Foote Creek	~~Tributary~~ Headwaters to confluence with the Blue River ~~at 33°35'24"/109°08'49"~~		A&Wc				FBC			FC		AgL
UG	Frye Canyon Creek	Headwaters to Frye Mesa Reservoir ~~at 32°45'09.5"/109°50'02"~~		A&Wc				FBC		DWS	FC		AgL
UG	Frye Canyon Creek	~~Below Frye Mesa Reservoir to~~ Highline Canal ~~Headwaters~~ headwaters to terminus near San Simon River ~~at 32°50'10"/109°45'43"~~			A&Ww			FBC			FC		AgL
UG	Frye Mesa Reservoir	~~32°45'13"/109°50'00"~~ 32°45'14"/109°50'02"	Igneous	A&Wc				FBC		DWS	FC		
UG	Gibson Creek	~~Tributary~~ Headwaters to confluence with Marijilda Creek ~~at 32°41'24"/109°48'11"~~		A&Wc				FBC			FC		AgL
UG	Gila River	New Mexico border to the San Carlos Indian Reservation ~~at 33°05'37"/110°03'21"~~ boundary			A&Ww			FBC			FC	AgI	AgL
UG	Grant Creek	~~Tributary~~ Headwaters to confluence with the Blue River ~~at 33°34'16"/109°10'37"~~		A&Wc				FBC			FC		AgL
UG	Judd Lake	~~33°51'15"/109°09'15"~~ 33°51'15"/109°09'35"	Sedimentary	A&Wc				FBC			FC		
UG	K P Creek (OAW)	~~Tributary~~ Headwaters to confluence with the Blue River ~~at 33°31'44"/109°12'04"~~		A&Wc				FBC			FC		AgL
UG	Lanphier Canyon Creek	~~Tributary~~ Headwaters to confluence with the Blue River ~~at 33°35'42"/109°07'52"~~		A&Wc				FBC			FC		AgL
UG	Little Blue Creek	Headwaters to confluence with Dutch Blue Creek ~~at 33°24'26.5"/109°09'18"~~		A&Wc				FBC			FC		AgL
UG	Little Blue Creek	Below confluence with Dutch Blue Creek to confluence with Blue Creek ~~at 32°22'30"/109°10'30"~~			A&Ww			FBC			FC		AgL
UG	Little Creek	~~Tributary~~ Headwaters to confluence with the San Francisco River ~~at 33°49'41"/109°04'26"~~		A&Wc				FBC			FC		
UG	Lower George's Reservoir	~~33°51'23.5"/109°08'28"~~ 33°51'24"/109°08'30"	Sedimentary	A&Wc				FBC			FC		AgL
UG	Luna Lake	~~33°49'45"/109°05'15"~~ 33°49'50"/109°05'06"	Sedimentary	A&Wc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
UG	Marijilda Creek	Headwaters to confluence with Gibson Creek ~~at 32°41'23"/109°48'13"~~		A&Wc				FBC			FC		AgL
UG	Marijilda Creek	Below confluence with Gibson Creek to confluence with Stockton Wash ~~at 32°46'30"/109°40'51.6"~~			A&Ww			FBC			FC	AgI	AgL
UG	Markham Creek	~~Tributary~~ Headwaters to confluence with the Gila River ~~at 32°56'17"/109°53'13"~~			A&Ww			FBC			FC		AgL
UG	Pigeon Creek	~~Tributary~~ Headwaters to confluence with the Blue River ~~at 33°16'08"/109°11'42"~~			A&Ww			FBC			FC		AgL
UG	Raspberry Creek	~~Tributary~~ Headwaters to confluence with the Blue River ~~at 33°30'07"/109°12'32"~~		A&Wc				FBC			FC		
UG	Roper Lake	~~32°45'20"/109°42'11"~~ 32°45'23"/109°42'14"	Sedimentary		A&Ww			FBC			FC		
UG	San Francisco River	Headwaters to the New Mexico border ~~at 33°49'24.5"/109°02'46"~~		A&Wc				FBC			FC	AgI	AgL
UG	San Francisco River	New Mexico border to confluence with the Gila River ~~at 33°14'25"/109°02'49"~~			A&Ww			FBC			FC	AgI	AgL
UG	San Simon River	~~Tributary~~ Headwaters to confluence with the Gila River ~~at 32°49'52"/109°38'53"~~				A&We			PBC				AgL
UG	Sheep Tank	~~32°46'15"/109°48'08"~~ 32°46'14"/109°48'09"	Sedimentary		A&Ww			FBC			FC		AgL
UG	Smith Pond	~~32°49'09"/109°50'26"~~ 32°49'15"/109°50'36"	Sedimentary		A&Ww			FBC			FC		
UG	Squaw Creek	~~Tributary~~ Headwaters to confluence with Thomas Creek ~~at 33°23'38"/109°12'22"~~		A&Wc				FBC			FC		AgL
UG	Stone Creek	~~Tributary~~ Headwaters to confluence with the San Francisco River ~~at 33°50'38"/109°02'46"~~		A&Wc				FBC			FC	AgI	AgL
UG	Strayhorse Creek	~~Tributary~~ Headwaters to confluence with the Blue River ~~at 33°29'02"/109°12'11"~~		A&Wc				FBC			FC		
UG	Thomas Creek	Headwaters to confluence with Rousensock Creek ~~at 33°23'45"/109°13'13"~~		A&Wc				FBC			FC		AgL
UG	Thomas Creek	Below confluence with Rousensock Creek to confluence with Blue River ~~at 33°23'20"/109°11'20"~~			A&Ww			FBC			FC		AgL
UG	Tinny Pond	~~33°47'49"/109°04'23"~~ 33°47'49"/109°04'27"	Sedimentary		A&Ww			FBC			FC		AgL
UG	Turkey Creek	~~Tributary~~ Headwaters to confluence with Campbell Blue Creek ~~at 33°44'10"/109°04'05"~~		A&Wc				FBC			FC		AgL
~~UG~~	~~Unnamed Wash (EDW)~~	~~ADOC Globe WWTP outfall at 33°24'55"/110°42'35" to the San Carlos Indian Reservation~~					~~A&Wedw~~		~~PBC~~				
VR	American Gulch	Headwaters to the Northern Gila County Sanitary District WWTP outfall ~~(Payson)~~ at ~~34°14'05"/111°22'18"~~ 34°14'02"/111°22'14"			A&Ww			FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
VR	American Gulch (EDW)	Below Northern Gila County Sanitary District WWTP outfall ~~(Payson)~~ to confluence with the East Verde River ~~at 34°14'42"/111°25'08"~~					A&Wedw		PBC				
VR	Apache Creek	~~Tributary~~ Headwaters to confluence with Walnut Creek ~~at 34°55'12"/112°50'42"~~			A&Ww			FBC			FC		AgL
VR	Ashbrook Wash	Headwaters to the Fort McDowell Indian Reservation boundary ~~at 33°36'54"/111°42'06"~~				A&We			PBC				
VR	Aspen Creek	~~Tributary~~ Headwaters to confluence with Granite Creek ~~at 34°31'55"/112°28'19"~~			A&Ww			FBC			FC		
VR	Bar Cross Tank	~~35°00'40"/112°05'34"~~ 35°00'41"/112°05'39"			A&Ww			FBC			FC		AgL
VR	Barrata Tank	~~35°02'43"/112°24'17"~~ 35°02'43"/112°24'21"			A&Ww			FBC			FC		AgL
VR	Bartlett Lake	~~33°49'00"/111°37'45"~~ 33°49'52"/111°37'44"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
VR	Beaver Creek	~~Tributary~~ Headwaters to confluence with the Verde River ~~at 34°34'26"/111°51'14"~~			A&Ww			FBC			FC		AgL
VR	Big Chino Wash	~~Tributary~~ Headwaters to confluence with Sullivan Lake ~~at 34°52'37"/112°28'37"~~				A&We			PBC				AgL
VR	Bitter Creek	Headwaters to the Jerome WWTP outfall at ~~34°45'08"/112°06'25"~~ 34°45'12"/112°06'24"				A&We			PBC				AgL
VR	Bitter Creek (EDW)	Jerome WWTP outfall to the Yavapai Apache Indian Reservation ~~at 34°45'45.5"/112°04'44"~~ boundary					A&Wedw		PBC				AgL
VR	Bitter Creek	Below the Yavapai Apache Indian Reservation boundary to confluence with the Verde River ~~at 34°46'37"/112°02'53"~~			A&Ww			FBC			FC	AgI	AgL
VR	Black Canyon Creek	Headwaters to confluence with unnamed tributary at ~~34°39'20"/112°05'05"~~ 34°39'20"/112°05'06"		A&Wc				FBC			FC		AgL
VR	Black Canyon Creek	Below confluence with unnamed tributary to confluence with the Verde River ~~at 34°40'59"/111°57'28.8"~~			A&Ww			FBC			FC		AgL
VR	Bonita Creek	~~Tributary~~ Headwaters to confluence with Ellison Creek ~~at 34°20'56"/111°14'20"~~		A&Wc				FBC			FC		
VR	Bray Creek	~~Tributary~~ Headwaters to confluence with Webber Creek ~~at 34°22'37"/111°20'53"~~		A&Wc				FBC			FC		AgL
VR	Camp Creek	~~Tributary~~ Headwaters to confluence with the Verde River ~~at 33°45'32"/111°30'14"~~			A&Ww			FBC			FC		AgL
~~VR~~	~~Carter Tank~~	~~34°52'27"/112°57'28"~~			~~A&Ww~~			~~FBC~~			~~FC~~		~~AgL~~
VR	Cereus Wash	Headwaters to the Fort McDowell Indian Reservation ~~at 33°34'13"/111°42'28"~~ boundary				A&We			PBC				
VR	Chase Creek	~~Tributary~~ Headwaters to confluence with the East Verde River ~~at 34°22'48"/111°16'59"~~		A&Wc				FBC		DWS	FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
VR	Clover Creek	~~Tributary~~ Headwaters to confluence with headwaters of West Clear Creek ~~at 34°33'04"/111°24'11"~~		A&Wc				FBC			FC		AgL
VR	Coffee Creek	~~Tributary~~ Headwaters to confluence with Spring Creek ~~at 34°48'18"/111°55'41"~~			A&Ww			FBC			FC		AgL
VR	Colony Wash	Headwaters to the Fort McDowell Indian Reservation ~~at 33°35'42"/111°42'15"~~ boundary				A&We			PBC				
VR	Dead Horse Lake	~~34°45'00"/112°00'30"~~ 34°45'08"/112°00'42"	Shallow		A&Ww			FBC			FC		
VR	Deadman Creek	~~Tributary~~ Headwaters to Horseshoe Reservoir ~~at 34°00'00"/111°42'36"~~			A&Ww			FBC			FC		AgL
VR	Del Monte Wash	Headwaters to confluence with City of Cottonwood WWTP outfall 002 at 34°43'57"/112°02'46"				A&We			PBC				
VR	Del Monte Wash (EDW)	City of Cottonwood WWTP outfall 002 at 34°43'57"/112°02'46" to confluence with Verde River					A&Wedw		PBC				
VR	Del Rio Dam Lake	~~34°48'55"/112°28'00"~~ 34°48'55"/112°28'03"	Sedimentary		A&Ww			FBC			FC		AgL
VR	Dry Beaver Creek	~~Tributary~~ Headwaters to confluence with Beaver Creek ~~at 34°37'59"/111°49'34"~~			A&Ww			FBC			FC	AgI	AgL
VR	Dry Creek (EDW)	Sedona Ventures WWTP outfall at ~~34°50'45"/111°52'15"~~ 34°50'02"/111°52'17" to ~~confluence with Dry Creek at 34°50'31"/111°52'39"~~ 34°48'12"/111°52'48"					A&Wedw		PBC				
VR	Dude Creek	~~Tributary~~ Headwaters to confluence with the East Verde River ~~at 34°23'06"/111°16'26"~~		A&Wc				FBC			FC	AgI	AgL
VR	East Verde River	Headwaters to confluence with Ellison Creek ~~at 34°21'10"/111°16'47.5"~~		A&Wc				FBC		DWS	FC	AgI	AgL
VR	East Verde River	Below confluence with Ellison Creek to confluence with the Verde River ~~at 34°17'02"/111°40'19"~~			A&Ww			FBC		DWS	FC	AgI	AgL
VR	Ellison Creek	~~Tributary~~ Headwaters to confluence with the East Verde River ~~at 34°21'11"/111°16'48"~~		A&Wc				FBC			FC		AgL
VR	Fossil Creek (OAW)	~~Tributary~~ Headwaters to confluence with the Verde River ~~at 34°18'22"/111°40'30"~~			A&Ww			FBC			FC		AgL
VR	Fossil Springs (OAW)	~~34°25'24"/111°34'25"~~ 34°25'24"/111°34'27"			A&Ww			FBC		DWS	FC		
VR	Foxboro Lake	~~34°53'48"/111°40'00"~~ 34°53'42"/111°39'55"			A&Ww			FBC			FC		AgL
VR	Fry Lake	~~35°03'45"/111°48'02"~~ 35°03'45"/111°48'04"			A&Ww			FBC			FC		AgL
VR	Gap Creek	Headwaters to confluence with Government Spring ~~at 34°23'23"/111°50'53.5"~~		A&Wc				FBC			FC		AgL
VR	Gap Creek	Below Government Spring to confluence with the Verde River ~~at 34°24'50"/111°46'51.6"~~			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
VR	Garrett Tank	~~35°18'57"/112°42'16"~~ 35°18'57"/112°42'20"			A&Ww			FBC			FC		AgL
VR	Goldwater Lake, Lower	~~34°29'55"/112°27'18"~~ 34°29'56"/112°27'17"	Sedimentary	A&Wc				FBC		DWS	FC		
VR	Goldwater Lake, Upper	~~34°29'51"/112°26'55"~~ 34°29'52"/112°26'59"	Igneous	A&Wc				FBC		DWS	FC		
VR	Granite Basin Lake	~~34°37'01"/112°42'16"~~ 34°37'01"/112°32'58"	Igneous	A&Wc				FBC			FC	AgI	AgL
VR	Granite Creek	Headwaters to Watson Lake ~~at 34°35'15"/112°25'05"~~		A&Wc				FBC			FC	AgI	AgL
VR	Granite Creek	Below Watson Lake to confluence with the Verde River ~~at 34°52'54"/112°25'05"~~			A&Ww			FBC			FC	AgI	AgL
VR	Green Valley Lake (EDW)	34°13'54"/111°20'45"	Urban				A&Wedw		PBC		FC		
VR	Heifer Tank	~~35°20'28"/112°32'56"~~ 35°20'27"/112°32'59"			A&Ww			FBC			FC		AgL
VR	Hell Canyon Tank	~~35°05'00"/112°24'06"~~ 35°04'59"/112°24'07"	Igneous		A&Ww			FBC			FC		AgL
VR	Homestead Tank	~~35°21'23"/112°41'32"~~ 35°21'24"/112°41'36"	Igneous		A&Ww			FBC			FC		AgL
VR	Horse Park Tank	~~34°58'15"/111°36'29"~~ 34°58'15"/111°36'32"			A&Ww			FBC			FC		AgL
VR	Horseshoe Reservoir	~~33°59'00"/111°42'30"~~ 34°00'25"/111°43'36"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
VR	Houston Creek	~~Tributary~~ Headwaters to confluence with the Verde River ~~at 34°16'55"/111°41'06"~~			A&Ww			FBC			FC		AgL
VR	Huffer Tank	34°27'46"/111°23'11"			A&Ww			FBC			FC		AgL
VR	J.D. Dam Lake	~~35°04'01"/112°01'40"~~ 35°04'02"/112°01'48"	Shallow	A&Wc				FBC			FC	AgI	AgL
VR	Jacks Canyon Wash	Headwaters to Big Park WWTP outfall at ~~34°45'32"/111°45'10"~~ 34°45'46"/111°45'51"				A&We			PBC				
VR	Jacks Canyon Wash (EDW)	Below Big Park WWTP outfall to confluence with Dry Beaver Creek ~~at 34°44'28"/111°46'01"~~					A&Wedw		PBC				
VR	Lime Creek	~~Tributary~~ Headwaters to Horseshoe Reservoir ~~at 33°59'20"/111°44'13"~~			A&Ww			FBC			FC		AgL
VR	McLellan Reservoir	~~35°13'15"/112°17'05"~~ 35°13'09"/112°17'06"	Igneous		A&Ww			FBC			FC	AgI	AgL
VR	Meath Dam Tank	~~35°07'46"/112°27'35"~~ 35°07'52"/112°27'35"			A&Ww			FBC			FC		AgL
VR	Mullican Place Tank	~~34°44'16"/111°36'08"~~ 34°44'16"/111°36'10"	Igneous		A&Ww			FBC			FC		AgL
VR	Oak Creek (OAW)	Headwaters to confluence with unnamed tributary at ~~34°57'08.5"/111°45'13"~~ 34°59'15"/111°44'47"		A&Wc				FBC		DWS	FC	AgI	AgL
VR	Oak Creek (OAW)	Below confluence with unnamed tributary ~~at 34°57'08.5"/111°45'13"~~ to confluence with Verde River			A&Ww			FBC		DWS	FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
VR	Oak Creek, West Fork (OAW)	~~Tributary~~ Headwaters to confluence with Oak Creek ~~at 34°59'13"/111°44'46"~~		A&Wc				FBC			FC		AgL
VR	Odell Lake	~~34°56'02"/111°37'52"~~ 34°56'5"/111°37'53"	Igneous	A&Wc				FBC			FC		
VR	Peck's Lake	~~34°47'07"/112°02'30"~~ 34°46'51"/112°02'01"	Shallow		A&Ww			FBC			FC	AgI	AgL
VR	Perkins Tank	~~35°06'42"/112°04'08"~~ 35°06'42"/112°04'12"	Shallow	A&Wc				FBC			FC		AgL
VR	Pine Creek	Headwaters to confluence with unnamed tributary at ~~34°21'51"/111°26'46"~~ 34°21'51"/111°26'49"		A&Wc				FBC		DWS	FC	AgI	AgL
VR	Pine Creek	Below confluence with unnamed tributary to confluence with East Verde River ~~at 34°13'19"/111°29'27.6"~~			A&Ww			FBC		DWS	FC	AgI	AgL
VR	Red Creek	~~Tributary~~ Headwaters to confluence with the Verde River ~~at 34°09'47"/111°43'12"~~			A&Ww			FBC			FC		AgL
~~VR~~	~~Red Lake~~	~~35°12'19"/113°03'55"~~	~~Sedimentary~~		~~A&Ww~~			~~FBC~~			~~FC~~		~~AgL~~
VR	Reservoir #1	~~35°13'05"/111°50'07"~~ 35°13'5"/111°50'09"	Igneous		A&Ww			FBC			FC		
VR	Reservoir #2	~~35°13'16"/111°50'36"~~ 35°13'17"/111°50'39"	Igneous		A&Ww			FBC			FC		
VR	Roundtree Canyon Creek	~~Tributary~~ Headwaters to confluence with Tangle Creek ~~at 34°09'04"/111°48'18"~~			A&Ww			FBC			FC		AgL
VR	Scholze Lake	~~35°11'53"/112°00'31"~~ 35°11'53"/112°00'37"	Igneous	A&Wc				FBC			FC		AgL
VR	Spring Creek	Headwaters to confluence with unnamed tributary at ~~34°57'23.5"/111°57'19"~~ 34°57'23"/111°57'21"		A&Wc				FBC			FC	AgI	AgL
VR	Spring Creek	Below confluence with unnamed tributary ~~at 34°44'38"/111°54'19"~~ to confluence with Oak Creek			A&Ww			FBC			FC	AgI	AgL
VR	Steel Dam Lake	~~35°13'36"/112°24'51"~~ 35°13'36"/112°24'54"	Igneous	A&Wc				FBC			FC		AgL
VR	Stehr Lake	~~34°21'59"/111°40'00"~~ 34°22'01"/111°40'02"	Sedimentary		A&Ww			FBC			FC		AgL
VR	Stone Dam Lake	~~35°13'36"/112°24'16"~~ 35°13'32"/112°24'10"		A&Wc				FBC			FC	AgI	AgL
VR	Stoneman Lake	~~34°46'44"/111°31'05"~~ 34°46'47"/111°31'14"	Shallow	A&Wc				FBC			FC	AgI	AgL
VR	Sullivan Lake	~~34°51'46"/112°27'41"~~ 34°51'42"/112°27'51"			A&Ww			FBC			FC	AgI	AgL
VR	Sycamore Creek	Headwaters to confluence with unnamed tributary at ~~35°03'40"/111°57'28"~~ 35°03'41"/111°57'31"		A&Wc				FBC			FC	AgI	AgL
VR	Sycamore Creek	Below confluence with unnamed tributary to confluence with Verde River ~~at 34°51'47"/112°04'41"~~			A&Ww			FBC			FC	AgI	AgL
VR	Sycamore Creek	~~Tributary~~ Headwaters to confluence with Verde River at 33°37'55"/111°39'58"			A&Ww			FBC			FC	AgI	AgL
VR	Sycamore Creek	~~Tributary~~ Headwaters to confluence with Verde River ~~at 34°04'42"/111°42'14"~~			A&Ww			FBC			FC		AgL
VR	Tangle Creek	~~Tributary~~ Headwaters to confluence with Verde River ~~at 34°05'06"/111°42'36"~~			A&Ww			FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD ~~27~~ 83)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
VR	Trinity Tank	~~35°27'44"/112°47'56"~~ 35°27'44"/112°48'01"			A&Ww			FBC			FC		AgL
VR	Unnamed Wash	Flagstaff Meadows WWTP outfall at ~~36°14'17"/111°49'28"~~ 35°13'59"/111°48'35" to Volunteer Wash ~~at 35°11'55"/111°49'42"~~					A&Wedw		PBC				
VR	Verde River	~~Above Bartlett Dam from~~ From confluence of Chino Wash and Granite Creek to Bartlett Lake Dam			A&Ww			FBC			FC	AgI	AgL
VR	Verde River	Below Bartlett Lake Dam to Salt River			A&Ww			FBC		DWS	FC	AgI	AgL
VR	Walnut Creek	~~Tributary~~ Headwaters to confluence with Big Chino Wash ~~at 34°58'12"/112°34'55"~~			A&Ww			FBC			FC		AgL
VR	Watson Lake	~~34°35'15"/112°25'05"~~ 34°34'58"/112°25'26"	Igneous		A&Ww			FBC			FC	AgI	AgL
VR	Webber Creek	~~Tributary~~ Headwaters to confluence with the East Verde River ~~at 34°18'50"/111°19'55"~~		A&Wc				FBC			FC		AgL
VR	West Clear Creek	Headwaters to confluence with Meadow Canyon ~~at 34°33'40"/111°31'30"~~		A&Wc				FBC			FC		AgL
VR	West Clear Creek	Below confluence with Meadow Canyon to confluence with the Verde River ~~at 34°30'14"/111°49'41"~~			A&Ww			FBC			FC	AgI	AgL
VR	Wet Beaver Creek	Headwaters to unnamed springs at 34°41'17"/111°34'34"		A&Wc				FBC			FC	AgI	AgL
VR	Wet Beaver Creek	Below unnamed springs to confluence with Dry Beaver Creek ~~at 34°37'59"/111°49'33.6"~~			A&Ww			FBC			FC	AgI	AgL
VR	Whitehorse Lake	~~35°07'00"/112°00'47"~~ 35°06'59"/112°00'48"	Igneous	A&Wc				FBC		DWS	FC	AgI	AgL
VR	Williamson Valley Wash	Headwaters to confluence with Mint Wash ~~at 34°49'05"/112°37'55"~~				A&We			PBC				AgL
VR	Williamson Valley Wash	~~Confluence~~ From confluence of Mint Wash to 10.5 km downstream ~~at 34°49'05"/111°37'55"~~			A&Ww			FBC			FC		AgL
VR	Williamson Valley Wash	~~Below~~ From 10.5 km downstream of Mint Wash confluence to confluence with Big Chino Wash ~~at 32°52'52"/112°28'48"~~				A&We			PBC				AgL
VR	Williscraft Tank	~~35°11'23"/112°35'38"~~ 35°11'22"/112°35'40"			A&Ww			FBC			FC		AgL
VR	Willow Creek	Above Willow Creek Reservoir	~~Shallow~~	A&Wc				FBC			FC		AgL
VR	Willow Creek	Below Willow Creek Reservoir to confluence with Granite Creek			A&Ww			FBC			FC		AgL
VR	Willow Creek Reservoir	34°36'17"/112°26'19"	Shallow		A&Ww			FBC			FC	AgI	AgL
VR	Willow Valley Lake	~~34°41'08"/111°19'57"~~ 34°41'08"/111°20'02"	Sedimentary		A&Ww			FBC			FC		AgL

Watersheds

BW = Bill Williams

CG = Colorado – Grand Canyon

CL = Colorado – Lower Gila

LC = Little Colorado

MG = Middle Gila

SC = Santa Cruz – Rio Magdelena – Rio Sonoyta

SP = San Pedro – Willcox Playa – Rio Yaqui

SR = Salt River

UG = Upper Gila

VR = Verde River

Other Abbreviations

WWTP = Wastewater Treatment Plant

Km = kilometers

.

APPENDIX C. SITE-SPECIFIC STANDARDS

Watershed	Surface Water	Surface Water Description & Location	Parameter	Site-Specific Criterion
LC	Rio de Flag (EDW)	Flagstaff WWTP outfall to the confluence with San Francisco Wash at 35°14'04"/111°28'02.5"	Copper (D)	36 µg/L (A&Wedw)
CL	Yuma East Wetlands	From inlet culvert from Colorado River into restored channel to Ocean ~~bridge~~ Bridge	Selenium (T) Total residual chlorine	2.2 mg/L (A&Ww chronic) 33 µg/L (A&Ww acute) 20 µg/L (A&Ww chronic)
SR	Pinto Creek	From confluence of Ellis Ranch tributary at 33°19'26.7"/110°54'57.5" to the confluence of West Fork of Pinto Creek at 33°27'32.3"/111°00'19.7"	Copper (D)	34 µg/L (A&Ww acute for hardness values below 268 mg/L)
				34 µg/L (A&Ww chronic)
CG	Bright Angel Wash	South Rim Grand Canyon National Park WWTP at 36°02'59"/112°09'02" to Coconino Wash	Copper (D)	42.5 µg/L (A&W edw)
CG	Transept Canyon	North Rim Grand Canyon WWTP at 36°12'20"/112°03'35" to1km downstream	Copper (D)	42.5 µg/L (A&W edw)

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 11. DEPARTMENT OF ENVIRONMENTAL QUALITY

WATER QUALITY STANDARDS

ARTICLE 1. WATER QUALITY STANDARDS FOR SURFACE WATERS

Economic, Small Business and Consumer Impact Statement

A. Brief summary of the information included in the economic, small business and consumer impact statement:

The overall impact of the proposed changes should be very minor. Persons most affected by this rulemaking are permittees under the AZPDES permitting program. The clarifications and correction of errors should benefit anyone, but particularly AZPDES permittees, who read and interpret the rules. ADEQ anticipates that a few of the rule changes may have a more specific impact. In addition to any costs, these rules overall benefit the general public. These rules ensure that clean water will be available as a source for drinking water, bathing, cooking, and is safe for swimming, fishing, boating, or other water-based recreation.

BACKGROUND

Surface water quality standards are provisions of state law required by the CWA and are implemented through and affect various surface water programs. The water quality standards consist of designating beneficial uses to a body of water and assigning numeric limits for allowable concentrations of pollutants, in order to protect the designated uses. Water quality standards are used both as a mechanism to establish goals and as a regulatory requirement when controls for discharges are inadequate.

The three main surface water programs affected by the surface water quality standards are:

- The AZPDES permitting program. Under § 402 of the CWA and A.R.S. § 49-255.01, an entity seeking a point source discharge of pollutants to a surface water must have an AZPDES permit, and its discharge must meet limits established in the permit to meet applicable surface water quality standards.
- The § 305(b) water quality assessment and § 303(d) impaired water listing. Section 305(b) of the CWA establishes a process to develop and report information on the quality of a State's surface waters. ADEQ monitors surface waters within its boundaries, prepares a biennial report describing the status of water quality in Arizona rivers, streams, lakes, and reservoirs and submits the report to the U.S. Environmental Protection Agency (EPA). Surface water quality standards

provide the benchmarks used to assess water quality status. When a water body does not meet one or more of the applicable surface water quality standards, it is considered impaired under § 303(d) of the CWA. ADEQ identifies and lists impaired waters that do not meet one or more of the surface water quality standards.

- Total Maximum Daily Load (TMDL) Program. The consequence of an impaired water is that it may require a State to establish stricter water quality-based limitations, thereby impacting any source seeking to discharge to the impaired water. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet surface water quality standards. The TMDL allocates, or budgets, that amount among the point and non-point sources in the watershed that discharge the pollutant of concern. The ultimate goal of a TMDL is restoring water quality so that an impaired water no longer exceeds but rather attains applicable surface water quality standards. A TMDL is implemented through a variety of actions, including effluent limits in permits and watershed restoration efforts aimed at reducing or eliminating the pollutant of concern.

B. Name and address of agency employees who may be contacted to submit or request additional data on the information included in the economic, small business and consumer impact statement:

Name:	Wendy LeStarge
Address:	Arizona Department of Environmental Quality Water Quality Division 1110 W. Washington Street Phoenix, Arizona 85007
Telephone:	(602) 771-4836 (Toll-free number in Arizona: (800) 234-5677)
Fax:	(602) 771-4834
E-mail:	lestarge.wendy@azdeq.gov

C. Identification of persons who will be directly affected by, bear the costs of or directly benefit from the rulemaking:

Entities likely to be directly affected by this rulemaking would be entities that discharge to a surface water under an AZPDES permit, including publicly and privately owned wastewater treatment plants and some mining facilities. For purpose of this analysis, ADEQ defines annual costs or revenues on a cost-revenue scale as follows:

Minimal – less than $10,000

Moderate – $10,000 to $1 million

Substantial – more than $1 million

D. Cost-benefit analysis of probable costs and benefits to ADEQ and other agencies:

ADEQ could incur minimal costs in implementing this rulemaking. ADEQ does not anticipate any increase in FTEs or state funding to complete any additional TMDLs.

E. Cost-benefit analysis of probable costs and benefits to political subdivisions and to businesses:

ADEQ expects that some sections of this rulemaking will benefit a political subdivision or a business if it is a permitted discharger. The clarifications and correction of errors should benefit anyone, but particularly dischargers, who read and interpret the rules. ADEQ anticipates that the following rules will have only a minor impact, if any, to a discharger:

- R18-11-112. Outstanding Arizona Waters - ADEQ proposes to eliminate the latitude/longitude coordinates since the OAW location is listed in Appendix B.
- R18-11-110 Salinity Standards for the Colorado River - The updates to the 2014 current salinity standards and plan of implementation do not require changes in Arizona, so no cost or benefit is anticipated.
- Appendix A Numeric Water Quality Standards, Table 1, Water Quality Criteria by Designated Use - EPA did not approve revised criteria for twenty-one pollutants from ADEQ's 2009 rulemaking. ADEQ proposes to revert back to the numeric criteria last approved by EPA in 2003. ADEQ does not anticipate that these changes in numeric criteria will impact AZPDES dischargers because ADEQ has not been able to use the 2009 revised, state-approved criteria for these pollutants in AZPDES permits. There should be a benefit in that the rules will state what ADEQ is actually able to enforce.
- <u>Appendix B Surface Waters and Designated Uses</u>
    - Clarification of locations and names should benefit anyone reading and interpreting the rules. The change to NAD 83 will allow ADEQ to begin planning over the next few years to integrate surface waters listed in Appendix B with its internet GIS mapping system.
    - Boulder Creek - deleting the agricultural irrigation designated use will mean that the agricultural irrigation metal standards, where they exist, will be the same for all of Boulder Creek in this watershed and reflects the reality that there is no agricultural irrigation.
    - East Maricopa Floodway - adding East Maricopa Floodway (EMF) more accurately reflects the existing reality of permitted discharges. The Army Corps of Engineers recognized the

EMF as a waters of the U.S. when it issued a Section 404 permit for maintenance activities in the EMF in February of 2003. Also, two wastewater treatment plants discharge to the EMF and have AZPDES permits. Correctly identifying EMF as a waters of the U.S. benefits anyone reading and interpreting the rules.

- Mineral Creek - ADEQ anticipates no impact because any permitted discharge must still meet required downstream standards for designated uses of aquatic and wildlife, full body contact, fish consumption, and agricultural livestock watering. The manmade features of the tunnel were constructed to convey flow in Mineral Creek around mining operations. Work on the lined channel and an extension to the preexisting tunnel segment was finalized in March 2002.

F. Cost-benefit analysis of probable costs and benefits by rule section:

R18-11-106 Net Ecological Benefit

ADEQ proposed to eliminate the requirement that a discharger have a plan to eliminate the discharge under active consideration as part of what must be demonstrated. Communities and developers should benefit by eliminating an extra burden in seeking to use high quality effluent to create aquatic and riparian ecosystems.

R18-11-109 Numeric Water Quality Standards

Currently the nutrient standards in subsection (F) apply to all tributaries of the listed waters, regardless of impact. The intent is to protect the downstream waters and lakes from nutrient accumulation and eutrophication. Eutrophication results in excessive growth of algae and nuisance aquatic plants, and can lead to conditions harmful to aquatic life. Wastewater treatment plants discharging to a surface water under subsection (F) may have to implement costly advanced treatment for nutrient removal. There are about 12 wastewater treatment plants that discharge under an AZPDES permit to one of the waters described in subsection (F).

Under the proposed changes, ADEQ will evaluate whether a discharge will impact a listed water or its perennial tributary before applying the nutrient standards. ADEQ anticipates that it will not have to apply nutrient standards to six of the 12 wastewater treatment plants because the volume, frequency, magnitude and/or duration of their discharge does not affect the downstream water. Of the six, three are publicly-owned and three are privately-owned. The six wastewater treatment plants currently have a variance in their AZPDES permits because they cannot meet the nutrient standards. Generally under a variance, a discharger is expected to implement steps to achieve the required water quality standard.

With the change to subsection (F), ADEQ anticipates that at least six wastewater treatment plants discharging under an AZPDES permit will not have to implement costly advanced treatment for nutrient removal.

R18-11-115 Site-Specific Standards

ADEQ is adding more flexibility to the process that allows an outside party to submit a scientifically defensible study to support development of the site-specific standard. A person or entity can choose to submit an abbreviated study outline that uses the most recent EPA-recognized procedures, or submit a more rigorously documented study outline using any scientifically defensible procedure. ADEQ anticipates that the additional flexibility on the study requirements should benefit entities proposing new site specific standards, such as AZPDES dischargers. ADEQ is unable to quantify the benefit, but since about 2007, ADEQ has received only three studies to support a site-specific standard. ADEQ would anticipate that under the proposed changes, it may receive more studies.

R18-11-121 Schedules of Compliance

Currently, a discharger has a set time of three years to come into compliance with a new or revised surface water quality standard under a compliance schedule. ADEQ proposes to create a more flexible standard that allows ADEQ to look at certain factors in determining the time needed in the compliance schedule. The change should benefit the regulated community by allowing a more individual consideration of an entity's circumstances to achieve compliance. Currently six dischargers have a compliance schedule in their AZPDES permits.

Appendix B Surface Waters and Designated Uses

There are eleven surface waters that were categorized as effluent dependent because they received an outfall from a permitted discharge. The permitted discharge no longer exists (a few wastewater treatment plants were decommissioned, a few changed disposal methods so that they no longer discharged to a surface water). ADEQ proposes to categorize these waters as ephemeral. This change would benefit anyone in control of stormwater discharges to the ephemeral water, because an ephemeral water needs to meet acute (less stringent) standards, where an effluent-dependent water is protected for both acute and chronic (more stringent) standards.

ADEQ is adding four effluent dependent waters to reflect permitted discharges to ephemeral washes. AZPDES permittees already meet the effluent dependent standards that are set in their permits. This change would affect anyone in control of stormwater discharges to one of these surface waters,

because an effluent-dependent water is protected for both acute and chronic (more stringent) standards where an ephemeral water needs to meet acute (less stringent) standards only.

Removing Paradise and Coors Lakes as surface waters that are not regulated under the CWA is a legal interpretation. Removing these two waters may have some impact, since both lakes rely to a certain extent on groundwater pumping to maintain levels. Persons supporting and opposing removing Paradise Lake as a surface water submitted some cost information, but without supporting documentation. Persons supporting removing Paradise Lake stated that reclaimed water will allow for another source of water for the lake and will be beneficial for costs. A person opposed to removing Paradise Lake stated that any savings in using reclaimed water would be minimal of only about $8,000 per year.

Any other changes to Appendix B can potentially impact those discharging under an AZPDES general permit. ADEQ's general permits with the most permittees are to regulate stormwater discharges primarily by requiring the use of best management practices to lessen pollutants.

Appendix C Site-Specific Standards

A permitted discharger that cannot meet standards faces the regulatory burden of either ending the discharge or installing treatment to remove the specific pollutant to the standard level. ADEQ proposes to establish three site-specific standards for dissolved copper:

- For a segment of Pinto Creek, the proposed standard would be 34 µg/L;
- For a segment of Bright Angel Wash, the proposed standard would be 42.5 µg/L;
- For a segment of Transept Canyon, the proposed standard would be 42.5 µg/L

The proposed site-specific standards would allow potential dischargers to discharge at the higher numeric value for copper, thereby decreasing the regulatory burden in future AZPDES permits. The proposed site-specific standards have no effect on designated uses related to humans, such as a drinking water source or full-body contact.

ADEQ is responsible for reducing pollutants in impaired waters by limiting discharges to the impaired water and through remediation projects. The segment of Pinto Creek has not met the surface water quality standard for copper and has been listed as an impaired water since 1998. EPA developed a TMDL in 2001, but the current applicable standard is unattainable for TMDL implementation likely due to natural mineralization and historic mining in the basin. ADEQ has already approved two Water Quality Improvement (Section 319) grants totaling $710,277 to reduce

pollutant loads from non-point sources. The site specific standard for Pinto Creek will allow ADEQ to complete a second phase TMDL and assign waste load allocations based upon the new standard. The site-specific standard for Pinto Creek allows a realistic, achievable surface water quality standard to guide both permitting decisions and clean-up actions.

The site-specific standard would help the Grand Canyon North Rim and South Rim WWTP's. These facilities currently have applications in for a variance for copper. This would eliminate them having to commit resources in showing reasonable progress towards achieving the original standard.

G. Probable impact on public and private employment:

ADEQ does not anticipate that private or public employment will be directly affected by these rules.

H. Probable impact on small businesses:

ADEQ would define a small business as any AZPDES permitted facility that discharges less than 1 million gallons per day.

1) The administrative and other costs required for compliance with the proposed rule making.

These rules do not have any administrative costs, nor establish any reporting schedules or deadlines for small businesses. ADEQ does not anticipate that any small dischargers will be affected by the proposed rulemaking

2) A description of the methods prescribed in section 41-1035 that the agency may use to reduce the impact on small businesses, with reasons for the agency's decision to use or not to use each method.

(i) Establish less costly schedules or less stringent deadlines for compliance, or consolidate or simplify the rule's compliance or reporting requirements in the proposed rule making.

ADEQ does not anticipate that the proposed rule changes will affect minor dischargers, other than as described in this EIS.

(ii) Establish less costly compliance requirements, including establishing performance standards to replace design or operational standards in the proposed rule making.

The changes in the nutrient standards in R18-11-109 (F) should benefit the three privately owned wastewater treatment plants, which currently have a variance in their AZPDES permits because they cannot meet the nutrient standards. These three entities each discharge less than one million gallons per day so they would be considered a small business. ADEQ anticipates that the change to R18-11-109 (F) will benefit the three dischargers because they will not have to implement costly advanced treatment for nutrient removal. Additionally, for the changes to R18-11-121, one

of the six dischargers with a compliance schedule in their AZPDES permits discharges less than one million gallons per day. The change to the compliance schedule rule should benefit the small business discharger by allowing a more individual consideration of its circumstances to achieve compliance.

(iii) Exempt small businesses from any or all requirements of the proposed rule making.

As a federally-delegated program, ADEQ's laws, rules, and program must comply with EPA requirements.

3) The probable cost and benefit to private persons and consumers who are directly affected by the proposed rule making.

Private persons and consumers are not directly affected by this rulemaking, but benefit indirectly. Improving the effectiveness of water quality regulation leads to restoring and maintaining the chemical, physical, and biological integrity of Arizona's waters. Improved water quality has many human health and ecological benefits, impacting:

- Drinking Water Treatment and Household Water Use. Reducing contaminants, nutrients, and sediment in surface water supplies lowers the cost of treating these waters, reduces the health risk from potential exposure to contaminated drinking water, and avoids the need for cities, towns and other public water systems to develop alternative water sources or supplies.
- Agricultural Water Use. Clean water ensures agricultural productivity. As noted in the Arizona Department of Agriculture's Annual Report, FY2014-2015, Arizona ranks third in the nation for overall production of fresh market vegetables. Arizona acreage produced over 89.6 million cartons of fresh produce last year. Arizona ranks second in the nation in production of iceberg lettuce, leaf lettuce, romaine lettuce, cauliflower, broccoli, spinach, cantaloupes, and honeydews.
- Industrial Water Use. Sediment discharges may have negative effects on industrial water users. Suspended sediment increases the rate at which hydraulic equipment, pumps, and other equipment wear out, causing accelerated depreciation of capital equipment.
- Human Health Improvements. Some contaminants, such as mercury and DDT, may persist for long periods of time and bioaccumulate, meaning they can be found in levels several times higher than ambient water in large fish such as bass that consume contaminated bottom dwelling animals. Eating fish contaminated with mercury or PCBs may lead to developmental and neurological problems and is especially hazardous for children and pregnant women. Ensuring cleaner water may lead to a reduction in illness either through reduced consumption

of contaminated seafood or through reduced exposure to infectious disease during recreation activities in contaminated waters.

- Recreational activities. Although considered a desert state, Arizona has many recreational activities enhanced by clean water.
    - Fishing. Degraded water can reduce fish populations by inhibiting reproduction and survival of an aquatic species. As an economic indicator of fishing's impact, the Arizona Game and Fish Department (AZGFD) issued 126,056 resident general fish licenses for 2013 (AZGFD 2013-2014 Annual Report).
    - Boating. Polluted water reduces the aesthetic appeal of recreational boating activities and can be damaging to motors and equipment (e.g., algae, excessive weed growth).
    - Swimming. Pollution of water by toxic chemicals or by fecal indicator bacteria may cause closure of water bodies for swimming. Eutrophication caused by nutrients and turbidity caused by sediment and other pollutants also may greatly reduce a swimmer's aesthetic enjoyment of a water body.

I. Probable effect on state revenues:

There are no fees associated with these rules. This rulemaking will have no impact on state revenues.

J. Description of less intrusive or less costly alternative methods of achieving the proposed rulemaking:

Water quality standards are provisions of state law required by the Clean Water Act, and are required to be revised at least once every three years.

K. Explanation of the limitations of the data available for this economic small business and consumer impact statement.

ADEQ does not require the costs of treatment as part of the regular AZPDES permitting program, so any specific information on costs was obtained through informal means from permittees or other knowledgeable individuals.

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 11. DEPARTMENT OF ENVIRONMENTAL QUALITY WATER QUALITY STANDARDS

ARTICLE 1. WATER QUALITY STANDARDS FOR SURFACE WATERS

Article 1, consisting of Appendices A through C, repealed April 24, 1996 (Supp. 96-2).

Article 1, consisting of Section R18-11-103, reserved effective April 24, 1996 (Supp. 96-2).

Article 1, consisting of Sections R18-11-105 and R18-11-106, and Appendices A and B, adopted April 24, 1996 (Supp. 96-2).

Article 1, consisting of Sections R18-11-101 and R18-11-102, R18-11-104, R18-11-107 through R18-11-109, R18-11-111 through R18-11-113, R18-11-115, R18-11-117 and R18-11-118, R18-11-120 and R18-11-121, amended effective April 24, 1996 (Supp. 96-2).

Article 1, consisting of Sections R18-11-101 through R18-11-121 and Appendices A through C, adopted effective February 18, 1992 (Supp. 92-1).

Article 1, consisting of Section R18-11-101, repealed effective February 18, 1992 (Supp. 92-1).

Article 1 consisting of Section R9-21-101 renumbered as Article 1, Section R18-11-101 (Supp. 87-3).

Section
R18-11-101. Definitions
R18-11-102. Applicability
R18-11-103. Repealed
R18-11-104. Designated Uses
R18-11-105. Tributaries; Designated Uses
R18-11-106. Net Ecological Benefit
R18-11-107. Antidegradation
R18-11-107.01. Antidegradation Criteria
R18-11-108. Narrative Water Quality Standards
R18-11-108.01. Narrative Biological Criteria for Wadeable, Perennial Streams
R18-11-108.02. Narrative Bottom Deposit Criteria for Wadeable, Perennial Streams
R18-11-108.03. Narrative Nutrient Criteria for Lakes and Reservoirs
R18-11-109. Numeric Water Quality Standards
R18-11-110. Salinity Standards for the Colorado River
R18-11-111. Analytical Methods
R18-11-112. Outstanding Arizona Waters
R18-11-113. Effluent-Dependent Waters
R18-11-114. Mixing Zones
R18-11-115. Site-Specific Standards
R18-11-116. Resource Management Agencies
R18-11-117. Canals and Urban Park Lakes
R18-11-118. Dams and Flood Control Structures
R18-11-119. Natural Background
R18-11-120. Enforcement
R18-11-121. Schedules of Compliance
R18-11-122. Variances
R18-11-123. Discharge Prohibitions
Appendix A. Numeric Water Quality Standards
Appendix B. Surface Waters and Designated Uses
Appendix C. Site-Specific Standards

ARTICLE 2. REPEALED

Article 2, consisting of Sections R18-11-201 through R18-11-205, adopted effective February 18, 1992 (Supp. 92-1).

Article 2, consisting of Sections R18-11-201 through R18-11-214 and Appendices A and B, repealed effective February 18, 1992 (Supp. 92-1).

Article 2 consisting of Sections R9-21-201 through R9-21-214 and Appendices A and B renumbered as Article 2, Sections R18-11-201 through R18-11-214 and Appendices A and B (Supp. 87-3).

ARTICLE 3. RECLAIMED WATER QUALITY STANDARDS

Article 3, consisting of Sections R18-11-301 through R18-11-309 and Table A, adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

Article 3 heading repealed effective April 24, 1996 (Supp. 96-2).

Article 3, consisting of Sections R18-11-301 through R18-11-304 repealed effective February 18, 1992 (Supp. 92-1).

Article 3 consisting of Sections R9-21-301 through R9-21-304 renumbered as Article 3, Sections R18-11-301 through R18-11-304 (Supp. 87-3).

Section
R18-11-301. Definitions
R18-11-302. Applicability
R18-11-303. Class A+ Reclaimed Water
R18-11-304. Class A Reclaimed Water
R18-11-305. Class B+ Reclaimed Water
R18-11-306. Class B Reclaimed Water
R18-11-307. Class C Reclaimed Water
R18-11-308. Industrial Reuse
R18-11-309. Reclaimed Water Quality Standards for an Unlisted Type of Direct Reuse
Table A. Minimum Reclaimed Water Quality Requirements for Direct Reuse

ARTICLE 4. AQUIFER WATER QUALITY STANDARDS

Section
R18-11-401. Definitions
R18-11-402. Repealed
R18-11-403. Analytical Methods
R18-11-404. Laboratories
R18-11-405. Narrative Aquifer Water Quality Standards
R18-11-406. Numeric Aquifer Water Quality Standards: Drinking Water Protected Use
R18-11-407. Aquifer Water Quality Standards in Reclassified Aquifers
R18-11-408. Petition for Adoption of a Numeric Aquifer Water Quality Standard
Appendix 1. Repealed
Appendix 2. Repealed
Appendix 3. Repealed
Appendix 4. Repealed
Appendix 5. Repealed
Appendix 6. Repealed
Appendix 7. Repealed

ARTICLE 5. AQUIFER BOUNDARY AND PROTECTED USE CLASSIFICATION

New Article 5 consisting of Sections R18-11-501 through R18-11-504 and Section R18-11-506 adopted effective October 22, 1987.

Section
R18-11-501. Definitions
R18-11-502. Aquifer boundaries
R18-11-503. Petition for reclassification
R18-11-504. Agency action on petition
R18-11-505. Public participation
R18-11-506. Rescission of reclassification

ARTICLE 6. IMPAIRED WATER IDENTIFICATION

Article 6, consisting of Sections R18-11-601 through R18-11-606, made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).

Section
R18-11-601. Definitions
R18-11-602. Credible Data
R18-11-603. General Data Interpretation Requirements
R18-11-604. Types of Surface Waters Placed on the Planning List and 303(d) List
R18-11-605. Evaluating a Surface Water or Segment for Listing and Delisting
R18-11-606. TMDL Priority Criteria for 303(d) Listed Surface Waters or Segments

ARTICLE 1. WATER QUALITY STANDARDS FOR SURFACE WATERS

R18-11-101. Definitions

The following terms apply to this Article:

1. "Acute toxicity" means toxicity involving a stimulus severe enough to induce a rapid response. In aquatic toxicity tests, an effect observed in 96 hours or less is considered acute.
2. "Agricultural irrigation (AgI)" means the use of a surface water for crop irrigation.
3. "Agricultural livestock watering (AgL)" means the use of a surface water as a water supply for consumption by livestock.
4. "Annual mean" is the arithmetic mean of monthly values determined over a consecutive 12-month period, provided that monthly values are determined for at least three months. A monthly value is the arithmetic mean of all values determined in a calendar month.
5. "Aquatic and wildlife (cold water) (A&Wc)" means the use of a surface water by animals, plants, or other cold-water organisms, generally occurring at an elevation greater than 5000 feet, for habitation, growth, or propagation.
6. "Aquatic and wildlife (effluent-dependent water) (A&Wedw)" means the use of an effluent-dependent water by animals, plants, or other organisms for habitation, growth, or propagation.
7. "Aquatic and wildlife (ephemeral) (A&We)" means the use of an ephemeral water by animals, plants, or other organisms, excluding fish, for habitation, growth, or propagation.
8. "Aquatic and wildlife (warm water) (A&Ww)" means the use of a surface water by animals, plants, or other warm-water organisms, generally occurring at an elevation less than 5000 feet, for habitation, growth, or propagation.
9. "Arizona Pollutant Discharge Elimination System (AZPDES)" means the point source discharge permitting program established under 18 A.A.C. 9, Article 9.
10. "Assimilative capacity" means the difference between the baseline water quality concentration for a pollutant and the most stringent applicable water quality criterion for that pollutant.
11. "Clean Water Act" means the Federal Water Pollution Control Act [33 U.S.C. 1251 to 1387].
12. "Criteria" means elements of water quality standards that are expressed as pollutant concentrations, levels, or narrative statements representing a water quality that supports a designated use.
13. "Critical flow condition" means the lowest flow over seven consecutive days that has a probability of occurring once in 10 years (7 Q 10).
14. "Deep lake" means a lake or reservoir with an average depth of more than 6 meters.
15. "Designated use" means a use specified in Appendix B of this Article for a surface water.
16. "Domestic water source (DWS)" means the use of a surface water as a source of potable water. Treatment of a surface water may be necessary to yield a finished water suitable for human consumption.
17. "Effluent-dependent water (EDW)" means a surface water, classified under R18-11-113, that consists of a point source discharge of wastewater. An effluent-dependent water is a surface water that, without the point source discharge of wastewater, would be an ephemeral water.
18. "Ephemeral water" means a surface water that has a channel that is at all times above the water table and flows only in direct response to precipitation.
19. "Existing use" means a use attained in the waterbody on or after November 28, 1975, whether or not it is included in the water quality standards.
20. "Fish consumption (FC)" means the use of a surface water by humans for harvesting aquatic organisms for consumption. Harvestable aquatic organisms include, but are not limited to, fish, clams, turtles, crayfish, and frogs.
21. "Full-body contact (FBC)" means the use of a surface water for swimming or other recreational activity that causes the human body to come into direct contact with the water to the point of complete submergence. The use is such that ingestion of the water is likely and sensitive body organs, such as the eyes, ears, or nose, may be exposed to direct contact with the water.
22. "Geometric mean" means the nth root of the product of n items or values. The geometric mean is calculated using the following formula:

$$GM_Y = \sqrt[n]{(Y_1)(Y_2)(Y_3)\ldots(Y_n)}$$

23. "Hardness" means the sum of the calcium and magnesium concentrations, expressed as calcium carbonate ($CaCO_3$) in milligrams per liter.
24. "Igneous lake" means a lake located in volcanic, basaltic, or granite geology and soils.
25. "Intermittent water" means a stream or reach that flows continuously only at certain times of the year, as when it receives water from a spring or from another surface source, such as melting snow.
26. "Mixing zone" means an area or volume of a surface water that is contiguous to a point source discharge where dilution of the discharge takes place.
27. "Oil" means petroleum in any form, including crude oil, gasoline, fuel oil, diesel oil, lubricating oil, or sludge.
28. "Outstanding Arizona water (OAW)" means a surface water that is classified as an outstanding state resource water by the Director under R18-11-112.
29. "Partial-body contact (PBC)" means the recreational use of a surface water that may cause the human body to come into direct contact with the water, but normally not to the point of complete submergence (for example, wading or boating). The use is such that ingestion of the water is not likely and sensitive body organs, such as the

eyes, ears, or nose, will not normally be exposed to direct contact with the water.

30. "Perennial water" means a surface water that flows continuously throughout the year.
31. *"Pollutant" means fluids, contaminants, toxic wastes, toxic pollutants, dredged spoil, solid waste, substances and chemicals, pesticides, herbicides, fertilizers and other agricultural chemicals, incinerator residue, sewage, garbage, sewage sludge, munitions, petroleum products, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and mining, industrial, municipal, and agricultural wastes or any other liquid, solid, gaseous, or hazardous substance.* A.R.S § 49-201(29)
32. "Practical quantitation limit" means the lowest level of quantitative measurement that can be reliably achieved during a routine laboratory operation.
33. "Reference condition" means a set of ecological measurements from a population of relatively undisturbed waterbodies within a region that establish a basis for making comparisons of biological condition among samples.
34. "Regional Administrator" means the Regional Administrator of Region IX of the U.S. Environmental Protection Agency.
35. "Regulated discharge" means a point-source discharge regulated under an AZPDES permit, a discharge regulated by a § 404 permit, and any discharge authorized by a federal permit or license that is subject to state water quality certification under § 401 of the Clean Water Act.
36. "Riffle habitat" means a stream segment where moderate water velocity and substrate roughness produce moderately turbulent conditions that break the surface tension of the water and may produce breaking wavelets that turn the surface water into white water.
37. "Run habitat" means a stream segment where there is moderate water velocity that does not break the surface tension of the water and does not produce breaking wavelets that turn the surface water into white water.
38. "Sedimentary lake" means a lake or reservoir in sedimentary or karst geology and soils.
39. "Shallow lake" means a lake or reservoir, excluding an urban lake, with a smaller, flatter morphology and an average depth of less than 3 meters and a maximum depth of less than 4 meters.
40. "Significant degradation" means:
    a. The consumption of 20 percent or more of the available assimilative capacity for a pollutant of concern at critical flow conditions, or
    b. Any consumption of assimilative capacity beyond the cumulative cap of 50 percent of assimilative capacity.
41. "Surface water" means a water of the United States and includes the following:
    a. A water that is currently used, was used in the past, or may be susceptible to use in interstate or foreign commerce;
    b. An interstate water, including an interstate wetland;
    c. All other waters, such as an intrastate lake, reservoir, natural pond, river, stream (including an intermittent or ephemeral stream), creek, wash, draw, mudflat, sandflat, wetland, slough, backwater, prairie pothole, wet meadow, or playa lake, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce, including any such water:
        i. That is or could be used by interstate or foreign travelers for recreational or other purposes;
        ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
        iii. That is used or could be used for industrial purposes by industries in interstate or foreign commerce;
    d. An impoundment of a surface water as defined by this definition;
    e. A tributary of a surface water identified in subsections (41)(a) through (d); and
    f. A wetland adjacent to a surface water identified in subsections (41)(a) through (e).
42. "Total nitrogen" means the sum of the concentrations of ammonia (NH_3), ammonium ion (NH_4+), nitrite (NO_2), and nitrate (NO_3), and dissolved and particulate organic nitrogen expressed as elemental nitrogen.
43. "Total phosphorus" means all of the phosphorus present in a sample, regardless of form, as measured by a persulfate digestion procedure.
44. "Toxic" means a pollutant or combination of pollutants, that after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism, either directly from the environment or indirectly by ingestion through food chains, may cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in the organism or its offspring.
45. "Urban lake" means a manmade lake within an urban landscape.
46. "Use attainability analysis" means a structured scientific assessment of the factors affecting the attainment of a designated use including physical, chemical, biological, and economic factors.
47. "Wadeable" means a surface water can be safely crossed on foot and sampled without a boat.
48. "Wastewater" does not mean:
    a. Stormwater,
    b. Discharges authorized under the De Minimus General Permit,
    c. Other allowable non-stormwater discharges permitted under the Construction General Permit or the Multi-sector General Permit, or
    d. Stormwater discharges from a municipal storm sewer system (MS4) containing incidental amounts of non-stormwater that the MS4 is not required to prohibit.
49. "Wetland" means an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. A wetland includes a swamp, marsh, bog, cienega, tinaja, and similar areas.
50. "Zone of passage" means a continuous water route of volume, cross-sectional area, and quality necessary to allow passage of free-swimming or drifting organisms with no acutely toxic effect produced on the organisms.

Historical Note

Former Section R9-21-101 repealed, new Section R9-21-101 adopted effective January 29, 1980 (Supp. 80-1). Amended effective April 17, 1984 (Supp. 84-2). Amended effective January 7, 1985 (Supp. 85-1). Amended by adding subsection (C) effective August 12, 1986 (Supp. 86-4). Former Section R9-21-101 renumbered without change as Section R18-11-101 (Supp. 87-3). Former Section R18-11-101 repealed, new Section R18-11-101 adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Deleted first definition to R18-11-101(32) "Navigable Water", previously printed in error (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 9 A.A.R. 716, effective April 8, 2003

(Supp. 03-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-102. Applicability

A. The water quality standards prescribed in this Article apply to surface waters.

B. The water quality standards prescribed in this Article do not apply to the following:
1. A waste treatment system, including an impoundment, pond, lagoon, or constructed wetland that is a part of the waste treatment system;
2. A man-made surface impoundment and any associated ditch and conveyance used in the extraction, beneficiation, or processing of metallic ores that is not a surface water or is located in an area that once was a surface water but is no longer a surface water because it has been and remains legally converted, including:
   a. A pit,
   b. Pregnant leach solution pond,
   c. Raffinate pond,
   d. Tailing impoundment,
   e. Decant pond,
   f. Pond or a sump in a mine pit associated with dewatering activity,
   g. Pond holding water that has come into contact with a process or product and that is being held for recycling,
   h. Spill or upset catchment pond, or
   i. A pond used for onsite remediation;
3. A man-made cooling pond that is neither created in a surface water nor results from the impoundment of a surface water; or
4. A surface water located on tribal lands.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-103. Repealed

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Repealed effective April 24, 1996 (Supp. 96-2).

R18-11-104. Designated Uses

A. The Director shall adopt or remove a designated use or subcategory of a designated use by rule.

B. Designated uses of a surface water may include full-body contact, partial-body contact, domestic water source, fish consumption, aquatic and wildlife (cold water), aquatic and wildlife (warm water), aquatic and wildlife (ephemeral), aquatic and wildlife (effluent-dependent water), agricultural irrigation, and agricultural livestock watering. The designated uses for specific surface waters are listed in Appendix B of this Article.

C. Numeric water quality criteria to maintain and protect water quality for the designated uses are prescribed in Appendix A, R18-11-109, R18-11-110, and R18-11-112. Narrative water quality standards to protect all surface waters are prescribed in R18-11-108.

D. If a surface water has more than one designated use listed in Appendix B, the most stringent water quality criterion applies.

E. The Director shall revise the designated uses of a surface water if water quality improvements result in a level of water quality that permits a use that is not currently listed as a designated use in Appendix B.

F. In designating uses of a surface water and in establishing water quality criteria to protect the designated uses, the Director shall take into consideration the applicable water quality standards for downstream surface waters and shall ensure that the water quality standards that are established for an upstream surface water also provide for the attainment and maintenance of the water quality standards of downstream surface waters.

G. A use attainability analysis shall be conducted prior to removal of a designated use or adoption of a subcategory of a designated use that requires less stringent water quality criteria.

H. The Director may remove a designated use or adopt a subcategory of a designated use that requires less stringent water quality criteria, provided the designated use is not an existing use and it is demonstrated through a use attainability analysis that attaining the designated use is not feasible for any of the following reasons:
1. A naturally-occurring pollutant concentration prevents the attainment of the use;
2. A natural, ephemeral, intermittent, or low-flow condition or water level prevents the attainment of the use;
3. A human-caused condition or source of pollution prevents the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place;
4. A dam, diversion, or other type of hydrologic modification precludes the attainment of the use, and it is not feasible to restore the surface water to its original condition or to operate the modification in a way that would result in attainment of the use;
5. A physical condition related to the natural features of the surface water, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, precludes attainment of an aquatic life designated use; or
6. Controls more stringent than those required by § 301 (b) and § 306 of the Clean Water Act [33 U.S.C. § 1311 and § 1316] are necessary to attain the use and implementation of the controls would result in substantial and widespread economic and social impact.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1).

R18-11-105. Tributaries; Designated Uses

The following water quality standards apply to a surface water that is not listed in Appendix B but that is a tributary to a listed surface water.
1. The aquatic and wildlife (ephemeral) and partial-body contact standards apply to an unlisted tributary that is an ephemeral water.
2. The aquatic and wildlife (cold water), full-body contact, and fish consumption standards apply to an unlisted tributary that is a perennial or intermittent surface water and is above 5000 feet in elevation.
3. The aquatic and wildlife (warm water), full-body contact, and fish consumption standards apply to an unlisted tributary that is a perennial or intermittent surface water and is below 5000 feet in elevation.

Historical Note
Adopted effective April 24, 1996 (Supp. 96-2). Section heading amended per instructions of the Department of Environmental Quality, August 9, 1996 (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1).

R18-11-106. Net Ecological Benefit

A. The Director may, by rule, modify a water quality standard on the ground that there is a net ecological benefit associated with the discharge of effluent to support or create a riparian and aquatic habitat in an area where water resources are limited. The Director may modify a water quality standard for a pollutant if it is demonstrated that:
1. The discharge of effluent creates or supports an ecologically valuable aquatic, wetland, or riparian ecosystem in an area where these resources are limited;

2. The ecological benefits associated with the discharge of effluent under a modified water quality standard exceed the environmental costs associated with the elimination of the discharge of effluent;
3. The cost of treatment to achieve compliance with a water quality standard is so high that it is more cost effective to eliminate the discharge of effluent to the surface water. The discharger shall demonstrate that it is feasible to eliminate the discharge of effluent that creates or supports the ecologically valuable aquatic, wetland, or riparian ecosystem and that a plan to eliminate the discharge is under active consideration;
4. The discharge of effluent to the surface water will not cause or contribute to a violation of a water quality standard that has been established for a downstream surface water;
5. All practicable point source discharge control programs, including local pretreatment, waste minimization, and source reduction programs are implemented; and
6. The discharge of effluent does not produce or contribute to the concentration of a pollutant in the tissues of aquatic organisms or wildlife that is likely to be harmful to humans or wildlife through food chain concentration.

B. The Director shall not modify a water quality criterion for a pollutant to be less stringent than a technology-based effluent limitation that applies to the discharge of that effluent. The discharge of effluent shall, at a minimum, comply with applicable technology-based effluent limitations.

Historical Note

Adopted effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1).

R18-11-107. Antidegradation

A. The Director shall, using R18-11-107.01 and this Section, determine whether there is degradation of water quality in a surface water on a pollutant-by-pollutant basis.

B. Tier 1: The level of water quality necessary to support an existing use shall be maintained and protected. No degradation of existing water quality is permitted in a surface water where the existing water quality does not meet the applicable water quality standards.

C. Tier 2: Where existing water quality in a surface water is better than the applicable water quality standard the existing water quality shall be maintained and protected. The Director may allow degradation of existing water quality in the surface water, if the Director makes all of the following findings:
1. The water quality necessary for existing uses is fully protected and water quality is not lowered to a level that does not comply with applicable water quality standards,
2. The highest statutory and regulatory requirements for new and existing point sources are achieved,
3. All cost-effective and reasonable best management practices for nonpoint source pollution control are implemented, and
4. Allowing lower water quality is necessary to accommodate important economic or social development in the area where the surface water is located.

D. Tier 3: Existing water quality shall be maintained and protected in a surface water that is classified as an OAW under R18-11-112. Degradation of an OAW under subsection (C) is prohibited.

E. The Director shall implement this Section in a manner consistent with § 316 of the Clean Water Act [33 U.S.C. 1326] if a potential water quality impairment associated with a thermal discharge is involved.

Historical Note

Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-107.01. Antidegradation Criteria

A. Tier 1 antidegradation protection.
1. Tier 1 antidegradation protection applies to the following surface waters:
   a. A surface water listed on the 303(d) list for the pollutant that resulted in the listing,
   b. An effluent dependent water,
   c. An ephemeral water,
   d. An intermittent water, and
   e. A canal listed in Appendix B.
2. A regulated discharge shall not cause a violation of a surface water quality standard or a wasteload allocation in a total maximum daily load approved by EPA.
3. Except as provided in subsections (E) and (F), Tier 1 antidegradation review requirements are satisfied for a point-source discharge regulated under an individual AZPDES permit to an ephemeral water, effluent dependent water, intermittent water, or a canal listed in Appendix B, if water quality-based effluent limitations designed to achieve compliance with applicable surface water quality standards are established in the permit and technology-based requirements of the Clean Water Act for the point source discharge are met.

B. Tier 2 antidegradation protection.
1. Tier 2 antidegradation protection applies to a perennial water with existing water quality that is better than applicable water quality standards. A perennial water that is not listed in subsection (A)(1) nor classified as an OAW under A.A.C. R18-9-112(G) has Tier 2 antidegradation protection for all pollutants of concern.
2. A regulated discharge that meets the following criteria, at critical flow conditions, does not cause significant degradation:
   a. The regulated discharge consumes less than 20 percent of the available assimilative capacity for each pollutant of concern, and
   b. At least 50 percent of the assimilative capacity for each pollutant of concern remains available in the surface water for each pollutant of concern.
3. Antidegradation review. Any person proposing a new or expanded regulated discharge under an individual AZPDES permit that may cause significant degradation shall provide the Department with the following information:
   a. Alternative analysis.
      i. The person seeking authorization for the discharge shall prepare and submit a written analysis of alternatives to the discharge. The analysis shall provide information on all reasonable, cost-effective, less-degrading or non-degrading discharge alternatives. Alternatives may include wastewater treatment process changes or upgrades, pollution prevention measures, source reduction, water reclamation, alternative discharge locations, groundwater recharge, land application or treatment, local pretreatment programs, improved operation and maintenance of existing systems, seasonal or controlled discharge to avoid critical flow conditions, and zero discharge;
      ii. The alternatives analysis shall include cost information on base pollution control measures associated with the regulated discharge and cost information for each alternative;
      iii. The person shall implement the alternative that is cost-effective and reasonable, results in the least degradation, and is approved by the Director. An alternative is cost-effective and reasonable if treatment costs associated with the alternative are less than a 10 percent increase above the cost of base pollution control measures;

iv. For purposes of this subsection, "base pollution control measures" are water pollution control measures required to meet technology-based requirements of the Clean Water Act and water quality-based effluent limits designed to achieve compliance with applicable water quality standards;

b. Social and economic justification. The person shall demonstrate to the Director that significant degradation is necessary to accommodate important economic or social development in the local area. The person seeking authorization for the discharge shall prepare a written social and economic justification that includes a description of the following:

i. The geographic area where significant degradation of existing water quality will occur;

ii. The current baseline social and economic conditions in the local area;

iii. The net positive social and economic effects of development associated with the regulated discharge and allowing significant degradation;

iv. The negative social, environmental, and economic effects of allowing significant degradation of existing water quality; and

v. Alternatives to the regulated discharge that do not significantly degrade water quality yet may yield comparable social and economic benefits;

c. Baseline characterization. A person seeking authorization to discharge under an individual AZPDES permit to a perennial water shall provide baseline water quality data on pollutants of concern where no data exist or there are insufficient data to characterize baseline water quality and to determine available assimilative capacity. A discharger shall characterize baseline water quality at a location upstream of the proposed discharge location; and

4. For purposes of this Section, the term "pollutant of concern" means a pollutant with either a numeric or narrative water quality standard.

5. Public participation. The Director shall provide public notice and an opportunity to comment on an antidegradation review under subsection (B)(3) and shall provide an opportunity for a public hearing under A.A.C. R18-9-A908(B).

C. Tier 3 antidegradation protection.

1. Tier 3 antidegradation protection applies only to an OAW listed in R18-11-112(G).

2. A new or expanded point-source discharge directly to an OAW is prohibited.

3. A person seeking authorization for a regulated discharge to a tributary to, or upstream of, an OAW shall demonstrate in a permit application or in other documentation submitted to the Department that the regulated discharge will not degrade existing water quality in the downstream OAW.

4. A discharge regulated under a § 404 permit that may affect existing water quality of an OAW requires an individual § 401 water quality certification to ensure that existing water quality is maintained and protected and any water quality impacts are temporary. Temporary water quality impacts are those impacts that occur for a period of six months or less.

D. Antidegradation review of a § 404 permit. The Director shall conduct the antidegradation review of any discharge authorized under a nationwide or regional § 404 permit as part of the § 401 water quality certification prior to issuance of the nationwide or regional permit. The Director shall conduct the antidegradation review of an individual § 404 permit if the discharge may degrade existing water quality in an OAW or a water listed on the 303(d) List of impaired waters. For regulated discharges that may degrade water quality in an OAW or a water that is on the 303(d) List of impaired waters, the Director shall conduct the antidegradation review as part of the § 401 water quality certification process.

E. Antidegradation review of an AZPDES stormwater permit. An individual stormwater permit for a municipal separate storm sewer system (MS4) meets antidegradation requirements if the permittee complies with the permit, including developing a stormwater management plan containing controls that reduce the level of pollutants in stormwater discharges to the maximum extent practicable.

F. Antidegradation review of a general permit. The Director shall conduct the antidegradation review of a regulated discharge authorized by a general permit at the time the general permit is issued or renewed. A person seeking authorization to discharge under a general permit is not required to undergo an individual antidegradation review at the time the Notice of Intent is submitted unless the discharge may degrade existing water quality in an OAW or a water listed on the 303(d) List of impaired waters.

Historical Note

New Section made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-108. Narrative Water Quality Standards

A. A surface water shall not contain pollutants in amounts or combinations that:

1. Settle to form bottom deposits that inhibit or prohibit the habitation, growth, or propagation of aquatic life;

2. Cause objectionable odor in the area in which the surface water is located;

3. Cause off-taste or odor in drinking water;

4. Cause off-flavor in aquatic organisms;

5. Are toxic to humans, animals, plants, or other organisms;

6. Cause the growth of algae or aquatic plants that inhibit or prohibit the habitation, growth, or propagation of other aquatic life or that impair recreational uses;

7. Cause or contribute to a violation of an aquifer water quality standard prescribed in R18-11-405 or R18-11-406; or

8. Change the color of the surface water from natural background levels of color.

B. A surface water shall not contain oil, grease, or any other pollutant that floats as debris, foam, or scum; or that causes a film or iridescent appearance on the surface of the water; or that causes a deposit on a shoreline, bank, or aquatic vegetation. The discharge of lubricating oil or gasoline associated with the normal operation of a recreational watercraft is not a violation of this narrative standard.

C. A surface water shall not contain a discharge of suspended solids in quantities or concentrations that interfere with the treatment processes at the nearest downstream potable water treatment plant or substantially increase the cost of handling solids produced at the nearest downstream potable water treatment plant.

D. A surface water shall not contain solid waste such as refuse, rubbish, demolition or construction debris, trash, garbage, motor vehicles, appliances, or tires.

E. A wadeable, perennial stream shall support and maintain a community of organisms having a taxa richness, species composition, tolerance, and functional organization comparable to that of a stream with reference conditions in Arizona.

Historical Note

Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-108.01. Narrative Biological Criteria for Wadeable, Perennial Streams

A. The narrative biological criteria in this Section apply to a wadeable, perennial stream with either an aquatic and wildlife

(cold water) or an aquatic and wildlife (warm water) designated use.

B. The biological standard in R18-11-108(E) is met when a bioassessment result, as measured by the Arizona Index of Biological Integrity (IBI), for cold or warm water is:
1. Greater than or equal to the 25th percentile of reference condition, or
2. Greater than the 10th percentile of reference condition and less than the 25th percentile of reference condition and a verification bioassessment result is greater than or equal to the 25th percentile of reference condition.

C. Arizona Index of Biological Integrity (IBI) scores:

Bioassessment Result	Index of Biological Integrity Scores	
	A&Wc	A&Ww
Greater than or equal to the 25th percentile of reference condition	≥52	≥50
Greater than the 10th and less than the 25th percentile of reference condition	46 - 51	40 - 49

Historical Note
New Section made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-108.02. Narrative Bottom Deposit Criteria for Wadeable, Perennial Streams

A. The narrative bottom deposit criteria in this Section apply to wadeable, perennial streams with an aquatic and wildlife (cold water) or an aquatic and wildlife (warm water) designated use.

B. The narrative water quality standard for bottom deposits at R18-11-108(A)(1) is met when:
1. The percentage of fine sediments in the riffle habitats of a wadeable, perennial stream with an A&Wc designated use, as determined by a riffle pebble count, is less than or equal to 30 percent.
2. The percentage of fine sediments in all stream habitats of a wadeable, perennial stream with an A&Ww designated use, as determined by a reach level pebble count, is equal to or less than 50 percent.

Historical Note
New Section made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-108.03. Narrative Nutrient Criteria for Lakes and Reservoirs

A. The narrative nutrient criteria in this Section apply to those lakes and reservoirs categorized in Appendix B.

B. The narrative water quality standard for nutrients at R18-11-108(A)(6) is met when, based on a minimum of two lake sample events conducted during the peak season based on lake productivity, the results show an average chlorophyll-*a* value below the applicable threshold for designated use and lake and reservoir category in subsection (D).
1. The mean chlorophyll-*a* concentration is less than the lower value in the target range chlorophyll-*a* for the lake and reservoir category, or
2. The mean chlorophyll-*a* concentration is within the target range for the lake and reservoir category and:
   a. The mean blue green algae count is at or below 20,000 per milliliter, and
   b. The blue green algae count is less than 50 percent of the total algae count, and
   c. There is no evidence of nutrient-related impairments such as:
      i. An exceedance of dissolved oxygen or pH standards;
      ii. A fish kill coincident with a dissolved oxygen or pH exceedance;
      iii. A fish kill or other aquatic organism mortality coincident with algal toxicity;
      iv. Secchi depth is less than the lower value prescribed for the lake and reservoir category;
      v. A nuisance algal bloom is present in the limnetic portion of the lake or reservoir; or
      vi. The concentration of total phosphorous, total nitrogen, or total Kjehldal nitrogen (TKN) is greater than the upper value in the range prescribed for the lake and reservoir category; or
3. For a shallow lake. In addition to meeting the mean chlorophyll-*a* concentrations in subsections (B)(1) or (2), submerged aquatic vegetation covers 50 percent or less of the lake bottom and there is less than a 5 mg/L swing in diel-dissolved oxygen concentration measured within the photic zone.

C. The following threshold ranges apply during the peak season for lake productivity:
1. Warm water lakes peak season, April – October;
2. Cold water lakes peak season, May – September.

D. The following table lists the numeric targets for lakes and reservoirs.

NUMERIC TARGETS FOR LAKES AND RESERVOIRS

Designated Use	Lake Category	Chl-*a* (µg/L)	Secchi Depth (m)	Total Phosphorus (µg/L)	Total Nitrogen (mg/L)	Total Kjehldal Nitrogen (TKN) (mg/L)	Blue-Green Algae (per ml)	Blue-Green Algae (% of total count)	Dissolved Oxygen (mg/L)	pH (SU)
FBC and PBC	Deep	10-15	1.5-2.5	70-90	1.2-1.4	1.0-1.1	20,000			6.5-9.0
	Shallow	10-15	1.5-2.0	70-90	1.2-1.4	1.0-1.1				
	Igneous	20-30	0.5-1.0	100-125	1.5-1.7	1.2-1.4				
	Sedimentary	20-30	1.5-2.0	100-125	1.5-1.7	1.2-1.4				
	Urban	20-30	0.5-1.0	100-125	1.5-1.7	1.2-1.4				

A&Wc	All	5-15	1.5-2.0	50-90	1.0-1.4	0.7-1.1		<50	7 (top m)	6.5-9.0
A&Ww	All (except urban lakes)	25-40	0.8-1.0	115-140	1.6-1.8	1.3-1.6			6 (top m)	
	Urban	30-50	0.7-1.0	125-160	1.7-1.9	1.4-1.7				
A&Wedw	All	30-50	0.7-1.0	125-160	1.7-1.9	1.4-1.7				6.5-9.0
DWS	All	10-20	0.5-1.5	70-100	1.2-1.5	1.0-1.2	20,000			5.0-9.0

Historical Note

New Section made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-109. Numeric Water Quality Standards

A. *E. coli* bacteria. The following water quality standards for *Escherichia coli* (*E. coli*) are expressed in colony forming units per 100 milliliters of water (cfu / 100 ml) or as a Most Probable Number (MPN):

E. coli	**FBC**	**PBC**
Geometric mean (minimum of four samples in 30 days)	126	126
Single sample maximum	235	575

B. pH. The following water quality standards for pH are expressed in standard units:

pH	**DWS**	**FBC, PBC, A&W** [1]	**AgI**	**AgL**
Maximum	9.0	9.0	9.0	9.0
Minimum	5.0	6.5	4.5	6.5

C. The maximum allowable increase in ambient water temperature, due to a thermal discharge is as follows:

A&Ww	**A&Wedw**	**A&Wc**
3.0° C	3.0° C	1.0° C

D. Suspended sediment concentration.

1. The following water quality standards for suspended sediment concentration, expressed in milligrams per liter (mg/L), are expressed as a median value determined from a minimum of four samples collected at least seven days apart:

A&Wc	**A&Ww**
25	80

2. The Director shall not use the results of a suspended sediment concentration sample collected during or within 48 hours after a local storm event to determine the median value.

E. Dissolved oxygen. The following water quality standards for dissolved oxygen are expressed in milligrams per liter (mg/L):

1.

Dissolved oxygen	**A&Ww**	**A&Wc**
Single sample minimum[2]	6.0	7.0

2.

Dissolved oxygen in effluent-dependent waters (single sample minimum)	**A&W edw**
Three hours after sunrise to sunset	3.0
Sunset to three hours after sunrise	1.0

3. A surface water meets with the water quality standard for dissolved oxygen if the percent saturation of dissolved oxygen is equal to or greater than 90 percent.

F. Nutrient criteria. The following water quality standards for total phosphorus and total nitrogen are expressed in milligrams per liter (mg/L). A minimum of 10 samples, each taken at least 10 days apart in a consecutive 12-month period, are required to determine a 90th percentile. Not more than 10 percent of the samples may exceed the 90th percentile value listed below:

1. Verde River and its tributaries from the Verde headwaters to Bartlett Lake:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.10	0.30	1.00
Total nitrogen	1.00	1.50	3.00

2. Black River, Tonto Creek, and their tributaries that are not located on tribal lands:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.10	0.20	0.80
Total nitrogen	0.50	1.00	2.00

3. Salt River and its tributaries above Roosevelt Reservoir, excluding Pinal Creek, that are not located on tribal lands:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.12	0.30	1.00
Total nitrogen	0.60	1.20	2.00

4. Salt River below Stewart Mountain Dam to its confluence with the Verde River:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.05	–	0.20
Total nitrogen	0.60	–	3.00

5. Little Colorado River and its tributaries above River Reservoir in Greer, South Fork of Little Colorado River above South Fork Campground, and Water Canyon Creek above Apache-Sitgreaves National Forest boundary:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.08	0.10	0.75
Total nitrogen	0.60	0.75	1.10

6. Little Colorado River at the crossing of Apache County Road No. 124:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	–	–	0.75
Total nitrogen	–	–	1.80

7. Little Colorado River above Lyman Lake to above the Amity Ditch diversion near crossing of Arizona Highway

273 (applies only when in-stream turbidity is less than 50 NTU):

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	0.20	0.30	0.75
Total nitrogen	0.70	1.20	1.50

8. Colorado River at the Northern International Boundary near Morelos Dam:

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	–	0.33	–
Total nitrogen	–	2.50	–

9. Oak Creek from its headwaters at 35°01'30"/111°44'12" to its confluence with the Verde River at 34°40'41"/111°56'30" and the West Fork of Oak Creek from its headwaters at 35°02'44"/111°54'48" to its confluence with Oak Creek at 34°59'14"/111°44'46".

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	1.00	1.50	2.50
Total nitrogen	0.10	0.25	0.30

10. No discharge of wastewater to Show Low Creek or its tributaries upstream of and including Fools Hollow Lake shall exceed 0.16 mg/L total phosphates as P.
11. No discharge of wastewater to the San Francisco River or its tributaries upstream of Luna Lake Dam shall exceed 1.0 mg/L total phosphates as P.

G. Footnotes:
1. "1" Includes A&Wc, A&Ww, A&Wedw, and A&We.
2. "2" The dissolved oxygen water quality standard for a lake applies below the water surface but not at a depth greater than one meter.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-110. Salinity Standards for the Colorado River

A. The flow-weighted average annual salinity in the lower main stem of the Colorado River shall not exceed the following criteria:

Location	Total Dissolved Solids
Below Hoover Dam	723 mg/L
Below Parker Dam	747 mg/L
At Imperial Dam	879 mg/L

B. The plan of implementation contained in the "2005 Review, Water Quality Standards for Salinity, Colorado River System," approved October 2005, is incorporated by reference to preserve the basin-wide approach to salinity control developed by the Colorado River Basin Salinity Control Forum and to ensure compliance with the numeric criteria for salinity in subsection (A). This material does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or may be obtained from the Colorado River Basin Salinity Control Forum, 106 West 500 South, Suite 101, Bountiful, Utah 84010-6232.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-111. Analytical Methods

A. A person conducting an analysis of a sample taken to determine compliance with a water quality standard shall use an analytical method prescribed in A.A.C. R9-14-610, 40 CFR 136.3, or an alternative analytical method approved under A.A.C. R9-14-610(C).

B. A test result from a sample taken to determine compliance with a water quality standard is valid only if the sample is analyzed by a laboratory that is licensed by the Arizona Department of Health Services, an out-of-state laboratory licensed under A.R.S. § 36-495.14, or a laboratory exempted under A.R.S. § 36-495.02, for the analysis performed.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-112. Outstanding Arizona Waters

A. The Director shall classify a surface water as an outstanding Arizona water (OAW) by rule.

B. The Director may adopt, under R18-11-115, a site-specific standard to maintain and protect existing water quality in an OAW.

C. Any person may nominate a surface water for classification as an OAW by filing a nomination with the Director. The nomination shall include:
1. A map and a description of the surface water;
2. A written statement in support of the nomination, including specific reference to the applicable criteria for an OAW classification prescribed in subsection (D);
3. Supporting evidence demonstrating that the criteria prescribed in subsection (D) are met; and
4. Available water quality data relevant to establishing the baseline water quality of the proposed OAW.

D. The Director may classify a surface water as an OAW based upon the following criteria:
1. The surface water is a perennial or intermittent water;
2. The surface water is in a free-flowing condition. For purposes of this subsection, "in a free-flowing condition" means that a surface water does not have an impoundment, diversion, channelization, rip-rapping or other bank armor, or another hydrological modification within the reach nominated for an OAW classification;
3. The surface water has good water quality. For purposes of this subsection, "good water quality" means that the surface water has water quality that meets or is better than applicable surface water quality standards. A surface water that is listed as impaired under R18-11-604(E) is ineligible for OAW classification; and
4. The surface water meets one or both of the following conditions:
   a. The surface water is of exceptional recreational or ecological significance because of its unique attributes, such as the geology, flora and fauna, water quality, aesthetic value, or the wilderness characteristic of the surface water;
   b. An endangered or threatened species is associated with the surface water and the existing water quality is essential to the species' maintenance and propagation or the surface water provides critical habitat for the threatened or endangered species. An endangered or threatened species is identified in "Endangered and Threatened Wildlife," 50 CFR 17.11 (revised 2005), and "Endangered and

Threatened Plants," 50 CFR 17.12 (revised 2005). This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or may be obtained from the National Archives and Records Administration at http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1.

E. The Director shall hold at least one public meeting in the local area of a surface water that is nominated for classification as an OAW to solicit public comment on the nomination.

F. The Director shall consider the following factors when deciding whether to classify a surface water as an OAW:
1. Whether there is the ability to manage the surface water and its watershed to maintain and protect existing water quality;
2. The social and economic impact of Tier 3 antidegradation protection;
3. The public comments in support of, or in opposition to, an OAW classification;
4. The timing of the nomination relative to the triennial review of surface water quality standards;
5. The consistency of an OAW classification with applicable water quality management plans; and
6. Whether the nominated surface water is located within a national or state park, national monument, national recreation area, wilderness area, riparian conservation area, area of critical environmental concern, or it has another special use designation (for example, Wild and Scenic River).

G. The following surface waters are classified as OAWs:
1. The West Fork of the Little Colorado River, from its headwaters at 33°55'02"/109°33'30" to Government Springs at 33°59'33"/109°27'54" (approximately 9.1 river miles);
2. Oak Creek, from its headwaters at 35°01'30"/111°44'12" to its confluence with the Verde River at 34°40'41"/111°56'30" (approximately 50.3 river miles);
3. West Fork of Oak Creek, from its headwaters at 35°02'44"/111°54'48" to its confluence with Oak Creek at 34°59'14"/111°44'46" (approximately 15.8 river miles);
4. Peeples Canyon Creek, from its headwaters at 34°23'57"/113°19'45" to its confluence with the Santa Maria River at 34°20'36"/113°15'12" (approximately 8.1 river miles);
5. Burro Creek, from its headwaters at 34°52'46.5"/113°05'13.5" to its confluence with Boulder Creek at 34°374.5"/113°18'36" (approximately 29.5 miles);
6. Francis Creek, from its headwaters at 34°54'38"/113°20'30" to its confluence with Burro Creek at 34°44'29"/113°14'37" (approximately 22.9 river miles);
7. Bonita Creek, from its boundary of the San Carlos Indian Reservation at 33°03'08"/109°33'41" to its confluence with the Gila River at 32°53'36"/109°28'43" (approximately 14.7 river miles);
8. Cienega Creek, from its confluence with Gardner Canyon and Spring Water Canyon at 31°47'38.5"/110°35'21.5" to the USGS gaging station at 32°02'09"/110°40'34" (approximately 28.3 river miles);
9. Aravaipa Creek, from its confluence with Stowe Gulch at 32°52'10"/110°22'03" to the downstream boundary of the Aravaipa Canyon Wilderness Area at 32°54'23"/110°33'42" (approximately 15.5 river miles);
10. Cave Creek, from its headwaters at 31°50'30"/109°17'04.5" to the Coronado National Forest boundary at 31°54'38"/109°08'40" (approximately 10.4 river miles);
11. South Fork of Cave Creek, from its headwaters at 31°50'20"/109°16'33" to its confluence with Cave Creek at 31°53'04"/109°10'30" (approximately 8.6 river miles);
12. Buehman Canyon Creek, from its headwaters at 32°52'0.5"/110°39'54.5" to its confluence with unnamed tributary at 32°24'31.5"/110°32'08" (approximately 9.8 river miles);
13. Lee Valley Creek, from its headwaters at 33°55'49"/109°31'34" to its confluence with Lee Valley Reservoir at 33°56'28"/109°30'15.5" (approximately 1.6 river miles);
14. Bear Wallow Creek, from its headwaters at 33°35'54"/109°26'54.5" to the boundary of the San Carlos Indian Reservation at 33°37'52"/109°29'44" (approximately 4.25 river miles);
15. North Fork of Bear Wallow Creek, from its headwaters at 33°34'47.5"/109°21'59.5" to its confluence with Bear Wallow Creek at 33°35'54"/109°26'54.5" (approximately 3.8 river miles);
16. South Fork of Bear Wallow Creek, from its headwaters at 33°34'38.5"/109°23'58" to its confluence with Bear Wallow Creek at 33°35'54"/109°26'54.5" (approximately 3.8 river miles);
17. Snake Creek, from its headwaters at 33°37'21.5"/109°26'11" to its confluence with the Black River at 33°40'31.5"/109°28'58.5" (approximately 6.2 river miles);
18. Hay Creek, from its headwaters at 33°51'00"/109°28'48" to its confluence with the West Fork of the Black River at 33°48'30"/109°25'19" (approximately 5.5 river miles);
19. Stinky Creek, from the White Mountain Apache Indian Reservation boundary at 33°52'36.5"/109°29'45" to its confluence with the West Fork of the Black River at 33°51'21.5"/109°27'09.5" (approximately 3.0 river miles);
20. KP Creek, from its headwaters at 33°34'03"/109°21'19" to its confluence with the Blue River at 33°31'44"/109°12'04.5" (approximately 12.7 river miles);
21. Davidson Canyon, from the unnamed spring at 31°59'00"/110°38'46" to its confluence with Cienega Creek; and
22. Fossil Creek, from its headwaters at the confluence of Sandrock and Calf Pen Canyons above Fossil Springs at 34°26'48.7"/111°32'25" to its confluence with the Verde River at 34°18'21.8"/111°40'31.6" (approximately 17.2 river miles).

H. The designation of Fossil Creek as an OAW under subsection (G)(22) takes effect on June 30, 2010.

Historical Note

Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Added "water quality standards" to R18-11-112, previously omitted in error (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-113. Effluent-Dependent Waters

A. The Director shall classify a surface water as an effluent-dependent water by rule.

B. The Director may adopt, under R18-11-115, a site-specific water quality standard for an effluent-dependent water.

C. Any person may submit a petition for rule adoption requesting that the Director classify a surface water as an effluent-dependent water. The petition shall include:
1. A map and a description of the surface water;
2. Information that demonstrates that the surface water consists of a point source discharge of wastewater; and
3. Information that demonstrates that, without a point source discharge of a wastewater, the receiving water is an ephemeral water.

D. The Director shall use the water quality standards that apply to an effluent-dependent water to derive water quality-based effluent limits for a point source discharge of wastewater to an ephemeral water.

E. The Director may use aquatic and wildlife (edw) acute standards only to derive water quality based effluent limits for a sporadic, infrequent, or emergency point source discharge to an ephemeral water or to an effluent-dependent water. The

Director shall consider the following factors when deciding whether to apply A&Wedw (acute) standards:
1. The amount, frequency, and duration of the discharge;
2. The length of time water may be present in the receiving water;
3. The distance to a downstream water with aquatic and wildlife chronic standards; and
4. The likelihood of chronic exposure to pollutants.

F. The Director may establish alternative water quality-based effluent limits in an AZPDES permit based on seasonal differences in the discharge.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1).
Amended effective December 18, 1992 (Supp. 92-4).
Amended effective April 24, 1996 (Supp. 96-2).
Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-114. Mixing Zones

A. The Director may establish a mixing zone for a point source discharge to a surface water as a condition of an AZPDES permit. A mixing zone is prohibited in an ephemeral water or where there is no water for dilution.

B. The owner or operator of a point source seeking the establishment of a mixing zone shall submit a request to the Director for a mixing zone as part of an application for an AZPDES permit. The request shall include:
1. An identification of the pollutant for which the mixing zone is requested;
2. A proposed outfall design;
3. A definition of the boundary of the proposed mixing zone. For purposes of this subsection, the boundary of a mixing zone means the location where the concentration of wastewater across a transect of the surface water differs by less than five percent; and
4. A complete and detailed description of the existing physical, biological, and chemical conditions of the receiving water and the predicted impact of the proposed mixing zone on those conditions.

C. The Director shall review the request for a mixing zone to determine whether the written request is complete. If the request is incomplete, the Director shall provide the applicant with a list of the additional information required.

D. The Director shall consider the following factors when deciding whether to grant or deny a request for a mixing zone:
1. The assimilative capacity of the receiving water;
2. The likelihood of adverse human health effects;
3. The location of drinking water plant intakes and public swimming areas;
4. The predicted exposure of biota and the likelihood that resident biota will be adversely affected;
5. Bioaccumulation;
6. Whether there will be acute toxicity in the mixing zone, and, if so, the size of the zone of initial dilution;
7. The known or predicted safe exposure levels for the pollutant for which the mixing zone is requested;
8. The size of the mixing zone;
9. The location of the mixing zone relative to biologically sensitive areas in the surface water;
10. The concentration gradient of the pollutant within the mixing zone;
11. Sediment deposition;
12. The potential for attracting aquatic life to the mixing zone; and
13. The cumulative impacts of other mixing zones and other discharges to the surface water.

E. Director determination.
1. The Director shall deny a request to establish a mixing zone if a water quality standard will be violated outside the boundaries of the proposed mixing zone. The Director shall notify the owner or operator of the denial in writing and shall state the reason for the denial.
2. If the Director approves the request to establish a mixing zone, the Director shall establish the mixing zone as a condition of an AZPDES permit. The Director shall include any mixing zone condition in the AZPDES permit that is necessary to protect human health and the designated uses of the surface water.

F. Any person who is adversely affected by the Director's decision to grant or deny a request for a mixing zone may appeal the decision under A.R.S. § 49-321 et seq. and A.R.S. § 41-1092 et seq.

G. The Director shall reevaluate a mixing zone upon issuance, reissuance, or modification of the AZPDES permit for the point source or a modification of the outfall structure.

H. Mixing zone requirements.
1. The length of a mixing zone shall not exceed 500 meters in a stream.
2. The total horizontal area allocated to all mixing zones on a lake shall not exceed 10 percent of the surface area of the lake.
3. Adjacent mixing zones in a lake shall not overlap or be located closer together than the greatest horizontal dimension of the largest mixing zone.
4. A mixing zone shall provide for a zone of passage of not less than 50 percent of the cross-sectional area of a river or stream.
5. The design of any discharge outfall shall maximize initial dilution of the wastewater in a surface water.
6. The size of the zone of initial dilution in a mixing zone shall prevent lethality to organisms passing through the zone of initial dilution.

I. The Director shall not establish a mixing zone in an AZPDES permit for the following persistent, bioaccumulative pollutants:
1. Chlordane,
2. DDT and its metabolites (DDD and DDE),
3. Dieldrin,
4. Dioxin,
5. Endrin,
6. Endrin aldehyde,
7. Heptachlor,
8. Heptachlor epoxide,
9. Lindane,
10. Mercury,
11. Polychlorinated biphenyls (PCBs), and
12. Toxaphene.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1).
Amended effective April 24, 1996 (Supp. 96-2).
Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-115. Site-Specific Standards

A. The Director shall adopt a site-specific standard by rule.

B. The Director may adopt a site-specific standard based upon a request or upon the Director's initiative for any of the following reasons:
1. Local physical, chemical, or hydrological conditions of a surface water such as pH, hardness, or temperature alters the biological availability or toxicity of a pollutant;
2. The sensitivity of resident aquatic organisms that occur in a surface water to a pollutant differs from the sensitivity of the species used to derive the numeric water quality standards to protect aquatic life in Appendix A;
3. Resident aquatic organisms that occur in a surface water represent a narrower mix of species than those in the dataset used by the Department to derive numeric water quality standards to protect aquatic life in Appendix A; or

4. The natural background concentration of a pollutant is greater than the numeric water quality standard to protect aquatic life prescribed in Appendix A.

C. Site-specific study. A person shall conduct a study to support the development of a site-specific standard using one of the following procedures:

1. The Recalculation Procedure, Appendix L, pages 90 - 98, Water Quality Standards Handbook, Second Edition, EPA 823-B-94-005b, August 1994. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. A copy of the incorporated material is available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or: may be obtained from the U.S. Environmental Protection Agency, Office of Water at http://www.epa.gov/waterscience/standards/handbook/handbookappxL.pdf.
2. Water-Effects Ratio for Metals, Appendix L, pages 1 - 89, Water Quality Standards Handbook, Second Edition, EPA 823-B-94-005b, August 1994. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. A copy of the incorporated material is available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or: may be obtained from the U.S. Environmental Protection Agency, Office of Water at http://www.epa.gov/waterscience/standards/handbook/handbookappxL.pdf.
3. Streamlined Water Effects Ratio Procedure for Discharges of Copper, EPA-822-R-01-005, March 2001. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. A copy of the incorporated material is available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or: may be obtained from the U.S. Environmental Protection Agency, Office of Water at http://www.epa.gov/ost/criteria/copper/copper.pdf.
4. Natural background.
   a. A person seeking to develop a site-specific standard based on natural background shall provide a study outline to the Director and obtain the Director's approval before conducting the study.
      i. The person may use statistical or modeling approaches to determine natural background concentration.
      ii. Modeling approaches include Better Assessment Science Integrating Source and Nonpoint Sources (Basins), Hydrologic Simulation Program-Fortran (HSPF), and Hydrologic Engineering Center (HEC) programs developed by the U.S. Army Corps of Engineers.
   b. The Director may establish a site-specific standard at a concentration equal to the natural background concentration.
   c. For purposes of this subsection, "natural background" means the concentration of a pollutant in a surface water due only to non-anthropogenic sources.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Section repealed by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). New Section made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-116. Resource Management Agencies

Nothing in this Article prohibits fisheries management activities by the Arizona Game and Fish Department or the U.S. Fish and Wildlife Service. This Article does not exempt fish hatcheries from AZPDES permit requirements.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-117. Canals and Urban Park Lakes

A. Nothing in this Article prevents the routine physical or mechanical maintenance of canals, drains, and the urban lakes identified in Appendix B. Physical or mechanical maintenance includes dewatering, lining, dredging, and the physical, biological, or chemical control of weeds and algae. Increases in turbidity that result from physical or mechanical maintenance activities are permitted in canals, drains, and the urban lakes identified in Appendix B.

B. The discharge of lubricating oil associated with the start-up of well pumps that discharge to canals is not a violation of R18-11-108(B).

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-118. Dams and Flood Control Structures

Increases in turbidity that result from the routine physical or mechanical maintenance of a dam or flood control structure are not violations of this Article. Nothing in this Article requires the release of water from a dam or a flood control structure.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-119. Natural background

Where the concentration of a pollutant exceeds a water quality standard and the exceedance is not caused by human activity but is due solely to naturally-occurring conditions, the exceedance shall not be considered a violation of the water quality standard.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1).

R18-11-120. Enforcement

A. Any person who causes a violation of a water quality standard or any provision of this Article is subject to the enforcement provisions in A.R.S. Title 49, Chapter 2, Article 4.

B. The Department may establish a numeric water quality standard at a concentration that is below the practical quantitation limit. In such cases, the water quality standard is enforceable at the practical quantitation limit.

C. The Department shall determine compliance with acute aquatic and wildlife criteria from the analytical result of a grab sample. Compliance with chronic aquatic and wildlife criteria shall be determined from the geometric mean of the analytical results of the last four samples taken at least 24 hours apart.

D. A person is not subject to penalties for violation of a water quality standard provided that the person is in compliance with the provisions of a compliance schedule issued under R18-11-121.

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1).

R18-11-121. Schedules of Compliance

A. The Director may establish a schedule in an AZPDES permit to bring an existing point source into compliance with a new or revised water quality standard. A compliance schedule in an AZPDES permit for an existing point source, other than a stormwater discharge, shall require the permittee to comply with a discharge limitation based upon a new or revised water quality standard no later than three years after the effective date of the AZPDES permit. The permittee shall demonstrate that all requirements under § 301(b) and § 306 of the Clean Water Act [33 U.S.C. 1311(b) and 1316] are achieved and that the point source cannot comply with a discharge limitation based upon the new or revised water quality standard through the application of existing water pollution control technology, operational changes, or source reduction.

B. The Director may establish a schedule of compliance in an AZPDES permit for a new point source. The first AZPDES permit issued to a new point source may contain a schedule of compliance only when necessary to allow the permittee to attain compliance with a new or revised water quality standard that becomes effective after commencement of construction but less than three years before the discharge begins. For purposes of this subsection, "commencement of construction" means that the owner or operator of the point source has obtained the federal, state, and local approvals or permits necessary to begin physical construction of the point source and either:

1. Onsite physical construction has begun; or
2. The owner or operator has entered into a contract for physical construction of the point source and the contract cannot be cancelled or modified without substantial loss. For purposes of this subsection, "substantial loss" means in excess of 10 percent of the total cost incurred for physical construction.

C. The Director may establish a schedule of compliance in an AZPDES permit for a recommencing point source discharge. The first AZPDES permit issued to a recommencing point source discharger may contain a schedule of compliance only when necessary to attain compliance with a new or revised water quality standard that is effective less than three years before recommencement of the discharge.

D. The Director may establish a schedule to bring a point source discharge of stormwater into compliance with a water quality standard in an AZPDES permit. A compliance schedule for a stormwater discharge shall require implementation of all reasonable and cost-effective best management practices to control the discharge of pollutants in stormwater.

Historical Note

Adopted effective February 18, 1992 (Supp. 92-1).
Amended effective April 24, 1996 (Supp. 96-2).
Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-122. Variances

A. The Director shall consider a variance from a water quality standard for a point source discharge if the discharger demonstrates that treatment more advanced than that required to comply with technology-based effluent limitations is necessary to comply with the water quality standard and:

1. It is not technically feasible to achieve compliance within the next five years,
2. The cost of the treatment would result in substantial and widespread economic and social impact, or
3. Human-caused conditions or sources of pollution prevent attainment of the water quality standard and cannot be remedied within the next five years.

B. If the Director grants a variance for a point source discharge:

1. The Director shall issue the variance for a fixed term not to exceed five years,
2. The variance shall apply only on a pollutant-specific basis. The point source discharge shall meet all other applicable water quality standards for which a variance is not granted, and
3. The variance shall not modify a water quality standard. Other point source discharges to the surface water shall meet applicable water quality standards.

C. Upon expiration of a variance, a point source discharger shall either comply with the water quality standard or apply for renewal of the variance. To renew a variance, the applicant shall demonstrate reasonable progress towards compliance with the water quality standard during the term of the variance.

D. The Director shall reevaluate a variance upon the issuance, reissuance, or modification of the AZPDES permit for the point source discharge.

E. A person who seeks a variance from a water quality standard shall submit a written request for a variance to the Director. A request for a variance shall include the following information:

1. Identification of the specific pollutant and water quality standard for which a variance is sought;
2. Identification of the receiving surface water;
3. For an existing point source discharge, a detailed description of the existing discharge control technologies that are used to achieve compliance with applicable water quality standards. For a new point source discharge, a detailed description of the proposed discharge control technologies that will be used to achieve compliance with applicable water quality standards;
4. Documentation that the existing or proposed discharge control technologies will comply with applicable technology-based effluent limitations and that more advanced treatment technology is necessary to achieve compliance with the water quality standard for which a variance is sought;
5. A detailed discussion of the reasons why compliance with the water quality standard cannot be achieved;
6. A detailed discussion of the discharge control technologies that are available for achieving compliance with the water quality standard for which a variance is sought;
7. Documentation of one of the following:
   a. That it is not technically feasible to install and operate any of the available discharge control technologies to achieve compliance with the water quality standard for which a variance is sought,
   b. That installation and operation of each of the available discharge technologies to achieve compliance with the water quality standard would result in substantial and widespread economic and social impact, or
   c. That human-caused conditions or sources of pollution prevent the attainment of the water quality standard for which the variance is sought and it is not possible to remedy the conditions or sources of pollution within the next five years,
8. Documentation that the point source discharger has reduced, to the maximum extent practicable, the discharge of the pollutant for which a variance is sought through implementation of a local pretreatment, source reduction, or waste minimization program; and
9. A detailed description of proposed interim discharge limitations that represent the highest level of treatment achievable by the point source discharger during the term of the variance.

F. The Director shall consider the following factors when deciding whether to grant or deny a variance request:

1. Bioaccumulation,
2. The predicted exposure of biota and the likelihood that resident biota will be adversely affected,
3. The known or predicted safe exposure levels for the pollutant for which the variance is requested, and
4. The likelihood of adverse human health effects.

G. The Director shall issue a public notice and provide an opportunity for a public hearing on whether the request for a variance should be granted or denied under A.A.C. R18-9-A907 and A.A.C. R18-9-A908. An interested party may

request a public hearing on a variance under A.A.C. R18-9-A908(B).

H. Any variance granted by the Director is subject to review and approval by the Regional Administrator.

I. Any person who is adversely affected by a decision of the Director to grant or deny a variance and who has exercised any right to comment on the decision may appeal the decision under A.R.S. § 49-321 et seq. and A.R.S. § 41-1092 et seq.

J. The Director shall not grant a variance for a point source discharge to an OAW listed in R18-11-112(G).

Historical Note

Adopted effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

R18-11-123. Discharge Prohibitions

A. The discharge of wastewater to the following surface waters is prohibited:
1. Sabino Canyon Creek;
2. Vekol Wash, upstream of the Ak-Chin Indian Reservation; and
3. Smith Wash, upstream of the Ak-Chin Indian Reservation.

B. The discharge to Lake Powell of human body wastes and the wastes from toilets and other receptacles intended to receive or retain wastes from a vessel is prohibited.

Historical Note

Adopted effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

APPENDIX A. NUMERIC WATER QUALITY STANDARDS

Table 1. Water Quality Criteria By Designated Use

PARAMETER	CAS NUMBER	DWS (µg/L)	FC (µg/L)	FBC (µg/L)	PBC (µg/L)	A&Wc Acute (µg/L)	A&Wc Chronic (µg/L)	A&Ww Acute (µg/L)	A&Ww Chronic (µg/L)	A&Wedw Acute| (µg/L)	A&Wedw Chronic (µg/L)	A&We Acute (µg/L)	AgI (µg/L)	AgL (µg/L)
Acenaphthene	83329	420	198	56,000	56,000	850	550	850	550	850	550			
Acrolein	107028	3.5	1.9	467	467	34	30	34	30	34	30			
Acrylonitrile	107131	0.06	0.2	3	37,333	3,800	250	3,800	250	3,800	250			
Alachlor	15972608	2		9,333	9,333	2,500	170	2,500	170	2,500	170			
Aldrin	309002	0.002	0.00005	0.08	28	3		3		3		4.5	0.003	See (b)
Alpha Particles (Gross) Radioactivity		15 pCi/L												
Ammonia	7664417					See (e) & Table 25	See (e) & Table 26	See (e) & Table 25	See (e) & Table 26	See (e) & Table 25	See (e) & Table 26			
Anthracene	120127	2,100	74	280,000	280,000									
Antimony	7440360	6 T	640 T	747 T	747 T	88 D	30 D	88 D	30 D	1,000 D	600 D			
Arsenic	7440382	10 T	80 T	30 T	280 T	340 D	150 D	340 D	150 D	340 D	150 D	440 D	2,000 T	200 T
Asbestos	1332214	See (a)												
Atrazine	1912249	3		32,667	32,667									
Barium	7440393	2,000 T		98,000 T	98,000 T									
Benz(a)anthracene	56553	0.005	0.02	0.2	0.2									
Benzene	71432	5	114	93	3,733	2,700	180	2,700	180	8,800	560			
3, 4 Benzfluoranthene	205992	0.005	0.02	1.9	1.9									
Benzidine	92875	0.0002	0.0002	0.01	2,800	1,300	89	1,300	89	1,300	89	10,000	0.01	0.01
Benzo(a)pyrene	50328	0.2	0.02	0.2	0.2									
Benzo(k)fluoranthene	207089	0.005	0.02	1.9	1.9									
Beryllium	7440417	4 T	84 T	1,867 T	1,867 T									
Beta particles and photon emitters		4 millirems /year												
Bis(2-chloroethyl) ether	111444	0.03	0.5	1	1	120,000	6,700	120,000	6,700	120,000	6,700			
Bis(2-chloroisopropyl) ether	108601	280	3,441	37,333	37,333									
Boron	7440428	1,400 T		186,667 T	186,667 T								1,000 T	
Bromodichloromethane	75274	TTHM See (g)	17	18,667	18,667									
p-Bromodiphenyl ether	101553					180	14	180	14	180	14			
Bromoform	75252	TTHM See (g)	133	180	18,667	15,000	10,000	15,000	10,000	15,000	10,000			
Bromomethane	74839	9.8	299	1,307	1,307	5,500	360	5,500	360	5,500	360			
Butyl benzyl phthalate	85687	1,400	386	186,667	186,667	1,700	130	1,700	130	1,700	130			
Cadmium	7440439	5 T	84 T	700 T	700 T	See (d) & Table 2	See (d) & Table 3	See (d) & Table 4	See (d) & Table 5	See (d) & Table 4	See (d) & Table 5	See (d) & Table 6	50	50
Carbofuran	1563662	40		4,667	4,667	650	50	650	50	650	50			
Carbon tetrachloride	56235	5	2	11	1,307	18,000	1,100	18,000	1,100	18,000	1,100			
Chlordane	57749	2	0.0008	4	467	2.4	0.004	2.4	0.2	2.4	0.2	3.2		
Chlorine (total residual)	7782505	4,000		4,000	4,000	19	11	19	11	19	11			
Chlorobenzene	108907	100	1,553	18,667	18,667	3,800	260	3,800	260	3,800	260			
2-Chloroethyl vinyl ether	110758					180,000	9,800	180,000	9,800	180,000	9,800			
Chloroform	67663	TTHM See (g)	2,133	9,333	9,333	14,000	900	14,000	900	14,000	900			
p-Chloro-m-cresol	59507					15	4.7	15	4.7	15	4.7	48,000		
Chloromethane	74873					270,000	15,000	270,000	15,000	270,000	15,000			
2-Chloronapthalene	91587	560	317	74,667	74,667									
2-Chlorophenol	95578	35	30	4,667	4,667	2,200	150	2,200	150	2,200	150			
Chloropyrifos	2921882	21		2,800	2,800	0.08	0.04	0.08	0.04	0.08	0.04			
Chromium III	16065831		75,000 T	1,400,000 T	1,400,000 T	See (d) & Table 7	See (d) & Table 8	See (d) & Table 7	See (d) & Table 8	See (d) & Table 7	See (d) & Table 8	See (d) & Table 9		
Chromium VI	18540299	21 T	150 T	2,800 T	2,800 T	16 D	11 D	16 D	11 D	16 D	11 D	34 D		
Chromium (Total)	7440473	100 T											1,000	1,000
Chrysene	218019	0.005	0.02	19	19									

PARAMETER	CAS NUMBER	DWS (µg/L)	FC (µg/L)	FBC (µg/L)	PBC (µg/L)	A&Wc Acute (µg/L)	A&Wc Chronic (µg/L)	A&Ww Acute (µg/L)	A&Ww Chronic (µg/L)	A&Wedw Acute| (µg/L)	A&Wedw Chronic (µg/L)	A&We Acute (µg/L)	AgI (µg/L)	AgL (µg/L)
Copper	7440508	1,300 T		1,300 T	1,300 T	See (d) & Table 10	See (d) & Table 11	See (d) & Table 10	See (d) & Table 11	See (d) & Table 10	See (d) & Table 11	See (d) & Table 12	5,000 T	500 T
Cyanide (as free cyanide)	57125	200 T	16,000 T	18,667 T	18,667 T	22 T	5.2 T	41 T	9.7 T	41 T	9.7 T	84 T		200 T
Dalapon	75990	200	8,000	28,000	28,000									
Dibenz (ah) anthracene	53703	0.005	0.02	1.9	1.9									
Dibromochloromethane	124481	TTHM See (g)	13	18,667	18,667									
1,2-Dibromo-3-chloro-propane	96128	0.2												
1,2-Dibromoethane	106934	0.05		8,400	8,400									
Dibutyl phthalate	84742	700	899	93,333	93,333	470	35	470	35	470	35	1,100		
1,2-Dichlorobenzene	95501	600	205	84,000	84,000	790	300	1,200	470	1,200	470	5,900		
1,3-Dichlorobenzene	541731					2,500	970	2,500	970	2,500	970			
1,4-Dichlorobenzene	106467	75	5,755	373,333	373.333	560	210	2,000	780	2,000	780	6,500		
3,3'-Dichlorobenzidine	91941	0.08	0.03	3	3									
p,p'-Dichlorodiphenyl-trichloroethane (DDT) and metabolites (DDD) and (DDE)	50293	0.1	0.0002	4	467	1.1	0.001	1.1	0.001	1.1	0.001	1.1	0.001	0.001
1,2-Dichloroethane	107062	5	37	15	186,667	59,000	41,000	59,000	41,000	59,000	41,000			
1,1-Dichloroethylene	75354	7	7,143	46,667	46,667	15,000	950	15,000	950	15,000	950			
1,2-cis-Dichloroethylene	156592	70		70	70									
1,2-trans-Dichloroethyl-ene	156605	100	10,127	18,667	18,667	68,000	3,900	68,000	3,900	68,000	3,900			
Dichloromethane	75092	5	593	190	56,000	97,000	5,500	97,000	5,500	97,000	5,500			
2,4-Dichlorophenol	120832	21	59	2,800	2,800	1,000	88	1,000	88	1,000	88			
2,4-Dichlorophenoxy-acetic acid (2,4-D)	94757	70		9,333	9,333									
1,2-Dichloropropane	78875	5	17,518	84,000	84,000	26,000	9,200	26,000	9,200	26,000	9,200			
1,3-Dichloropropene	542756	0.7	42	420	28,000	3,000	1,100	3,000	1,100	3,000	1,100			
Dieldrin	60571	0.002	0.00005	0.09	47	0.2	0.06	0.2	0.06	0.2	0.06	4	0.003	See (b)
Diethyl phthalate	84662	5,600	8,767	746,667	746,667	26,000	1,600	26,000	1,600	26,000	1,600			
Di (2-ethylhexyl) adipate	103231	400		560,000	560,000									
Di (2-ethylhexyl) phtha-late	117817	6	3	1,200	18,667	400	360	400	360	400	360	3,100		
2,4-Dimethylphenol	105679	140	171	18,667	18,667	1,000	310	1,000	310	1,000	310	150,000		
Dimethyl phthalate	131113					17,000	1,000	17,000	1,000	17,000	1,000			
4,6-Dinitro-o-cresol	534521	28	582	3,733	3.733	310	24	310	24	310	24			
2,4-Dinitrophenol	51285	14	1,067	1,867	1,867	110	9.2	110	9.2	110	9.2			
2,4-Dinitrotoluene	121142	14	421	1,867	1,867	14,000	860	14,000	860	14,000	860			
2,6-Dinitrotoluene	606202	0.05		2	3,733									
Di-n-octyl phthalate	117840	2,800		373,333	373,333									
Dinoseb	88857	7		933	933									
1,2-Diphenylhydrazine	122667	0.04	0.2	1.8	1.8	130	11	130	11	130	11			
Diquat	85007	20		2,053	2,053									
Endosulfan sulfate	1031078	42	18	5,600	5,600	0.2	0.06	0.2	0.06	0.2	0.06	3		
Endosulfan (Total)	115297	42	18	5,600	5,600	0.2	0.06	0.2	0.06	0.2	0.06	3		
Endothall	145733	100		18,667	18,667									
Endrin	72208	2	0.06	280	280	0.09	0.04	0.09	0.04	0.09	0.04	0.7	0.004	0.004
Endrin aldehyde	7421933					0.09	0.04	0.09	0.04	0.09	0.04	0.7		
Ethylbenzene	100414	700	2,133	93,333	93,333	23,000	1,400	23,000	1,400	23,000	1,400			
Fluoranthene	206440	280	28	37,333	37,333	2,000	1,600	2,000	1,600	2,000	1,600			
Fluorene	86737	280	1,067	37,333	37,333									
Fluoride	7782414	4,000		140,000	140,000									
Glyphosate	1071836	700	266,667	93,333	93,333									
Guthion	86500						0.01		0.01		0.01			
Heptachlor	76448	0.4	0.00008	0.4	467	0.5	0.004	0.5	0.004	0.6	0.01	0.9		
Heptachlor epoxide	1024573	0.2	0.00004	0.2	12	0.5	0.004	0.5	0.004	0.6	0.01	0.9		
Hexachlorobenzene	118741	1	0.0003	1	747	6	3.7	6	3.7	6	3.7			
Hexachlorobutadiene	87683	0.4	18	18	187	45	8.2	45	8.2	45	8.2			
Hexachlorocyclohexane alpha	319846	0.006	0.005	0.22	7,467	1,600	130	1,600	130	1,600	130	1,600		
Hexachlorocyclohexane beta	319857	0.02	0.02	0.78	560	1,600	130	1,600	130	1,600	130	1,600		
Hexachlorocyclohexane delta	319868					1,600	130	1,600	130	1,600	130	1,600		
Hexachlorocyclohexane gamma (lindane)	58899	0.2	1.8	280	280	1		1		1		11		
Hexachlorocyclopentadi-ene	77474	50	74	11,200	11,200	3.5	0.3	3.5	0.3	3.5	0.3			
Hexachloroethane	67721	2.5	3.3	100	933	490	350	490	350	490	350	850		
Hydrogen sulfide	7783064						2 See (c)		2 See (c)		2 See (c)			
Indeno (1,2,3-cd) pyrene	193395	0.05	0.2	1.9	1.9									
Iron	7439896						1,000 D		1,000 D		1,000 D			
Isophorone	78591	37	961	1,500	186,667	59,000	43,000	59,000	43,000	59,000	43,000			
Lead	7439971	15 T		15 T	15 T	See (d) & Table 13	See (d) & Table 14	See (d) & Table 13	See (d) & Table 14	See (d) & Table 13	See (d) & Table 14	See (d) & Table 15	10,000 T	100 T
Malathion	121755	140		18,667	18,667		0.1		0.1		0.1			
Manganese	7439965	980		130,667	130,667								10,000	

PARAMETER	CAS NUMBER	DWS (µg/L)	FC (µg/L)	FBC (µg/L)	PBC (µg/L)	A&Wc Acute (µg/L)	A&Wc Chronic (µg/L)	A&Ww Acute (µg/L)	A&Ww Chronic (µg/L)	A&Wedw Acute| (µg/L)	A&Wedw Chronic (µg/L)	A&We Acute (µg/L)	AgI (µg/L)	AgL (µg/L)
Mercury	7439976	2 T		280 T	280 T	2.4 D	0.01 D	2.4 D	0.01 D	2.4 D	0.01 D	5 D		10 T
Methoxychlor	72435	40		4,667	4,667		0.03		0.03		0.03			
Methylmercury			0.3 mg/kg											
Mirex	2385855	1		187	187		0.001		0.001		0.001			
Naphthalene	91203	140	1,524	18,667	18,667	1,100	210	3,200	580	3,200	580			
Nickel	7440020	210 T	511 T	28,000 T	28,000 T	See (d) & Table 16	See (d) & Table 17	See (d) & Table 16	See (d) & Table 17	See (d) & Table 16	See (d) & Table 17	See (d) & Table 18		
Nitrate	14797558	10,000		3,733,333	3,733,333									
Nitrite	14797650	1,000		233,333	233,333									
Nitrate + Nitrite		10,000												
Nitrobenzene	98953	3.5	138	467	467	1,300	850	1,300	850	1,300	850			
p-Nitrophenol	100027					4,100	3,000	4,100	3,000	4,100	3,000			
N-nitrosodimethylamine	62759	0.001	3	0.03	0.03									
N-nitrosodi-n-pheny-lamine	86306	7.1	6	290	290	2,900	200	2,900	200	2,900	200			
N-nitrosodi-n-propy-lamine	621647	0.005	0.5	0.2	88,667									
Oxamyl	23135220	200		23,333	23,333									
Parathion	56382					0.07	0.01	0.07	0.01	0.07	0.01			
Paraquat	1910425	32		4,200	4,200	100	54	100	54	100	54			
Pentachlorophenol	87865	1	370	12	28,000	See (e) & Table 22	See (e) & Table 23	See (e) & Table 22	See (e) & Table 23	See (e) & Table 22	See (e) & Table 23	See (e) & Table 24		
Permethrin	52645531	350		46,667	46,667	0.3	0.2	0.3	0.2	0.3	0.2			
Phenanthrene	85018					30	6.3	30	6.3	30	6.3			
Phenol	108952	2,100	37	280,000	280,000	5,100	730	7,000	1,000	7,000	1,000	180,000		
Picloram	1918021	500	2,710	65,333	65,333									
Polychlorinatedbiphe-nyls (PCBs)	1336363	0.5	0.00006	19	19	2	0.01	2	0.02	2	0.02	11	0.001	0.001
Pyrene	129000	210	800	28,000	28,000									
Radium 226 + Radium 228		5 pCi/L												
Selenium	7782492	50 T	667 T	4,667 T	4,667 T		2 T		2 T		2 T	33 T	20 T	50 T
Silver	7440224	35 T	8,000 T	4,667 T	4,667 T	See (d) & Table 19		See (d) & Table 19		See (d) & Table 19		See (d) & Table 19		
Simazine	112349	4		4,667	4,667									
Styrene	100425	100		186,667	186,667	5,600	370	5,600	370	5,600	370			
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	1746016	0.00003	5x10-9	0.00003	0.0009	0.01	0.005	0.01	0.005	0.01	0.005	0.1		
1,1,2,2-Tetrachloroethane	79345	0.2	4	7	93,333	4,700	3,200	4,700	3,200	4,700	3,200			
Tetrachloroethylene	127184	5	261	9,333	9,333	2,600	280	6,500	680	6,500	680	15,000		
Thallium	7440280	2 T	1 T	75 T	75 T	700 D	150 D	700 D	150 D	700 D	150 D			
Toluene	108883	1,000	29,907	373,333	373,333	8,700	180	8,700	180	8,700	180			
Toxaphene	8001352	3	0.0003	1.3	933	0.7	0.0002	0.7	0.0002	0.7	0.0002	11	0.005	0.005
Tributylin						0.5	0.07	0.5	0.07	0.5	0.07			
1,2,4-Trichlorobenzene	120821	70	70	9,333	9,333	750	130	1,700	300	1,700	300			
1,1,1-Trichloroethane	71556	200	428,571	1,866,667	1,866,667	2,600	1,600	2,600	1,600	2,600	1,600		1,000	
1,1,2-Trichloroethane	79005	5	16	25	3,733	18,000	12,000	18,000	12,000	18,000	12,000			
Trichloroethylene	79016	5	29	280,000	280	20,000	1,300	20,000	1,300	20,000	1,300			
2,4,6-Trichlorophenol	88062	3.2	2	130	130	160	25	160	25	160	25	3,000		
2,4,5-Trichlorophenoxy proprionic acid (2,4,5-TP)	93721	50		7,467	7,467									
Trihalomethanes (T)		80												
Uranium	7440611	30 D		2,800	2,800									
Vinyl chloride	75014	2	5	2	2,800									
Xylenes (T)	1330207	10,000		186,667	186,667									
Zinc	7440666	2,100 T	5,106 T	280,000 T	280,000 T	See (d) & Table 20	See (d) & Table 20	See (d) & Table 20	See (d) & Table 20	See (d) & Table 20	See (d) & Table 20	See (d) & Table 21	10,000 T	25,000 T

Footnotes

a. The asbestos standard is 7 million fibers (longer than 10 micrometers) per liter.

b. The aldrin/dieldrin standard is exceeded when the sum of the two compounds exceeds 0.003 µg/L.

c. In lakes, the acute criteria for hydrogen sulfide apply only to water samples taken from the epilimnion, or the upper layer of a lake or reservoir.

d. Hardness, expressed as mg/L $CaCO_3$, is determined according to the following criteria:

   i. If the receiving water body has an A&Wc or A&Ww designated use, then hardness is based on the hardness of the receiving water body from a sample taken at the same time that the sample for the metal is taken, except that the hardness may not exceed 400 mg/L $CaCO_3$.

   ii. If the receiving water has an A&Wedw or A&We designated use, then the hardness is based on the hardness of the effluent from a sample taken at the same time that the sample for the metal is taken, except that the hardness may not exceed 400 mg/L $CaCO_3$.

e. pH is determined according to the following criteria:

   i. If the receiving water has an A&Wc or A&Ww designated use, then pH is based on the pH of the receiving water body from a sample taken at the same time that the sample for pentachlorophenol or ammonia is taken.

ii. If the receiving water body has an A&Wedw or A&We designated use, then the pH is based on the pH of the effluent from a sample taken at the same time that the sample for pentachlorophenol or ammonia is taken.

f. Table 1 abbreviations.
   i. µg/L = micrograms per liter,
   ii. mg/kg = milligrams per kilogram,
   iii. pCi/L = picocuries per liter,
   iv. D = dissolved,
   v. T = total recoverable,
   vi. TTHM indicates that the chemical is a trihalomethane.

g. The total trihalomethane (TTHM) standard is exceeded when the sum of these four compounds exceeds 80 µg/L, as a rolling annual average.

Table 2. Acute Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife coldwater

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.02	41	0.85	81	1.64	121	2.42	161	3.20	201	3.97	241	4.73	281	5.49	321	6.25	361	7.00
2	0.04	42	0.87	82	1.66	122	2.44	162	3.22	202	3.99	242	4.75	282	5.51	322	6.27	362	7.02
3	0.07	43	0.89	83	1.68	123	2.46	163	3.24	203	4.01	243	4.77	283	5.53	323	6.29	363	7.04
4	0.09	44	0.91	84	1.70	124	2.48	164	3.26	204	4.03	244	4.79	284	5.55	324	6.31	364	7.06
5	0.11	45	0.93	85	1.72	125	2.50	165	3.28	205	4.04	245	4.81	285	5.57	325	6.33	365	7.08
6	0.13	46	0.95	86	1.74	126	2.52	166	3.30	206	4.06	246	4.83	286	5.59	326	6.34	366	7.10
7	0.15	47	0.97	87	1.76	127	2.54	167	3.31	207	4.08	247	4.85	287	5.61	327	6.36	367	7.12
8	0.17	48	0.99	88	1.78	128	2.56	168	3.33	208	4.10	248	4.87	288	5.63	328	6.38	368	7.14
9	0.19	49	1.01	89	1.80	129	2.58	169	3.35	209	4.12	249	4.88	289	5.64	329	6.40	369	7.15
10	0.21	50	1.03	90	1.82	130	2.60	170	3.37	210	4.14	250	4.90	290	5.66	330	6.42	370	7.17
11	0.23	51	1.05	91	1.84	131	2.62	171	3.39	211	4.16	251	4.92	291	5.68	331	6.44	371	7.19
12	0.26	52	1.07	92	1.86	132	2.64	172	3.41	212	4.18	252	4.94	292	5.70	332	6.46	372	7.21
13	0.28	53	1.09	93	1.88	133	2.66	173	3.43	213	4.20	253	4.96	293	5.72	333	6.48	373	7.23
14	0.30	54	1.11	94	1.90	134	2.68	174	3.45	214	4.22	254	4.98	294	5.74	334	6.50	374	7.25
15	0.32	55	1.13	95	1.92	135	2.70	175	3.47	215	4.24	255	5.00	295	5.76	335	6.51	375	7.27
16	0.34	56	1.15	96	1.94	136	2.72	176	3.49	216	4.26	256	5.02	296	5.78	336	6.53	376	7.29
17	0.36	57	1.17	97	1.95	137	2.73	177	3.51	217	4.27	257	5.04	297	5.80	337	6.55	377	7.30
18	0.38	58	1.19	98	1.97	138	2.75	178	3.53	218	4.29	258	5.06	298	5.81	338	6.57	378	7.32
19	0.40	59	1.21	99	1.99	139	2.77	179	3.55	219	4.31	259	5.08	299	5.83	339	6.59	379	7.34
20	0.42	60	1.23	100	2.01	140	2.79	180	3.56	220	4.33	260	5.09	300	5.85	340	6.61	380	7.36
21	0.44	61	1.25	101	2.03	141	2.81	181	3.58	221	4.35	261	5.11	301	5.87	341	6.63	381	7.38
22	0.46	62	1.26	102	2.05	142	2.83	182	3.60	222	4.37	262	5.13	302	5.89	342	6.65	382	7.40
23	0.48	63	1.28	103	2.07	143	2.85	183	3.62	223	4.39	263	5.15	303	5.91	343	6.66	383	7.42
24	0.50	64	1.30	104	2.09	144	2.87	184	3.64	224	4.41	264	5.17	304	5.93	344	6.68	384	7.44
25	0.52	65	1.32	105	2.11	145	2.89	185	3.66	225	4.43	265	5.19	305	5.95	345	6.70	385	7.45
26	0.54	66	1.34	106	2.13	146	2.91	186	3.68	226	4.45	266	5.21	306	5.97	346	6.72	386	7.47
27	0.56	67	1.36	107	2.15	147	2.93	187	3.70	227	4.47	267	5.23	307	5.99	347	6.74	387	7.49
28	0.58	68	1.38	108	2.17	148	2.95	188	3.72	228	4.48	268	5.25	308	6.00	348	6.76	388	7.51
29	0.60	69	1.40	109	2.19	149	2.97	189	3.74	229	4.50	269	5.27	309	6.02	349	6.78	389	7.53
30	0.62	70	1.42	110	2.21	150	2.99	190	3.76	230	4.52	270	5.28	310	6.04	350	6.80	390	7.55
31	0.64	71	1.44	111	2.23	151	3.01	191	3.78	231	4.54	271	5.30	311	6.06	351	6.82	391	7.57
32	0.66	72	1.46	112	2.25	152	3.03	192	3.80	232	4.56	272	5.32	312	6.08	352	6.83	392	7.59
33	0.68	73	1.48	113	2.27	153	3.04	193	3.81	233	4.58	273	5.34	313	6.10	353	6.85	393	7.60
34	0.70	74	1.50	114	2.29	154	3.06	194	3.83	234	4.60	274	5.36	314	6.12	354	6.87	394	7.62
35	0.72	75	1.52	115	2.31	155	3.08	195	3.85	235	4.62	275	5.38	315	6.14	355	6.89	395	7.64
36	0.75	76	1.54	116	2.33	156	3.10	196	3.87	236	4.64	276	5.40	316	6.16	356	6.91	396	7.66

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
37	0.77	77	1.56	117	2.35	157	3.12	197	3.89	237	4.66	277	5.42	317	6.17	357	6.93	397	7.68
38	0.79	78	1.58	118	2.37	158	3.14	198	3.91	238	4.68	278	5.44	318	6.19	358	6.95	398	7.70
39	0.81	79	1.60	119	2.38	159	3.16	199	3.93	239	4.69	279	5.45	319	6.21	359	6.97	399	7.72
40	0.83	80	1.62	120	2.40	160	3.18	200	3.95	240	4.71	280	5.47	320	6.23	360	6.98	400	7.74

Table 3. Chronic Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife coldwater

Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L
1	0.01	41	0.13	81	0.21	121	0.28	161	0.34	201	0.40	241	0.45	281	0.50	321	0.55	361	0.60
2	0.02	42	0.13	82	0.21	122	0.28	162	0.34	202	0.40	242	0.45	282	0.50	322	0.55	362	0.60
3	0.02	43	0.14	83	0.22	123	0.28	163	0.35	203	0.40	243	0.46	283	0.51	323	0.55	363	0.60
4	0.03	44	0.14	84	0.22	124	0.29	164	0.35	204	0.40	244	0.46	284	0.51	324	0.56	364	0.60
5	0.03	45	0.14	85	0.22	125	0.29	165	0.35	205	0.40	245	0.46	285	0.51	325	0.56	365	0.60
6	0.03	46	0.14	86	0.22	126	0.29	166	0.35	206	0.41	246	0.46	286	0.51	326	0.56	366	0.60
7	0.04	47	0.15	87	0.22	127	0.29	167	0.35	207	0.41	247	0.46	287	0.51	327	0.56	367	0.61
8	0.04	48	0.15	88	0.23	128	0.29	168	0.35	208	0.41	248	0.46	288	0.51	328	0.56	368	0.61
9	0.05	49	0.15	89	0.23	129	0.29	169	0.35	209	0.41	249	0.46	289	0.51	329	0.56	369	0.61
10	0.05	50	0.15	90	0.23	130	0.30	170	0.36	210	0.41	250	0.46	290	0.51	330	0.56	370	0.61
11	0.05	51	0.15	91	0.23	131	0.30	171	0.36	211	0.41	251	0.47	291	0.52	331	0.56	371	0.61
12	0.06	52	0.16	92	0.23	132	0.30	172	0.36	212	0.41	252	0.47	292	0.52	332	0.57	372	0.61
13	0.06	53	0.16	93	0.23	133	0.30	173	0.36	213	0.42	253	0.47	293	0.52	333	0.57	373	0.61
14	0.06	54	0.16	94	0.24	134	0.30	174	0.36	214	0.42	254	0.47	294	0.52	334	0.57	374	0.61
15	0.07	55	0.16	95	0.24	135	0.30	175	0.36	215	0.42	255	0.47	295	0.52	335	0.57	375	0.62
16	0.07	56	0.16	96	0.24	136	0.30	176	0.36	216	0.42	256	0.47	296	0.52	336	0.57	376	0.62
17	0.07	57	0.17	97	0.24	137	0.31	177	0.37	217	0.42	257	0.47	297	0.52	337	0.57	377	0.62
18	0.07	58	0.17	98	0.24	138	0.31	178	0.37	218	0.42	258	0.47	298	0.52	338	0.57	378	0.62
19	0.08	59	0.17	99	0.24	139	0.31	179	0.37	219	0.42	259	0.48	299	0.53	339	0.57	379	0.62
20	0.08	60	0.17	100	0.25	140	0.31	180	0.37	220	0.43	260	0.48	300	0.53	340	0.57	380	0.62
21	0.08	61	0.17	101	0.25	141	0.31	181	0.37	221	0.43	261	0.48	301	0.53	341	0.58	381	0.62
22	0.09	62	0.18	102	0.25	142	0.31	182	0.37	222	0.43	262	0.48	302	0.53	342	0.58	382	0.62
23	0.09	63	0.18	103	0.25	143	0.32	183	0.37	223	0.43	263	0.48	303	0.53	343	0.58	383	0.62
24	0.09	64	0.18	104	0.25	144	0.32	184	0.38	224	0.43	264	0.48	304	0.53	344	0.58	384	0.63
25	0.09	65	0.18	105	0.25	145	0.32	185	0.38	225	0.43	265	0.48	305	0.53	345	0.58	385	0.63
26	0.10	66	0.18	106	0.26	146	0.32	186	0.38	226	0.43	266	0.48	306	0.53	346	0.58	386	0.63
27	0.10	67	0.19	107	0.26	147	0.32	187	0.38	227	0.43	267	0.49	307	0.54	347	0.58	387	0.63
28	0.10	68	0.19	108	0.26	148	0.32	188	0.38	228	0.44	268	0.49	308	0.54	348	0.58	388	0.63
29	0.10	69	0.19	109	0.26	149	0.32	189	0.38	229	0.44	269	0.49	309	0.54	349	0.59	389	0.63
30	0.11	70	0.19	110	0.26	150	0.33	190	0.38	230	0.44	270	0.49	310	0.54	350	0.59	390	0.63
31	0.11	71	0.19	111	0.26	151	0.33	191	0.39	231	0.44	271	0.49	311	0.54	351	0.59	391	0.63
32	0.11	72	0.20	112	0.27	152	0.33	192	0.39	232	0.44	272	0.49	312	0.54	352	0.59	392	0.63
33	0.11	73	0.20	113	0.27	153	0.33	193	0.39	233	0.44	273	0.49	313	0.54	353	0.59	393	0.64
34	0.12	74	0.20	114	0.27	154	0.33	194	0.39	234	0.44	274	0.50	314	0.54	354	0.59	394	0.64
35	0.12	75	0.20	115	0.27	155	0.33	195	0.39	235	0.45	275	0.50	315	0.55	355	0.59	395	0.64

Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L
36	0.12	76	0.20	116	0.27	156	0.33	196	0.39	236	0.45	276	0.50	316	0.55	356	0.59	396	0.64
37	0.12	77	0.21	117	0.27	157	0.34	197	0.39	237	0.45	277	0.50	317	0.55	357	0.59	397	0.64
38	0.13	78	0.21	118	0.28	158	0.34	198	0.40	238	0.45	278	0.50	318	0.55	358	0.60	398	0.64
39	0.13	79	0.21	119	0.28	159	0.34	199	0.40	239	0.45	279	0.50	319	0.55	359	0.60	399	0.64
40	0.13	80	0.21	120	0.28	160	0.34	200	0.40	240	0.45	280	0.50	320	0.55	360	0.60	400	0.64

Table 4. Acute Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife warmwater, and edw

Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L
1	0.09	41	3.30	81	6.41	121	9.47	161	12.50	201	15.51	241	18.49	281	21.47	321	24.42	361	27.37
2	0.17	42	3.38	82	6.49	122	9.55	162	12.58	202	15.58	242	18.57	282	21.54	322	24.50	362	27.44
3	0.26	43	3.46	83	6.57	123	9.62	163	12.65	203	15.66	243	18.64	283	21.61	323	24.57	363	27.52
4	0.34	44	3.54	84	6.64	124	9.70	164	12.73	204	15.73	244	18.72	284	21.69	324	24.64	364	27.59
5	0.42	45	3.62	85	6.72	125	9.78	165	12.80	205	15.81	245	18.79	285	21.76	325	24.72	365	27.66
6	0.51	46	3.70	86	6.80	126	9.85	166	12.88	206	15.88	246	18.87	286	21.84	326	24.79	366	27.74
7	0.59	47	3.77	87	6.87	127	9.93	167	12.95	207	15.96	247	18.94	287	21.91	327	24.87	367	27.81
8	0.67	48	3.85	88	6.95	128	10.00	168	13.03	208	16.03	248	19.02	288	21.98	328	24.94	368	27.88
9	0.75	49	3.93	89	7.03	129	10.08	169	13.10	209	16.11	249	19.09	289	22.06	329	25.01	369	27.96
10	0.83	50	4.01	90	7.10	130	10.16	170	13.18	210	16.18	250	19.16	290	22.13	330	25.09	370	28.03
11	0.92	51	4.09	91	7.18	131	10.23	171	13.25	211	16.26	251	19.24	291	22.21	331	25.16	371	28.10
12	1.00	52	4.17	92	7.26	132	10.31	172	13.33	212	16.33	252	19.31	292	22.28	332	25.23	372	28.18
13	1.08	53	4.24	93	7.33	133	10.38	173	13.40	213	16.40	253	19.39	293	22.35	333	25.31	373	28.25
14	1.16	54	4.32	94	7.41	134	10.46	174	13.48	214	16.48	254	19.46	294	22.43	334	25.38	374	28.32
15	1.24	55	4.40	95	7.49	135	10.53	175	13.56	215	16.55	255	19.54	295	22.50	335	25.46	375	28.40
16	1.32	56	4.48	96	7.56	136	10.61	176	13.63	216	16.63	256	19.61	296	22.58	336	25.53	376	28.47
17	1.40	57	4.55	97	7.64	137	10.69	177	13.71	217	16.70	257	19.68	297	22.65	337	25.60	377	28.54
18	1.48	58	4.63	98	7.72	138	10.76	178	13.78	218	16.78	258	19.76	298	22.72	338	25.68	378	28.62
19	1.56	59	4.71	99	7.79	139	10.84	179	13.86	219	16.85	259	19.83	299	22.80	339	25.75	379	28.69
20	1.64	60	4.79	100	7.87	140	10.91	180	13.93	220	16.93	260	19.91	300	22.87	340	25.82	380	28.77
21	1.72	61	4.87	101	7.95	141	10.99	181	14.01	221	17.00	261	19.98	301	22.95	341	25.90	381	28.84
22	1.80	62	4.94	102	8.02	142	11.07	182	14.08	222	17.08	262	20.06	302	23.02	342	25.97	382	28.91
23	1.88	63	5.02	103	8.10	143	11.14	183	14.16	223	17.15	263	20.13	303	23.09	343	26.05	383	28.99
24	1.96	64	5.10	104	8.18	144	11.22	184	14.23	224	17.23	264	20.20	304	23.17	344	26.12	384	29.06
25	2.04	65	5.18	105	8.25	145	11.29	185	14.31	225	17.30	265	20.28	305	23.24	345	26.19	385	29.13
26	2.12	66	5.25	106	8.33	146	11.37	186	14.38	226	17.38	266	20.35	306	23.32	346	26.27	386	29.21
27	2.20	67	5.33	107	8.40	147	11.44	187	14.46	227	17.45	267	20.43	307	23.39	347	26.34	387	29.28
28	2.28	68	5.41	108	8.48	148	11.52	188	14.53	228	17.53	268	20.50	308	23.46	348	26.41	388	29.35
29	2.36	69	5.49	109	8.56	149	11.59	189	14.61	229	17.60	269	20.58	309	23.54	349	26.49	389	29.43
30	2.44	70	5.56	110	8.63	150	11.67	190	14.68	230	17.67	270	20.65	310	23.61	350	26.56	390	29.50
31	2.52	71	5.64	111	8.71	151	11.75	191	14.76	231	17.75	271	20.72	311	23.69	351	26.63	391	29.57
32	2.60	72	5.72	112	8.79	152	11.82	192	14.83	232	17.82	272	20.80	312	23.76	352	26.71	392	29.65
33	2.67	73	5.79	113	8.86	153	11.90	193	14.91	233	17.90	273	20.87	313	23.83	353	26.78	393	29.72
34	2.75	74	5.87	114	8.94	154	11.97	194	14.98	234	17.97	274	20.95	314	23.91	354	26.85	394	29.79

Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L
35	2.83	75	5.95	115	9.01	155	12.05	195	15.06	235	18.05	275	21.02	315	23.98	355	26.93	395	29.87
36	2.91	76	6.03	116	9.09	156	12.12	196	15.13	236	18.12	276	21.09	316	24.05	356	27.00	396	29.94
37	2.99	77	6.10	117	9.17	157	12.20	197	15.21	237	18.20	277	21.17	317	24.13	357	27.08	397	30.01
38	3.07	78	6.18	118	9.24	158	12.27	198	15.28	238	18.27	278	21.24	318	24.20	358	27.15	398	30.08
39	3.15	79	6.26	119	9.32	159	12.35	199	15.36	239	18.35	279	21.32	319	24.28	359	27.22	399	30.16
40	3.23	80	6.33	120	9.40	160	12.43	200	15.43	240	18.42	280	21.39	320	24.35	360	27.30	400	30.23

Table 5. Chronic Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife warmwater, and edw

Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L
1	0.02	41	0.30	81	0.48	121	0.64	161	0.78	201	0.91	241	1.03	281	1.15	321	1.26	361	1.37
2	0.04	42	0.31	82	0.49	122	0.64	162	0.78	202	0.91	242	1.04	282	1.15	322	1.26	362	1.37
3	0.05	43	0.31	83	0.49	123	0.65	163	0.79	203	0.92	243	1.04	283	1.16	323	1.27	363	1.37
4	0.06	44	0.32	84	0.50	124	0.65	164	0.79	204	0.92	244	1.04	284	1.16	324	1.27	364	1.38
5	0.07	45	0.32	85	0.50	125	0.66	165	0.79	205	0.92	245	1.05	285	1.16	325	1.27	365	1.38
6	0.08	46	0.33	86	0.51	126	0.66	166	0.80	206	0.93	246	1.05	286	1.16	326	1.27	366	1.38
7	0.09	47	0.33	87	0.51	127	0.66	167	0.80	207	0.93	247	1.05	287	1.17	327	1.28	367	1.38
8	0.10	48	0.34	88	0.51	128	0.67	168	0.80	208	0.93	248	1.05	288	1.17	328	1.28	368	1.39
9	0.10	49	0.34	89	0.52	129	0.67	169	0.81	209	0.94	249	1.06	289	1.17	329	1.28	369	1.39
10	0.11	50	0.35	90	0.52	130	0.67	170	0.81	210	0.94	250	1.06	290	1.17	330	1.28	370	1.39
11	0.12	51	0.35	91	0.53	131	0.68	171	0.81	211	0.94	251	1.06	291	1.18	331	1.29	371	1.39
12	0.13	52	0.36	92	0.53	132	0.68	172	0.82	212	0.95	252	1.07	292	1.18	332	1.29	372	1.40
13	0.14	53	0.36	93	0.53	133	0.68	173	0.82	213	0.95	253	1.07	293	1.18	333	1.29	373	1.40
14	0.14	54	0.37	94	0.54	134	0.69	174	0.82	214	0.95	254	1.07	294	1.19	334	1.30	374	1.40
15	0.15	55	0.37	95	0.54	135	0.69	175	0.83	215	0.95	255	1.07	295	1.19	335	1.30	375	1.40
16	0.16	56	0.38	96	0.55	136	0.69	176	0.83	216	0.96	256	1.08	296	1.19	336	1.30	376	1.41
17	0.16	57	0.38	97	0.55	137	0.70	177	0.83	217	0.96	257	1.08	297	1.19	337	1.30	377	1.41
18	0.17	58	0.38	98	0.55	138	0.70	178	0.84	218	0.96	258	1.08	298	1.20	338	1.31	378	1.41
19	0.18	59	0.39	99	0.56	139	0.71	179	0.84	219	0.97	259	1.09	299	1.20	339	1.31	379	1.41
20	0.18	60	0.39	100	0.56	140	0.71	180	0.84	220	0.97	260	1.09	300	1.20	340	1.31	380	1.42
21	0.19	61	0.40	101	0.57	141	0.71	181	0.85	221	0.97	261	1.09	301	1.21	341	1.31	381	1.42
22	0.20	62	0.40	102	0.57	142	0.72	182	0.85	222	0.98	262	1.10	302	1.21	342	1.32	382	1.42
23	0.20	63	0.41	103	0.57	143	0.72	183	0.85	223	0.98	263	1.10	303	1.21	343	1.32	383	1.42
24	0.21	64	0.41	104	0.58	144	0.72	184	0.86	224	0.98	264	1.10	304	1.21	344	1.32	384	1.43
25	0.21	65	0.42	105	0.58	145	0.73	185	0.86	225	0.99	265	1.10	305	1.22	345	1.32	385	1.43
26	0.22	66	0.42	106	0.58	146	0.73	186	0.86	226	0.99	266	1.11	306	1.22	346	1.33	386	1.43
27	0.23	67	0.42	107	0.59	147	0.73	187	0.87	227	0.99	267	1.11	307	1.22	347	1.33	387	1.43
28	0.23	68	0.43	108	0.59	148	0.74	188	0.87	228	0.99	268	1.11	308	1.22	348	1.33	388	1.44
29	0.24	69	0.43	109	0.60	149	0.74	189	0.87	229	1.00	269	1.12	309	1.23	349	1.34	389	1.44
30	0.24	70	0.44	110	0.60	150	0.74	190	0.88	230	1.00	270	1.12	310	1.23	350	1.34	390	1.44
31	0.25	71	0.44	111	0.60	151	0.75	191	0.88	231	1.00	271	1.12	311	1.23	351	1.34	391	1.44
32	0.25	72	0.45	112	0.61	152	0.75	192	0.88	232	1.01	272	1.12	312	1.24	352	1.34	392	1.45
33	0.26	73	0.45	113	0.61	153	0.75	193	0.89	233	1.01	273	1.13	313	1.24	353	1.35	393	1.45

Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L
34	0.26	74	0.46	114	0.61	154	0.76	194	0.89	234	1.01	274	1.13	314	1.24	354	1.35	394	1.45
35	0.27	75	0.46	115	0.62	155	0.76	195	0.89	235	1.02	275	1.13	315	1.24	355	1.35	395	1.46
36	0.28	76	0.46	116	0.62	156	0.76	196	0.90	236	1.02	276	1.14	316	1.25	356	1.35	396	1.46
37	0.28	77	0.47	117	0.63	157	0.77	197	0.90	237	1.02	277	1.14	317	1.25	357	1.36	397	1.46
38	0.29	78	0.47	118	0.63	158	0.77	198	0.90	238	1.02	278	1.14	318	1.25	358	1.36	398	1.46
39	0.29	79	0.48	119	0.63	159	0.77	199	0.91	239	1.03	279	1.14	319	1.26	359	1.36	399	1.47
40	0.30	80	0.48	120	0.64	160	0.78	200	0.91	240	1.03	280	1.15	320	1.26	360	1.36	400	1.47

Table 6. Acute Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife ephemeral

Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L
1	0.25	41	9.58	81	18.58	121	27.45	161	36.23	201	44.94	241	53.59	281	62.21	321	70.78	361	79.32
2	0.50	42	9.80	82	18.80	122	27.67	162	36.45	202	45.15	242	53.81	282	62.42	322	70.99	362	79.53
3	0.75	43	10.03	83	19.03	123	27.89	163	36.66	203	45.37	243	54.03	283	62.64	323	71.21	363	79.74
4	0.99	44	10.26	84	19.25	124	28.11	164	36.88	204	45.59	244	54.24	284	62.85	324	71.42	364	79.95
5	1.23	45	10.49	85	19.47	125	28.33	165	37.10	205	45.81	245	54.46	285	63.06	325	71.63	365	80.17
6	1.47	46	10.71	86	19.69	126	28.55	166	37.32	206	46.02	246	54.67	286	63.28	326	71.85	366	80.38
7	1.71	47	10.94	87	19.92	127	28.77	167	37.54	207	46.24	247	54.89	287	63.49	327	72.06	367	80.59
8	1.95	48	11.17	88	20.14	128	28.99	168	37.76	208	46.46	248	55.10	288	63.71	328	72.27	368	80.81
9	2.18	49	11.39	89	20.36	129	29.21	169	37.97	209	46.67	249	55.32	289	63.92	329	72.49	369	81.02
10	2.42	50	11.62	90	20.58	130	29.43	170	38.19	210	46.89	250	55.54	290	64.14	330	72.70	370	81.23
11	2.65	51	11.84	91	20.81	131	29.65	171	38.41	211	47.11	251	55.75	291	64.35	331	72.92	371	81.44
12	2.89	52	12.07	92	21.03	132	29.87	172	38.63	212	47.32	252	55.97	292	64.57	332	73.13	372	81.66
13	3.13	53	12.30	93	21.25	133	30.09	173	38.85	213	47.54	253	56.18	293	64.78	333	73.34	373	81.87
14	3.36	54	12.52	94	21.47	134	30.31	174	39.06	214	47.76	254	56.40	294	65.00	334	73.56	374	82.08
15	3.59	55	12.75	95	21.70	135	30.53	175	39.28	215	47.97	255	56.61	295	65.21	335	73.77	375	82.30
16	3.83	56	12.97	96	21.92	136	30.75	176	39.50	216	48.19	256	56.83	296	65.42	336	73.98	376	82.51
17	4.06	57	13.20	97	22.14	137	30.97	177	39.72	217	48.41	257	57.04	297	65.64	337	74.20	377	82.72
18	4.29	58	13.42	98	22.36	138	31.19	178	39.94	218	48.62	258	57.26	298	65.85	338	74.41	378	82.93
19	4.53	59	13.65	99	22.58	139	31.41	179	40.15	219	48.84	259	57.48	299	66.07	339	74.62	379	83.15
20	4.76	60	13.87	100	22.81	140	31.63	180	40.37	220	49.06	260	57.69	300	66.28	340	74.84	380	83.36
21	4.99	61	14.10	101	23.03	141	31.85	181	40.59	221	49.27	261	57.91	301	66.50	341	75.05	381	83.57
22	5.22	62	14.32	102	23.25	142	32.07	182	40.81	222	49.49	262	58.12	302	66.71	342	75.26	382	83.78
23	5.45	63	14.55	103	23.47	143	32.29	183	41.03	223	49.71	263	58.34	303	66.93	343	75.48	383	84.00
24	5.68	64	14.77	104	23.69	144	32.50	184	41.24	224	49.92	264	58.55	304	67.14	344	75.69	384	84.21
25	5.91	65	15.00	105	23.91	145	32.72	185	41.46	225	50.14	265	58.77	305	67.35	345	75.90	385	84.42
26	6.14	66	15.22	106	24.13	146	32.94	186	41.68	226	50.35	266	58.98	306	67.57	346	76.12	386	84.64
27	6.37	67	15.45	107	24.36	147	33.16	187	41.90	227	50.57	267	59.20	307	67.78	347	76.33	387	84.85
28	6.60	68	15.67	108	24.58	148	33.38	188	42.11	228	50.79	268	59.41	308	68.00	348	76.54	388	85.06
29	6.83	69	15.90	109	24.80	149	33.60	189	42.33	229	51.00	269	59.63	309	68.21	349	76.76	389	85.27
30	7.06	70	16.12	110	25.02	150	33.82	190	42.55	230	51.22	270	59.84	310	68.42	350	76.97	390	85.49
31	7.29	71	16.34	111	25.24	151	34.04	191	42.77	231	51.44	271	60.06	311	68.64	351	77.18	391	85.70
32	7.52	72	16.57	112	25.46	152	34.26	192	42.98	232	51.65	272	60.27	312	68.85	352	77.40	392	85.91

Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L
33	7.75	73	16.79	113	25.68	153	34.48	193	43.20	233	51.87	273	60.49	313	69.07	353	77.61	393	86.12
34	7.98	74	17.02	114	25.90	154	34.70	194	43.42	234	52.08	274	60.70	314	69.28	354	77.82	394	86.33
35	8.21	75	17.24	115	26.12	155	34.91	195	43.63	235	52.30	275	60.92	315	69.49	355	78.04	395	86.55
36	8.44	76	17.46	116	26.34	156	35.13	196	43.85	236	52.52	276	61.13	316	69.71	356	78.25	396	86.76
37	8.67	77	17.69	117	26.57	157	35.35	197	44.07	237	52.73	277	61.35	317	69.92	357	78.46	397	86.97
38	8.89	78	17.91	118	26.79	158	35.57	198	44.29	238	52.95	278	61.56	318	70.14	358	78.68	398	87.18
39	9.12	79	18.13	119	27.01	159	35.79	199	44.50	239	53.16	279	61.78	319	70.35	359	78.89	399	87.40
40	9.35	80	18.36	120	27.23	160	36.01	200	44.72	240	53.38	280	61.99	320	70.56	360	79.10	400	87.61

Table 7. Acute Water Quality Standards for Dissolved Chromium III
Aquatic and Wildlife coldwater, warmwater and edw

Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L
1	13	41	275	81	479	121	666	161	842	201	1009	241	1171	281	1328	321	1481	361	1630
2	23	42	280	82	484	122	671	162	846	202	1013	242	1175	282	1332	322	1485	362	1634
3	32	43	285	83	489	123	675	163	850	203	1017	243	1179	283	1336	323	1488	363	1638
4	41	44	291	84	494	124	680	164	854	204	1022	244	1183	284	1340	324	1492	364	1641
5	49	45	296	85	499	125	684	165	859	205	1026	245	1187	285	1343	325	1496	365	1645
6	57	46	302	86	504	126	688	166	863	206	1030	246	1191	286	1347	326	1500	366	1649
7	65	47	307	87	508	127	693	167	867	207	1034	247	1195	287	1351	327	1504	367	1653
8	72	48	312	88	513	128	697	168	871	208	1038	248	1199	288	1355	328	1507	368	1656
9	79	49	318	89	518	129	702	169	876	209	1042	249	1203	289	1359	329	1511	369	1660
10	86	50	323	90	523	130	706	170	880	210	1046	250	1207	290	1363	330	1515	370	1664
11	93	51	328	91	527	131	711	171	884	211	1050	251	1211	291	1367	331	1519	371	1667
12	100	52	334	92	532	132	715	172	888	212	1054	252	1215	292	1370	332	1522	372	1671
13	107	53	339	93	537	133	720	173	893	213	1058	253	1219	293	1374	333	1526	373	1675
14	114	54	344	94	542	134	724	174	897	214	1062	254	1223	294	1378	334	1530	374	1678
15	120	55	349	95	546	135	729	175	901	215	1067	255	1226	295	1382	335	1534	375	1682
16	127	56	354	96	551	136	733	176	905	216	1071	256	1230	296	1386	336	1537	376	1686
17	133	57	360	97	556	137	737	177	909	217	1075	257	1234	297	1390	337	1541	377	1689
18	140	58	365	98	560	138	742	178	914	218	1079	258	1238	298	1393	338	1545	378	1693
19	146	59	370	99	565	139	746	179	918	219	1083	259	1242	299	1397	339	1549	379	1697
20	152	60	375	100	570	140	751	180	922	220	1087	260	1246	300	1401	340	1552	380	1700
21	159	61	380	101	574	141	755	181	926	221	1091	261	1250	301	1405	341	1556	381	1704
22	165	62	385	102	579	142	759	182	930	222	1095	262	1254	302	1409	342	1560	382	1708
23	171	63	390	103	584	143	764	183	935	223	1099	263	1258	303	1413	343	1564	383	1711
24	177	64	395	104	588	144	768	184	939	224	1103	264	1262	304	1416	344	1567	384	1715
25	183	65	400	105	593	145	772	185	943	225	1107	265	1266	305	1420	345	1571	385	1719
26	189	66	405	106	598	146	777	186	947	226	1111	266	1270	306	1424	346	1575	386	1722
27	195	67	410	107	602	147	781	187	951	227	1115	267	1274	307	1428	347	1578	387	1726
28	201	68	415	108	607	148	785	188	955	228	1119	268	1277	308	1432	348	1582	388	1730
29	207	69	420	109	611	149	790	189	960	229	1123	269	1281	309	1435	349	1586	389	1733
30	213	70	425	110	616	150	794	190	964	230	1127	270	1285	310	1439	350	1590	390	1737
31	218	71	430	111	621	151	799	191	968	231	1131	271	1289	311	1443	351	1593	391	1741
32	224	72	435	112	625	152	803	192	972	232	1135	272	1293	312	1447	352	1597	392	1744
33	230	73	440	113	630	153	807	193	976	233	1139	273	1297	313	1451	353	1601	393	1748
34	235	74	445	114	634	154	811	194	980	234	1143	274	1301	314	1454	354	1604	394	1751
35	241	75	450	115	639	155	816	195	985	235	1147	275	1305	315	1458	355	1608	395	1755
36	247	76	455	116	643	156	820	196	989	236	1151	276	1309	316	1462	356	1612	396	1759
37	252	77	460	117	648	157	824	197	993	237	1155	277	1312	317	1466	357	1616	397	1762
38	258	78	465	118	652	158	829	198	997	238	1159	278	1316	318	1470	358	1619	398	1766
39	263	79	470	119	657	159	833	199	1001	239	1163	279	1320	319	1473	359	1623	399	1770
40	269	80	475	120	662	160	837	200	1005	240	1167	280	1324	320	1477	360	1627	400	1773

Table 8. Chronic Water Quality Standards for Dissolved Chromium III Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	1.71	41	35.71	81	62.37	121	86.64	161	109.47	201	131.29	241	152.33	281	172.74	321	192.63	361	212.08
2	3.01	42	36.42	82	63.00	122	87.22	162	110.03	202	131.82	242	152.84	282	173.24	322	193.12	362	212.56
3	4.19	43	37.13	83	63.63	123	87.81	163	110.58	203	132.36	243	153.36	283	173.75	323	193.62	363	213.04
4	5.31	44	37.83	84	64.25	124	88.39	164	111.14	204	132.89	244	153.88	284	174.25	324	194.11	364	213.52
5	6.37	45	38.54	85	64.88	125	88.98	165	111.69	205	133.42	245	154.39	285	174.75	325	194.60	365	214.00
6	7.40	46	39.24	86	65.50	126	89.56	166	112.25	206	133.96	246	154.91	286	175.25	326	195.09	366	214.48
7	8.40	47	39.93	87	66.13	127	90.14	167	112.80	207	134.49	247	155.43	287	175.76	327	195.58	367	214.96
8	9.37	48	40.63	88	66.75	128	90.72	168	113.35	208	135.02	248	155.94	288	176.26	328	196.07	368	215.44
9	10.31	49	41.32	89	67.37	129	91.30	169	113.90	209	135.55	249	156.46	289	176.76	329	196.56	369	215.92
10	11.24	50	42.01	90	67.99	130	91.88	170	114.46	210	136.08	250	156.97	290	177.26	330	197.05	370	216.40
11	12.16	51	42.70	91	68.61	131	92.46	171	115.01	211	136.61	251	157.48	291	177.76	331	197.53	371	216.88
12	13.05	52	43.38	92	69.22	132	93.04	172	115.56	212	137.14	252	158.00	292	178.26	332	198.02	372	217.36
13	13.94	53	44.06	93	69.84	133	93.61	173	116.11	213	137.67	253	158.51	293	178.76	333	198.51	373	217.84
14	14.81	54	44.74	94	70.45	134	94.19	174	116.66	214	138.20	254	159.02	294	179.26	334	199.00	374	218.32
15	15.67	55	45.42	95	71.07	135	94.76	175	117.21	215	138.73	255	159.54	295	179.76	335	199.49	375	218.79
16	16.52	56	46.10	96	71.68	136	95.34	176	117.75	216	139.26	256	160.05	296	180.26	336	199.97	376	219.27
17	17.36	57	46.77	97	72.29	137	95.91	177	118.30	217	139.79	257	160.56	297	180.76	337	200.46	377	219.75
18	18.20	58	47.44	98	72.90	138	96.49	178	118.85	218	140.31	258	161.07	298	181.25	338	200.95	378	220.23
19	19.02	59	48.11	99	73.51	139	97.06	179	119.40	219	140.84	259	161.58	299	181.75	339	201.44	379	220.70
20	19.84	60	48.78	100	74.11	140	97.63	180	119.94	220	141.37	260	162.09	300	182.25	340	201.92	380	221.18
21	20.64	61	49.44	101	74.72	141	98.20	181	120.49	221	141.89	261	162.60	301	182.75	341	202.41	381	221.66
22	21.45	62	50.10	102	75.33	142	98.77	182	121.03	222	142.42	262	163.11	302	183.24	342	202.89	382	222.13
23	22.24	63	50.76	103	75.93	143	99.34	183	121.58	223	142.94	263	163.62	303	183.74	343	203.38	383	222.61
24	23.03	64	51.42	104	76.53	144	99.91	184	122.12	224	143.47	264	164.13	304	184.24	344	203.87	384	223.09
25	23.81	65	52.08	105	77.14	145	100.48	185	122.66	225	143.99	265	164.64	305	184.73	345	204.35	385	223.56
26	24.59	66	52.74	106	77.74	146	101.04	186	123.21	226	144.52	266	165.15	306	185.23	346	204.84	386	224.04
27	25.36	67	53.39	107	78.34	147	101.61	187	123.75	227	145.04	267	165.66	307	185.72	347	205.32	387	224.51
28	26.13	68	54.04	108	78.94	148	102.18	188	124.29	228	145.56	268	166.17	308	186.22	348	205.81	388	224.99
29	26.89	69	54.69	109	79.53	149	102.74	189	124.83	229	146.09	269	166.67	309	186.72	349	206.29	389	225.46
30	27.65	70	55.34	110	80.13	150	103.31	190	125.37	230	146.61	270	167.18	310	187.21	350	206.77	390	225.94
31	28.40	71	55.99	111	80.73	151	103.87	191	125.91	231	147.13	271	167.69	311	187.70	351	207.26	391	226.41
32	29.15	72	56.63	112	81.32	152	104.43	192	126.45	232	147.65	272	168.20	312	188.20	352	207.74	392	226.88
33	29.89	73	57.27	113	81.92	153	104.99	193	126.99	233	148.17	273	168.70	313	188.69	353	208.22	393	227.36
34	30.63	74	57.92	114	82.51	154	105.56	194	127.53	234	148.69	274	169.21	314	189.19	354	208.71	394	227.83
35	31.37	75	58.56	115	83.10	155	106.12	195	128.07	235	149.21	275	169.71	315	189.68	355	209.19	395	228.31
36	32.10	76	59.20	116	83.69	156	106.68	196	128.61	236	149.73	276	170.22	316	190.17	356	209.67	396	228.78
37	32.83	77	59.83	117	84.28	157	107.24	197	129.14	237	150.25	277	170.72	317	190.66	357	210.15	397	229.25
38	33.55	78	60.47	118	84.87	158	107.80	198	129.68	238	150.77	278	171.23	318	191.16	358	210.64	398	229.72
39	34.28	79	61.10	119	85.46	159	108.35	199	130.22	239	151.29	279	171.73	319	191.65	359	211.12	399	230.20
40	34.99	80	61.74	120	86.05	160	108.91	200	130.75	240	151.81	280	172.24	320	192.14	360	211.60	400	230.67

Table 9. Acute Water Quality Standards for Dissolved Chromium III Aquatic and Wildlife ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	44	41	921	81	1609	121	2235	161	2824	201	3386	241	3929	281	4456	321	4969	361	5470
2	78	42	939	82	1625	122	2250	162	2838	202	3400	242	3942	282	4469	322	4981	362	5483
3	108	43	958	83	1641	123	2265	163	2852	203	3414	243	3956	283	4481	323	4994	363	5495
4	137	44	976	84	1657	124	2280	164	2867	204	3428	244	3969	284	4494	324	5007	364	5507
5	164	45	994	85	1673	125	2295	165	2881	205	3441	245	3982	285	4507	325	5019	365	5520
6	191	46	1012	86	1690	126	2310	166	2895	206	3455	246	3996	286	4520	326	5032	366	5532
7	217	47	1030	87	1706	127	2325	167	2909	207	3469	247	4009	287	4533	327	5045	367	5545
8	242	48	1048	88	1722	128	2340	168	2924	208	3483	248	4022	288	4546	328	5057	368	5557
9	266	49	1066	89	1738	129	2355	169	2938	209	3496	249	4035	289	4559	329	5070	369	5569
10	290	50	1084	90	1754	130	2370	170	2952	210	3510	250	4049	290	4572	330	5082	370	5582
11	314	51	1101	91	1770	131	2385	171	2966	211	3524	251	4062	291	4585	331	5095	371	5594
12	337	52	1119	92	1785	132	2400	172	2981	212	3537	252	4075	292	4598	332	5108	372	5606
13	360	53	1137	93	1801	133	2415	173	2995	213	3551	253	4088	293	4611	333	5120	373	5619

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
14	382	54	1154	94	1817	134	2429	174	3009	214	3565	254	4102	294	4624	334	5133	374	5631
15	404	55	1172	95	1833	135	2444	175	3023	215	3578	255	4115	295	4637	335	5145	375	5643
16	426	56	1189	96	1849	136	2459	176	3037	216	3592	256	4128	296	4649	336	5158	376	5656
17	448	57	1206	97	1865	137	2474	177	3051	217	3606	257	4141	297	4662	337	5171	377	5668
18	469	58	1224	98	1880	138	2489	178	3066	218	3619	258	4155	298	4675	338	5183	378	5680
19	491	59	1241	99	1896	139	2503	179	3080	219	3633	259	4168	299	4688	339	5196	379	5693
20	512	60	1258	100	1912	140	2518	180	3094	220	3646	260	4181	300	4701	340	5208	380	5705
21	532	61	1275	101	1927	141	2533	181	3108	221	3660	261	4194	301	4714	341	5221	381	5717
22	553	62	1292	102	1943	142	2548	182	3122	222	3673	262	4207	302	4726	342	5233	382	5730
23	574	63	1309	103	1958	143	2562	183	3136	223	3687	263	4220	303	4739	343	5246	383	5742
24	594	64	1326	104	1974	144	2577	184	3150	224	3701	264	4234	304	4752	344	5258	384	5754
25	614	65	1343	105	1990	145	2592	185	3164	225	3714	265	4247	305	4765	345	5271	385	5766
26	634	66	1360	106	2005	146	2606	186	3178	226	3728	266	4260	306	4778	346	5283	386	5779
27	654	67	1377	107	2021	147	2621	187	3192	227	3741	267	4273	307	4790	347	5296	387	5791
28	674	68	1394	108	2036	148	2635	188	3206	228	3755	268	4286	308	4803	348	5308	388	5803
29	694	69	1411	109	2051	149	2650	189	3220	229	3768	269	4299	309	4816	349	5321	389	5815
30	713	70	1427	110	2067	150	2665	190	3234	230	3781	270	4312	310	4829	350	5333	390	5828
31	733	71	1444	111	2082	151	2679	191	3248	231	3795	271	4325	311	4841	351	5346	391	5840
32	752	72	1461	112	2098	152	2694	192	3262	232	3808	272	4338	312	4854	352	5358	392	5852
33	771	73	1477	113	2113	153	2708	193	3276	233	3822	273	4351	313	4867	353	5371	393	5864
34	790	74	1494	114	2128	154	2723	194	3289	234	3835	274	4364	314	4880	354	5383	394	5877
35	809	75	1510	115	2143	155	2737	195	3303	235	3849	275	4377	315	4892	355	5396	395	5889
36	828	76	1527	116	2159	156	2752	196	3317	236	3862	276	4390	316	4905	356	5408	396	5901
37	847	77	1543	117	2174	157	2766	197	3331	237	3875	277	4404	317	4918	357	5421	397	5913
38	865	78	1560	118	2189	158	2780	198	3345	238	3889	278	4417	318	4931	358	5433	398	5925
39	884	79	1576	119	2204	159	2795	199	3359	239	3902	279	4430	319	4943	359	5445	399	5938
40	903	80	1592	120	2220	160	2809	200	3372	240	3916	280	4443	320	4956	360	5458	400	5950

Table 10. Acute Water Quality Standards for Dissolved Copper
Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.18	41	5.80	81	11.02	121	16.08	161	21.05	201	25.94	241	30.78	281	35.57	321	40.33	361	45.05
2	0.34	42	5.93	82	11.15	122	16.21	162	21.17	202	26.07	242	30.90	282	35.69	322	40.45	362	45.16
3	0.49	43	6.07	83	11.28	123	16.33	163	21.30	203	26.19	243	31.02	283	35.81	323	40.56	363	45.28
4	0.65	44	6.20	84	11.40	124	16.46	164	21.42	204	26.31	244	31.14	284	35.93	324	40.68	364	45.40
5	0.80	45	6.33	85	11.53	125	16.58	165	21.54	205	26.43	245	31.26	285	36.05	325	40.80	365	45.52
6	0.95	46	6.47	86	11.66	126	16.71	166	21.66	206	26.55	246	31.38	286	36.17	326	40.92	366	45.63
7	1.10	47	6.60	87	11.79	127	16.83	167	21.79	207	26.67	247	31.50	287	36.29	327	41.04	367	45.75
8	1.24	48	6.73	88	11.91	128	16.96	168	21.91	208	26.79	248	31.62	288	36.41	328	41.16	368	45.87
9	1.39	49	6.86	89	12.04	129	17.08	169	22.03	209	26.92	249	31.74	289	36.53	329	41.27	369	45.99
10	1.54	50	6.99	90	12.17	130	17.21	170	22.16	210	27.04	250	31.86	290	36.65	330	41.39	370	46.10
11	1.68	51	7.13	91	12.30	131	17.33	171	22.28	211	27.16	251	31.98	291	36.77	331	41.51	371	46.22
12	1.82	52	7.26	92	12.42	132	17.46	172	22.40	212	27.28	252	32.10	292	36.89	332	41.63	372	46.34
13	1.97	53	7.39	93	12.55	133	17.58	173	22.52	213	27.40	253	32.22	293	37.00	333	41.75	373	46.46
14	2.11	54	7.52	94	12.68	134	17.71	174	22.65	214	27.52	254	32.34	294	37.12	334	41.86	374	46.57
15	2.25	55	7.65	95	12.81	135	17.83	175	22.77	215	27.64	255	32.46	295	37.24	335	41.98	375	46.69
16	2.39	56	7.78	96	12.93	136	17.96	176	22.89	216	27.76	256	32.58	296	37.36	336	42.10	376	46.81
17	2.53	57	7.91	97	13.06	137	18.08	177	23.02	217	27.89	257	32.70	297	37.48	337	42.22	377	46.92
18	2.67	58	8.04	98	13.19	138	18.20	178	23.14	218	28.01	258	32.82	298	37.60	338	42.34	378	47.04
19	2.81	59	8.17	99	13.31	139	18.33	179	23.26	219	28.13	259	32.94	299	37.72	339	42.45	379	47.16
20	2.95	60	8.31	100	13.44	140	18.45	180	23.38	220	28.25	260	33.06	300	37.84	340	42.57	380	47.28
21	3.09	61	8.44	101	13.57	141	18.58	181	23.50	221	28.37	261	33.18	301	37.96	341	42.69	381	47.39
22	3.23	62	8.57	102	13.69	142	18.70	182	23.63	222	28.49	262	33.30	302	38.07	342	42.81	382	47.51
23	3.37	63	8.70	103	13.82	143	18.82	183	23.75	223	28.61	263	33.42	303	38.19	343	42.93	383	47.63
24	3.50	64	8.83	104	13.95	144	18.95	184	23.87	224	28.73	264	33.54	304	38.31	344	43.04	384	47.74
25	3.64	65	8.96	105	14.07	145	19.07	185	23.99	225	28.85	265	33.66	305	38.43	345	43.16	385	47.86
26	3.78	66	9.09	106	14.20	146	19.20	186	24.12	226	28.97	266	33.78	306	38.55	346	43.28	386	47.98

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
27	3.91	67	9.22	107	14.32	147	19.32	187	24.24	227	29.09	267	33.90	307	38.67	347	43.40	387	48.10
28	4.05	68	9.34	108	14.45	148	19.44	188	24.36	228	29.22	268	34.02	308	38.79	348	43.52	388	48.21
29	4.19	69	9.47	109	14.58	149	19.57	189	24.48	229	29.34	269	34.14	309	38.91	349	43.63	389	48.33
30	4.32	70	9.60	110	14.70	150	19.69	190	24.60	230	29.46	270	34.26	310	39.02	350	43.75	390	48.45
31	4.46	71	9.73	111	14.83	151	19.82	191	24.73	231	29.58	271	34.38	311	39.14	351	43.87	391	48.56
32	4.59	72	9.86	112	14.95	152	19.94	192	24.85	232	29.70	272	34.50	312	39.26	352	43.99	392	48.68
33	4.73	73	9.99	113	15.08	153	20.06	193	24.97	233	29.82	273	34.62	313	39.38	353	44.10	393	48.80
34	4.86	74	10.12	114	15.20	154	20.19	194	25.09	234	29.94	274	34.74	314	39.50	354	44.22	394	48.92
35	5.00	75	10.25	115	15.33	155	20.31	195	25.21	235	30.06	275	34.86	315	39.62	355	44.34	395	49.03
36	5.13	76	10.38	116	15.46	156	20.43	196	25.34	236	30.18	276	34.98	316	39.74	356	44.46	396	49.15
37	5.27	77	10.51	117	15.58	157	20.56	197	25.46	237	30.30	277	35.10	317	39.85	357	44.58	397	49.27
38	5.40	78	10.63	118	15.71	158	20.68	198	25.58	238	30.42	278	35.22	318	39.97	358	44.69	398	49.38
39	5.53	79	10.76	119	15.83	159	20.80	199	25.70	239	30.54	279	35.34	319	40.09	359	44.81	399	49.50
40	5.67	80	10.89	120	15.96	160	20.93	200	25.82	240	30.66	280	35.46	320	40.21	360	44.93	400	49.62

Table 11. Chronic Water Quality Standards for Dissolved Copper Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.18	41	4.18	81	7.48	121	10.54	161	13.45	201	16.26	241	18.99	281	21.65	321	24.26	361	26.82
2	0.32	42	4.27	82	7.56	122	10.61	162	13.52	202	16.33	242	19.06	282	21.72	322	24.33	362	26.89
3	0.45	43	4.35	83	7.64	123	10.69	163	13.60	203	16.40	243	19.13	283	21.78	323	24.39	363	26.95
4	0.57	44	4.44	84	7.72	124	10.76	164	13.67	204	16.47	244	19.19	284	21.85	324	24.45	364	27.01
5	0.69	45	4.53	85	7.79	125	10.84	165	13.74	205	16.54	245	19.26	285	21.92	325	24.52	365	27.08
6	0.81	46	4.61	86	7.87	126	10.91	166	13.81	206	16.61	246	19.33	286	21.98	326	24.58	366	27.14
7	0.92	47	4.70	87	7.95	127	10.99	167	13.88	207	16.68	247	19.39	287	22.05	327	24.65	367	27.20
8	1.03	48	4.78	88	8.03	128	11.06	168	13.95	208	16.75	248	19.46	288	22.11	328	24.71	368	27.27
9	1.14	49	4.87	89	8.11	129	11.13	169	14.02	209	16.81	249	19.53	289	22.18	329	24.78	369	27.33
10	1.25	50	4.95	90	8.18	130	11.21	170	14.09	210	16.88	250	19.59	290	22.24	330	24.84	370	27.39
11	1.36	51	5.04	91	8.26	131	11.28	171	14.16	211	16.95	251	19.66	291	22.31	331	24.91	371	27.46
12	1.46	52	5.12	92	8.34	132	11.35	172	14.24	212	17.02	252	19.73	292	22.38	332	24.97	372	27.52
13	1.57	53	5.21	93	8.42	133	11.43	173	14.31	213	17.09	253	19.80	293	22.44	333	25.03	373	27.58
14	1.67	54	5.29	94	8.49	134	11.50	174	14.38	214	17.16	254	19.86	294	22.51	334	25.10	374	27.65
15	1.77	55	5.37	95	8.57	135	11.57	175	14.45	215	17.23	255	19.93	295	22.57	335	25.16	375	27.71
16	1.87	56	5.46	96	8.65	136	11.65	176	14.52	216	17.29	256	20.00	296	22.64	336	25.23	376	27.77
17	1.97	57	5.54	97	8.73	137	11.72	177	14.59	217	17.36	257	20.06	297	22.70	337	25.29	377	27.83
18	2.07	58	5.62	98	8.80	138	11.79	178	14.66	218	17.43	258	20.13	298	22.77	338	25.35	378	27.90
19	2.17	59	5.71	99	8.88	139	11.87	179	14.73	219	17.50	259	20.20	299	22.83	339	25.42	379	27.96
20	2.26	60	5.79	100	8.96	140	11.94	180	14.80	220	17.57	260	20.26	300	22.90	340	25.48	380	28.02
21	2.36	61	5.87	101	9.03	141	12.01	181	14.87	221	17.64	261	20.33	301	22.96	341	25.55	381	28.09
22	2.46	62	5.95	102	9.11	142	12.08	182	14.94	222	17.70	262	20.40	302	23.03	342	25.61	382	28.15
23	2.55	63	6.03	103	9.18	143	12.16	183	15.01	223	17.77	263	20.46	303	23.09	343	25.68	383	28.21
24	2.65	64	6.12	104	9.26	144	12.23	184	15.08	224	17.84	264	20.53	304	23.16	344	25.74	384	28.28
25	2.74	65	6.20	105	9.34	145	12.30	185	15.15	225	17.91	265	20.60	305	23.22	345	25.80	385	28.34
26	2.83	66	6.28	106	9.41	146	12.37	186	15.22	226	17.98	266	20.66	306	23.29	346	25.87	386	28.40
27	2.93	67	6.36	107	9.49	147	12.45	187	15.29	227	18.04	267	20.73	307	23.35	347	25.93	387	28.46
28	3.02	68	6.44	108	9.56	148	12.52	188	15.36	228	18.11	268	20.79	308	23.42	348	25.99	388	28.53
29	3.11	69	6.52	109	9.64	149	12.59	189	15.43	229	18.18	269	20.86	309	23.48	349	26.06	389	28.59
30	3.20	70	6.60	110	9.72	150	12.66	190	15.50	230	18.25	270	20.93	310	23.55	350	26.12	390	28.65
31	3.29	71	6.68	111	9.79	151	12.74	191	15.57	231	18.32	271	20.99	311	23.61	351	26.19	391	28.72
32	3.38	72	6.76	112	9.87	152	12.81	192	15.64	232	18.38	272	21.06	312	23.68	352	26.25	392	28.78
33	3.47	73	6.84	113	9.94	153	12.88	193	15.71	233	18.45	273	21.13	313	23.74	353	26.31	393	28.84
34	3.56	74	6.92	114	10.02	154	12.95	194	15.78	234	18.52	274	21.19	314	23.81	354	26.38	394	28.90
35	3.65	75	7.00	115	10.09	155	13.02	195	15.85	235	18.59	275	21.26	315	23.87	355	26.44	395	28.97
36	3.74	76	7.08	116	10.17	156	13.10	196	15.92	236	18.65	276	21.32	316	23.94	356	26.50	396	29.03
37	3.83	77	7.16	117	10.24	157	13.17	197	15.99	237	18.72	277	21.39	317	24.00	357	26.57	397	29.09

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
38	3.92	78	7.24	118	10.32	158	13.24	198	16.05	238	18.79	278	21.46	318	24.07	358	26.63	398	29.15
39	4.01	79	7.32	119	10.39	159	13.31	199	16.12	239	18.86	279	21.52	319	24.13	359	26.70	399	29.22
40	4.09	80	7.40	120	10.47	160	13.38	200	16.19	240	18.92	280	21.59	320	24.20	360	26.76	400	29.28

Table 12. Acute Water Quality Standards for Dissolved Copper
Aquatic and Wildlife ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.30	41	10.04	81	19.07	121	27.84	161	36.43	201	44.91	241	53.28	281	61.57	321	69.80	361	77.97
2	0.58	42	10.27	82	19.29	122	28.05	162	36.65	202	45.12	242	53.49	282	61.78	322	70.00	362	78.17
3	0.85	43	10.50	83	19.52	123	28.27	163	36.86	203	45.33	243	53.70	283	61.99	323	70.21	363	78.37
4	1.12	44	10.73	84	19.74	124	28.49	164	37.07	204	45.54	244	53.90	284	62.19	324	70.41	364	78.58
5	1.38	45	10.96	85	19.96	125	28.70	165	37.29	205	45.75	245	54.11	285	62.40	325	70.62	365	78.78
6	1.64	46	11.19	86	20.18	126	28.92	166	37.50	206	45.96	246	54.32	286	62.61	326	70.82	366	78.98
7	1.90	47	11.42	87	20.40	127	29.14	167	37.71	207	46.17	247	54.53	287	62.81	327	71.03	367	79.19
8	2.15	48	11.65	88	20.62	128	29.35	168	37.92	208	46.38	248	54.74	288	63.02	328	71.23	368	79.39
9	2.41	49	11.88	89	20.84	129	29.57	169	38.14	209	46.59	249	54.94	289	63.22	329	71.44	369	79.59
10	2.66	50	12.11	90	21.06	130	29.78	170	38.35	210	46.80	250	55.15	290	63.43	330	71.64	370	79.80
11	2.91	51	12.33	91	21.28	131	30.00	171	38.56	211	47.01	251	55.36	291	63.64	331	71.85	371	80.00
12	3.16	52	12.56	92	21.50	132	30.22	172	38.77	212	47.22	252	55.57	292	63.84	332	72.05	372	80.20
13	3.40	53	12.79	93	21.72	133	30.43	173	38.99	213	47.43	253	55.78	293	64.05	333	72.26	373	80.41
14	3.65	54	13.02	94	21.94	134	30.65	174	39.20	214	47.64	254	55.98	294	64.25	334	72.46	374	80.61
15	3.89	55	13.24	95	22.16	135	30.86	175	39.41	215	47.85	255	56.19	295	64.46	335	72.66	375	80.81
16	4.14	56	13.47	96	22.38	136	31.08	176	39.62	216	48.06	256	56.40	296	64.67	336	72.87	376	81.02
17	4.38	57	13.70	97	22.60	137	31.29	177	39.84	217	48.27	257	56.61	297	64.87	337	73.07	377	81.22
18	4.62	58	13.92	98	22.82	138	31.51	178	40.05	218	48.48	258	56.81	298	65.08	338	73.28	378	81.42
19	4.86	59	14.15	99	23.04	139	31.72	179	40.26	219	48.68	259	57.02	299	65.28	339	73.48	379	81.62
20	5.11	60	14.37	100	23.26	140	31.94	180	40.47	220	48.89	260	57.23	300	65.49	340	73.69	380	81.83
21	5.35	61	14.60	101	23.48	141	32.15	181	40.68	221	49.10	261	57.44	301	65.69	341	73.89	381	82.03
22	5.59	62	14.83	102	23.70	142	32.37	182	40.89	222	49.31	262	57.64	302	65.90	342	74.09	382	82.23
23	5.82	63	15.05	103	23.92	143	32.58	183	41.11	223	49.52	263	57.85	303	66.11	343	74.30	383	82.44
24	6.06	64	15.28	104	24.14	144	32.80	184	41.32	224	49.73	264	58.06	304	66.31	344	74.50	384	82.64
25	6.30	65	15.50	105	24.36	145	33.01	185	41.53	225	49.94	265	58.26	305	66.52	345	74.71	385	82.84
26	6.54	66	15.73	106	24.57	146	33.23	186	41.74	226	50.15	266	58.47	306	66.72	346	74.91	386	83.04
27	6.77	67	15.95	107	24.79	147	33.44	187	41.95	227	50.36	267	58.68	307	66.93	347	75.11	387	83.25
28	7.01	68	16.17	108	25.01	148	33.65	188	42.16	228	50.57	268	58.89	308	67.13	348	75.32	388	83.45
29	7.25	69	16.40	109	25.23	149	33.87	189	42.37	229	50.78	269	59.09	309	67.34	349	75.52	389	83.65
30	7.48	70	16.62	110	25.45	150	34.08	190	42.59	230	50.99	270	59.30	310	67.54	350	75.73	390	83.85
31	7.72	71	16.85	111	25.66	151	34.30	191	42.80	231	51.19	271	59.51	311	67.75	351	75.93	391	84.06
32	7.95	72	17.07	112	25.88	152	34.51	192	43.01	232	51.40	272	59.71	312	67.95	352	76.13	392	84.26
33	8.18	73	17.29	113	26.10	153	34.72	193	43.22	233	51.61	273	59.92	313	68.16	353	76.34	393	84.46
34	8.42	74	17.52	114	26.32	154	34.94	194	43.43	234	51.82	274	60.13	314	68.36	354	76.54	394	84.66
35	8.65	75	17.74	115	26.53	155	35.15	195	43.64	235	52.03	275	60.33	315	68.57	355	76.74	395	84.87
36	8.88	76	17.96	116	26.75	156	35.37	196	43.85	236	52.24	276	60.54	316	68.77	356	76.95	396	85.07
37	9.12	77	18.18	117	26.97	157	35.58	197	44.06	237	52.45	277	60.75	317	68.98	357	77.15	397	85.27
38	9.35	78	18.41	118	27.19	158	35.79	198	44.27	238	52.65	278	60.95	318	69.18	358	77.36	398	85.47
39	9.58	79	18.63	119	27.40	159	36.01	199	44.48	239	52.86	279	61.16	319	69.39	359	77.56	399	85.68
40	9.81	80	18.85	120	27.62	160	36.22	200	44.69	240	53.07	280	61.37	320	69.59	360	77.76	400	85.88

Table 13. Acute Water Quality Standards for Dissolved Lead
Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.34	41	24.17	81	51.30	121	79.43	161	108.02	201	136.86	241	165.82	281	194.81	321	223.79	361	252.72
2	0.76	42	24.82	82	52.00	122	80.14	162	108.74	202	137.59	242	166.55	282	195.54	322	224.52	362	253.44
3	1.22	43	25.48	83	52.69	123	80.85	163	109.46	203	138.31	243	167.27	283	196.26	323	225.24	363	254.16
4	1.71	44	26.14	84	53.39	124	81.56	164	110.18	204	139.03	244	167.99	284	196.99	324	225.96	364	254.89
5	2.21	45	26.81	85	54.08	125	82.27	165	110.90	205	139.76	245	168.72	285	197.71	325	226.69	365	255.61
6	2.73	46	27.47	86	54.78	126	82.98	166	111.62	206	140.48	246	169.44	286	198.44	326	227.41	366	256.33
7	3.26	47	28.13	87	55.48	127	83.69	167	112.34	207	141.20	247	170.17	287	199.16	327	228.14	367	257.05
8	3.80	48	28.80	88	56.17	128	84.41	168	113.06	208	141.93	248	170.89	288	199.89	328	228.86	368	257.77
9	4.35	49	29.47	89	56.87	129	85.12	169	113.78	209	142.65	249	171.62	289	200.61	329	229.58	369	258.50

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
10	4.91	50	30.14	90	57.57	130	85.83	170	114.50	210	143.37	250	172.34	290	201.34	330	230.31	370	259.22
11	5.47	51	30.81	91	58.27	131	86.54	171	115.22	211	144.10	251	173.07	291	202.06	331	231.03	371	259.94
12	6.04	52	31.48	92	58.97	132	87.26	172	115.94	212	144.82	252	173.79	292	202.79	332	231.75	372	260.66
13	6.62	53	32.15	93	59.67	133	87.97	173	116.66	213	145.54	253	174.52	293	203.51	333	232.48	373	261.38
14	7.20	54	32.82	94	60.37	134	88.68	174	117.38	214	146.27	254	175.24	294	204.24	334	233.20	374	262.10
15	7.79	55	33.49	95	61.07	135	89.40	175	118.10	215	146.99	255	175.97	295	204.96	335	233.92	375	262.83
16	8.38	56	34.17	96	61.77	136	90.11	176	118.82	216	147.71	256	176.69	296	205.69	336	234.65	376	263.55
17	8.98	57	34.84	97	62.47	137	90.83	177	119.54	217	148.44	257	177.42	297	206.41	337	235.37	377	264.27
18	9.58	58	35.52	98	63.18	138	91.54	178	120.26	218	149.16	258	178.14	298	207.13	338	236.09	378	264.99
19	10.18	59	36.20	99	63.88	139	92.25	179	120.98	219	149.89	259	178.87	299	207.86	339	236.82	379	265.71
20	10.79	60	36.88	100	64.58	140	92.97	180	121.70	220	150.61	260	179.59	300	208.58	340	237.54	380	266.43
21	11.40	61	37.56	101	65.28	141	93.68	181	122.42	221	151.33	261	180.32	301	209.31	341	238.26	381	267.15
22	12.02	62	38.24	102	65.99	142	94.40	182	123.14	222	152.06	262	181.04	302	210.03	342	238.99	382	267.88
23	12.64	63	38.92	103	66.69	143	95.12	183	123.87	223	152.78	263	181.77	303	210.76	343	239.71	383	268.60
24	13.26	64	39.60	104	67.40	144	95.83	184	124.59	224	153.51	264	182.49	304	211.48	344	240.43	384	269.32
25	13.88	65	40.28	105	68.10	145	96.55	185	125.31	225	154.23	265	183.22	305	212.21	345	241.16	385	270.04
26	14.51	66	40.97	106	68.81	146	97.26	186	126.03	226	154.95	266	183.94	306	212.93	346	241.88	386	270.76
27	15.14	67	41.65	107	69.51	147	97.98	187	126.75	227	155.68	267	184.67	307	213.65	347	242.60	387	271.48
28	15.77	68	42.33	108	70.22	148	98.70	188	127.47	228	156.40	268	185.39	308	214.38	348	243.33	388	272.20
29	16.40	69	43.02	109	70.93	149	99.41	189	128.20	229	157.13	269	186.12	309	215.10	349	244.05	389	272.92
30	17.04	70	43.71	110	71.63	150	100.13	190	128.92	230	157.85	270	186.84	310	215.83	350	244.77	390	273.64
31	17.68	71	44.39	111	72.34	151	100.85	191	129.64	231	158.58	271	187.57	311	216.55	351	245.49	391	274.36
32	18.32	72	45.08	112	73.05	152	101.56	192	130.36	232	159.30	272	188.29	312	217.28	352	246.22	392	275.08
33	18.96	73	45.77	113	73.75	153	102.28	193	131.08	233	160.02	273	189.02	313	218.00	353	246.94	393	275.80
34	19.61	74	46.46	114	74.46	154	103.00	194	131.81	234	160.75	274	189.74	314	218.72	354	247.66	394	276.52
35	20.25	75	47.15	115	75.17	155	103.72	195	132.53	235	161.47	275	190.47	315	219.45	355	248.38	395	277.25
36	20.90	76	47.84	116	75.88	156	104.43	196	133.25	236	162.20	276	191.19	316	220.17	356	249.11	396	277.97
37	21.55	77	48.53	117	76.59	157	105.15	197	133.97	237	162.92	277	191.92	317	220.90	357	249.83	397	278.69
38	22.20	78	49.22	118	77.30	158	105.87	198	134.70	238	163.65	278	192.64	318	221.62	358	250.55	398	279.41
39	22.86	79	49.92	119	78.01	159	106.59	199	135.42	239	164.37	279	193.36	319	222.34	359	251.27	399	280.13
40	23.51	80	50.61	120	78.72	160	107.31	200	136.14	240	165.10	280	194.09	320	223.07	360	252.00	400	280.85

Table 14. Chronic Water Quality Standards for Dissolved Lead Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.01	41	0.94	81	2.00	121	3.10	161	4.21	201	5.33	241	6.46	281	7.59	321	8.72	361	9.85
2	0.03	42	0.97	82	2.03	122	3.12	162	4.24	202	5.36	242	6.49	282	7.62	322	8.75	362	9.88
3	0.05	43	0.99	83	2.05	123	3.15	163	4.27	203	5.39	243	6.52	283	7.65	323	8.78	363	9.90
4	0.07	44	1.02	84	2.08	124	3.18	164	4.29	204	5.42	244	6.55	284	7.68	324	8.81	364	9.93
5	0.09	45	1.04	85	2.11	125	3.21	165	4.32	205	5.45	245	6.57	285	7.70	325	8.83	365	9.96
6	0.11	46	1.07	86	2.13	126	3.23	166	4.35	206	5.47	246	6.60	286	7.73	326	8.86	366	9.99
7	0.13	47	1.10	87	2.16	127	3.26	167	4.38	207	5.50	247	6.63	287	7.76	327	8.89	367	10.02
8	0.15	48	1.12	88	2.19	128	3.29	168	4.41	208	5.53	248	6.66	288	7.79	328	8.92	368	10.05
9	0.17	49	1.15	89	2.22	129	3.32	169	4.43	209	5.56	249	6.69	289	7.82	329	8.95	369	10.07
10	0.19	50	1.17	90	2.24	130	3.34	170	4.46	210	5.59	250	6.72	290	7.85	330	8.97	370	10.10
11	0.21	51	1.20	91	2.27	131	3.37	171	4.49	211	5.62	251	6.74	291	7.87	331	9.00	371	10.13
12	0.24	52	1.23	92	2.30	132	3.40	172	4.52	212	5.64	252	6.77	292	7.90	332	9.03	372	10.16
13	0.26	53	1.25	93	2.33	133	3.43	173	4.55	213	5.67	253	6.80	293	7.93	333	9.06	373	10.19
14	0.28	54	1.28	94	2.35	134	3.46	174	4.57	214	5.70	254	6.83	294	7.96	334	9.09	374	10.21
15	0.30	55	1.31	95	2.38	135	3.48	175	4.60	215	5.73	255	6.86	295	7.99	335	9.12	375	10.24
16	0.33	56	1.33	96	2.41	136	3.51	176	4.63	216	5.76	256	6.89	296	8.02	336	9.14	376	10.27
17	0.35	57	1.36	97	2.43	137	3.54	177	4.66	217	5.78	257	6.91	297	8.04	337	9.17	377	10.30
18	0.37	58	1.38	98	2.46	138	3.57	178	4.69	218	5.81	258	6.94	298	8.07	338	9.20	378	10.33
19	0.40	59	1.41	99	2.49	139	3.60	179	4.71	219	5.84	259	6.97	299	8.10	339	9.23	379	10.35
20	0.42	60	1.44	100	2.52	140	3.62	180	4.74	220	5.87	260	7.00	300	8.13	340	9.26	380	10.38
21	0.44	61	1.46	101	2.54	141	3.65	181	4.77	221	5.90	261	7.03	301	8.16	341	9.28	381	10.41
22	0.47	62	1.49	102	2.57	142	3.68	182	4.80	222	5.93	262	7.05	302	8.18	342	9.31	382	10.44
23	0.49	63	1.52	103	2.60	143	3.71	183	4.83	223	5.95	263	7.08	303	8.21	343	9.34	383	10.47
24	0.52	64	1.54	104	2.63	144	3.73	184	4.85	224	5.98	264	7.11	304	8.24	344	9.37	384	10.49
25	0.54	65	1.57	105	2.65	145	3.76	185	4.88	225	6.01	265	7.14	305	8.27	345	9.40	385	10.52
26	0.57	66	1.60	106	2.68	146	3.79	186	4.91	226	6.04	266	7.17	306	8.30	346	9.43	386	10.55

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
27	0.59	67	1.62	107	2.71	147	3.82	187	4.94	227	6.07	267	7.20	307	8.33	347	9.45	387	10.58
28	0.61	68	1.65	108	2.74	148	3.85	188	4.97	228	6.09	268	7.22	308	8.35	348	9.48	388	10.61
29	0.64	69	1.68	109	2.76	149	3.87	189	5.00	229	6.12	269	7.25	309	8.38	349	9.51	389	10.64
30	0.66	70	1.70	110	2.79	150	3.90	190	5.02	230	6.15	270	7.28	310	8.41	350	9.54	390	10.66
31	0.69	71	1.73	111	2.82	151	3.93	191	5.05	231	6.18	271	7.31	311	8.44	351	9.57	391	10.69
32	0.71	72	1.76	112	2.85	152	3.96	192	5.08	232	6.21	272	7.34	312	8.47	352	9.59	392	10.72
33	0.74	73	1.78	113	2.87	153	3.99	193	5.11	233	6.24	273	7.37	313	8.50	353	9.62	393	10.75
34	0.76	74	1.81	114	2.90	154	4.01	194	5.14	234	6.26	274	7.39	314	8.52	354	9.65	394	10.78
35	0.79	75	1.84	115	2.93	155	4.04	195	5.16	235	6.29	275	7.42	315	8.55	355	9.68	395	10.80
36	0.81	76	1.86	116	2.96	156	4.07	196	5.19	236	6.32	276	7.45	316	8.58	356	9.71	396	10.83
37	0.84	77	1.89	117	2.98	157	4.10	197	5.22	237	6.35	277	7.48	317	8.61	357	9.74	397	10.86
38	0.87	78	1.92	118	3.01	158	4.13	198	5.25	238	6.38	278	7.51	318	8.64	358	9.76	398	10.89
39	0.89	79	1.95	119	3.04	159	4.15	199	5.28	239	6.41	279	7.54	319	8.66	359	9.79	399	10.92
40	0.92	80	1.97	120	3.07	160	4.18	200	5.31	240	6.43	280	7.56	320	8.69	360	9.82	400	10.94

Table 15. Acute Water Quality Standards for Dissolved Lead Aquatic and Wildlife ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	0.72	41	51.00	81	108.27	121	167.63	161	227.98	201	288.85	241	349.96	281	411.15	321	472.30	361	533.35
2	1.61	42	52.39	82	109.74	122	169.13	162	229.50	202	290.37	242	351.49	282	412.68	322	473.83	362	534.87
3	2.58	43	53.78	83	111.21	123	170.63	163	231.01	203	291.90	243	353.02	283	414.21	323	475.36	363	536.40
4	3.61	44	55.18	84	112.67	124	172.13	164	232.53	204	293.42	244	354.54	284	415.73	324	476.89	364	537.92
5	4.67	45	56.57	85	114.14	125	173.63	165	234.05	205	294.95	245	356.07	285	417.26	325	478.41	365	539.45
6	5.76	46	57.97	86	115.61	126	175.13	166	235.57	206	296.48	246	357.60	286	418.79	326	479.94	366	540.97
7	6.88	47	59.38	87	117.08	127	176.63	167	237.08	207	298.00	247	359.13	287	420.32	327	481.47	367	542.49
8	8.02	48	60.78	88	118.55	128	178.13	168	238.60	208	299.53	248	360.66	288	421.85	328	483.00	368	544.02
9	9.18	49	62.19	89	120.03	129	179.64	169	240.12	209	301.05	249	362.19	289	423.38	329	484.52	369	545.54
10	10.35	50	63.60	90	121.50	130	181.14	170	241.64	210	302.58	250	363.72	290	424.91	330	486.05	370	547.06
11	11.54	51	65.01	91	122.98	131	182.65	171	243.16	211	304.11	251	365.25	291	426.44	331	487.58	371	548.59
12	12.75	52	66.43	92	124.45	132	184.15	172	244.68	212	305.64	252	366.78	292	427.97	332	489.10	372	550.11
13	13.97	53	67.85	93	125.93	133	185.66	173	246.20	213	307.16	253	368.31	293	429.50	333	490.63	373	551.63
14	15.20	54	69.26	94	127.41	134	187.16	174	247.72	214	308.69	254	369.84	294	431.03	334	492.16	374	553.16
15	16.44	55	70.69	95	128.89	135	188.67	175	249.24	215	310.22	255	371.37	295	432.56	335	493.68	375	554.68
16	17.69	56	72.11	96	130.37	136	190.17	176	250.76	216	311.74	256	372.90	296	434.09	336	495.21	376	556.20
17	18.95	57	73.54	97	131.85	137	191.68	177	252.28	217	313.27	257	374.43	297	435.62	337	496.74	377	557.72
18	20.21	58	74.96	98	133.33	138	193.19	178	253.80	218	314.80	258	375.96	298	437.15	338	498.26	378	559.25
19	21.49	59	76.39	99	134.81	139	194.70	179	255.32	219	316.33	259	377.49	299	438.68	339	499.79	379	560.77
20	22.77	60	77.83	100	136.30	140	196.21	180	256.85	220	317.85	260	379.02	300	440.20	340	501.32	380	562.29
21	24.07	61	79.26	101	137.78	141	197.72	181	258.37	221	319.38	261	380.55	301	441.73	341	502.84	381	563.81
22	25.36	62	80.70	102	139.27	142	199.23	182	259.89	222	320.91	262	382.08	302	443.26	342	504.37	382	565.34
23	26.67	63	82.13	103	140.75	143	200.74	183	261.41	223	322.44	263	383.61	303	444.79	343	505.90	383	566.86
24	27.98	64	83.57	104	142.24	144	202.25	184	262.93	224	323.97	264	385.14	304	446.32	344	507.42	384	568.38
25	29.30	65	85.01	105	143.73	145	203.76	185	264.46	225	325.49	265	386.67	305	447.85	345	508.95	385	569.90
26	30.62	66	86.46	106	145.21	146	205.27	186	265.98	226	327.02	266	388.20	306	449.38	346	510.47	386	571.42
27	31.95	67	87.90	107	146.70	147	206.78	187	267.50	227	328.55	267	389.73	307	450.91	347	512.00	387	572.94
28	33.28	68	89.35	108	148.19	148	208.29	188	269.03	228	330.08	268	391.26	308	452.44	348	513.53	388	574.47
29	34.62	69	90.79	109	149.68	149	209.80	189	270.55	229	331.61	269	392.79	309	453.96	349	515.05	389	575.99
30	35.96	70	92.24	110	151.18	150	211.32	190	272.07	230	333.14	270	394.32	310	455.49	350	516.58	390	577.51
31	37.31	71	93.69	111	152.67	151	212.83	191	273.60	231	334.67	271	395.85	311	457.02	351	518.10	391	579.03
32	38.66	72	95.14	112	154.16	152	214.34	192	275.12	232	336.19	272	397.38	312	458.55	352	519.63	392	580.55
33	40.02	73	96.60	113	155.65	153	215.86	193	276.65	233	337.72	273	398.91	313	460.08	353	521.15	393	582.07
34	41.38	74	98.05	114	157.15	154	217.37	194	278.17	234	339.25	274	400.44	314	461.61	354	522.68	394	583.59
35	42.74	75	99.51	115	158.64	155	218.89	195	279.69	235	340.78	275	401.97	315	463.13	355	524.20	395	585.11
36	44.11	76	100.97	116	160.14	156	220.40	196	281.22	236	342.31	276	403.50	316	464.66	356	525.73	396	586.63
37	45.48	77	102.43	117	161.64	157	221.92	197	282.74	237	343.84	277	405.03	317	466.19	357	527.25	397	588.15
38	46.86	78	103.89	118	163.13	158	223.43	198	284.27	238	345.37	278	406.56	318	467.72	358	528.78	398	589.67
39	48.24	79	105.35	119	164.63	159	224.95	199	285.79	239	346.90	279	408.09	319	469.25	359	530.30	399	591.19
40	49.62	80	106.81	120	166.13	160	226.46	200	287.32	240	348.43	280	409.62	320	470.77	360	531.83	400	592.71

Table 16. Acute Water Quality Standards for Dissolved Nickel
Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	10	41	220	81	392	121	550	161	701	201	845	241	985	281	1122	321	1256	361	1387
2	17	42	225	82	396	122	554	162	704	202	849	242	989	282	1126	322	1259	362	1390
3	24	43	229	83	400	123	558	163	708	203	852	243	992	283	1129	323	1263	363	1394
4	31	44	234	84	404	124	562	164	712	204	856	244	996	284	1132	324	1266	364	1397
5	37	45	238	85	408	125	566	165	715	205	859	245	999	285	1136	325	1269	365	1400
6	43	46	243	86	412	126	569	166	719	206	863	246	1003	286	1139	326	1272	366	1403
7	49	47	247	87	416	127	573	167	723	207	867	247	1006	287	1142	327	1276	367	1407
8	55	48	252	88	420	128	577	168	726	208	870	248	1010	288	1146	328	1279	368	1410
9	61	49	256	89	424	129	581	169	730	209	874	249	1013	289	1149	329	1282	369	1413
10	67	50	260	90	428	130	585	170	734	210	877	250	1017	290	1153	330	1286	370	1416
11	72	51	265	91	432	131	588	171	737	211	881	251	1020	291	1156	331	1289	371	1420
12	78	52	269	92	436	132	592	172	741	212	884	252	1023	292	1159	332	1292	372	1423
13	83	53	274	93	440	133	596	173	744	213	888	253	1027	293	1163	333	1296	373	1426
14	89	54	278	94	444	134	600	174	748	214	891	254	1030	294	1166	334	1299	374	1429
15	94	55	282	95	448	135	604	175	752	215	895	255	1034	295	1169	335	1302	375	1433
16	99	56	287	96	452	136	607	176	755	216	898	256	1037	296	1173	336	1305	376	1436
17	105	57	291	97	456	137	611	177	759	217	902	257	1041	297	1176	337	1309	377	1439
18	110	58	295	98	460	138	615	178	763	218	905	258	1044	298	1179	338	1312	378	1442
19	115	59	300	99	464	139	619	179	766	219	909	259	1047	299	1183	339	1315	379	1445
20	120	60	304	100	468	140	622	180	770	220	912	260	1051	300	1186	340	1319	380	1449
21	125	61	308	101	472	141	626	181	774	221	916	261	1054	301	1189	341	1322	381	1452
22	130	62	312	102	476	142	630	182	777	222	919	262	1058	302	1193	342	1325	382	1455
23	135	63	317	103	480	143	634	183	781	223	923	263	1061	303	1196	343	1328	383	1458
24	140	64	321	104	484	144	637	184	784	224	926	264	1064	304	1199	344	1332	384	1462
25	145	65	325	105	488	145	641	185	788	225	930	265	1068	305	1203	345	1335	385	1465
26	150	66	329	106	492	146	645	186	792	226	933	266	1071	306	1206	346	1338	386	1468
27	155	67	334	107	496	147	649	187	795	227	937	267	1075	307	1209	347	1341	387	1471
28	159	68	338	108	500	148	652	188	799	228	940	268	1078	308	1213	348	1345	388	1474
29	164	69	342	109	504	149	656	189	802	229	944	269	1082	309	1216	349	1348	389	1478
30	169	70	346	110	508	150	660	190	806	230	947	270	1085	310	1219	350	1351	390	1481
31	174	71	350	111	511	151	664	191	810	231	951	271	1088	311	1223	351	1355	391	1484
32	179	72	355	112	515	152	667	192	813	232	954	272	1092	312	1226	352	1358	392	1487
33	183	73	359	113	519	153	671	193	817	233	958	273	1095	313	1229	353	1361	393	1490
34	188	74	363	114	523	154	675	194	820	234	961	274	1099	314	1233	354	1364	394	1494
35	193	75	367	115	527	155	678	195	824	235	965	275	1102	315	1236	355	1368	395	1497
36	197	76	371	116	531	156	682	196	827	236	968	276	1105	316	1239	356	1371	396	1500
37	202	77	375	117	535	157	686	197	831	237	972	277	1109	317	1243	357	1374	397	1503
38	207	78	379	118	539	158	689	198	835	238	975	278	1112	318	1246	358	1377	398	1506
39	211	79	384	119	542	159	693	199	838	239	979	279	1115	319	1249	359	1381	399	1510
40	216	80	388	120	546	160	697	200	842	240	982	280	1119	320	1253	360	1384	400	1513

Table 17. Chronic Water Quality Standards for Dissolved Nickel
Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	1.06	41	24.46	81	43.51	121	61.11	161	77.81	201	93.88	241	109.46	281	124.64	321	139.50	361	154.07
2	1.90	42	24.96	82	43.97	122	61.53	162	78.22	202	94.27	242	109.84	282	125.02	322	139.86	362	154.43
3	2.68	43	25.47	83	44.42	123	61.96	163	78.63	203	94.67	243	110.23	283	125.39	323	140.23	363	154.79
4	3.42	44	25.97	84	44.87	124	62.39	164	79.03	204	95.06	244	110.61	284	125.77	324	140.60	364	155.15
5	4.12	45	26.47	85	45.33	125	62.81	165	79.44	205	95.46	245	110.99	285	126.14	325	140.96	365	155.51
6	4.81	46	26.96	86	45.78	126	63.24	166	79.85	206	95.85	246	111.38	286	126.52	326	141.33	366	155.87
7	5.48	47	27.46	87	46.23	127	63.66	167	80.26	207	96.24	247	111.76	287	126.89	327	141.70	367	156.23
8	6.14	48	27.95	88	46.68	128	64.09	168	80.66	208	96.64	248	112.14	288	127.26	328	142.07	368	156.59
9	6.78	49	28.44	89	47.12	129	64.51	169	81.07	209	97.03	249	112.52	289	127.64	329	142.43	369	156.95
10	7.41	50	28.93	90	47.57	130	64.93	170	81.47	210	97.42	250	112.91	290	128.01	330	142.80	370	157.31
11	8.04	51	29.42	91	48.02	131	65.35	171	81.88	211	97.81	251	113.29	291	128.38	331	143.16	371	157.67
12	8.65	52	29.91	92	48.46	132	65.78	172	82.28	212	98.21	252	113.67	292	128.76	332	143.53	372	158.03
13	9.26	53	30.39	93	48.91	133	66.20	173	82.69	213	98.60	253	114.05	293	129.13	333	143.90	373	158.39
14	9.86	54	30.88	94	49.35	134	66.62	174	83.09	214	98.99	254	114.43	294	129.50	334	144.26	374	158.75
15	10.45	55	31.36	95	49.80	135	67.04	175	83.50	215	99.38	255	114.81	295	129.88	335	144.63	375	159.11
16	11.03	56	31.84	96	50.24	136	67.46	176	83.90	216	99.77	256	115.19	296	130.25	336	144.99	376	159.47
17	11.61	57	32.32	97	50.68	137	67.88	177	84.30	217	100.16	257	115.57	297	130.62	337	145.36	377	159.82
18	12.19	58	32.80	98	51.13	138	68.30	178	84.71	218	100.55	258	115.95	298	130.99	338	145.72	378	160.18
19	12.76	59	33.28	99	51.57	139	68.71	179	85.11	219	100.94	259	116.33	299	131.36	339	146.09	379	160.54
20	13.33	60	33.76	100	52.01	140	69.13	180	85.51	220	101.33	260	116.71	300	131.74	340	146.45	380	160.90

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
21	13.89	61	34.23	101	52.45	141	69.55	181	85.91	221	101.72	261	117.09	301	132.11	341	146.81	381	161.26
22	14.45	62	34.71	102	52.89	142	69.97	182	86.31	222	102.11	262	117.47	302	132.48	342	147.18	382	161.62
23	15.00	63	35.18	103	53.32	143	70.38	183	86.71	223	102.50	263	117.85	303	132.85	343	147.54	383	161.97
24	15.55	64	35.65	104	53.76	144	70.80	184	87.12	224	102.89	264	118.23	304	133.22	344	147.91	384	162.33
25	16.10	65	36.12	105	54.20	145	71.22	185	87.52	225	103.28	265	118.61	305	133.59	345	148.27	385	162.69
26	16.64	66	36.59	106	54.63	146	71.63	186	87.92	226	103.67	266	118.99	306	133.96	346	148.63	386	163.05
27	17.18	67	37.06	107	55.07	147	72.05	187	88.32	227	104.05	267	119.37	307	134.33	347	149.00	387	163.40
28	17.72	68	37.53	108	55.51	148	72.46	188	88.71	228	104.44	268	119.75	308	134.70	348	149.36	388	163.76
29	18.25	69	37.99	109	55.94	149	72.87	189	89.11	229	104.83	269	120.12	309	135.07	349	149.72	389	164.12
30	18.78	70	38.46	110	56.37	150	73.29	190	89.51	230	105.22	270	120.50	310	135.44	350	150.09	390	164.47
31	19.31	71	38.92	111	56.81	151	73.70	191	89.91	231	105.60	271	120.88	311	135.81	351	150.45	391	164.83
32	19.83	72	39.39	112	57.24	152	74.11	192	90.31	232	105.99	272	121.26	312	136.18	352	150.81	392	165.19
33	20.36	73	39.85	113	57.67	153	74.53	193	90.71	233	106.38	273	121.63	313	136.55	353	151.17	393	165.54
34	20.88	74	40.31	114	58.10	154	74.94	194	91.10	234	106.76	274	122.01	314	136.92	354	151.54	394	165.90
35	21.40	75	40.77	115	58.53	155	75.35	195	91.50	235	107.15	275	122.39	315	137.29	355	151.90	395	166.26
36	21.91	76	41.23	116	58.96	156	75.76	196	91.90	236	107.53	276	122.76	316	137.66	356	152.26	396	166.61
37	22.43	77	41.69	117	59.39	157	76.17	197	92.29	237	107.92	277	123.14	317	138.02	357	152.62	397	166.97
38	22.94	78	42.15	118	59.82	158	76.58	198	92.69	238	108.30	278	123.52	318	138.39	358	152.98	398	167.32
39	23.45	79	42.60	119	60.25	159	76.99	199	93.09	239	108.69	279	123.89	319	138.76	359	153.34	399	167.68
40	23.96	80	43.06	120	60.68	160	77.40	200	93.48	240	109.07	280	124.27	320	139.13	360	153.71	400	168.04

Table 18. Acute Water Quality Standards for Dissolved Nickel Aquatic and Wildlife ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	85	41	1956	81	3479	121	4886	161	6221	201	7506	241	8752	281	9966	321	11154	361	12319
2	152	42	1996	82	3516	122	4920	162	6254	202	7538	242	8783	282	9996	322	11183	362	12348
3	214	43	2036	83	3552	123	4954	163	6287	203	7569	243	8813	283	10026	323	11213	363	12377
4	273	44	2076	84	3588	124	4988	164	6319	204	7601	244	8844	284	10056	324	11242	364	12405
5	330	45	2116	85	3624	125	5022	165	6352	205	7632	245	8875	285	10086	325	11271	365	12434
6	385	46	2156	86	3660	126	5056	166	6385	206	7664	246	8905	286	10116	326	11301	366	12463
7	438	47	2195	87	3696	127	5090	167	6417	207	7695	247	8936	287	10146	327	11330	367	12492
8	491	48	2235	88	3732	128	5124	168	6450	208	7727	248	8967	288	10176	328	11359	368	12521
9	542	49	2274	89	3768	129	5158	169	6482	209	7758	249	8997	289	10206	329	11389	369	12549
10	593	50	2313	90	3804	130	5192	170	6514	210	7790	250	9028	290	10235	330	11418	370	12578
11	643	51	2352	91	3839	131	5226	171	6547	211	7821	251	9058	291	10265	331	11447	371	12607
12	692	52	2391	92	3875	132	5259	172	6579	212	7852	252	9089	292	10295	332	11476	372	12636
13	740	53	2430	93	3911	133	5293	173	6612	213	7884	253	9119	293	10325	333	11506	373	12664
14	788	54	2469	94	3946	134	5327	174	6644	214	7915	254	9150	294	10355	334	11535	374	12693
15	835	55	2508	95	3982	135	5360	175	6676	215	7946	255	9180	295	10385	335	11564	375	12722
16	882	56	2546	96	4017	136	5394	176	6708	216	7978	256	9211	296	10414	336	11593	376	12751
17	929	57	2585	97	4053	137	5427	177	6741	217	8009	257	9241	297	10444	337	11622	377	12779
18	975	58	2623	98	4088	138	5461	178	6773	218	8040	258	9272	298	10474	338	11652	378	12808
19	1020	59	2661	99	4123	139	5494	179	6805	219	8071	259	9302	299	10504	339	11681	379	12837
20	1066	60	2699	100	4158	140	5528	180	6837	220	8102	260	9332	300	10533	340	11710	380	12865
21	1110	61	2737	101	4193	141	5561	181	6869	221	8133	261	9363	301	10563	341	11739	381	12894
22	1155	62	2775	102	4229	142	5594	182	6901	222	8165	262	9393	302	10593	342	11768	382	12922
23	1199	63	2813	103	4264	143	5628	183	6934	223	8196	263	9423	303	10622	343	11797	383	12951
24	1243	64	2851	104	4299	144	5661	184	6966	224	8227	264	9454	304	10652	344	11826	384	12980
25	1287	65	2888	105	4334	145	5694	185	6998	225	8258	265	9484	305	10682	345	11855	385	13008
26	1330	66	2926	106	4368	146	5727	186	7030	226	8289	266	9514	306	10711	346	11884	386	13037
27	1374	67	2963	107	4403	147	5761	187	7062	227	8320	267	9544	307	10741	347	11913	387	13065
28	1416	68	3001	108	4438	148	5794	188	7093	228	8351	268	9575	308	10770	348	11943	388	13094
29	1459	69	3038	109	4473	149	5827	189	7125	229	8382	269	9605	309	10800	349	11972	389	13123
30	1502	70	3075	110	4508	150	5860	190	7157	230	8413	270	9635	310	10830	350	12001	390	13151
31	1544	71	3112	111	4542	151	5893	191	7189	231	8444	271	9665	311	10859	351	12030	391	13180
32	1586	72	3149	112	4577	152	5926	192	7221	232	8475	272	9695	312	10889	352	12059	392	13208
33	1628	73	3186	113	4611	153	5959	193	7253	233	8506	273	9726	313	10918	353	12088	393	13237
34	1669	74	3223	114	4646	154	5992	194	7285	234	8536	274	9756	314	10948	354	12116	394	13265
35	1711	75	3260	115	4680	155	6025	195	7316	235	8567	275	9786	315	10977	355	12145	395	13294
36	1752	76	3297	116	4715	156	6058	196	7348	236	8598	276	9816	316	11007	356	12174	396	13322
37	1793	77	3333	117	4749	157	6090	197	7380	237	8629	277	9846	317	11036	357	12203	397	13350
38	1834	78	3370	118	4783	158	6123	198	7411	238	8660	278	9876	318	11066	358	12232	398	13379
39	1875	79	3407	119	4818	159	6156	199	7443	239	8691	279	9906	319	11095	359	12261	399	13407
40	1915	80	3443	120	4852	160	6189	200	7475	240	8721	280	9936	320	11124	360	12290	400	13436

Table 19. Water Quality Standards for Dissolved Silver
Aquatic and Wildlife coldwater, warmwater, edw, and ephemeral

Hard. mg/L	Std. ug/L	Hard. mg/L	Std. ug/L	Hard. mg/L	Std. ug/L	Hard. mg/L	Std. ug/L	Hard. mg/L	Std. ug/L	Hard. mg/L	Std. ug/L	Hard. mg/L	Std. ug/L	Hard. mg/L	Std. ug/L	Hard. mg/L	Std. ug/L	Hard. mg/L	Std. ug/L
1	0.001	41	0.69	81	2.24	121	4.46	161	7.30	201	10.69	241	14.60	281	19.02	321	23.91	361	29.26
2	0.004	42	0.72	82	2.29	122	4.53	162	7.38	202	10.78	242	14.71	282	19.14	322	24.04	362	29.40
3	0.01	43	0.75	83	2.33	123	4.59	163	7.45	203	10.87	243	14.81	283	19.25	323	24.17	363	29.54
4	0.01	44	0.78	84	2.38	124	4.66	164	7.53	204	10.96	244	14.92	284	19.37	324	24.30	364	29.68
5	0.02	45	0.81	85	2.43	125	4.72	165	7.61	205	11.06	245	15.02	285	19.49	325	24.43	365	29.82
6	0.03	46	0.85	86	2.48	126	4.79	166	7.69	206	11.15	246	15.13	286	19.61	326	24.56	366	29.96
7	0.03	47	0.88	87	2.53	127	4.85	167	7.77	207	11.24	247	15.24	287	19.72	327	24.69	367	30.11
8	0.04	48	0.91	88	2.58	128	4.92	168	7.85	208	11.34	248	15.34	288	19.84	328	24.82	368	30.25
9	0.05	49	0.94	89	2.63	129	4.98	169	7.93	209	11.43	249	15.45	289	19.96	329	24.95	369	30.39
10	0.06	50	0.98	90	2.68	130	5.05	170	8.01	210	11.52	250	15.56	290	20.08	330	25.08	370	30.53
11	0.07	51	1.01	91	2.74	131	5.12	171	8.09	211	11.62	251	15.66	291	20.20	331	25.21	371	30.67
12	0.08	52	1.04	92	2.79	132	5.19	172	8.18	212	11.71	252	15.77	292	20.32	332	25.34	372	30.81
13	0.10	53	1.08	93	2.84	133	5.25	173	8.26	213	11.81	253	15.88	293	20.44	333	25.47	373	30.96
14	0.11	54	1.11	94	2.89	134	5.32	174	8.34	214	11.91	254	15.99	294	20.56	334	25.60	374	31.10
15	0.12	55	1.15	95	2.95	135	5.39	175	8.42	215	12.00	255	16.09	295	20.68	335	25.73	375	31.24
16	0.14	56	1.19	96	3.00	136	5.46	176	8.51	216	12.10	256	16.20	296	20.80	336	25.87	376	31.39
17	0.15	57	1.22	97	3.05	137	5.53	177	8.59	217	12.19	257	16.31	297	20.92	337	26.00	377	31.53
18	0.17	58	1.26	98	3.11	138	5.60	178	8.67	218	12.29	258	16.42	298	21.04	338	26.13	378	31.67
19	0.18	59	1.30	99	3.16	139	5.67	179	8.76	219	12.39	259	16.53	299	21.16	339	26.26	379	31.82
20	0.20	60	1.34	100	3.22	140	5.74	180	8.84	220	12.48	260	16.64	300	21.28	340	26.40	380	31.96
21	0.22	61	1.37	101	3.27	141	5.81	181	8.93	221	12.58	261	16.75	301	21.41	341	26.53	381	32.11
22	0.24	62	1.41	102	3.33	142	5.88	182	9.01	222	12.68	262	16.86	302	21.53	342	26.67	382	32.25
23	0.26	63	1.45	103	3.38	143	5.95	183	9.10	223	12.78	263	16.97	303	21.65	343	26.80	383	32.40
24	0.28	64	1.49	104	3.44	144	6.02	184	9.18	224	12.88	264	17.08	304	21.78	344	26.93	384	32.54
25	0.30	65	1.53	105	3.50	145	6.09	185	9.27	225	12.98	265	17.19	305	21.90	345	27.07	385	32.69
26	0.32	66	1.57	106	3.56	146	6.17	186	9.35	226	13.08	266	17.31	306	22.02	346	27.20	386	32.84
27	0.34	67	1.62	107	3.61	147	6.24	187	9.44	227	13.18	267	17.42	307	22.15	347	27.34	387	32.98
28	0.36	68	1.66	108	3.67	148	6.31	188	9.53	228	13.28	268	17.53	308	22.27	348	27.47	388	33.13
29	0.38	69	1.70	109	3.73	149	6.39	189	9.61	229	13.38	269	17.64	309	22.39	349	27.61	389	33.28
30	0.41	70	1.74	110	3.79	150	6.46	190	9.70	230	13.48	270	17.76	310	22.52	350	27.75	390	33.42
31	0.43	71	1.78	111	3.85	151	6.54	191	9.79	231	13.58	271	17.87	311	22.64	351	27.88	391	33.57
32	0.45	72	1.83	112	3.91	152	6.61	192	9.88	232	13.68	272	17.98	312	22.77	352	28.02	392	33.72
33	0.48	73	1.87	113	3.97	153	6.68	193	9.97	233	13.78	273	18.10	313	22.90	353	28.16	393	33.87
34	0.50	74	1.92	114	4.03	154	6.76	194	10.06	234	13.88	274	18.21	314	23.02	354	28.29	394	34.02
35	0.53	75	1.96	115	4.09	155	6.84	195	10.15	235	13.98	275	18.33	315	23.15	355	28.43	395	34.16
36	0.55	76	2.01	116	4.15	156	6.91	196	10.24	236	14.09	276	18.44	316	23.27	356	28.57	396	34.31
37	0.58	77	2.05	117	4.21	157	6.99	197	10.33	237	14.19	277	18.56	317	23.40	357	28.71	397	34.46
38	0.61	78	2.10	118	4.28	158	7.06	198	10.42	238	14.29	278	18.67	318	23.53	358	28.85	398	34.61
39	0.64	79	2.14	119	4.34	159	7.14	199	10.51	239	14.40	279	18.79	319	23.66	359	28.99	399	34.76
40	0.67	80	2.19	120	4.40	160	7.22	200	10.60	240	14.50	280	18.90	320	23.78	360	29.12	400	34.91

Table 20. Acute and Chronic Water Quality Standards for Dissolved Zinc Aquatic and Wildlife coldwater, warmwater and edw

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	2.4	41	55.1	81	98.0	121	137.7	161	175.4	201	211.7	241	246.9	281	281.2	321	314.8	361	347.7
2	4.3	42	56.2	82	99.0	122	138.7	162	176.4	202	212.6	242	247.8	282	282.1	322	315.6	362	348.5
3	6.0	43	57.3	83	100.1	123	139.6	163	177.3	203	213.5	243	248.6	283	282.9	323	316.4	363	349.4
4	7.7	44	58.4	84	101.1	124	140.6	164	178.2	204	214.4	244	249.5	284	283.8	324	317.3	364	350.2
5	9.3	45	59.6	85	102.1	125	141.6	165	179.1	205	215.3	245	250.4	285	284.6	325	318.1	365	351.0
6	10.8	46	60.7	86	103.1	126	142.5	166	180.0	206	216.2	246	251.2	286	285.5	326	318.9	366	351.8
7	12.3	47	61.8	87	104.1	127	143.5	167	181.0	207	217.1	247	252.1	287	286.3	327	319.8	367	352.6
8	13.8	48	62.9	88	105.2	128	144.4	168	181.9	208	217.9	248	253.0	288	287.1	328	320.6	368	353.4
9	15.2	49	64.0	89	106.2	129	145.4	169	182.8	209	218.8	249	253.8	289	288.0	329	321.4	369	354.2
10	16.7	50	65.1	90	107.2	130	146.4	170	183.7	210	219.7	250	254.7	290	288.8	330	322.2	370	355.1
11	18.1	51	66.2	91	108.2	131	147.3	171	184.6	211	220.6	251	255.6	291	289.7	331	323.1	371	355.9
12	19.4	52	67.3	92	109.2	132	148.3	172	185.5	212	221.5	252	256.4	292	290.5	332	323.9	372	356.7
13	20.8	53	68.4	93	110.2	133	149.2	173	186.4	213	222.4	253	257.3	293	291.4	333	324.7	373	357.5
14	22.1	54	69.5	94	111.2	134	150.2	174	187.4	214	223.3	254	258.1	294	292.2	334	325.6	374	358.3
15	23.5	55	70.6	95	112.2	135	151.1	175	188.3	215	224.1	255	259.0	295	293.0	335	326.4	375	359.1
16	24.8	56	71.7	96	113.2	136	152.1	176	189.2	216	225.0	256	259.9	296	293.9	336	327.2	376	359.9
17	26.1	57	72.8	97	114.2	137	153.0	177	190.1	217	225.9	257	260.7	297	294.7	337	328.0	377	360.7
18	27.4	58	73.9	98	115.2	138	153.9	178	191.0	218	226.8	258	261.6	298	295.6	338	328.9	378	361.5
19	28.7	59	74.9	99	116.2	139	154.9	179	191.9	219	227.7	259	262.4	299	296.4	339	329.7	379	362.4
20	30.0	60	76.0	100	117.2	140	155.8	180	192.8	220	228.6	260	263.3	300	297.2	340	330.5	380	363.2
21	31.2	61	77.1	101	118.2	141	156.8	181	193.7	221	229.4	261	264.2	301	298.1	341	331.3	381	364.0
22	32.5	62	78.2	102	119.2	142	157.7	182	194.6	222	230.3	262	265.0	302	298.9	342	332.2	382	364.8
23	33.7	63	79.2	103	120.2	143	158.7	183	195.5	223	231.2	263	265.9	303	299.8	343	333.0	383	365.6
24	35.0	64	80.3	104	121.1	144	159.6	184	196.4	224	232.1	264	266.7	304	300.6	344	333.8	384	366.4
25	36.2	65	81.3	105	122.1	145	160.5	185	197.3	225	232.9	265	267.6	305	301.4	345	334.6	385	367.2
26	37.4	66	82.4	106	123.1	146	161.5	186	198.3	226	233.8	266	268.4	306	302.3	346	335.4	386	368.0
27	38.6	67	83.5	107	124.1	147	162.4	187	199.2	227	234.7	267	269.3	307	303.1	347	336.3	387	368.8
28	39.9	68	84.5	108	125.1	148	163.3	188	200.1	228	235.6	268	270.2	308	304.0	348	337.1	388	369.6
29	41.1	69	85.6	109	126.1	149	164.3	189	201.0	229	236.5	269	271.0	309	304.8	349	337.9	389	370.4
30	42.2	70	86.6	110	127.0	150	165.2	190	201.9	230	237.3	270	271.9	310	305.6	350	338.7	390	371.2
31	43.4	71	87.7	111	128.0	151	166.2	191	202.8	231	238.2	271	272.7	311	306.5	351	339.5	391	372.1
32	44.6	72	88.7	112	129.0	152	167.1	192	203.7	232	239.1	272	273.6	312	307.3	352	340.4	392	372.9
33	45.8	73	89.8	113	130.0	153	168.0	193	204.6	233	239.9	273	274.4	313	308.1	353	341.2	393	373.7
34	47.0	74	90.8	114	130.9	154	168.9	194	205.5	234	240.8	274	275.3	314	309.0	354	342.0	394	374.5
35	48.1	75	91.8	115	131.9	155	169.9	195	206.3	235	241.7	275	276.1	315	309.8	355	342.8	395	375.3
36	49.3	76	92.9	116	132.9	156	170.8	196	207.2	236	242.6	276	277.0	316	310.6	356	343.6	396	376.1
37	50.5	77	93.9	117	133.9	157	171.7	197	208.1	237	243.4	277	277.8	317	311.5	357	344.5	397	376.9
38	51.6	78	94.9	118	134.8	158	172.7	198	209.0	238	244.3	278	278.7	318	312.3	358	345.3	398	377.7
39	52.8	79	96.0	119	135.8	159	173.6	199	209.9	239	245.2	279	279.5	319	313.1	359	346.1	399	378.5
40	53.9	80	97.0	120	136.8	160	174.5	200	210.8	240	246.0	280	280.4	320	314.0	360	346.9	400	379.3

Table 21. Acute Water Quality Standards for Dissolved Zinc Aquatic and Wildlife ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
1	22	41	522	81	930	121	1307	161	1665	201	2009	241	2343	281	2669	321	2987	361	3300
2	40	42	533	82	940	122	1316	162	1674	202	2018	242	2351	282	2677	322	2995	362	3307
3	57	43	544	83	950	123	1325	163	1682	203	2026	243	2360	283	2685	323	3003	363	3315
4	73	44	555	84	959	124	1334	164	1691	204	2034	244	2368	284	2693	324	3011	364	3323
5	88	45	565	85	969	125	1343	165	1700	205	2043	245	2376	285	2701	325	3019	365	3331
6	103	46	576	86	979	126	1353	166	1708	206	2051	246	2384	286	2709	326	3027	366	3338
7	117	47	587	87	988	127	1362	167	1717	207	2060	247	2392	287	2717	327	3034	367	3346
8	131	48	597	88	998	128	1371	168	1726	208	2068	248	2401	288	2725	328	3042	368	3354
9	145	49	608	89	1007	129	1380	169	1735	209	2077	249	2409	289	2733	329	3050	369	3362
10	158	50	618	90	1017	130	1389	170	1743	210	2085	250	2417	290	2741	330	3058	370	3369
11	171	51	629	91	1027	131	1398	171	1752	211	2093	251	2425	291	2749	331	3066	371	3377
12	184	52	639	92	1036	132	1407	172	1761	212	2102	252	2433	292	2757	332	3074	372	3385

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
13	197	53	649	93	1046	133	1416	173	1769	213	2110	253	2442	293	2765	333	3082	373	3392
14	210	54	660	94	1055	134	1425	174	1778	214	2119	254	2450	294	2773	334	3089	374	3400
15	223	55	670	95	1065	135	1434	175	1787	215	2127	255	2458	295	2781	335	3097	375	3408
16	235	56	680	96	1074	136	1443	176	1795	216	2135	256	2466	296	2789	336	3105	376	3416
17	248	57	691	97	1084	137	1452	177	1804	217	2144	257	2474	297	2797	337	3113	377	3423
18	260	58	701	98	1093	138	1461	178	1813	218	2152	258	2482	298	2805	338	3121	378	3431
19	272	59	711	99	1103	139	1470	179	1821	219	2161	259	2491	299	2813	339	3129	379	3439
20	284	60	721	100	1112	140	1479	180	1830	220	2169	260	2499	300	2821	340	3136	380	3446
21	296	61	732	101	1121	141	1488	181	1838	221	2177	261	2507	301	2829	341	3144	381	3454
22	308	62	742	102	1131	142	1497	182	1847	222	2186	262	2515	302	2837	342	3152	382	3462
23	320	63	752	103	1140	143	1506	183	1856	223	2194	263	2523	303	2845	343	3160	383	3469
24	332	64	762	104	1150	144	1515	184	1864	224	2202	264	2531	304	2853	344	3168	384	3477
25	344	65	772	105	1159	145	1523	185	1873	225	2211	265	2539	305	2861	345	3175	385	3485
26	355	66	782	106	1168	146	1532	186	1881	226	2219	266	2547	306	2869	346	3183	386	3492
27	367	67	792	107	1178	147	1541	187	1890	227	2227	267	2556	307	2876	347	3191	387	3500
28	378	68	802	108	1187	148	1550	188	1898	228	2236	268	2564	308	2884	348	3199	388	3508
29	390	69	812	109	1196	149	1559	189	1907	229	2244	269	2572	309	2892	349	3207	389	3515
30	401	70	822	110	1206	150	1568	190	1916	230	2252	270	2580	310	2900	350	3214	390	3523
31	412	71	832	111	1215	151	1577	191	1924	231	2260	271	2588	311	2908	351	3222	391	3531
32	423	72	842	112	1224	152	1586	192	1933	232	2269	272	2596	312	2916	352	3230	392	3538
33	435	73	852	113	1233	153	1594	193	1941	233	2277	273	2604	313	2924	353	3238	393	3546
34	446	74	862	114	1243	154	1603	194	1950	234	2285	274	2612	314	2932	354	3245	394	3554
35	457	75	871	115	1252	155	1612	195	1958	235	2294	275	2620	315	2940	355	3253	395	3561
36	468	76	881	116	1261	156	1621	196	1967	236	2302	276	2628	316	2948	356	3261	396	3569
37	479	77	891	117	1270	157	1630	197	1975	237	2310	277	2636	317	2956	357	3269	397	3577
38	490	78	901	118	1279	158	1638	198	1984	238	2318	278	2645	318	2964	358	3276	398	3584
39	501	79	911	119	1289	159	1647	199	1992	239	2327	279	2653	319	2971	359	3284	399	3592
40	512	80	920	120	1298	160	1656	200	2001	240	2335	280	2661	320	2979	360	3292	400	3599

Table 22. Acute Water Quality Standards for Pentachlorophenol Aquatic and Wildlife coldwater, warmwater, and edw

pH	ug/L	pH	ug/L
3	0.163	7	9.070
3.1	0.180	7.1	10.029
3.2	0.199	7.2	11.090
3.3	0.220	7.3	12.262
3.4	0.243	7.4	13.558
3.5	0.269	7.5	14.992
3.6	0.298	7.6	16.577
3.7	0.329	7.7	18.329
3.8	0.364	7.8	20.267
3.9	0.402	7.9	22.410
4	0.445	8	24.779
4.1	0.492	8.1	27.399
4.2	0.544	8.2	30.296
4.3	0.601	8.3	33.498
4.4	0.665	8.4	37.040
4.5	0.735	8.5	40.956
4.6	0.813	8.6	45.286
4.7	0.899	8.7	50.074
4.8	0.994	8.8	55.368
4.9	1.099	8.9	61.222
5	1.215	9	67.694
5.1	1.344	9.1	74.851
5.2	1.486	9.2	82.765
5.3	1.643	9.3	91.515
5.4	1.817	9.4	101.190
5.5	2.009	9.5	111.888
5.6	2.221	9.6	123.717
5.7	2.456	9.7	136.797
5.8	2.716	9.8	151.260
5.9	3.003	9.9	167.252
6	3.320	10	184.934
6.1	3.671	10.1	204.486
6.2	4.059	10.2	226.105
6.3	4.488	10.3	250.010
6.4	4.963	10.4	276.442
6.5	5.488	10.5	305.668
6.6	6.068	10.6	337.984
6.7	6.709	10.7	373.717
6.8	7.419	10.8	413.228
6.9	8.203	10.9	456.916
		11	505.223

Table 23. Chronic Water Quality Standards for Pentachlorophenol Aquatic and Wildlife coldwater, warmwater, and edw

pH	ug/L	pH	ug/L
3	0.103	7	5.726
3.1	0.114	7.1	6.331
3.2	0.126	7.2	7.001
3.3	0.139	7.3	7.741
3.4	0.154	7.4	8.559
3.5	0.170	7.5	9.464
3.6	0.188	7.6	10.465
3.7	0.208	7.7	11.571
3.8	0.230	7.8	12.794
3.9	0.254	7.9	14.147
4	0.281	8	15.643
4.1	0.311	8.1	17.296
4.2	0.343	8.2	19.125
4.3	0.380	8.3	21.147
4.4	0.420	8.4	23.383
4.5	0.464	8.5	25.855
4.6	0.513	8.6	28.588
4.7	0.568	8.7	31.611
4.8	0.628	8.8	34.953
4.9	0.694	8.9	38.648
5	0.767	9	42.734
5.1	0.848	9.1	47.252
5.2	0.938	9.2	52.248
5.3	1.037	9.3	57.772
5.4	1.147	9.4	63.880
5.5	1.268	9.5	70.633
5.6	1.4022	9.6	78.101
5.7	1.550	9.7	86.358
5.8	1.714	9.8	95.488
5.9	1.896	9.9	105.583
6	2.096	10	116.746
6.1	2.318	10.1	129.089
6.2	2.563	10.2	142.736
6.3	2.833	10.3	157.827
6.4	3.133	10.4	174.513
6.5	3.464	10.5	192.963
6.6	3.831	10.6	213.364
6.7	4.235	10.7	235.922
6.8	4.683	10.8	260.864
6.9	5.178	10.9	288.444
		11	318.939

Table 24. Acute Water Quality Standards for Pentachlorophenol Aquatic and Wildlife ephemeral

pH	ug/L	pH	ug/L
3	0.660	7	36.760
3.1	0.730	7.1	40.646
3.2	0.807	7.2	44.943
3.3	0.892	7.3	49.695
3.4	0.986	7.4	54.949
3.5	1.091	7.5	60.758
3.6	1.206	7.6	67.182
3.7	1.334	7.7	74.284
3.8	1.475	7.8	82.138
3.9	1.631	7.9	90.822
4	1.803	8	100.424
4.1	1.994	8.1	111.041
4.2	2.204	8.2	122.781
4.3	2.437	8.3	135.762
4.4	2.695	8.4	150.115
4.5	2.980	8.5	165.985
4.6	3.295	8.6	183.534
4.7	3.643	8.7	202.938
4.8	4.029	8.8	224.393
4.9	4.454	8.9	248.117
5	4.925	9	274.349
5.1	5.446	9.1	303.354
5.2	6.022	9.2	335.426
5.3	6.659	9.3	370.888
5.4	7.363	9.4	410.100
5.5	8.141	9.5	453.457
5.6	9.002	9.6	501.398
5.7	9.953	9.7	554.408
5.8	11.006	9.8	613.021
5.9	12.169	9.9	677.832
6	13.456	10	749.495
6.1	14.878	10.1	828.735
6.2	16.451	10.2	916.351
6.3	18.191	10.3	1013.231
6.4	20.114	10.4	1120.354
6.5	22.240	10.5	1238.802
6.6	24.591	10.6	1369.773
6.7	27.191	10.7	1514.590
6.8	30.066	10.8	1674.718
6.9	33.245	10.9	1851.775
		11	2047.552

Table 25. Acute Criteria for Total Ammonia (in mg/L as N)
Aquatic and Wildlife coldwater, warmwater, and edw

pH	A&Wc	A&Ww and A&W edw
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

Table 26. Chronic Criteria for Total Ammonia (mg/L as N)
Aquatic and Wildlife coldwater, warmwater, and edw

	Temperature, °C									
pH	**0**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.33	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339

	Temperature, °C									
pH	**0**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

Historical Note

Appendix A repealed; new Appendix A adopted effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Appendix A, Table 2 amended to correct references to footnotes (Supp. 02-4). Amended by final rulemaking at 9 A.A.R. 716, effective April 8, 2003 (Supp. 03-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

APPENDIX B. SURFACE WATERS AND DESIGNATED USES

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
BW	Alamo Lake	34°14'45"/113°35'00"	Deep		A&Ww			FBC			FC		AgL
BW	Big Sandy River	Headwaters to confluence at Alamo Lake at 34°18'36"/113°31'34"			A&Ww			FBC			FC		AgL
BW	Bill Williams River	Alamo Lake to confluence with Colorado River at 34°18'04"/114°08'10"			A&Ww			FBC			FC		AgL
BW	Blue Tank	34°40'14"/112°58'16"			A&Ww			FBC			FC		AgL
BW	Boulder Creek	Headwaters to confluence with unnamed tributary at 34°41'14"/113°03'34"		A&Wc				FBC			FC	AgI	AgL
BW	Boulder Creek	Below confluence with unnamed tributary to confluence with Burro Creek at 34°36'47"/113°18'00"			A&Ww			FBC			FC	AgI	AgL
BW	Burro Creek (OAW)	Headwaters to confluence with Boulder Creek at 34°36'47"/113°18'00"			A&Ww			FBC			FC		AgL
BW	Burro Creek	Below confluence with Boulder Creek to confluence with Big Sandy River at 34°32'24"/113°34"19.2"			A&Ww			FBC			FC		AgL
BW	Conger Creek	Headwaters to confluence with unnamed tributary at 34°45'13"/113°05'45"		A&Wc				FBC			FC		AgL
BW	Conger Creek	Below confluence with unnamed tributary to confluence with Burro Creek at 34°46"05"/113°12'54"			A&Ww			FBC			FC		AgL
BW	Coors Lake	34°36'20"/113°11'25"	Igneous		A&Ww			FBC			FC		
BW	Copper Basin Wash	Headwaters to confluence with unnamed tributary at 34°28'11"/112°35'31"		A&Wc				FBC			FC		AgL
BW	Copper Basin Wash	Below confluence with unnamed tributary to Skull Valley Wash at 34°25'55"/112°41'42"				A&We			PBC				AgL
BW	Cottonwood Canyon	Headwaters to Bear Trap Spring at 34°45'10"/112°52'32"		A&Wc				FBC			FC		AgL
BW	Cottonwood Canyon	Below Bear Trap Spring to confluence at Smith Canyon at 34°37'34"/112°54'46.8"			A&Ww			FBC			FC		AgL
BW	Date Creek	Headwaters to confluence with Santa Maria River at 34°18'11"/113°29'53"			A&Ww			FBC			FC		AgL
BW	Francis Creek (OAW)	Headwaters to confluence with Burro Creek at 34°44'28"/113°14'35"			A&Ww			FBC		DWS	FC	AgI	AgL
BW	Kirkland Creek	Headwaters to confluence with Santa Maria River at 34°32'02"/112°59'38"			A&Ww			FBC			FC	AgI	AgL
BW	Knight Creek	Headwaters to confluence with Big Sandy River at 34°55'16"/113°37'30"			A&Ww			FBC			FC		AgL
BW	Peeples Canyon (OAW)	Headwaters to confluence with Santa Maria River at 34°20'35"/113°15'11"			A&Ww			FBC			FC		AgL
BW	Santa Maria River	Headwaters to confluence with Alamo Lake at 34°18'36"/113°31'34"			A&Ww			FBC			FC	AgI	AgL
BW	Trout Creek	Headwaters to confluence with unnamed tributary at 35°06'47"/113°13'01"		A&Wc				FBC			FC		AgL
BW	Trout Creek	Below confluence with unnamed tributary to confluence with Knight Creek at 34°55'16"/113°37'30"			A&Ww			FBC			FC		AgL
CG	Agate Canyon Creek	Headwaters to confluence with the Colorado River at 36°08'38"/112°16'48"			A&Ww			FBC			FC		
CG	Beaver Dam Wash	Headwaters to confluence with the Virgin River at 36°53'42"/113°55'09"			A&Ww			FBC			FC		AgL
CG	Big Springs Tank	36°36'10"/112°20'58"		A&Wc				FBC			FC		AgL
CG	Boucher Creek	Headwaters to confluence with the Colorado River at 36°06'54"/112°13'44"			A&Ww			FBC			FC		
CG	Bright Angel Creek	Headwaters to Roaring Springs Canyon at 36°11'34"/112°01'54"		A&Wc				FBC			FC		
CG	Bright Angel Creek	Below Roaring Spring Canyon to Colorado River at 36°05'56"/112°05'27.6"			A&Ww			FBC			FC		
CG	Bright Angel Wash	Headwaters to South Rim of Grand Canyon WWTP outfall at 36°02'59"/112°09'02"				A&We			PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CG	Bright Angel Wash (EDW)	South Rim Grand Canyon WWTP outfall at 36°00'11"/112°39'06" to Coconino Wash					A&Wedw		PBC				AgL
CG	Bulrush Canyon Wash	Headwaters to confluence with Kanab Creek at 36°46'55"/112°37'08"				A&We			PBC				
CG	Cataract Creek	Headwaters to Santa Fe Reservoir		A&Wc				FBC		DWS	FC	AgI	AgL
CG	Cataract Creek	Santa Fe Reservoir to Williams WWTP outfall at 35°15'40"/112°10'40"		A&Wc				FBC			FC	AgI	AgL
CG	Cataract Creek (EDW)	Williams WWTP outfall to 1 km downstream					A&Wedw		PBC				
CG	Cataract Creek	Red Lake Wash to Havasupai Reservation at 33°56'52"/112°30'38.3"				A&We			PBC				AgL
CG	Cataract Lake	35°15'05"/112°12'58"	Igneous	A&Wc				FBC		DWS	FC		AgL
CG	Chuar Creek	Headwaters to confluence with unnamed tributary at 36°11'36"/111°52'17"		A&Wc				FBC			FC		
CG	Chuar Creek	Below unnamed tributary at 36°11'36.4"/111°52'17" to confluence with the Colorado River at 36°08'20.4"/111°48'58.7"			A&Ww			FBC			FC		
CG	City Reservoir	35°13'57"/112°11'23"	Igneous	A&Wc				FBC		DWS	FC		
CG	Clear Creek	Headwaters to confluence with unnamed tributary at 36°09'12"/111°58'25"		A&Wc				FBC			FC		
CG	Clear Creek	Below confluence with unnamed tributary to confluence with Colorado River at 36°04'55"/112°02'09.6"			A&Ww			FBC			FC		
CG	Coconino Wash (EDW)	South Grand Canyon Sanitary District Tusayan WRF outfall at 35°58'39"/112°08'25" to 1 km downstream at 35°58'36"/112°08'54"					A&Wedw		PBC				
CG	Colorado River	Lake Powell to Lake Mead		A&Wc				FBC		DWS	FC	AgI	AgL
CG	Cottonwood Creek	Headwaters to confluence with unnamed tributary at 35°20'45.5"/113°35'31"		A&Wc				FBC			FC		AgL
CG	Cottonwood Creek	Below confluence with unnamed tributary to confluence with Colorado River at 35°22'05"/113°40'04.8"			A&Ww			FBC			FC		AgL
CG	Crystal Creek	Headwaters to confluence with unnamed tributary at 36°13'42"/112°11'48"		A&Wc				FBC			FC		
CG	Crystal Creek	Below confluence with unnamed tributary to Colorado River at 36°08'06"/112°14'34.8"			A&Ww			FBC			FC		
CG	Deer Creek	Headwaters to confluence with unnamed tributary at 36°26'16"/112°28'15.5"		A&Wc				FBC			FC		
CG	Deer Creek	Below confluence with unnamed tributary to confluence with Colorado River at 36°23'20"/112°30'28.8"			A&Ww			FBC			FC		
CG	Detrital Wash	Headwaters to Lake Mead at 36°02'20"/114°27'47"				A&We			PBC				
CG	Dogtown Reservoir	35°12'40"/112°07'46"	Igneous	A&Wc				FBC		DWS	FC	AgI	AgL
CG	Dragon Creek	Headwaters to confluence with Milk Creek at 36°12'25"/112°09'33"		A&Wc				FBC			FC		
CG	Dragon Creek	Below confluence with Milk Creek to confluence with Crystal Creek at 36°10'12"/112°12'10.8"			A&Ww			FBC			FC		
CG	Garden Creek	Headwaters to confluence with Pipe Creek at 36°05'35"/112°06'40"			A&Ww			FBC			FC		
CG	Gonzalez Lake	35°15'26"/112°12'07"	Shallow		A&Ww			FBC			FC	AgI	AgL
CG	Grand Wash	Headwaters to Lake Mead at 36°15'29"/114°00'18"				A&We			PBC				
CG	Grapevine Creek	Headwaters to the Colorado River at 36°03'29"/112°00'00"			A&Ww			FBC			FC		
CG	Grapevine Wash	Headwaters to Lake Mead at 36°06'29"/114°00'07"				A&We			PBC				
CG	Hakatai Canyon Creek	Headwaters to the Colorado River at 36°14'42"/112°22'59"			A&Ww			FBC			FC		
CG	Hance Creek	Headwaters to the Colorado River at 36°02'46"/111°57'07"			A&Ww			FBC			FC		
CG	Havasu Canyon Creek	From the Havasupai Indian Reservation; boundary to confluence with the Colorado River at 36°18'29"/112°45'43"			A&Ww			FBC			FC		
CG	Hermit Creek	Headwaters to Hermit Pack Trail crossing at 36°03'23"/112°13'25"		A&Wc				FBC			FC		
CG	Hermit Creek	Below Hermit Pack Trail crossing to confluence with the Colorado River at 36°06'00"/112°32'04"			A&Ww			FBC			FC		
CG	Horn Creek	Headwaters to confluence with the Colorado River at 36°05'56"/112°07'59"			A&Ww			FBC			FC		
CG	Hualapai Wash	Headwaters to Lake Mead at 36°00'40"/114°07'37"				A&We			PBC				
CG	Jacob Lake	36°42'26"/112°13'48"	Sedimentary	A&Wc				FBC			FC		
CG	Kaibab Lake	35°17'04"/112°09'17"	Igneous	A&Wc				FBC		DWS	FC	AgI	AgL
CG	Kanab Creek	Headwaters to confluence with the Colorado River at 36°23'31"/112°37'44"			A&Ww			FBC		DWS	FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CG	Kwagunt Creek	Headwaters to confluence with unnamed tributary at 36°13'29"/111°55'24"		A&Wc				FBC			FC		
CG	Kwagunt Creek	Below confluence with unnamed tributary to confluence with the Colorado River at 36°15'47"/111°49'40.8"			A&Ww			FBC			FC		
CG	Lake Mead	36°01'00"/114°44'15"	Deep	A&Wc				FBC		DWS	FC	AgI	AgL
CG	Lake Powell	36°57'00"/111°29'15"	Deep	A&Wc				FBC		DWS	FC	AgI	AgL
CG	Lonetree Canyon Creek	Headwaters to the Colorado River at 36°04'48"/112°01'52"			A&Ww			FBC			FC		
CG	Matkatamiba Creek	Below Havasupai Indian Reservation; to confluence with the Colorado River at 36°20'38"/112°40'19"			A&Ww			FBC			FC		
CG	Monument Creek	Headwaters to the Colorado River at 36°05'53"/112°10'55"			A&Ww			FBC			FC		
CG	Nankoweap Creek	Headwaters to confluence with unnamed tributary at 36°15'30"/111°57'23"		A&Wc				FBC			FC		
CG	Nankoweap Creek	Below confluence with unnamed tributary to Colorado River at 36°18'25"/111°51'28.8"			A&Ww			FBC			FC		
CG	National Canyon Creek	Portion of the creek that flows into the Colorado River at 36°15'25"/112°53'34.8" that is not located on the Hualapai Indian Reservation			A&Ww			FBC			FC		
CG	North Canyon Creek	Headwaters to confluence with unnamed tributary at 36°33'57"/111°55'39"		A&Wc				FBC			FC		
CG	North Canyon Creek	Below confluence with unnamed tributary to Colorado River at 36°37'48"/111°45'46.8"			A&Ww			FBC			FC		
CG	Olo Creek	Headwaters to the Colorado River at 36°22'16"/112°38'56"			A&Ww			FBC			FC		
CG	Parashant Canyon	Headwaters to confluence with unnamed tributary at 36°21'26"/113°28'10"		A&Wc				FBC			FC		
CG	Parashant Canyon	Below confluence with unnamed tributary to the Colorado River			A&Ww			FBC			FC		
CG	Paria River	Utah border to the Colorado River at 36°51'29"/111°36'04"			A&Ww			FBC			FC		
CG	Phantom Creek	Headwaters to confluence with unnamed tributary at 36°10'04"/112°07'50"		A&Wc				FBC			FC		
CG	Phantom Creek	Below confluence with unnamed tributary to Colorado River at 36°06'58"/112°05'09.6"			A&Ww			FBC			FC		
CG	Pipe Creek	Headwaters to the Colorado River at 36°05'56"/112°06'36"			A&Ww			FBC			FC		
CG	Red Canyon Creek	Headwaters to the Colorado River at 36°02'42"/111°55'08"			A&Ww			FBC			FC		
CG	Red Lake	35°40'00"/114°03'45"			A&Ww			FBC			FC		AgL
CG	Redondo Lake	32°44'32"/114°29'02"	Shallow		A&Ww			FBC			FC		
CG	Roaring Springs	Headwaters of Roaring Springs Creek at 36°11'35"/112°01'55.2"		A&Wc				FBC		DWS	FC		
CG	Roaring Springs Canyon	Headwaters to Bright Angel Creek at 36°11'35"/112°01'55"		A&Wc				FBC			FC		
CG	Rock Canyon	Tributary to Truxton Wash at 35°26'56"/113°36'29"				A&We			PBC				
CG	Royal Arch Creek	Tributary to the Colorado River at 36°11'53"/112°26'56"			A&Ww			FBC			FC		
CG	Ruby Canyon Creek	Tributary to the Colorado River at 36°11'24"/112°18'54"			A&Ww			FBC			FC		
CG	Russell Tank	34°52'22"/111°52'44"		A&Wc				FBC			FC		AgL
CG	Saddle Canyon Creek	Headwaters to confluence with unnamed tributary at 36°21'35.5"/112°22'46"		A&Wc				FBC			FC		
CG	Saddle Canyon Creek	Below confluence with unnamed tributary to Colorado River at 36°22'52"/112°23'16.8"			A&Ww			FBC			FC		
CG	Santa Fe Reservoir	35°14'26"/112°11'04"	Igneous	A&Wc				FBC		DWS	FC		
CG	Sapphire Canyon Creek	Headwaters to the Colorado River at 36°08'49"/112°17'28"			A&Ww			FBC			FC		
CG	Serpentine Canyon Creek	Headwaters to the Colorado River at 36°12'22"/112°19'37"			A&Ww			FBC			FC		
CG	Shinumo Creek	Headwaters to confluence with unnamed tributary at 36°18'21"/112°18'03"		A&Wc				FBC			FC		
CG	Shinumo Creek	Below confluence with unnamed tributary to the Colorado River at 36°14'13"/112°20'52.8"			A&Ww			FBC			FC		
CG	Short Creek	Tributary to the Virgin River at 36°58'23"/113°16'08"				A&We			PBC				
CG	Slate Creek	Headwaters to the Colorado River at 36°08'06"/112°14'42"			A&Ww			FBC			FC		
CG	Spring Canyon Creek	Headwaters to the Colorado River at 36°01'08"/113°21'00"			A&Ww			FBC			FC		
CG	Stone Creek	Headwaters to the Colorado River at 36°20'49"/112°27'14"			A&Ww			FBC			FC		
CG	Tapeats Creek	Headwaters to the Colorado River at 36°22'16"/112°28'05"		A&Wc				FBC			FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CG	Thunder River	Tributary to Tapeats Creek at 36°23'31"/ 112°27'00"		A&Wc				FBC			FC		
CG	Trail Canyon Creek	Headwaters to the Colorado River at 35°50'20"/113°19'37"			A&Ww			FBC			FC		
CG	Transept Canyon	Headwaters to North Rim WWTP outfall at 36°12'20"/112°03'35"				A&We			PBC				
CG	Transept Canyon (EDW)	North Rim WWTP outfall to 1 km downstream					A&Wedw		PBC				
CG	Transept Canyon	1 km downstream of the North Rim WWTP outfall to Bright Angel Creek				A&We			PBC				
CG	Travertine Canyon Creek	Tributary to the Colorado River at 36°06'11"/ 112°13'05"			A&Ww			FBC			FC		
CG	Truxton Wash	Tributary to Red Lake at 35°37'23"/ 114°03'00"				A&We			PBC				
CG	Turquoise Canyon Creek	Tributary to the Colorado River at 36°09'14"/ 112°18'07"			A&Ww			FBC			FC		
CG	Unkar Creek	Below confluence with unnamed tributary to confluence with Colorado River at 36°04'48"/ 111°52'22.8"			A&Ww			FBC			FC		
CG	Unnamed Wash (EDW)	Grand Canyon NP Desert View WWTP outfall to Cedar Canyon					A&Wedw		PBC				
CG	Unnamed Wash (EDW)	Valle Airpark WRF outfall at 35°38'34"/ 112°09'22" to confluence with Spring Valley Wash at 35°38'29"/112°10'47"					A&Wedw		PBC				
CG	Vasey's Paradise	A spring at 36°26'49"/111°50'46"		A&Wc				FBC			FC		
CG	Virgin River	Tributary to the Colorado River at 36°47'28"/ 114°06'11"			A&Ww			FBC			FC	AgI	AgL
CG	Vishnu Creek	Tributary to the Colorado River at 36°03'18"/ 111°59'42"			A&Ww			FBC			FC		
CG	Warm Springs Creek	Tributary to the Colorado River at 36°11'49"/ 113°04'55"			A&Ww			FBC			FC		
CG	West Cataract Creek	Tributary to Cataract Creek at 35°15'40"/ 112°11'38"		A&Wc				FBC			FC		AgL
CG	White Creek	Headwaters to confluence with unnamed tributary at 36°18'42"/112°21'03"		A&Wc				FBC			FC		
CG	White Creek	Below confluence with unnamed tributary to the Colorado River at 36°15'22"/112°19'30"			A&Ww			FBC			FC		
CG	Wright Canyon Creek	Headwaters to confluence with unnamed tributary at 35°20'54"/113°30'35"		A&Wc				FBC			FC		AgL
CG	Wright Canyon Creek	Below confluence with unnamed tributary to confluence with Truxton Wash			A&Ww			FBC			FC		AgL
CL	A-10 Backwater	33°31'38"/114°33'19"	Shallow		A&Ww			FBC			FC		
CL	A-7 Backwater	33°34'39"/114°39'42"	Shallow		A&Ww			FBC			FC		
CL	Adobe Lake	33°02'39"/114°39'19"	Shallow		A&Ww			FBC			FC		
CL	Cibola Lake	33°31'38"/114°33'19"	Shallow		A&Ww			FBC			FC		
CL	Clear Lake	33°01'57"/114°31'26"	Shallow		A&Ww			FBC			FC		
CL	Columbus Wash	Tributary to the Gila River at 33°00'25"/ 113°16'08"				A&We			PBC				
CL	Colorado River	Lake Mead to Topock Marsh		A&Wc				FBC		DWS	FC	AgI	AgL
CL	Colorado River	Topock Marsh to Morelos Dam			A&Ww			FBC		DWS	FC	AgI	AgL
CL	Gila River	Painted Rock Dam to the Colorado River at 32°43'12"/114°33'14"			A&Ww			FBC			FC	AgI	AgL
CL	Holy Moses Wash	Headwaters to Kingman WWTP outfall at 35°10'30"/114°03'43"				A&We			PBC				
CL	Holy Moses Wash (EDW)	Kingman WWTP outfall to 3 km downstream					A&Wedw		PBC				
CL	Holy Moses Wash	3 km downstream of Kingman WWTP outfall to confluence with Sawmill Wash at 35°09'43"/114°04'20"				A&We			PBC				
CL	Hunter's Hole Backwater	32°31'15"/114°48'03"	Shallow		A&Ww			FBC			FC		AgL
CL	Imperial Reservoir	32°53'04"/114°27'40"	Shallow		A&Ww			FBC		DWS	FC	AgI	AgL
CL	Island Lake	33°01'52"/114°35'07"	Shallow		A&Ww			FBC			FC		
CL	Laguna Reservoir	32°51'15"/114°28'38"	Shallow		A&Ww			FBC		DWS	FC	AgI	AgL
CL	Lake Havasu	34°18'15"/114°08'15"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
CL	Lake Mohave	35°11'45"/114°34'00"	Deep	A&Wc				FBC		DWS	FC	AgI	AgL
CL	Martinez Lake	32°58'52"/114°28'23"	Shallow		A&Ww			FBC			FC	AgI	AgL
CL	Mittry Lake	32°49'11"/114°27'41"	Shallow		A&Ww			FBC			FC		
CL	Mohave Wash	Headwaters to Lake Havasu at 33°28'55"/ 114°35'56"				A&We			PBC				
CL	Nortons Lake	33°02'35"/114°37'58"	Shallow		A&Ww			FBC			FC		
CL	Painted Rock (Borrow Pit) Lake	33°05'00"/113°01'20"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
CL	Pretty Water Lake	33°19'45"/114°42'15"	Shallow		A&Ww			FBC			FC		
CL	Quigley Ponds	32°43'00"/113°58'00"	Shallow		A&Ww			FBC			FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
CL	Sacramento Wash	Tributary to Topock Marsh at 34°43'48"/ 114°29'13"				A&We			PBC				
CL	Sawmill Canyon	Headwaters to abandoned gaging station at 35°09'46.5"/113°57'51"			A&Ww			FBC			FC		AgL
CL	Sawmill Canyon	Below abandoned gaging station to confluence with Sacramento Wash at 35°09'43"/ 113°58'01.2"				A&We			PBC				AgL
CL	Topock Marsh	34°47'30"/114°31'00"	Shallow		A&Ww			FBC		DWS	FC	AgI	AgL
CL	Tyson Wash (EDW)	Town of Quartzsite WWTP outfall at 33°42'30"/114°13'14" to 1 km downstream at 33°42'30"/114°13'45"					A&Wedw		PBC				
CL	Wellton Canal	Wellton-Mohawk Irrigation District								DWS		AgI	AgL
CL	Wellton Ponds	32°42'15"/114°06'15"			A&Ww			FBC			FC		
CL	YPG Pond	32°50'22"/114°26'25"			A&Ww			FBC			FC		
CL	Yuma Area Canals	Above municipal water treatment plant intakes								DWS		AgI	AgL
CL	Yuma Area Canals	Below municipal water treatment plant intakes and all drains										AgI	AgL
LC	Als Lake	35°02'17"/111°25'13"	Igneous		A&Ww			FBC			FC		AgL
LC	Ashurst Lake	35°01'10"/111°24'09"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Atcheson Reservoir	34°00'00"/109°20'41"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Auger Creek	Tributary to Nutrioso Creek at 33°57'22"/ 109°12'58"		A&Wc				FBC			FC		AgL
LC	Barbershop Canyon Creek	Tributary to East Clear Creek at 34°33'00"/ 111°09'43"		A&Wc				FBC			FC		AgL
LC	Bear Canyon Creek	Tributary to General Springs Canyon at 34°32'18"/111°12'15"		A&Wc				FBC			FC		AgL
LC	Bear Canyon Creek	Tributary to Willow Creek at 34°27'29"/ 111°00'00"		A&Wc				FBC			FC		AgL
LC	Bear Canyon Lake	34°24'10"/111°00'09"	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Becker Lake	34°09'16"/109°18'18"	Shallow	A&Wc				FBC			FC		AgL
LC	Billy Creek	Tributary to Show Low Creek at 34°12'25"/ 110°00'00"		A&Wc				FBC			FC		AgL
LC	Black Canyon Creek	Tributary to Chevelon Creek at 34°47'38"/ 110°36'22"		A&Wc				FBC			FC	AgI	AgL
LC	Black Canyon Lake	34°19'50"/110°41'59"	Sedimentary	A&Wc				FBC		DWS	FC	AgI	AgL
LC	Blue Ridge Reservoir	34°33'15"/111°11'01"	Deep	A&Wc				FBC			FC	AgI	AgL
LC	Boot Lake	34°58'53"/111°20'00"	Igneous	A&Wc				FBC			FC		AgL
LC	Bow and Arrow Wash (EDW)	Estates at Pine Canyon WWTP outfall #1 at 35°09'31"/111°38'24" to confluence with Rio de Flag at 35°10'35"/111°36'42"					A&Wedw		PBC				
LC	Buck Springs Canyon Creek	Tributary to Leonard Canyon Creek at 34°28'52"/111°05'24"		A&Wc				FBC			FC		AgL
LC	Bunch Reservoir	34°02'12"/109°26'45"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Camillo Tank	34°55'03"/111°22'41"	Igneous		A&Ww			FBC			FC		AgL
LC	Carnero Lake	34°06'57"/109°31'39"	Shallow	A&Wc				FBC			FC		AgL
LC	Chevelon Canyon Lake	34°30'39"/110°49'28"	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Chevelon Creek	Tributary to the Little Colorado River at 34°57'04"/110°31'30"		A&Wc				FBC			FC	AgI	AgL
LC	Chevelon Creek, West Fork	Tributary to Chevelon Creek at 34°36'58"/ 110°46'05"		A&Wc				FBC			FC		AgL
LC	Chilson Tank	34°51'46"/111°22'52"	Igneous		A&Ww			FBC			FC		AgL
LC	Clear Creek	Tributary to the Little Colorado River at 34°59'13"/110°38'17"		A&Wc				FBC		DWS	FC		AgL
LC	Clear Creek Reservoir	34°58'10"/110°38'33"	Shallow	A&Wc				FBC		DWS	FC	AgI	AgL
LC	Coconino Reservoir	35°00'16"/111°23'52"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Colter Creek	Tributary to Nutrioso Creek at 33°58'19"/ 109°12'29"		A&Wc				FBC			FC		AgL
LC	Colter Reservoir	33°56'40"/109°28'50"	Shallow	A&Wc				FBC			FC		AgL
LC	Concho Creek	Tributary to Carrizo Wash at 34°36'25"/ 109°33'54"		A&Wc				FBC			FC		AgL
LC	Concho Lake	34°26'36"/109°37'40"	Shallow	A&Wc				FBC			FC	AgI	AgL
LC	Cow Lake	34°53'19"/111°18'49"	Igneous		A&Ww			FBC			FC		AgL
LC	Coyote Creek	Tributary to the Little Colorado River at 34°18'22"/109°20'53"		A&Wc				FBC			FC	AgI	AgL
LC	Crisis Lake (Snake Tank #2)	34°47'51"/111°17'01"			A&Ww			FBC			FC		AgL
LC	Dane Canyon Creek	Tributary to Barbershop Canyon Creek at 34°30'29"/111°09'07"		A&Wc				FBC			FC		AgL
LC	Daves Tank	34°44'23"/111°17'08"			A&Ww			FBC			FC		AgL
LC	Deep Lake	35°03'30"/111°24'55"	Igneous		A&Ww			FBC			FC		AgL
LC	Dry Lake (EDW)	34°37'52"/110°23'40"	Igneous				A&Wedw		PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
LC	Ducksnest Lake	34°59'15"/111°23'53"			A&Ww			FBC			FC		AgL
LC	East Clear Creek	Tributary to Clear Creek at 34°38'31"/ 110°59'49"		A&Wc				FBC			FC	AgI	AgL
LC	Ellis Wiltbank Reservoir	34°05'25"/109°28'24"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Fish Creek	Tributary to the Little Colorado River at 34°04'05"/109°26'49"		A&Wc				FBC			FC		AgL
LC	Fool's Hollow Lake	34°16'14"/110°04'15"	Igneous	A&Wc				FBC			FC		AgL
LC	General Springs Canyon Creek	Tributary to East Clear Creek at 34°32'17"/ 111°12'18"		A&Wc				FBC			FC		AgL
LC	Geneva Reservoir	34°01'44"/109°31'44"	Igneous		A&Ww			FBC			FC		AgL
LC	Hall Creek	Tributary to the Little Colorado River at 34°03'58"/109°27'07"		A&Wc				FBC			FC	AgI	AgL
LC	Hart Canyon Creek	Tributary to Willow Creek at 34°30'40"/ 110°59'28"		A&Wc				FBC			FC		AgL
LC	Hay Lake	34°00'11"/109°25'55"	Igneous	A&Wc				FBC			FC		AgL
LC	Hog Wallow Lake	33°58'57"/109°25'38"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Horse Lake	35°03'53"/111°27'51"			A&Ww			FBC			FC		AgL
LC	Huffer Tank	34°27'45"/111°23'09"			A&Ww			FBC			FC		AgL
LC	Hulsey Creek	Tributary to Nutrioso Creek at 33°56'28"/ 109°11'28"		A&Wc				FBC			FC		AgL
LC	Hulsey Lake	33°55'57"/109°09'33"	Sedimentary	A&Wc				FBC			FC		AgL
LC	Indian Lake	35°00'38"/111°22'37"			A&Ww			FBC			FC		AgL
LC	Jack's Canyon Creek	Tributary to the Little Colorado River at 35°00'07"/110°39'07"		A&Wc				FBC			FC	AgI	AgL
LC	Jarvis Lake	33°58'59"/109°12'33"	Sedimentary		A&Ww			FBC			FC		AgL
LC	Kinnikinick Lake	34°53'52"/111°18'20"	Igneous	A&Wc				FBC			FC		AgL
LC	Knoll Lake	34°25'38"/111°05'10"	Sedimentary	A&Wc				FBC			FC		AgL
LC	Lake Hum-phreys (EDW)	35°11'51"/111°35'16"					A&Wedw		PBC				
LC	Lake Mary, Lower	35°06'22"/111°34'20"	Igneous	A&Wc				FBC		DWS	FC		AgL
LC	Lake Mary, Upper	35°04'45"/111°31'56"	Igneous	A&Wc				FBC		DWS	FC		AgL
LC	Lake of the Woods	34°09'39"/109°58'45"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Lee Valley Creek (OAW)	Headwaters to Lee Valley Reservoir		A&Wc				FBC			FC		
LC	Lee Valley Creek	From Lee Valley Reservoir to the East Fork of the Little Colorado River at 33°56'35"/ 109°29'06"		A&Wc				FBC			FC		AgL
LC	Lee Valley Reservoir	33°56'30"/109°30'00"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Leonard Canyon Creek	Tributary to Clear Creek at 34°37'26"/ 111°02'20"		A&Wc				FBC			FC		AgL
LC	Leonard Canyon Creek, East Fork	Tributary to Leonard Canyon Creek at 34°25'52"/111°05'06"		A&Wc				FBC			FC		AgL
LC	Leonard Canyon Creek, Middle Fork	Tributary to Leonard Canyon, West Fork at 34°26'17"/111°06'47"		A&Wc				FBC			FC		AgL
LC	Leonard Canyon Creek, West Fork	Tributary to Leonard Canyon, East Fork at 34°28'01"/111°05'28"		A&Wc				FBC			FC		AgL
LC	Lily Creek	Tributary to Coyote Creek at 33°59'46"/ 109°03'58"		A&Wc				FBC			FC		AgL
LC	Little Colorado River	Headwaters to Lyman Reservoir		A&Wc				FBC			FC	AgI	AgL
LC	Little Colorado River	Below Lyman Reservoir, to confluence with the Puerco River at 34°53'20"/110°07'41"		A&Wc				FBC		DWS	FC	AgI	AgL
LC	Little Colorado River	Below confluence with Puerco River to the boundary of the Navajo Nation			A&Ww			FBC		DWS	FC	AgI	AgL
LC	Little Colorado River, East Fork	Tributary to the Little Colorado River at 34°00'14"/109°27'22"		A&Wc				FBC			FC		AgL
LC	Little Colorado River, South Fork	Tributary to the Little Colorado River at 34°05'20"/109°24'58"		A&Wc				FBC			FC		AgL
LC	Little Colorado River, West Fork (OAW)	Headwaters to Government Springs at 33°59'33"/109°27'52"		A&Wc				FBC			FC		
LC	Little Colorado River, West Fork	Below Government Springs to the Little Col-orado River at 34°00'14"/109°27'21.6"		A&Wc				FBC			FC		AgL
LC	Little George Reservoir	34°00'37"/109°19'15"	Igneous		A&Ww			FBC			FC	AgI	
LC	Little Mormon Lake	34°17'00"/109°58'03"	Igneous		A&Ww			FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
LC	Little Ortega Lake	34°22'45"/109°40'00"	Igneous	A&Wc				FBC			FC		
LC	Long Lake, Lower	34°46'45"/111°12'00"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Long Lake, Upper	35°00'00"/111°21'00"	Igneous	A&Wc				FBC			FC		AgL
LC	Long Tom Tank	34°20'37"/110°49'20"		A&Wc				FBC			FC		AgL
LC	Lower Walnut Canyon Lake (EDW)	35°12'04"/111°34'07"					A&Wedw		PBC				
LC	Lyman Reservoir	34°21'30"/109°21'30"	Deep	A&Wc				FBC			FC	AgI	AgL
LC	Mamie Creek	Tributary to Coyote Creek at 33°59'24"/ 109°03'50"		A&Wc				FBC			FC		AgL
LC	Marshall Lake	35°07'10"/111°32'01"	Igneous	A&Wc				FBC			FC		AgL
LC	McKay Reservoir	34°01'27"/110°29'07"		A&Wc				FBC			FC	AgI	AgL
LC	Merritt Draw Creek	Tributary to Barbershop Canyon Creek at 34°29'38"/111°09'54"		A&Wc				FBC			FC		AgL
LC	Mexican Hay Lake	34°01'57"/109°21'25"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Milk Creek	Tributary to Hulsey Creek at 33°56'31"/ 109°11'17"		A&Wc				FBC			FC		AgL
LC	Miller Canyon Creek	Tributary to East Clear Creek at 34°33'00"/ 111°14'17"		A&Wc				FBC			FC		AgL
LC	Miller Canyon Creek, East Fork	Tributary to Miller Canyon Creek at 34°30'18"/111°14'53"		A&Wc				FBC			FC		AgL
LC	Mineral Creek	Tributary to Little Ortega Lake at 34°22'52"/ 109°39'50"		A&Wc				FBC			FC	AgI	AgL
LC	Mormon Lake	34°56'40"/111°27'10"	Shallow	A&Wc				FBC		DWS	FC	AgI	AgL
LC	Morton Lake	34°53'36"/111°17'39"	Igneous	A&Wc				FBC			FC		AgL
LC	Mud Lake	34°55'24"/111°21'18"	Shallow		A&Ww			FBC			FC		AgL
LC	Ned Lake (EDW)	32°17'18"/110°03'20"	EDW				A&Wedw		PBC				
LC	Nelson Reservoir	34°03'12"/109°11'18"	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Norton Reservoir	34°03'57"/109°31'21"	Igneous		A&Ww			FBC			FC		AgL
LC	Nutrioso Creek	Tributary to the Little Colorado River at 34°09'04"/109°17'35"		A&Wc				FBC			FC	AgI	AgL
LC	Paddy Creek	Tributary to Nutrioso Creek at 33°54'47"/ 109°10'16"		A&Wc				FBC			FC		AgL
LC	Phoenix Park Wash	Tributary to Dry Lake at 34°37'30"/ 110°22'12"				A&We			PBC				
LC	Pierce Seep	34°23'35"/110°31'22"		A&Wc					PBC				
LC	Pine Tank	34°46'49"/111°17'17"	Igneous		A&Ww			FBC			FC		AgL
LC	Pintail Lake (EDW)	34°18'06"/110°01'17"	EDW				A&Wedw		PBC				
LC	Pool Corral Lake	33°58'16"/109°24'53"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Porter Creek	Tributary to Show Low Creek at 34°10'16"/ 109°58'48"		A&Wc				FBC			FC		AgL
LC	Potato Lake	34°27'44"/111°20'42"	Igneous	A&Wc				FBC			FC		AgL
LC	Pratt Lake	34°01'31"/109°04'16"	Sedimentary	A&Wc				FBC			FC		
LC	Puerco River	Tributary to the Little Colorado River at 34°53'20"/110°07'41"			A&Ww			FBC		DWS	FC	AgI	AgL
LC	Puerco River (EDW)	Sanders Unified School District WWTP outfall at 35°12'52"/109°19'40" to 0.5 km downstream at 35°12'39"/109°19'52"					A&Wedw		PBC				
LC	Rainbow Lake	34°09'03"/109°59'01"	Shallow Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Reagan Reservoir	34°02'09"/109°08'43"	Igneous		A&Ww			FBC			FC		AgL
LC	Rio de Flag	Headwaters to Flagstaff WWTP outfall at 35°12'21"/111°39'17"				A&We			PBC				
LC	Rio de Flag (EDW)	Flagstaff WWTP outfall at 35°12'21"/ 111°39'17" to the confluence with San Francisco Wash					A&Wedw		PBC				
LC	River Reservoir	34°02'01"/109°26'07"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Rogers Reservoir	33°58'30"/109°16'18"	Igneous		A&Ww			FBC			FC		AgL
LC	Rudd Creek	Tributary to Nutrioso Creek at 34°04'12"/ 109°11'56"		A&Wc				FBC			FC		AgL
LC	Russel Reservoir	33°59'29"/109°20'00"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Salt House Lake	33°57'06"/109°20'12"	Igneous		A&Ww			FBC			FC		AgL
LC	San Salvador Reservoir	33°58'51"/109°19'51"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Scott Reservoir	34°10'27"/109°57'27"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Show Low Creek	Tributary to Silver Creek at 34°25'26"/ 110°04'05"		A&Wc				FBC			FC	AgI	AgL
LC	Show Low Lake	34°11'25"/109°59'55"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Silver Creek	Tributary to the Little Colorado River at 34°44'24"/110°02'17"		A&Wc				FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
LC	Slade Reservoir	33°59'50"/109°20'00"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Soldiers Annex Lake	34°47'13"/111°13'48"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Soldiers Lake	34°47'49"/110°13'59"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Spaulding Tank	34°30'17"/111°02'03"			A&Ww			FBC			FC		AgL
LC	Sponseller Lake	34°14'10"/109°50'42"	Igneous	A&Wc				FBC			FC		AgL
LC	St Johns Reservoir (Little Reservoir)	34°29'14"/109°21'57"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Telephone Lake (EDW)	34°17'35"/110°02'39"	EDW				A&Wedw		PBC				
LC	Tremaine Lake	34°46'00"/111°14'10"	Igneous	A&Wc				FBC			FC		AgL
LC	Tunnel Reservoir	34°01'51"/109°26'32"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Turkey Draw (EDW)	High Country Pines II WWTP outfall at 34°25'35"/110°38'13" to confluence of Turkey Draw with Black Canyon Creek at 34°25'20"/110°36'36"					A&Wedw		PBC				
LC	Unnamed Wash (EDW)	Bison Ranch WWTP outfall at 34°23'31"/110°31'41" to Pierce Seep at 34°23'35"/110°31'22"					A&Wedw		PBC				
LC	Unnamed Wash (EDW)	Black Mesa Ranger Station WWTP outfall at 34°23'32"/110°53'32" to confluence of Oklahoma Flat Draw with Pierce Wash at 34°26'47"/110°29'25"					A&Wedw		PBC				
LC	Unnamed Wash (EDW)	Estates at Pine Canyon WWTP outfall at 35°09'17"/111°38'22" to confluence of unnamed wash with Bow Wash and Arrow Wash at 35°09'51"/111°37'29"					A&Wedw		PBC				
LC	Unnamed Wash (EDW)	Estates at Pine Canyon WWTP outfall #3 at 35°09'45"/111°38'48" to confluence with Rio de Flag at 35°10'05"/111°38'37					A&Wedw		PBC				
LC	Vail Lake	35°05'24"/111°30'42"	Igneous	A&Wc				FBC			FC		AgL
LC	Walnut Creek	Tributary to Billy Creek at 34°09'50"/109°58'48"		A&Wc				FBC			FC		AgL
LC	Water Canyon Creek	Tributary to the Little Colorado River at 34°06'47"/109°18'43"		A&Wc				FBC			FC		AgL
LC	Water Canyon Reservoir	34°00'15"/109°20'05"	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Whale Lake (EDW)	35°12'32"/111°34'42"	EDW				A&Wedw		PBC				
LC	Whipple Lake	34°16'47"/109°58'28"	Igneous		A&Ww			FBC			FC		AgL
LC	White Mountain Lake	34°21'54"/109°59'38"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	White Mountain Reservoir	34°00'15"/109°30'48"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Willow Creek	Tributary to Clear Creek at 34°38'31"/110°59'49"		A&Wc				FBC			FC		AgL
LC	Willow Springs Canyon Creek	Tributary to Chevelon Creek at 34°21'32"/110°53'20"		A&Wc				FBC			FC		AgL
LC	Willow Springs Lake	34°18'45"/110°52'34"	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Woodland Reservoir	34°07'36"/109°57'06"	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Woods Canyon Creek	Tributary to Chevelon Creek at 34°21'32"/110°53'20"		A&Wc				FBC			FC		AgL
LC	Woods Canyon Lake	34°20'05"/110°56'35"	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Zuni River	Tributary to the Little Colorado River at 34°38'42"/109°40'26"		A&Wc				FBC			FC	AgI	AgL
MG	Agua Fria River	Headwaters to confluence with unnamed EDW wash at 34°35'43"/112°16'29", receiving treated wastewater from the Prescott Valley WWTP				A&We			PBC				AgL
MG	Agua Fria River (EDW)	Below confluence with unnamed wash receiving treated wastewater from the Prescott Valley WWTP to State Route 169 at 34°31'43"/112°14'7.5"					A&Wedw		PBC				AgL
MG	Agua Fria River	State Route 169 to Lake Pleasant at 34°54'54.7"/112°14'7.5"			A&Ww			FBC		DWS	FC	AgI	AgL
MG	Agua Fria River	Below Lake Pleasant to the El Mirage WWTP at 33°34'36"/112°48'45"				A&We			PBC				AgL
MG	Agua Fria River (EDW)	El Mirage WWTP to 2 km downstream					A&Wedw		PBC				
MG	Agua Fria River	Below 2 km downstream of the El Mirage WWTP to Avondale WWTP outfall				A&We			PBC				
MG	Agua Fria River	Avondale WWTP outfall at 33°23'24"/112°21'50.4" to Gila River at 33°23'22"/112°21'48"					A&Wedw		PBC				
MG	Alvord Park Lake	Urban Lake: 35th Avenue & Baseline Road, Phoenix at 33°22'34"/112°08'11"	Urban		A&Ww				PBC		FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
MG	Andorra Wash (EDW)	Town of Cave Creek WWTP outfall #1 at 33°50'00"/111°56'32" to confluence with Cave Creek Wash at 33°49'54"/111°57'57.4"					A&Wedw		PBC				
MG	Antelope Creek	Tributary to Martinez Creek at 34°16'37"/112°08'46"			A&Ww			FBC			FC		AgL
MG	Arlington Canal	From Gila River at 33°20'54"/112°35'39" to Gila River at 33°13'44"/112°46'15"											AgL
MG	Ash Creek	Headwaters to confluence with Tex Canyon at 34°34'44"/112°07'18"		A&Wc				FBC			FC	AgI	AgL
MG	Ash Creek	Below confluence with Tex Canyon to Agua Fria at 34°19'34"/112°04'30"			A&Ww			FBC			FC	AgI	AgL
MG	Beehive Tank	32°52'36"/111°02'19"			A&Ww			FBC			FC		AgL
MG	Big Bug Creek	Headwaters to confluence with Eugene Gulch at 34°27'11"/112°18'28.5"		A&Wc				FBC			FC	AgI	AgL
MG	Big Bug Creek	Below confluence with Eugene Gulch to confluence with Agua Fria River at 34°18'54"/112°03'58"			A&Ww			FBC			FC	AgI	AgL
MG	Black Canyon Creek	Tributary to the Agua Fria River at 34°04'12"/112°09'29"			A&Ww			FBC			FC		AgL
MG	Blind Indian Creek	Tributary to the Hassayampa River at 34°12'40"/112°32'17"			A&Ww			FBC			FC		AgL
MG	Bonsall Park Lake	Urban Lake; 59th Avenue & Bethany Home Road, Phoenix at 33°31'23"/112°11'05"	Urban		A&Ww				PBC		FC		
MG	Canal Park Lake	Urban Lake; College Avenue & Curry Road, Tempe at 33°26'57"/111°56'14"	Urban		A&Ww				PBC		FC		
MG	Cave Creek	Headwaters to the Cave Creek Dam			A&Ww			FBC			FC		AgL
MG	Cave Creek	Cave Creek Dam to the Arizona Canal at 33°34'24"/112°06'25"				A&We			PBC				
MG	Centennial Wash	Tributary to the Gila River at 33°13'44"/112°46'16"				A&We			PBC				AgL
MG	Centennial Wash Ponds	33°55'10"/113°23'05"			A&Ww			FBC			FC		AgL
MG	Chaparral Park Lake	Urban Lake; Hayden Road & Chaparral Road, Scottsdale at 33°30'41"/111°54'25"	Urban		A&Ww				PBC		FC	AgI	
MG	Cortez Park Lake	Urban Lake; 35th Avenue & Dunlap, Glendale at 33°34'13"/112°07'51"	Urban		A&Ww				PBC		FC	AgI	
MG	Desert Breeze Lake	Urban Lake; Galaxy Drive, West Chandler at 33°18'47.5"/111°55'08"	Urban		A&Ww				PBC		FC		
MG	Devils Canyon	Tributary to Mineral Creek at 33°12'58"/110°59'42"			A&Ww				FBC		FC		AgL
MG	Dobson Lake	Urban Lake; Dobson Road & Los Lagos Vista Avenue, Mesa at 33°22'17"/111°53'12"	Urban		A&Ww				PBC		FC		
MG	Eldorado Park Lake	Urban Lake; Miller Road & Oak Street, Tempe at 33°28'25"/111°54'51"	Urban		A&Ww				PBC		FC		
MG	Encanto Park Lake	Urban Lake; 15th Avenue & Encanto Blvd., Phoenix at 33°28'36"/112°05'17"	Urban		A&Ww				PBC		FC	AgI	
MG	Fain Lake	City of Prescott Valley Park Lake 34°34'29"/112°21'03"	Urban		A&Ww				PBC		FC		
MG	French Gulch	Headwaters to confluence with Hassayampa River			A&Ww				PBC				AgL
MG	Galena Gulch	Tributary to the Agua Fria River at 34°28'37"/112°15'14"				A&We			PBC				AgL
MG	Gallaway Wash (EDW)	Town of Cave Creek WWTP outfall #2 at 33°49'58"/111°57'30" to confluence with Andorra Wash at 33°49'59"/111°57'41"					A&Wedw		PBC				
MG	Gila River	San Carlos Indian Reservation to the Ashurst-Hayden Dam at 33°06'01"/111°14'46"			A&Ww			FBC			FC	AgI	AgL
MG	Gila River	Ashurst-Hayden Dam to the Florence WWTP outfall at 33°02'30"/111°24'16"				A&We			PBC				AgL
MG	Gila River (EDW)	Florence WWTP outfall to Felix Road at 33°01'49"/111°17'16"					A&Wedw		PBC				
MG	Gila River	Felix Road to the Gila River Indian Reservation				A&We			PBC				AgL
MG	Gila River (EDW)	From the confluence with the Salt River to the Gillespie Dam at 33°13'45"/112°46'07"					A&Wedw		PBC		FC	AgI	AgL
MG	Gila River	Gillespie Dam to Painted Rock Dam at 33°04'23"/113°00'40"			A&Ww			FBC			FC	AgI	AgL
MG	Granada Park Lake	Urban Lake; 6505 North 20th Street, Phoenix at 33°31'58.6"/112°02'06"	Urban		A&Ww				PBC		FC		
MG	Groom Creek	Tributary to the Hassayampa River at 34°27'14"/112°29'24"		A&Wc				FBC		DWS	FC		AgL
MG	Hank Raymond Lake	33°50'18"/112°16'07"			A&Ww			FBC			FC	AgI	AgL
MG	Hassayampa Lake	34°25'45"/112°25'29"	Igneous	A&Wc				FBC		DWS	FC		
MG	Hassayampa River	Headwaters to confluence with unnamed tributary at 34°26'09"/112°30'32"		A&Wc				FBC			FC	AgI	AgL
MG	Hassayampa River	Below confluence with unnamed tributary to 8 miles south of Wickenberg			A&Ww			FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
MG	Hassayampa River	8 miles south of Wickenburg to the Buckeye Irrigation Company Canal at 33°23'38"/ 112°22'22.8"				A&We			PBC				AgL
MG	Hassayampa River	Buckeye Irrigation Company canal to the Gila River at 33°19'34"/112°42'39.6"			A&Ww			FBC			FC		AgL
MG	Horsethief Lake	34°09'42"/112°17'56"	Igneous	A&Wc				FBC		DWS	FC		AgL
MG	Indian Bend Wash	Tributary to the Salt River at 33°26'13"/ 111°54'58"				A&We			PBC				
MG	Indian Bend Wash Lakes	Urban Lakes; Scottsdale at 33°30'31"/ 111°54'24"	Urban		A&Ww				PBC		FC		
MG	Indian School Park Lake	Urban Lake; Indian School Road & Hayden Road, Scottsdale at 33°29'45"/111°54'33"	Urban		A&Ww				PBC		FC		
MG	Kiwanis Park Lake	Urban Lake; 6000 South Mill Avenue, Tempe at 33°22'27"/111°56'21"	Urban		A&Ww				PBC		FC	AgI	
MG	Lake Pleasant	33°51'15"/112°16'15"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
MG	Lion Canyon	Tributary to Weaver Creek at 34°10'12"/ 112°41'49"			A&Ww			FBC			FC		AgL
MG	Little Ash Creek	Tributary to Ash Creek at 34°20'46"/ 112°04'16"			A&Ww			FBC			FC		AgL
MG	Lynx Creek	Headwaters to confluence with unnamed tributary at 34°34'29"/112°21'05"		A&Wc				FBC			FC		AgL
MG	Lynx Creek	Below confluence with unnamed tributary to Agua Fria River at 34°37'49"/112°14'42"			A&Ww			FBC			FC		AgL
MG	Lynx Lake	34°31'08"/112°23'05"	Deep	A&Wc				FBC		DWS	FC	AgI	AgL
MG	Maricopa Park Lake	33°35'30"/112°18'16"	Urban		A&Ww				PBC		FC		
MG	Martinez Canyon	Tributary to Box Canyon at 33°06'33"/ 111°12'48"			A&Ww			FBC			FC		AgL
MG	Martinez Creek	Tributary to the Hassayampa River at 33°59'56"/112°44'38"			A&Ww			FBC			FC	AgI	AgL
MG	McKellips Park Lake	Urban Lake; Miller Road & McKellips Road, Scottsdale at 33°27'14"/111°54'45"	Urban		A&Ww				PBC		FC	AgI	
MG	McMicken Wash (EDW)	Jomax WWTP outfall at 33°43'30"/ 112°20'11" to confluence of McMicken Wash with Agua Fria River at 33°39'39"/112°18'56"					A&Wedw		PBC				
MG	Mineral Creek	Tributary to the Gila River at 34°17'42"/ 112°13'34"			A&Ww			FBC			FC		AgL
MG	Minnehaha Creek	Tributary to the Hassayampa River at 34°11'49"/112°32'24"			A&Ww			FBC			FC		AgL
MG	Mountain Valley Park Ponds (EDW)	Town of Prescott Valley WWTP outfall 002 at 34°26'07"/112°18'48" to Navajo Wash					A&Wedw		PBC				
MG	New River	Headwaters to I-17 at 33°54'19.5"/112°08'46"			A&Ww			FBC			FC	AgI	AgL
MG	New River	Below I-17 to Agua Fria River at 33°30'47"/ 112°18'14"				A&We			PBC				AgL
MG	Painted Rock Reservoir	33°04'15"/113°00'30"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
MG	Papago Park Ponds	Urban Lake; Galvin Parkway, Phoenix at 33°26'56"/111°56'50"	Urban		A&Ww				PBC		FC		
MG	Papago Park South Pond	Urban Lake; Curry Road, Tempe	Urban		A&Ww				PBC		FC		
MG	Perry Mesa Tank	34°11'03"/112°01'59"			A&Ww			FBC			FC		AgL
MG	Phoenix Area Canals	Granite Reef Dam to all municipal WTP intakes								DWS		AgI	AgL
MG	Phoenix Area Canals	Below municipal WTP intakes and all other locations										AgI	AgL
MG	Picacho Reservoir	32°51'17"/111°28'49"	Shallow		A&Ww			FBC			FC	AgI	AgL
MG	Poland Creek	Headwaters to confluence with Lorena Gulch at 34°12'32"/112°19'07"		A&Wc				FBC			FC		AgL
MG	Poland Creek	Below confluence with Lorena Gulch to Black Canyon Creek at 34°14'20"/112°12'54"			A&Ww			FBC			FC		AgL
MG	Queen Creek	Headwaters to the Town of Superior WWTP outfall at 33°16'45"/111°17'25"			A&Ww				PBC				AgL
MG	Queen Creek (EDW)	Town of Superior WWTP outfall to confluence with Potts Canyon at 33°17'17"/ 111°11'36"					A&Wedw		PBC				
MG	Queen Creek	Potts Canyon to Queen Valley golf course at 33°17'55"/111°17'17"			A&Ww			FBC			FC		AgL
MG	Queen Creek	Below Queen Valley golf course to Gila River at 33°09'50"/111°53'16.8"				A&We			PBC				
MG	Riverview Park Lake	Urban Lake; Dobson Road & 8th Street, Mesa at 33°25'50"/111°52'29"	Urban		A&Ww				PBC		FC		
MG	Roadrunner Park Lake	Urban Lake; 36th Street & Cactus, Phoenix at 33°35'57"/112°00'18"	Urban		A&Ww				PBC		FC		
MG	Salt River	Verde River to 2 km below Granite Reef Dam (Granite Reef Dam is at 31°26'23"/ 111°12'40")			A&Ww			FBC		DWS	FC	AgI	AgL
MG	Salt River	2 km below Granite Reef Dam to City of Mesa NW WRF outfall at 33°26'45"/ 111°56'35"				A&We			PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
MG	Salt River (EDW)	City of Mesa NW WRF outfall at 33°26'45"/111°56'35" to Tempe Town Lake at 33°26'01"/111°54'55"					A&Wedw		PBC				
MG	Salt River	Below Tempe Town Lake to I-10 bridge				A&We			PBC				
MG	Salt River	I-10 bridge to the 23rd Avenue WWTP at 33°25'03"/112°06'41.6"			A&Ww				PBC		FC		
MG	Salt River (EDW)	23rd Avenue WWTP to confluence with Gila River at 33°22'55"/112°18'21.6"					A&Wedw		PBC		FC	AgI	AgL
MG	Siphon Draw (EDW)	Superstition Mountains WWTP outfall at 33°21'40"/111°33'30" to 6 km downstream at 32°21'01"/111°36'59"					A&Wedw		PBC				
MG	Sycamore Creek	Headwaters to confluence with Tank Canyon at 34°19'32"/111°50'12"		A&Wc				FBC			FC		AgL
MG	Sycamore Creek	Below confluence with Tank Canyon to the Agua Fria River at 34°19'30"/112°04'12"			A&Ww			FBC			FC		AgL
MG	Tempe Town Lake	At Mill Avenue Bridge at 33°26'30"/111°53'30"	Urban		A&Ww			FBC			FC		
MG	Tule Creek	Tributary to the Agua Fria River at 33°57'25"/112°14'13"			A&Ww			FBC			FC		AgL
MG	Turkey Creek	Headwaters to confluence with unnamed tributary at 34°19'28"/112°21'28"		A&Wc				FBC			FC	AgI	AgL
MG	Turkey Creek	Below confluence with unnamed tributary to Poland Creek at 34°14'20"/112°12'54"			A&Ww			FBC			FC	AgI	AgL
MG	Unnamed Wash (EDW)	City of Phoenix Cave Creek WRF outfall at 33°45'20"/112°00'59" to unnamed wash to 0.5 km downstream at 33°35'07"/112°01'12"					A&Wedw		PBC				
MG	Unnamed Wash (EDW)	Gila Bend WWTP outfall to the Gila River at 32°58'13"/112°43'46"					A&Wedw		PBC				
MG	Unnamed Wash (EDW)	Luke Air Force Base WWTP outfall to the Agua Fria River at 33°32'21"/112°19'15"					A&Wedw		PBC				
MG	Unnamed Wash (EDW)	Florence Gardens WWTP outfall at 33°03'49.54"/111°23'13.28" to confluence with Gila River at 33°02'59"/111°23'15"					A&Wedw		PBC				
MG	Unnamed Wash (EDW)	Prescott Valley WWTP outfall to the Agua Fria River at 34°35'16"/112°16'18"					A&Wedw		PBC				
MG	Unnamed Wash (EDW)	Queen Valley Sanitary District WWTP outfall at 33°17'38"/111°18'31" to the confluence with Queen Creek					A&Wedw		PBC				
MG	Wagner Wash (EDW)	Buckeye Festival Ranch WRF outfall at 33°39'14"/112°40'18" to 2 km downstream					A&Wedw		PBC				
MG	Vista Del Camino Park North	Urban Lake; 7700 East Roosevelt Street, Scottsdale at 33°27'33"/111°54'49.3"			A&Ww				PBC		FC		
MG	Walnut Canyon Creek	Tributary to the Gila River at 33°06'47"/111°05'20"			A&Ww			FBC			FC		AgL
MG	Weaver Creek	Tributary to Martinez Creek at 34°03'18"/112°46'48"			A&Ww			FBC			FC		AgL
MG	White Canyon Creek	Tributary to Walnut Canyon Creek at 33°09'25"/111°04'48"			A&Ww			FBC			FC		AgL
SC	Agua Caliente Lake	Urban Lake; 12325 East Roger Road, Tucson	Urban		A&Ww				PBC		FC		
SC	Agua Caliente Wash	Headwaters to Soldier Trail at 32°17'48"/110°42'58.5"			A&Ww			FBC			FC		AgL
SC	Agua Caliente Wash	Below Soldier Trail to Tanque Verde Creek at 32°14'35"/110°47'17"				A&We			PBC				AgL
SC	Aguirre Wash	Those reaches not located on the Tohono O'odham Indian Reservation				A&We			PBC				
SC	Alambre Wash	Tributary to Brawley Wash at 31°57'47"/111°23'28"				A&We			PBC				
SC	Alamo Wash	Tributary to Rillito Creek at 32°16'23"/110°54'18"				A&We			PBC				
SC	Altar Wash	Tributary to Brawley Wash at 31°57'47"/111°23'28"				A&We			PBC				
SC	Alum Gulch	Headwaters to 31°28'20"/110°43'51"				A&We			PBC				AgL
SC	Alum Gulch	From 31°28'20"/110°43'51" to 31°29'17"/110°44'25"			A&Ww			FBC			FC		AgL
SC	Alum Gulch	Below 31°29'17"/110°44'25" to Sonoita Creek at 31°30'58"/110°47'06"				A&We			PBC				AgL
SC	Arivaca Creek	Tributary to Altar Wash at 31°43'01"/111°25'41"			A&Ww			FBC			FC		AgL
SC	Arivaca Lake	31°31'50"/111°15'05"	Igneous		A&Ww			FBC			FC	AgI	AgL
SC	Atterbury Wash	Tributary to Pantano Wash at 32°10'52"/110°48'50"				A&We			PBC				AgL
SC	Bear Grass Tank	31°33'01"/111°11'32"			A&Ww			FBC			FC		AgL
SC	Big Wash	Tributary to Cañada del Oro at 32°24'47"/110°56'28"				A&We			PBC				
SC	Black Wash (EDW)	Pima County WWMD Avra Valley WWTP at 32°09'50"/111°10'49" to confluence with Brawley Wash at 32°15'00"/111°14'34"					A&Wedw		PBC				
SC	Bog Hole Tank	31°28'34"/110°37'07"			A&Ww			FBC			FC		AgL
SC	Brawley Wash	Tributary to Los Robles Wash at 32°21'54"/111°17'31"				A&We			PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SC	California Gulch	South of Ruby			A&Ww			FBC			FC		AgL
SC	Cañada del Oro	Headwaters to Highway 89 at 32°24'48"/ 110°56'14"			A&Ww			FBC			FC	AgI	AgL
SC	Cañada del Oro	Below Highway 89 to the Santa Cruz River at 32°19'30"/111°03'47"				A&We			PBC				AgL
SC	Cienega Creek	Headwaters to confluence with Gardner Canyon and Spring Water Canyon at 31°47'38"/ 110°35'17"			A&Ww			FBC			FC		AgL
SC	Cienega Creek (OAW)	From confluence with Gardner Canyon and Spring Water Canyon to USGS gaging station at 32°02'09"/110°40'34" (becomes Pantano Wash below this point)			A&Ww			FBC			FC		AgL
SC	Davidson Canyon	Headwaters to unnamed spring at 31°59'00"/ 110°38'46"				A&We			PBC				AgL
SC	Davidson Canyon (OAW)	Unnamed Spring to confluence with unnamed tributary at 31°59'32.5"/110°38'43.5"			A&Ww			FBC			FC		AgL
SC	Davidson Canyon (OAW)	From confluence with unnamed tributary to unnamed spring at 32°00'54"/110°38'54"				A&We			PBC				AgL
SC	Davidson Canyon (OAW)	From unnamed spring at 32°00'54"/ 110°38'54" to confluence with Cienega Creek at 32°01'05"/110°38'32"			A&Ww			FBC			FC		AgL
SC	Empire Gulch	Headwaters to unnamed spring at 31°47'14"/ 110°38'13"				A&We			PBC				
SC	Empire Gulch	From 31°47'14" / 110°38'13" to31°47'11" / 110°00'39"			A&Ww			FBC			FC		
SC	Empire Gulch	Below 31°47"11" / 110°00'39" to 31°47'18" / 110°36'57"				A&We			PBC				AgL
SC	Empire Gulch	From 31°47'18" / 110°36'57" to confluence with Cienega Creek at 31°48'32"/110°35'20"			A&Ww			FBC			FC		
SC	Flux Canyon	Tributary to Alum Canyon at 31°30'22"/ 110°46'41"				A&We			PBC				AgL
SC	Gardner Canyon Creek	Headwaters to confluence with Sawmill Canyon at 31°42'51"/110°44'43"		A&Wc				FBC			FC		
SC	Gardner Canyon Creek	Below Sawmill Canyon to Cienega Creek at 31°47'38"/110°35'17"			A&Ww			FBC			FC		
SC	Greene Wash	Tributary to the Santa Cruz River at 33°00'54"/111°59'46"				A&We			PBC				
SC	Harshaw Creek	Tributary to Sonoita Creek at 31°32'35"/ 110°44'42"				A&We			PBC				AgL
SC	Hit Tank	32°43'57"/111°03'18"			A&Ww			FBC			FC		AgL
SC	Holden Canyon Creek	Headwaters to Mexico border at 31°23'38"/ 111°15'54" in the Coronado National Forest			A&Ww			FBC			FC		
SC	Huachuca Tank	31°21'11"/110°30'12"			A&Ww			FBC			FC		AgL
SC	Julian Wash	Tributary to the Santa Cruz River at 32°11'20"/110°59'13"				A&We			PBC				
SC	Kennedy Lake	Urban Lake; Mission Road & Ajo Road, Tucson at 32°10'48.5"/111°00'27"	Urban		A&Ww				PBC		FC		
SC	Lakeside Lake	Urban Lake; 8300 East Stella Road, Tucson at 32°11'10.5"/110°49'00"	Urban		A&Ww				PBC		FC		
SC	Lemmon Canyon Creek	Headwaters to confluence with unnamed tributary at 32°23'47"/110°47'46"		A&Wc				FBC			FC		
SC	Lemmon Canyon Creek	Below unnamed tributary to Sabino Canyon Creek at 32°23'02"/110°47'28"			A&Ww			FBC			FC		
SC	Los Robles Wash	Tributary to the Santa Cruz River at 32°32'13"/111°23'53"				A&We			PBC				
SC	Madera Canyon Creek	Headwaters to confluence with unnamed tributary at 31°43'42"/110°52'50"		A&Wc				FBC			FC		AgL
SC	Madera Canyon Creek	Below unnamed tributary to the Santa Cruz River at 31°46'55"/111°00'58"			A&Ww			FBC			FC		AgL
SC	Mattie Canyon	Tributary to Cienega Creek at 31°51'31"/ 110°34'25"			A&Ww			FBC			FC		AgL
SC	Nogales Wash	Tributary to Potrero Creek at 31°24'07"/ 110°57'11"			A&Ww				PBC				
SC	Oak Tree Canyon	Tributary to Cienega Creek at 31°48'43"/ 110°35'24"				A&We			PBC				
SC	Palisade Canyon Creek	Headwaters to confluence with unnamed tributary at 32°22'34"/110°45'35"		A&Wc				FBC			FC		
SC	Palisade Canyon Creek	Below unnamed tributary to Sabino Canyon Creek at 32°21'54"/110°46'23"			A&Ww			FBC			FC		
SC	Pantano Wash	Tributary to Tanque Verde Creek at 32°16'23"/110°54'18"				A&We			PBC				
SC	Paradise Lake	32°44'18"/111°40'42"	Urban		A&Ww				PBC			AgI	
SC	Parker Canyon Creek	Headwaters to confluence with unnamed tributary at 31°24'17"/110°28'44.5"		A&Wc				FBC			FC		
SC	Parker Canyon Creek	Below unnamed tributary to Mexico border at 31°19'59"/110°33'58"			A&Ww			FBC			FC		
SC	Parker Canyon Lake	31°25'35"/110°27'15"	Deep	A&Wc				FBC			FC	AgI	AgL
SC	Patagonia Lake	31°29'30"/110°52'00"	Deep		A&Ww			FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SC	Peña Blanca Lake	31°24'12"/111°05'04"	Igneous		A&Ww			FBC			FC	AgI	AgL
SC	Potrero Creek	Headwaters to Interstate 19 at 31°23'24"/ 110°57'30"				A&We			PBC				AgL
SC	Potrero Creek	Below Interstate 19 to Santa Cruz River at 31°27'07"/110°57'40"			A&Ww			FBC			FC		AgL
SC	Puertocito Wash	Tributary to Altar Wash at 31°43'01"/ 111°25'41"				A&We			PBC				
SC	Quitobaquito Spring	(Pond and Springs) 31°56'39"/113°01'06"			A&Ww			FBC			FC		AgL
SC	Redrock Canyon Creek	Tributary to Harshaw Creek at 31°32'35"/ 110°44'13"			A&Ww			FBC			FC		
SC	Rillito Creek	Tributary to the Santa Cruz River at 32°18'50"/111°03'18"				A&We			PBC				AgL
SC	Romero Canyon Creek	Headwaters to confluence with unnamed tributary at 32°24'30"/110°50'35"		A&Wc				FBC			FC		
SC	Romero Canyon Creek	Below unnamed tributary to Sutherland Wash at 32°25'52"/110°53'56"			A&Ww			FBC			FC		
SC	Rose Canyon Creek	Tributary to Rose Canyon Lake at 32°23'10"/ 110°43'01"		A&Wc				FBC			FC		
SC	Rose Canyon Lake	32°23'13"/110°42'38"	Igneous	A&Wc				FBC			FC		AgL
SC	Ruby Lakes	Near the town of Ruby at 31°26'28.5"/ 111°14'19"	Igneous		A&Ww			FBC			FC		AgL
SC	Sabino Canyon Creek	Headwaters to confluence with unnamed tributary at 32°23'28"/110°47'00"		A&Wc				FBC		DWS	FC	AgI	
SC	Sabino Canyon Creek	Below unnamed tributary to Tanque Verde River at 32°15'40"/110°49'30"			A&Ww			FBC		DWS	FC	AgI	
SC	Salero Ranch Tank	31°35'42"/110°53'22"			A&Ww			FBC			FC		AgL
SC	Santa Cruz River	Headwaters to the International Boundary at 31°19'58"/110°35'48"			A&Ww			FBC			FC	AgI	AgL
SC	Santa Cruz River	International Boundary to the Nogales International WWTP outfall at 31°27'24"/ 110°58'05"			A&Ww			FBC		DWS	FC	AgI	AgL
SC	Santa Cruz River (EDW)	Nogales International WWTP outfall to the Tubac Bridge at 31°36'25"/110°02'00"					A&Wedw		PBC				AgL
SC	Santa Cruz River	The Tubac Bridge to Roger Road WWTP outfall				A&We			PBC				AgL
SC	Santa Cruz River (EDW)	Roger Road WWTP outfall to Baumgartner Road at 32°35'37"/111°28'08"					A&Wedw		PBC				
SC	Santa Cruz Wash	Baumgartner Road to the Ak Chin Indian Reservation				A&We			PBC				AgL
SC	Santa Cruz Wash, West Branch	Tributary to the Santa Cruz Wash at 32°12'07"/110°59'20"				A&We			PBC				AgL
SC	Santa Cruz Wash, North Branch	Tributary to the Santa Cruz Wash at 32°55'55"/111°53'10"				A&We			PBC				
SC	Santa Cruz Wash, North Branch (EDW)	City of Casa Grande WRF outfall at 32°54'57"/111°47'13" to 1 km downstream at 32°54'49"/111°47'48"					A&Wedw		PBC				
SC	Santa Rosa Wash	Below Tohono O'odham Indian Reservation to the Ak Chin Indian Reservation				A&We			PBC				
SC	Santa Rosa Wash (EDW)	Palo Verde Utilities WWTP outfall at 33°04'20"/112°01'47" to the Gila River Indian Reservation					A&Wedw		PBC				
SC	Soldier Lake	32°25'34"/110°44'41"		A&Wc				FBC			FC		AgL
SC	Sonoita Creek	Headwaters to the Town of Patagonia WWTP outfall at 31°32'15"/110°45'30"				A&We			PBC				AgL
SC	Sonoita Creek (EDW)	Town of Patagonia WWTP outfall to permanent groundwater upwelling point approximately 1600 feet downstream of outfall					A&Wedw		PBC				AgL
SC	Sonoita Creek	Below 1600 feet downstream of Town of Patagonia WWTP outfall to the Santa Cruz River at 31°29'43"/110°58'37"			A&Ww			FBC			FC	AgI	AgL
SC	Split Tank	31°28'15"/111°05'15"			A&Ww			FBC			FC		AgL
SC	Sutherland Wash	Tributary to Cañada del Oro at 32°25'05"/ 110°55'26"			A&Ww			FBC			FC		
SC	Sycamore Canyon	From 32°21'36" / 110°45'21" to Sycamore Reservoir			A&Ww			FBC			FC		
SC	Sycamore Canyon Creek	Headwaters to the U.S./Mexico border at 31°22'48"/111°13'19"			A&Ww			FBC			FC		AgL
SC	Sycamore Reservoir	32°20'57"/110°44'52"		A&Wc				FBC			FC		AgL
SC	Tanque Verde Creek	Headwaters to Houghton Road at 32°14'13"/ 110°46'04"			A&Ww			FBC			FC		AgL
SC	Tanque Verde Creek	Below Houghton Road to Rillito Creek at 32°16'08"/110°52'30"				A&We			PBC				AgL
SC	The Lake Tank	32°54'14"/111°04'14"			A&Ww			FBC			FC		AgL
SC	Three R Canyon	Headwaters to 31°28'35"/110°46'19"				A&We			PBC				AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SC	Three R Canyon	From 31°28'35"/110°46'19" to 31°28'27"/110°47'12"			A&Ww			FBC			FC		AgL
SC	Three R Canyon	From 31°28'27"/110°47'12" to Sonoita Creek at 31°29'56"/110°48'54"				A&We			PBC				AgL
SC	Tinaja Wash	Headwaters to the Santa Cruz River at 31°32'58.4"/111°02'45.7"				A&We			PBC				AgL
SC	Unnamed Wash (EDW)	Oracle Sanitary District WWTP outfall at 32°36'54"/110°48'02" to 5 km downstream					A&Wedw		PBC				
SC	Unnamed Wash	5 km downstream of the Oracle Sanitary District WWTP outfall				A&We			PBC				
SC	Unnamed Wash (EDW)	Arizona City Sanitary District WWTP outfall at 32°45'47"/111°44'20" to confluence with Santa Cruz Wash at 35°45'45"/111°46'43"					A&Wedw		PBC				
SC	Unnamed Wash (EDW)	Saddlebrook WWTP outfall at 32°32'00"/110°52'59" to confluence with Cañada del Oro at 32°30'20"/110°52'27"					A&Wedw		PBC				
SC	Vekol Wash	Those reaches not located on the Ak-Chin, Tohono O'odham and Gila River Indian Reservations				A&We			PBC				
SC	Wakefield Canyon	Headwaters to confluence with unnamed tributary 31°52'47"/110°26'25"		A&Wc				FBC			FC		AgL
SC	Wakefield Canyon	Below confluence with unnamed tributary to Cienega Creek at 31°52'47.5"/110°26'25"			A&Ww			FBC			FC		AgL
SC	Wild Burro Canyon	Headwaters to confluence with unnamed tributary at 32°28'36"/111°05'18"			A&Ww			FBC			FC		AgL
SC	Wild Burro Canyon	Below confluence with unnamed tributary to Santa Cruz River at 32°28'34"/111°05'15.5"				A&We			PBC				AgL
SC	Williams Ranch Tanks	31°55'15"/110°25'30"			A&Ww			FBC			FC		AgL
SP	Abbot Canyon	Headwaters to confluence with Whitewater Draw at 31°33'32"/109°48'39.6"			A&Ww			FBC			FC		AgL
SP	Aravaipa Creek	Headwaters to confluence with Stowe Gulch at 32°52'10"/110°22'00"			A&Ww			FBC			FC		AgL
SP	Aravaipa Creek (OAW)	Stowe Gulch confluence to downstream boundary of Aravaipa Canyon Wilderness Area at 32°54'23"/110°33'40"			A&Ww			FBC			FC		AgL
SP	Aravaipa Creek	Below downstream boundary of Aravaipa Canyon Wilderness Area to the San Pedro River at 32°50'20"/110°42'50"			A&Ww			FBC			FC		AgL
SP	Ash Creek	Chiricahua Mountains, near Whitewater Draw at 31°50'28"/109°40'01.2"			A&Ww			FBC			FC	AgI	AgL
SP	Babocomari River	Tributary to the San Pedro River at 31°43'19"/110°11'35"			A&Ww			FBC			FC		AgL
SP	Bass Canyon Creek	Headwaters to confluence with unnamed tributary at 32°26'06"/110°13'18"		A&Wc				FBC			FC		AgL
SP	Bass Canyon Creek	Below confluence with unnamed tributary to Hot Springs Canyon Creek at 32°20'53"/110°15'14"			A&Ww			FBC			FC		AgL
SP	Bass Canyon Tank	32°24'00"/110°13'00"			A&Ww			FBC			FC		AgL
SP	Bear Creek	Headwaters to U.S./Mexico border at 31°19'59"/110°22'58.5"			A&Ww			FBC			FC		AgL
SP	Big Creek	Tributary to Pitchfork Canyon at 32°35'24"/109°57'07"		A&Wc				FBC			FC		AgL
SP	Blacktail Pond	Fort Huachuca Military Reservation at 31°24'13"/110°17'21"			A&Ww			FBC			FC		
SP	Blackwater Draw	Headwaters to the U.S./Mexico border at 31°20'02"/109°15'36" in the San Bernardino Valley			A&Ww			FBC			FC		AgL
SP	Booger Canyon Creek	Tributary to Aravaipa Creek at 32°54'54"/110°29'35"			A&Ww			FBC			FC		AgL
SP	Buck Canyon	Headwaters to Buck Creek Tank at 31°33'06"/109°52'43"			A&Ww			FBC			FC		AgL
SP	Buck Canyon	Below Buck Creek Tank to Dry Creek at 31°31'08"/109°18'25"				A&We			PBC				AgL
SP	Buehman Canyon Creek (OAW)	Headwaters to confluence with unnamed tributary at 32°24'31.5"/110°32'08"			A&Ww			FBC			FC		AgL
SP	Buehman Canyon Creek	Below confluence with unnamed tributary at 32°25'41"/110°29'53"			A&Ww			FBC			FC		AgL
SP	Bull Tank	32°31'15"/110°12'45"			A&Ww			FBC			FC		AgL
SP	Bullock Canyon	Tributary to Buehman Canyon at 32°23'00"/110°33'04"			A&Ww			FBC			FC		AgL
SP	Carr Canyon Creek	Headwaters to confluence with unnamed tributary at 31°27'00"/110°15'45"		A&Wc				FBC			FC		AgL
SP	Carr Canyon Creek	Below confluence with unnamed tributary to the San Pedro River at 31°30'32"/110°07'37"			A&Ww			FBC			FC		AgL
SP	Copper Creek	Headwaters to confluence with Prospect Canyon at 32°44'48"/110°30'18"			A&Ww			FBC			FC		AgL
SP	Copper Creek	Below confluence with Prospect Canyon to the San Pedro River at 32°41'17"/110°36'43"				A&We			PBC				AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SP	Deer Creek	Headwaters to confluence with unnamed tributary at 32°59'56"/110°20'09"		A&Wc				FBC			FC		AgL
SP	Deer Creek	Below confluence with unnamed tributary to Aravaipa Creek at 32°54'25"/110°28'01"			A&Ww			FBC			FC		AgL
SP	Dixie Canyon	Headwaters to Mexican Canyon at 31°29'02"/109°45'04" in the Mule Mountains			A&Ww			FBC			FC		AgL
SP	Double R Canyon Creek	Tributary to Bass Canyon at 32°21'06"/110°14'23"			A&Ww			FBC			FC		
SP	Dry Canyon	Headwaters to Abbot Canyon at 31°33'25"/109°43'23" in the Mule Mountains			A&Ww			FBC			FC		AgL
SP	East Gravel Pit Pond	Fort Huachuca Military Reservation at 31°30'54"/110°19'42"	Sedimentary		A&Ww			FBC			FC		
SP	Espiritu Canyon Creek	Tributary to Soza Wash at 32°18'52"/110°28'35"			A&Ww			FBC			FC		AgL
SP	Fly Pond	Fort Huachuca Military Reservation at 31°32'53"/110°21'14"			A&Ww			FBC			FC		
SP	Fourmile Canyon Creek	Tributary to Aravaipa Creek at 32°50'14"/110°20'08"			A&Ww			FBC			FC		AgL
SP	Fourmile Canyon, Left Prong	Headwaters to confluence with unnamed tributary at 32°43'14"/110°23'43"		A&Wc				FBC			FC		AgL
SP	Fourmile Canyon, Left Prong	Below confluence with unnamed tributary to Fourmile Canyon Creek at 32°47'33"/110°22'36"			A&Ww			FBC			FC		AgL
SP	Fourmile Canyon, Right Prong	Tributary to Fourmile Canyon at 32°47'33"/110°22'36"			A&Ww			FBC			FC		AgL
SP	Gadwell Canyon	Headwaters to Whitewater Draw at 31°36'50"/109°43'41" in the Mule Mountains			A&Ww			FBC			FC		AgL
SP	Garden Canyon Creek	Headwaters to confluence with unnamed tributary at 31°29'00"/110°19'42"		A&Wc				FBC		DWS	FC	AgI	
SP	Garden Canyon Creek	Below confluence with unnamed tributary to the San Pedro River at 31°41'46"/110°12'40"			A&Ww			FBC		DWS	FC	AgI	
SP	Glance Creek	Headwaters to Whitewater Draw at 31°27'04"/109°42'29" in the Mule Mountains			A&Ww			FBC			FC		AgL
SP	Gold Gulch	Headwaters to U.S./Mexico border at 31°20'10"/109°50'06" in the Mule Mountains			A&Ww			FBC			FC		AgL
SP	Golf Course Pond	Fort Huachuca Military Reservation at 31°32'14"/110°18'49"	Sedimentary		A&Ww				PBC		FC		
SP	Goudy Canyon Creek	Headwaers to Grant Creek at 32°35'13"/109°58'37" in the Pinaleno Mountains		A&Wc				FBC			FC		AgL
SP	Grant Creek	Headwaters to confluence with unnamed tributary at 32°38'09.5"/109°56'35"		A&Wc				FBC		DWS	FC		AgL
SP	Grant Creek	Below confluence with unnamed tributary to terminus near Willcox Playa at 32°33'43"/109°58'55"			A&Ww			FBC			FC		AgL
SP	Gravel Pit Pond	Fort Huachuca Military Reservation at 31°30'51"/110°19'47.6"	Sedimentary		A&Ww			FBC			FC		
SP	Greenbrush Draw	From Mexican border to confluence with San Pedro River				A&We			PBC				
SP	Hidden Pond	Fort Huachuca Military Reservation at 32°30'30"/109°22'17"			A&Ww			FBC			FC		
SP	High Creek	Headwaters to confluence with unnamed tributary at 32°33'07"/110°14'40"		A&Wc				FBC			FC		AgL
SP	High Creek	Below confluence with unnamed tributary to terminus near Willcox Playa at 32°31'41"/109°02'38"			A&Ww			FBC			FC		AgL
SP	Horse Camp Canyon Creek	Tributary to Aravaipa Creek at 32°55'07"/110°30'56"			A&Ww			FBC			FC		AgL
SP	Hot Springs Canyon Creek	Tributary to the San Pedro River at 32°17'24"/110°22'55"			A&Ww			FBC			FC		AgL
SP	Johnson Canyon	Headwaters to Whitewater Draw at 31°32'56"/109°46'19" in the Chiricahua Mountains			A&Ww			FBC			FC		AgL
SP	Lake Cochise (EDW)	South of Twin Lakes Municipal Golf Course at 32°13"58"/109°49'25"					A&Wedw		PBC				
SP	Leslie Canyon Creek	Headwaters to Whitewater Draw at 31°32'10"/109°40'12" in the Chiricahua Mountains			A&Ww			FBC			FC		AgL
SP	Lower Garden Canyon Pond	Fort Huachuca Military Reservation			A&Ww			FBC			FC		
SP	Mexican Canyon	Headwaters to Whitewater Draw at 31°29'13"/109°46'30" in the Mule Mountains			A&Ww			FBC			FC		AgL
SP	Miller Canyon Creek	Headwaters to Broken Arrow Ranch Road at 31°25'33"/110°15'08"		A&Wc				FBC		DWS	FC		AgL
SP	Miller Canyon Creek	Below Broken Arrow Ranch Road to the San Pedro River at 31°29'56"/110°07'37"			A&Ww			FBC		DWS	FC		AgL
SP	Moonshine Creek	Tributary to Post Creek at 32°40'52"/109°54'25"		A&Wc				FBC			FC		AgL
SP	Mule Gulch	Headwaters to just above the Lavender Pit at 31°26'23.7"/109°45'36.7"			A&Ww				PBC		FC		
SP	Mule Gulch	Just above the Lavender Pit to the Bisbee WWTP outfall at 31°25'30"/109°52'40"				A&We			PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SP	Mule Gulch (EDW)	Below the Bisbee WWTP outfall to the Highway 80 bridge at 31°26'30"/109°49'28"					A&Wedw		PBC				
SP	Mule Gulch	Below the Highway 80 bridge to Whitewater Draw at 31°28'03"/109°42'21"				A&We			PBC				AgL
SP	Oak Grove Creek	Tributary to Turkey Creek at 32°45'32"/110°14'06"			A&Ww			FBC			FC		AgL
SP	Officers Club Pond	Fort Huachuca Military Reservation at 31°32'51"/110°21'35"	Sedimentary		A&Ww				PBC		FC		
SP	Paige Canyon Creek	Tributary to the San Pedro River at 32°17'10"/110°22'48"			A&Ww			FBC			FC		AgL
SP	Parsons Canyon Creek	Tributary to Aravaipa Creek at 32°54'11"/110°27'40"			A&Ww			FBC			FC		AgL
SP	Pinery Creek	Headwaters to State Highway 181 at 32°00'24"/109°25'16"		A&Wc				FBC		DWS	FC		AgL
SP	Pinery Creek	Below State Highway 181 to terminus near Willcox Playa at 32°01'05"/109°34'23"			A&Ww			FBC		DWS	FC		AgL
SP	Post Creek	Tributary to Grant Creek at 32°40'05"/109°54'58"		A&Wc				FBC			FC	AgI	AgL
SP	Ramsey Canyon Creek	Headwaters to Forest Service Road #110 at 31°27'44"/110°17'27"		A&Wc				FBC			FC	AgI	AgL
SP	Ramsey Canyon Creek	Below Forest Service Road #110 to Carr Wash at 31°30'04"/110°09'11"			A&Ww			FBC			FC	AgI	AgL
SP	Rattlesnake Canyon	Headwaters to confluence with Brush Canyon at 32°38'27"/110°21'24"		A&Wc				FBC			FC		AgL
SP	Rattlesnake Canyon	Below confluence with Brush Canyon to Aravaipa Creek at 32°48'00"/110°17'32"			A&Ww			FBC			FC		AgL
SP	Redfield Canyon Creek	Headwaters to confluence with unnamed tributary at 32°33'39"/110°18'41"		A&Wc				FBC			FC		AgL
SP	Redfield Canyon Creek	Below confluence with unnamed tributary to the San Pedro River at 32°09'32"/110°17'56"			A&Ww			FBC			FC		AgL
SP	Riggs Flat Lake	32°42'27"/109°57'51"	Igneous	A&Wc				FBC			FC	AgI	AgL
SP	Rock Creek	Tributary to Turkey Creek at 31°53'20"/109°30'00" Alc						FBC			FC		AgL
SP	Rucker Canyon Creek	Headwaters to Whitewater Draw at 31°44'46"/109°26'06"	Igneous	A&Wc				FBC			FC		AgL
SP	Rucker Canyon Lake	31°46'46"/109°18'30"	Shallow	A&Wc				FBC			FC		AgL
SP	San Pedro River	U.S./ Mexico Border to Redington at 32°25'39"/110°29'33"			A&Ww			FBC			FC	AgI	AgL
SP	San Pedro River	Redington to the Gila River at 32°59'02"/110°46'55"			A&Ww			FBC			FC		AgL
SP	Snow Flat Lake	32°39'09"/109°51'52"	Igneous	A&Wc				FBC			FC	AgI	AgL
SP	Soldier Creek	Tributary to Post Creek at 32°40'52"/109°54'40"		A&Wc				FBC			FC		AgL
SP	Soldier Creek (EDW)	Fort Huachuca WWTP outfall to unnamed wash at 31°34'48"/110°18'35" to confluence with Soldier Creek to confluence with Babocomari River at 31°39'46"/110°17'24"					A&Wedw		PBC				
SP	Soto Canyon	Headwaters to Dixie Canyon at 31°29'46"/109°55'37" in the Mule Mountains			A&Ww			FBC			FC		AgL
SP	Swamp Springs Canyon Creek	Tributary to Redfield Canyon at 32°26'10"/110°19'30"			A&Ww			FBC			FC		AgL
SP	Sycamore Pond I	Fort Huachuca Military Reservation at 31°35'12"/110°26'09"	Sedimentary		A&Ww			FBC			FC		
SP	Sycamore Pond II	Fort Huachuca Military Reservation at 31°34'38.6"/110°26'07"	Sedimentary		A&Ww			FBC			FC		
SP	Turkey Creek	Tributary to Aravaipa Creek at 32°53'49"/110°26'35"			A&Ww			FBC			FC		AgL
SP	Turkey Creek	Headwaters to confluence with Rock Creek at 31°53'20"/109°30'00"		A&Wc				FBC			FC	AgI	AgL
SP	Turkey Creek	Below confluence with Rock Creek to terminus near Willcox Playa at 31°59'56"/109°49'01"			A&Ww			FBC			FC	AgI	AgL
SP	Unnamed Wash (EDW)	Mt. Lemmon WWTP outfall to 0.25 km downstream					A&Wedw		PBC				
SP	Virgus Canyon Creek	Tributary to Aravaipa Creek at 32°54'58"/110°31'16"			A&Ww			FBC			FC		AgL
SP	Walnut Gulch	Headwaters to Tombstone WWTP outfall at 31°43'47"/110°04'06"				A&We			PBC				
SP	Walnut Gulch (EDW)	Tombstone WWTP outfall to the confluence of Tombstone Wash at 31°44'02"/110°05'58"					A&Wedw		PBC				
SP	Walnut Gulch	Tombstone Wash to San Pedro River at 31°43'19"/110°11'35"				A&We			PBC				
SP	Ward Canyon Creek	Tributary to Turkey Creek at 31°51'47"/109°20'13"		A&Wc				FBC			FC		AgL
SP	Whitewater Draw	Headwaters to confluence with unnamed tributary at 31°20'36"/109°34'46"				A&We			PBC				AgL
SP	Whitewater Draw	Below confluence with unnamed tributary to U.S./Mexico border at 31°20'02"/109°34'44"			A&Ww			FBC			FC		AgL
SP	Willcox Playa	32°08'19"/109°50'59" in the Sulphur Springs Valley	Sedimentary		A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SP	Woodcutters Pond	Fort Huachuca Military Reservation at 31°31'11.5"/110°20'15"	Igneous		A&Ww			FBC			FC		
SR	Ackre (Judge) Lake	33°37'00"/109°20'37"		A&Wc				FBC			FC	AgI	AgL
SR	Apache Lake	33°35'30"/111°20'30"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
SR	Barnhardt Creek	Headwaters to confluence with unnamed tributary at 34°05'36"/111°26'38"		A&Wc				FBC			FC		AgL
SR	Barnhardt Creek	Below confluence with unnamed tributary to Rye Creek at 34°06'58"/111°21'32"			A&Ww			FBC			FC		AgL
SR	Basin Lake	33°55'00"/109°26'05"	Igneous		A&Ww			FBC			FC		AgL
SR	Bear Creek	Tributary to the Black River at 33°43'26"/109°22'30"		A&Wc				FBC			FC	AgI	AgL
SR	Bear Wallow Creek (OAW)	Tributary to the Black River at 33°37'44"/109°31'23"		A&Wc				FBC			FC		AgL
SR	Bear Wallow Creek, North Fork (OAW)	Tributary to Bear Wallow Creek at 33°35'53"/109°26'49"		A&Wc				FBC			FC		AgL
SR	Bear Wallow Creek, South Fork (OAW)	Tributary to Bear Wallow Creek at 33°35'53"/109°26'49"		A&Wc				FBC			FC		AgL
SR	Beaver Creek	Tributary to the Black River at 33°43'44"/109°21'07"		A&Wc				FBC			FC	AgI	AgL
SR	Big Lake	33°52'45"/109°25'00"	Igneous	A&Wc				FBC		DWS	FC	AgI	AgL
SR	Black River	Tributary to the Salt River at 33°44'20"/110°13'30"		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Black River, East Fork	Tributary to the Black River at 33°45'07"/109°21'43"		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Black River, North Fork of East Fork	Tributary to Black River, East Fork at 33°56'17"/109°24'11"		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Black River, West Fork	Tributary to the Black River at 33°45'07"/109°21'43"		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Bloody Tanks Wash	Headwaters to Schultze Ranch at 33°22'29"/110°54'39"				A&We			PBC				AgL
SR	Bloody Tanks Wash	Schultze Ranch to Miami Wash at 33°25'05"/110°50'02"				A&We			PBC				
SR	Boggy Creek	Tributary to the Black River at 33°44'31"/109°26'20"		A&Wc				FBC			FC	AgI	AgL
SR	Boneyard Creek	Tributary to Black River, East Fork at 33°51'22"/109°18'50"		A&Wc				FBC			FC	AgI	AgL
SR	Boulder Creek	Tributary to LaBarge Creek at 33°30'54"/111°24'40"			A&Ww			FBC			FC		
SR	Campaign Creek	Tributary to Roosevelt Lake at 33°37'30"/111°00'04"			A&Ww			FBC			FC		AgL
SR	Canyon Creek	Headwaters to the White Mountain Apache Reservation at 33°57'53"/110°47'00"		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Canyon Lake	33°33'15"/111°26'30"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
SR	Centerfire Creek	Tributary to the Black River at 33°42'47"/109°26'17"		A&Wc				FBC			FC	AgI	AgL
SR	Chambers Draw Creek	Tributary to North Fork of the East Fork of Black River at 33°53'03"/109°20'13"		A&Wc				FBC			FC		AgL
SR	Cherry Creek	Headwaters to confluence with unnamed tributary at 34°05'09"/110°56'04"		A&Wc				FBC			FC	AgI	AgL
SR	Cherry Creek	Below unnamed tributary to the Salt River at 33°40'16"/110°48'03.6"			A&Ww			FBC			FC	AgI	AgL
SR	Christopher Creek	Tributary to Tonto Creek at 34°18'36"/111°04'23"		A&Wc				FBC			FC	AgI	AgL
SR	Cold Spring Canyon Creek	Headwaters to confluence with unnamed tributary at 33°49'50"/110°52'55"		A&Wc				FBC			FC		AgL
SR	Cold Spring Canyon Creek	Below confluence with unnamed tributary to Cherry Creek at 33°50'06"/110°51'28.8"			A&Ww			FBC			FC		AgL
SR	Conklin Creek	Tributary to the Black River at 33°41'49"/109°27'36"		A&Wc				FBC			FC	AgI	AgL
SR	Coon Creek	Headwaters to confluence with unnamed tributary at 33°46'42"/110°54'25"		A&Wc				FBC			FC		AgL
SR	Coon Creek	Below confluence with unnamed tributary to Salt River at 33°39'47"/110°50'24"			A&Ww			FBC			FC		AgL
SR	Corduroy Creek	Tributary to Fish Creek at 33°59'46"/110°17'31"		A&Wc				FBC			FC	AgI	AgL
SR	Coyote Creek	Tributary to the Black River, East Fork at 33°50'53"/109°18'18"		A&Wc				FBC			FC	AgI	AgL
SR	Crescent Lake	33°54'36"/109°25'08"	Shallow	A&Wc				FBC			FC	AgI	AgL
SR	Deer Creek	Tributary to the Black River, East Fork at 33°48'07"/109°19'26"		A&Wc				FBC			FC		AgL
SR	Del Shay Creek	Tributary to Gun Creek at 34°00'22"/111°15'43"			A&Ww			FBC			FC		AgL
SR	Devils Chasm Creek	Headwaters to confluence with unnamed tributary at 33°48'46"/110°52'33"		A&Wc				FBC			FC		AgL
SR	Devils Chasm Creek	Below confluence with unnamed tributary to Cherry Creek at 33°49'34"/110°54'18"			A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SR	Dipping Vat Reservoir	33°55'54"/109°25'15"	Igneous		A&Ww			FBC			FC		AgL
SR	Double Cienega Creek	Tributary to Fish Creek at 33°38'35"/ 109°22'08"		A&Wc				FBC			FC		AgL
SR	Fish Creek	Tributary to the Black River at 33°42'40"/ 109°26'31"		A&Wc				FBC			FC	AgI	AgL
SR	Fish Creek	Tributary to the Salt River at 33°34'37"/ 111°21'11"			A&Ww			FBC			FC		
SR	Gold Creek	Headwaters to confluence with unnamed tributary at 33°59'47"/111°25'07"		A&Wc				FBC			FC		AgL
SR	Gold Creek	Below confluence with unnamed tributary to Tonto Creek at 33°58'55"/111°18'03.6"			A&Ww			FBC			FC		AgL
SR	Gordon Canyon Creek	Headwaters to confluence with Hog Canyon at 34°13'49"/111°00'27"		A&Wc				FBC			FC		AgL
SR	Gordon Canyon Creek	Below confluence with Hog Canyon to Haigler Creek at 34°11'56"/111°03'21"			A&Ww			FBC			FC		AgL
SR	Greenback Creek	Tributary to Tonto Creek at 33°47'38"/ 111°15'22"			A&Ww			FBC			FC		AgL
SR	Haigler Creek	Headwaters to confluence with unnamed tributary at 34°12'23.5"/111°00'11"		A&Wc				FBC			FC	AgI	AgL
SR	Haigler Creek	Below confluence with unnamed tributary to Tonto Creek at 34°12'54"/111°05'45.6"			A&Ww			FBC			FC	AgI	AgL
SR	Hannagan Creek	Tributary to Beaver Creek at 33°42'07"/ 109°14'46"		A&Wc				FBC			FC		AgL
SR	Hay Creek (OAW)	Tributary to the Black River, West Fork at 33°48'32"/109°25'16"		A&Wc				FBC			FC		AgL
SR	Home Creek	Tributary to the Black River, West Fork at 33°45'43"/109°22'48"		A&Wc				FBC			FC		AgL
SR	Horse Creek	Tributary to the Black River, West Fork at 33°45'11"/109°21'50"		A&Wc				FBC			FC		AgL
SR	Horse Camp Creek	Headwaters to confluence with unnamed tributary at 33°53'53"/110°50'10"		A&Wc				FBC			FC		AgL
SR	Horse Camp Creek	Below confluence with unnamed tributary to Cherry Creek at 33°52'08"/110°52'33.6"			A&Ww			FBC			FC		AgL
SR	Horton Creek	Tributary to Tonto Creek at 34°20'24"/ 111°05'42"		A&Wc				FBC			FC	AgI	AgL
SR	Houston Creek	Tributary to Tonto Creek at 34°07'30"/ 111°15'25"			A&Ww			FBC			FC		AgL
SR	Hunter Creek	Tributary to Christopher Creek at 34°18'29"/ 111°01'55"		A&Wc				FBC			FC		AgL
SR	LaBarge Creek	Headwaters to Canyon Lake at 33°31'34"/ 111°25'15.6"			A&Ww			FBC			FC		
SR	Lake Sierra Blanca	33°52'25"/109°16'05"		A&Wc				FBC			FC	AgI	AgL
SR	Miami Wash	Tributary to Pinal Creek at 33°27'04"/ 110°50'17"				A&We			PBC				
SR	Mule Creek	Tributary to Canyon Creek at 34°16'34"/ 110°48'00"		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Open Draw Creek	Tributary to the East Fork of Black River at 33°49'52"/109°18'18"		A&Wc				FBC			FC		AgL
SR	P B Creek	Headwaters to Forest Service Road #203 at 33°57'08"/110°56'09"		A&Wc				FBC			FC		AgL
SR	P B Creek	Below Forest Service Road #203 to Cherry Creek at 33°55'34"/110°54'18"			A&Ww			FBC			FC		AgL
SR	Pinal Creek	Headwaters to confluence with unnamed EDW wash (Globe WWTP) at 33°25'29"/ 110°48'18"				A&We			PBC				AgL
SR	Pinal Creek (EDW)	Globe WWTP outfall on unnamed wash at 33°25'46"/110°47'28" to confluence with Pinal Creek to Radium at 33°26'54"/ 110°49'02"					A&Wedw		PBC				
SR	Pinal Creek	Radium to lower Pinal Creek water treatment plant discharge at 33°32'05"/110°52'17"				A&We			PBC				AgL
SR	Pinal Creek	Lower Pinal Creek WTP outfall #1 at 33°31'56"/110°52'14" to See Ranch Crossing at 33°32'25"/110°52'28"					A&Wedw		PBC				
SR	Pinal Creek	See Ranch Crossing to 33°35'33"/110°54'33"			A&Ww			FBC					
SR	Pinal Creek	From 33°35'33"/110°54'33" to Salt River			A&Ww			FBC			FC		
SR	Pine Creek	Tributary to the Salt River at 33°36'04"/ 111°12'36"			A&Ww			FBC			FC		
SR	Pinto Creek	Headwaters to confluence with unnamed tributary at 33°19'27"/110°54'56"		A&Wc				FBC			FC	AgI	AgL
SR	Pinto Creek	Below confluence with unnamed tributary to Roosevelt Lake at 33°39'11"/111°00'43"			A&Ww			FBC			FC	AgI	AgL
SR	Pueblo Canyon Creek	Headwaters to confluence with unnamed tributary at 33°50'30"/110°53'13"		A&Wc				FBC			FC		AgL
SR	Pueblo Canyon Creek	Below confluence with unnamed tributary to Cherry Creek at 33°52'30"/110°52'55"			A&Ww			FBC			FC		AgL
SR	Reevis Creek	Tributary to Pine Creek at 33°33'07"/ 111°09'40"			A&Ww			FBC			FC		

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
SR	Reservation Creek	Tributary to the Black River at 33°41'42"/ 109°28'26"		A&Wc				FBC			FC		AgL
SR	Reynolds Creek	Tributary to Workman Creek at 33°52'16"/ 111°00'14"		A&Wc				FBC			FC		AgL
SR	Roosevelt Lake	33°40'45"/111°09'15"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
SR	Russell Gulch	From headwaters to confluence with Miami Wash				A&We			PBC				
SR	Rye Creek	Tributary to Tonto Creek at 34°01'41"/ 111°17'06"			A&Ww			FBC			FC		AgL
SR	Saguaro Lake	33°34'00"/111°32'06"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
SR	Salome Creek	Tributary to the Salt River at 33°41'56"/ 111°05'46"			A&Ww			FBC			FC	AgI	AgL
SR	Salt River	Confluence of White River and Black River to Roosevelt Lake			A&Ww			FBC			FC	AgI	AgL
SR	Salt River	Theodore Roosevelt Dam to 2 km below Granite Reef Dam			A&Ww			FBC		DWS	FC	AgI	AgL
SR	Slate Creek	Tributary to Tonto Creek at 33°56'24"/ 111°18'25"			A&Ww			FBC			FC		AgL
SR	Snake Creek (OAW)	Tributary to the Black River at 33°40'30"/ 109°28'55"		A&Wc				FBC			FC		AgL
SR	Spring Creek	Tributary to Tonto Creek at 34°09'54"/ 111°10'08"			A&Ww			FBC			FC		AgL
SR	Stinky Creek (OAW)	Tributary to the Black River, West Fork at 33°51'22"/109°27'07"		A&Wc				FBC			FC		AgL
SR	Thomas Creek	Tributary to Beaver Creek at 33°42'29"/109°15'11"		A&Wc				FBC			FC		AgL
SR	Thompson Creek	Tributary to the West Fork of the Black River at 33°53'24"/109°28'48"		A&Wc				FBC			FC		AgL
SR	Tonto Creek	Headwaters to confluence with unnamed tributary at 34°18'10"/111°04'14"		A&Wc				FBC			FC	AgI	AgL
SR	Tonto Creek	Below confluence with unnamed tributary to Roosevelt Lake at 33°45'14"/111°14'17"			A&Ww			FBC			FC	AgI	AgL
SR	Turkey Creek	Tributary to Rock Creek at 33°58'30"/ 111°06'47"		A&Wc				FBC			FC		
SR	Unnamed Wash (EDW)	Cobre Valley Plaza WWTP at 33°24'56"/ 110°49'43" to confluence with Russell Gulch					A&Wedw		PBC				
SR	Wildcat Creek	Tributary to Centerfire Creek at 33°43'41"/ 109°26'28"		A&Wc				FBC			FC		AgL
SR	Willow Creek	Tributary to Beaver Creek at 33°43'52"/ 109°18'04"		A&Wc				FBC			FC		AgL
SR	Workman Creek	Headwaters to confluence with Reynolds Creek at 33°52'17"/111°00'14.5"		A&Wc				FBC			FC	AgI	AgL
SR	Workman Creek	Below confluence with Reynolds Creek to Salome Creek at 33°52'37"/111°02'20"			A&Ww			FBC			FC	AgI	AgL
UG	Apache Creek	Tributary to the Gila River at 32°52'08"/ 109°11'53"			A&Ww			FBC			FC		AgL
UG	Ash Creek	Headwaters to confluence with unnamed tributary at 32°45'37"/109°52'22"		A&Wc				FBC			FC		AgL
UG	Ash Creek	Below confluence with unnamed tributary to Gila River at 32°53'35"/109°47'34.8"			A&Ww			FBC			FC		AgL
UG	Bennett Wash (EDW)	ADOC-Safford WWTP outfall at 32°50'20"/ 109°34'44" to the Gila River					A&Wedw		PBC				
UG	Bitter Creek	Tributary to the Gila River at 32°50'17"/ 109°10'59"			A&Ww			FBC			FC		
UG	Blue River	Headwaters to confluence with Strayhorse Creek at 33°29'02"/110°12'12"		A&Wc				FBC			FC	AgI	AgL
UG	Blue River	Below confluence with Strayhorse Creek to San Francisco River at 33°12'36"/ 109°11'27.6"			A&Ww			FBC			FC	AgI	AgL
UG	Bonita Creek (OAW)	San Carlos Indian Reservation to the Gila River at 32°53'35"/109°28'41"			A&Ww			FBC		DWS	FC		AgL
UG	Buckalou Creek	Tributary to Castle Creek at 33°43'34"/ 109°09'07"		A&Wc				FBC			FC		AgL
UG	Campbell Blue Creek	Tributary to the Blue River at 33°43'30"/ 109°02'46"		A&Wc				FBC			FC		AgL
UG	Castle Creek	Tributary to Campbell Blue Creek at 33°44'06"/109°08'10"		A&Wc				FBC			FC		AgL
UG	Cave Creek (OAW)	Headwaters to confluence with South Fork Cave Creek at 31°53'04"/109°10'27"		A&Wc				FBC			FC	AgI	AgL
UG	Cave Creek (OAW)	Below confluence with South Fork Cave Creek to Coronado National Forest boundary			A&Ww			FBC			FC	AgI	AgL
UG	Cave Creek	Below Coronado National Forest boundary to New Mexico border at 31°58'19"/109°03'00"			A&Ww			FBC			FC	AgI	AgL
UG	Cave Creek, South Fork	Tributary to Cave Creek at 31°53'04"/ 109°10'27"		A&Wc				FBC			FC	AgI	AgL
UG	Chase Creek	Headwaters to the Phelps-Dodge Morenci Mine			A&Ww			FBC			FC		AgL
UG	Chase Creek	Below the Phelps-Dodge Morenci Mine to San Francisco River				A&We			PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
UG	Chitty Canyon Creek	Tributary to Salt House Creek at 33°30'32"/ 109°24'04"		A&Wc				FBC			FC		AgL
UG	Cima Creek	Tributary to Cave Creek at 31°52'19"/ 109°14'02"		A&Wc				FBC			FC		AgL
UG	Cluff Ranch Pond #1	32°48'55"/109°49'15"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
UG	Cluff Ranch Pond #2	32°49'15"/109°50'33"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
UG	Cluff Ranch Pond #3	32°48'20"/109°51'43"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
UG	Coleman Creek	Tributary to Campbell Blue Creek at 33°44'20"/109°09'32"		A&Wc				FBC			FC		AgL
UG	Dankworth Ponds	32°43'15"/109°42'15"	Sedimentary	A&Wc				FBC			FC		
UG	Deadman Canyon Creek	Headwaters to confluence with unnamed tributary at 32°43'50"/109°49'01"		A&Wc				FBC		DWS	FC		AgL
UG	Deadman Canyon Creek	Below confluence with unnamed tributary to confluence with Graveyard Wash at 32°46'48"/109°44'13"			A&Ww			FBC		DWS	FC		AgL
UG	Eagle Creek	Headwaters to confluence with unnamed tributary at 33°23'24"/109°29'35"		A&Wc				FBC		DWS	FC	AgI	AgL
UG	Eagle Creek	Below confluence with unnamed tributary to Eagle Creek at 32°57'36"/109°24'21.6"			A&Ww			FBC		DWS	FC	AgI	AgL
UG	East Eagle Creek	Tributary to Eagle Creek at 33°29'38"/ 109°28'05"		A&Wc				FBC			FC		AgL
UG	East Turkey Creek	Headwaters to confluence with unnamed tributary at 31°58'22"/109°12'17"		A&Wc				FBC			FC		AgL
UG	East Turkey Creek	Below confluence with unnamed tributary to terminus near San Simon River at 31°59'53"/ 109°07'37"			A&Ww			FBC			FC		AgL
UG	East Whitetail	Headwaters to terminus near San Simon River at 32°08'52"/109°09'25" in the Chiricahua Mountains			A&Ww			FBC			FC		AgL
UG	Emigrant Canyon	Headwaters to terminus near San Simon River at 32°17'02"/109°20'27.6" in the Chiricahua Mountains			A&Ww			FBC			FC		AgL
UG	Evans Pond	32°49'15"/109°51'15"	Sedimentary		A&Ww			FBC			FC		
UG	Fishhook Creek	Tributary to the Blue River at 33°35'13"/ 109°10'01"		A&Wc				FBC			FC		AgL
UG	Foote Creek	Tributary to the Blue River at 33°35'24"/ 109°08'49"		A&Wc				FBC			FC		AgL
UG	Frye Canyon Creek	Headwaters to Frye Mesa Reservoir at 32°45'09.5"/109°50'02"		A&Wc				FBC		DWS	FC		AgL
UG	Frye Canyon Creek	Below Frye Mesa Reservoir to Highline Canal Headwaters to terminus near San Simon River at 32°50'10"/109°45'43"			A&Ww			FBC			FC		AgL
UG	Frye Mesa Reservoir	32°45'13"/109°50'00"	Igneous	A&Wc				FBC		DWS	FC		
UG	Gibson Creek	Tributary to Marijilda Creek at 32°41'24"/ 109°48'11"		A&Wc				FBC			FC		AgL
UG	Gila River	New Mexico border to the San Carlos Indian Reservation at 33°05'37"/110°03'21"			A&Ww			FBC			FC	AgI	AgL
UG	Grant Creek	Tributary to the Blue River at 33°34'16"/ 109°10'37"		A&Wc				FBC			FC		AgL
UG	Judd Lake	33°51'15"/109°09'15"	Sedimentary	A&Wc				FBC			FC		
UG	K P Creek (OAW)	Tributary to the Blue River at 33°31'44"/ 109°12'04"		A&Wc				FBC			FC		AgL
UG	Lanphier Canyon Creek	Tributary to the Blue River at 33°35'42"/ 109°07'52"		A&Wc				FBC			FC		AgL
UG	Little Blue Creek	Headwaters to confluence with Dutch Blue Creek at 33°24'26.5"/109°09'18"		A&Wc				FBC			FC		AgL
UG	Little Blue Creek	Below confluence with Dutch Blue Creek to Blue Creek at 32°22'30"/109°10'30"			A&Ww			FBC			FC		AgL
UG	Little Creek	Tributary to the San Francisco River at 33°49'41"/109°04'26"		A&Wc				FBC			FC		
UG	Lower George's Reservoir	33°51'23.5"/109°08'28"	Sedimentary	A&Wc				FBC			FC		AgL
UG	Luna Lake	33°49'45"/109°05'15"	Sedimentary	A&Wc				FBC			FC		AgL
UG	Marijilda Creek	Headwaters to confluence with Gibson Creek at 32°41'23"/109°48'13"		A&Wc				FBC			FC		AgL
UG	Marijilda Creek	Below confluence with Gibson Creek to Stockton Wash at 32°46'30"/109°40'51.6"			A&Ww			FBC			FC	AgI	AgL
UG	Markham Creek	Tributary to the Gila River at 32°56'17"/ 109°53'13"			A&Ww			FBC			FC		AgL
UG	Pigeon Creek	Tributary to the Blue River at 33°16'08"/ 109°11'42"			A&Ww			FBC			FC		AgL
UG	Raspberry Creek	Tributary to the Blue River at 33°30'07"/ 109°12'32"		A&Wc				FBC			FC		
UG	Roper Lake	32°45'20"/109°42'11"	Sedimentary		A&Ww			FBC			FC		
UG	San Francisco River	Headwaters to the New Mexico border at 33°49'24.5"/109°02'46"		A&Wc				FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
UG	San Francisco River	New Mexico border to the Gila River at 33°14'25"/109°02'49"			A&Ww			FBC			FC	AgI	AgL
UG	San Simon River	Tributary to the Gila River at 32°49'52"/109°38'53"				A&We			PBC				AgL
UG	Sheep Tank	32°46'15"/109°48'08"	Sedimentary		A&Ww			FBC			FC		AgL
UG	Smith Pond	32°49'09"/109°50'26"	Sedimentary		A&Ww			FBC			FC		
UG	Squaw Creek	Tributary to Thomas Creek at 33°23'38"/109°12'22"		A&Wc				FBC			FC		AgL
UG	Stone Creek	Tributary to the San Francisco River at 33°50'38"/109°02'46"		A&Wc				FBC			FC	AgI	AgL
UG	Strayhorse Creek	Tributary to the Blue River at 33°29'02"/109°12'11"		A&Wc				FBC			FC		
UG	Thomas Creek	Headwaters to confluence with Rousensock Creek at 33°23'45"/109°13'13"		A&Wc				FBC			FC		AgL
UG	Thomas Creek	Below confluence with Rousensock Creek to Blue River at 33°23'20"/109°11'20"			A&Ww			FBC			FC		AgL
UG	Tinny Pond	33°47'49"/109°04'23"	Sedimentary		A&Ww			FBC			FC		AgL
UG	Turkey Creek	Tributary to Campbell Blue Creek at 33°44'10"/109°04'05"		A&Wc				FBC			FC		AgL
UG	Unnamed Wash (EDW)	ADOC-Globe WWTP outfall at 33°24'55"/110°42'35" to the San Carlos Indian Reservation					A&Wedw		PBC				
VR	American Gulch	Headwaters to the Northern Gila County Sanitary District WWTP outfall (Payson) at 34°14'05"/111°22'18"			A&Ww			FBC			FC	AgI	AgL
VR	American Gulch (EDW)	Northern Gila County Sanitary District WWTP outfall (Payson) to the East Verde River at 34°14'42"/111°25'08"					A&Wedw		PBC				
VR	Apache Creek	Tributary to Walnut Creek at 34°55'12"/112°50'42"			A&Ww			FBC			FC		AgL
VR	Ashbrook Wash	Headwaters to the Fort McDowell Reservation at 33°36'54"/111°42'06"				A&We			PBC				
VR	Aspen Creek	Tributary to Granite Creek at 34°31'55"/112°28'19"			A&Ww			FBC			FC		
VR	Bar Cross Tank	35°00'40"/112°05'34"			A&Ww			FBC			FC		AgL
VR	Barrata Tank	35°02'43"/112°24'17"			A&Ww			FBC			FC		AgL
VR	Bartlett Lake	33°49'00"/111°37'45"	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
VR	Beaver Creek	Tributary to the Verde River at 34°34'26"/111°51'14"			A&Ww			FBC			FC		AgL
VR	Big Chino Wash	Tributary to Sullivan Lake at 34°52'37"/112°28'37"				A&We			PBC				AgL
VR	Bitter Creek	Headwaters to the Jerome WWTP outfall at 34°45'08"/112°06'25"				A&We			PBC				AgL
VR	Bitter Creek (EDW)	Jerome WWTP outfall to the Yavapai Apache Indian Reservation at 34°45'45.5"/112°04'44"					A&Wedw		PBC				AgL
VR	Bitter Creek	Below the Yavapai Apache Indian Reservation to the Verde River at 34°46'37"/112°02'53"			A&Ww			FBC			FC	AgI	AgL
VR	Black Canyon Creek	Headwaters to confluence with unnamed tributary at 34°39'20"/112°05'05"		A&Wc				FBC			FC		AgL
VR	Black Canyon Creek	Below confluence with unnamed tributary to the Verde River at 34°40'59"/111°57'28.8"			A&Ww			FBC			FC		AgL
VR	Bonita Creek	Tributary to Ellison Creek at 34°20'56"/111°14'20"		A&Wc				FBC			FC		
VR	Bray Creek	Tributary to Webber Creek at 34°22'37"/111°20'53"		A&Wc				FBC			FC		AgL
VR	Camp Creek	Tributary to the Verde River at 33°45'32"/111°30'14"			A&Ww			FBC			FC		AgL
VR	Carter Tank	34°52'27"/112°57'28"			A&Ww			FBC			FC		AgL
VR	Cereus Wash	Headwaters to the Fort McDowell Indian Reservation at 33°34'13"/111°42'28"				A&We			PBC				
VR	Chase Creek	Tributary to the East Verde River at 34°22'48"/111°16'59"		A&Wc				FBC		DWS	FC		
VR	Clover Creek	Tributary to headwaters of West Clear Creek at 34°33'04"/111°24'11"		A&Wc				FBC			FC		AgL
VR	Coffee Creek	Tributary to Spring Creek at 34°48'18"/111°55'41"			A&Ww			FBC			FC		AgL
VR	Colony Wash	Headwaters to the Fort McDowell Indian Reservation at 33°35'42"/111°42'15"				A&We			PBC				
VR	Dead Horse Lake	34°45'00"/112°00'30"	Shallow		A&Ww			FBC			FC		
VR	Deadman Creek	Tributary to Horseshoe Reservoir at 34°00'00"/111°42'36"			A&Ww			FBC			FC		AgL
VR	Del Rio Dam Lake	34°48'55"/112°28'00"	Sedimentary		A&Ww			FBC			FC		AgL
VR	Dry Beaver Creek	Tributary to Beaver Creek at 34°37'59"/111°49'34"			A&Ww			FBC			FC	AgI	AgL
VR	Dry Creek (EDW)	Sedona Ventures WWTP outfall at 34°50'45"/111°52'15" to confluence with Dry Creek at 34°50'31"/111°52'39"					A&Wedw		PBC				

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
VR	Dude Creek	Tributary to the East Verde River at 34°23'06"/111°16'26"		A&Wc				FBC			FC	AgI	AgL
VR	East Verde River	Headwaters to confluence with Ellison Creek at 34°21'10"/111°16'47.5"		A&Wc				FBC		DWS	FC	AgI	AgL
VR	East Verde River	Below confluence with Ellison Creek to the Verde River at 34°17'02"/111°40'19"			A&Ww			FBC		DWS	FC	AgI	AgL
VR	Ellison Creek	Tributary to the East Verde River at 34°21'11"/111°16'48"		A&Wc				FBC			FC		AgL
VR	Fossil Creek (OAW)	Tributary to the Verde River at 34°18'22"/ 111°40'30"			A&Ww			FBC			FC		AgL
VR	Fossil Springs (OAW)	34°25'24"/111°34'25"			A&Ww			FBC		DWS	FC		
VR	Foxboro Lake	34°53'48"/111°40'00"			A&Ww			FBC			FC		AgL
VR	Fry Lake	35°03'45"/111°48'02"			A&Ww			FBC			FC		AgL
VR	Gap Creek	Headwaters to Government Spring at 34°23'23"/111°50'53.5"		A&Wc				FBC			FC		AgL
VR	Gap Creek	Below Government Spring to the Verde River at 34°24'50"/111°46'51.6"			A&Ww			FBC			FC		AgL
VR	Garrett Tank	35°18'57"/112°42'16"			A&Ww			FBC			FC		AgL
VR	Goldwater Lake, Lower	34°29'55"/112°27'18"	Sedimentary	A&Wc				FBC		DWS	FC		
VR	Goldwater Lake, Upper	34°29'51"/112°26'55"	Igneous	A&Wc				FBC		DWS	FC		
VR	Granite Basin Lake	34°37'01"/112°42'16"	Igneous	A&Wc				FBC			FC	AgI	AgL
VR	Granite Creek	Headwaters to Watson Lake at 34°35'15"/ 112°25'05"		A&Wc				FBC			FC	AgI	AgL
VR	Granite Creek	Below Watson Lake to the Verde River at 34°52'54"/112°25'05"			A&Ww			FBC			FC	AgI	AgL
VR	Heifer Tank	35°20'28"/112°32'56"			A&Ww			FBC			FC		AgL
VR	Hell Canyon Tank	35°05'00"/112°24'06"	Igneous		A&Ww			FBC			FC		AgL
VR	Homestead Tank	35°21'23"/112°41'32"	Igneous		A&Ww			FBC			FC		AgL
VR	Horse Park Tank	34°58'15"/111°36'29"			A&Ww			FBC			FC		AgL
VR	Horseshoe Reservoir	33°59'00"/111°42'30"	Sedimentary		A&Ww			FBC			FC	AgI	AgL
VR	Houston Creek	Tributary to the Verde River at 34°16'55"/ 111°41'06"			A&Ww			FBC			FC		AgL
VR	J.D. Dam Lake	35°04'01"/112°01'40"	Shallow	A&Wc				FBC			FC	AgI	AgL
VR	Jacks Canyon Wash	Headwaters to Big Park WWTP outfall at 34°45'32"/111°45'10"				A&We			PBC				
VR	Jacks Canyon Wash (EDW)	Big Park WWTP outfall to Dry Beaver Creek at 34°44'28"/111°46'01"					A&Wedw		PBC				
VR	Lime Creek	Tributary to Horseshoe Reservoir at 33°59'20"/111°44'13"			A&Ww			FBC			FC		AgL
VR	McLellan Reservoir	35°13'15"/112°17'05"	Igneous		A&Ww			FBC			FC	AgI	AgL
VR	Meath Dam Tank	35°07'46"/112°27'35"			A&Ww			FBC			FC		AgL
VR	Mullican Place Tank	34°44'16"/111°36'08"	Igneous		A&Ww			FBC			FC		AgL
VR	Oak Creek (OAW)	Headwaters to confluence with unnamed tributary at 34°57'08.5"/111°45'13"		A&Wc				FBC		DWS	FC	AgI	AgL
VR	Oak Creek (OAW)	Below confluence with unnamed tributary at 34°57'08.5"/111°45'13" to Verde River			A&Ww			FBC		DWS	FC	AgI	AgL
VR	Oak Creek, West Fork (OAW)	Tributary to Oak Creek at 34°59'13"/ 111°44'46"		A&Wc				FBC			FC		AgL
VR	Odell Lake	34°56'02"/111°37'52"	Igneous	A&Wc				FBC			FC		
VR	Peck's Lake	34°47'07"/112°02'30"	Shallow		A&Ww			FBC			FC	AgI	AgL
VR	Perkins Tank	35°06'42"/112°04'08"	Shallow	A&Wc				FBC			FC		AgL
VR	Pine Creek	Headwaters to confluence with unnamed tributary at 34°21'51"/111°26'46"		A&Wc				FBC		DWS	FC	AgI	AgL
VR	Pine Creek	Below confluence with unnamed tributary to East Verde River at 34°13'19"/111°29'27.6"			A&Ww			FBC		DWS	FC	AgI	AgL
VR	Red Creek	Tributary to the Verde River at 34°09'47"/ 111°43'12"			A&Ww			FBC			FC		AgL
VR	Red Lake	35°12'19"/113°03'55"	Sedimentary		A&Ww			FBC			FC		AgL
VR	Reservoir #1	35°13'05"/111°50'07"	Igneous		A&Ww			FBC			FC		
VR	Reservoir #2	35°13'16"/111°50'36"	Igneous		A&Ww			FBC			FC		
VR	Roundtree Canyon Creek	Tributary to Tangle Creek at 34°09'04"/ 111°48'18"			A&Ww			FBC			FC		AgL
VR	Scholze Lake	35°11'53"/112°00'31"	Igneous	A&Wc				FBC			FC		AgL
VR	Spring Creek	Headwaters to confluence with unnamed tributary at 34°57'23.5"/111°57'19"		A&Wc				FBC			FC	AgI	AgL
VR	Spring Creek	Below confluence with unnamed tributary at 34°44'38"/111°54'19" to Oak Creek			A&Ww			FBC			FC	AgI	AgL
VR	Steel Dam Lake	35°13'36"/112°24'51"	Igneous	A&Wc				FBC			FC		AgL
VR	Stehr Lake	34°21'59"/111°40'00"	Sedimentary		A&Ww			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 27)	Lake Category	Aquatic and Wildlife				Human Health				Agricultural	
				A&Wc	A&Ww	A&We	A&Wedw	FBC	PBC	DWS	FC	AgI	AgL
VR	Stone Dam Lake	35°13'36"/112°24'16"		A&Wc				FBC			FC	AgI	AgL
VR	Stoneman Lake	34°46'44"/111°31'05"	Shallow	A&Wc				FBC			FC	AgI	AgL
VR	Sullivan Lake	34°51'46"/112°27'41"			A&Ww			FBC			FC	AgI	AgL
VR	Sycamore Creek	Headwaters to confluence with unnamed tributary at 35°03'40"/111°57'28"		A&Wc				FBC			FC	AgI	AgL
VR	Sycamore Creek	Below confluence with unnamed tributary to Verde River at 34°51'47"/112°04'41"			A&Ww			FBC			FC	AgI	AgL
VR	Sycamore Creek	Tributary to Verde River at 33°37'55"/111°39'58"			A&Ww			FBC			FC	AgI	AgL
VR	Sycamore Creek	Tributary to Verde River at 34°04'42"/111°42'14"			A&Ww			FBC			FC		AgL
VR	Tangle Creek	Tributary to Verde River at 34°05'06"/111°42'36"			A&Ww			FBC			FC	AgI	AgL
VR	Trinity Tank	35°27'44"/112°47'56"			A&Ww			FBC			FC		AgL
VR	Unnamed Wash	Flagstaff Meadows WWTP outfall at 36°14'17"/111°49'28" to Volunteer Wash at 35°11'55"/111°49'42"					A&Wedw		PBC				
VR	Verde River	Above Bartlett Dam from confluence of Chino Wash and Granite Creek to Bartlett Lake			A&Ww			FBC			FC	AgI	AgL
VR	Verde River	Below Bartlett Lake Dam to Salt River			A&Ww			FBC		DWS	FC	AgI	AgL
VR	Walnut Creek	Tributary to Big Chino Wash at 34°58'12"/112°34'55"			A&Ww			FBC			FC		AgL
VR	Watson Lake	34°35'15"/112°25'05"	Igneous		A&Ww			FBC			FC	AgI	AgL
VR	Webber Creek	Tributary to the East Verde River at 34°18'50"/111°19'55"		A&Wc				FBC			FC		AgL
VR	West Clear Creek	Headwaters to confluence with Meadow Canyon at 34°33'40"/111°31'30"		A&Wc				FBC			FC		AgL
VR	West Clear Creek	Below confluence with Meadow Canyon to the Verde River at 34°30'14"/111°49'41"			A&Ww			FBC			FC	AgI	AgL
VR	Wet Beaver Creek	Headwaters to unnamed springs at 34°41'17"/111°34'34"		A&Wc				FBC			FC	AgI	AgL
VR	Wet Beaver Creek	Below unnamed springs to Dry Beaver Creek at 34°37'59"/111°49'33.6"			A&Ww			FBC			FC	AgI	AgL
VR	Whitehorse Lake	35°07'00"/112°00'47"	Igneous	A&Wc				FBC		DWS	FC	AgI	AgL
VR	Williamson Valley Wash	Headwaters to confluence with Mint Wash at 34°49'05"/112°37'55"				A&We			PBC				AgL
VR	Williamson alley Wash	Confluence of Mint Wash to 10.5 km downstream at 34°49'05"/111°37'55"			A&Ww			FBC			FC		AgL
VR	Williamson Valley Wash	Below 10.5 km downstream of Mint Wash confluence to Big Chino Wash at 32°52'52"/112°28'48"				A&We			PBC				AgL
VR	Williscraft Tank	35°11'23"/112°35'38"			A&Ww			FBC			FC		AgL
VR	Willow Creek	Above Willow Creek Reservoir	Shallow	A&Wc				FBC			FC		AgL
VR	Willow Creek	Below Willow Creek Reservoir to confluence with Granite Creek			A&Ww			FBC			FC		AgL
VR	Willow Creek Reservoir	34°36'17"/112°26'19"	Shallow		A&Ww			FBC			FC	AgI	AgL
VR	Willow Valley Lake	34°41'08"/111°19'57"	Sedimentary		A&Ww			FBC			FC		AgL

Watersheds
BW = Bill Williams
CG = Colorado – Grand Canyon
CL = Colorado – Lower Gila
LC = Little Colorado
MG = Middle Gila
SC = Santa Cruz – Rio Magdelena – Rio Sonoyta
SP = San Pedro – Willcox Playa – Rio Yaqui
SR = Salt River
UG = Upper Gila
VR = Verde River

Other Abbreviations
WWTP = Wastewater Treatment Plant
Km = kilometers

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Appendix B repealed, new Appendix B adopted effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

APPENDIX C. SITE-SPECIFIC STANDARDS

Watershed	Surface Water	Surface Water Description & Location	Parameter	Site-Specific Criterion
LC	Rio de Flag (EDW)	Flagstaff WWTP outfall to the confluence with San Francisco Wash at 35°14'04"/111°28'02.5"	Copper (D)	36 µg/L

Watershed	Surface Water	Surface Water Description & Location	Parameter	Site-Specific Criterion
CL	Yuma East Wetlands	From inlet culvert from Colorado River into restored channel to Ocean bridge	Selenium (T)	2.2 mg/L
			Total residual chlorine	33 µg/L (A&Ww acute) 20 µg/L (A&Ww chronic)

Historical Note
Adopted effective February 18, 1992 (Supp. 92-1). Appendix C repealed effective April 24, 1996 (Supp. 96-2). New Appendix C made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).

ARTICLE 2. REPEALED

R18-11-201. Repealed

Historical Note
Amended effective January 29, 1980 (Supp. 80-1). Amended subsection A. effective April 17, 1984 (Supp. 84-2). Former Section R9-21-201 repealed, former Section R9-21-203 renumbered as Section R9-21-201 and amended effective January 7, 1985 (Supp. 85-1). Amended effective August 12, 1986 (Supp. 86-4). Former Section R9-21-201 renumbered without change as Section R18-11-201 (Supp. 87-3). Amended effective December 1, 1988 (Supp. 88-4). Section repealed effective February 18, 1992 (Supp. 92-1).

R18-11-202. Repealed

Historical Note
Former Section R9-21-202 repealed, former Section R9-21-102 renumbered as Section R9-21-202 and amended effective January 7, 1985 (Supp. 85-1). Amended subsections (B), (D), and (E) effective August 12, 1986 (Supp. 86-4). Former Section R9-21-202 renumbered without change as Section R18-11-202 (Supp. 87-3). Section repealed, new Section adopted effective February 18, 1992 (Supp. 92-1). Section repealed effective April 24, 1996 (Supp. 96-2).

R18-11-203. Repealed

Historical Note
Amended effective January 29, 1980 (Supp. 80-1). Amended subsection (B) by adding paragraphs (27) and (28) effective October 14, 1981 (Supp. 81-5). Former Section R9-21-203 renumbered as Section R9-21-201, former Section R9-21-204 renumbered as Section R9-21-203 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-203 renumbered and amended as Section R9-21-204, new Section R9-21-203 adopted effective August 12, 1986 (Supp. 86-4). Former Section R9-21-203 renumbered without change as Section R18-11-203 (Supp. 87-3). Amended subsection (B) effective December 1, 1988 (Supp. 88-4). Section repealed, new Section adopted effective February 18, 1992 (Supp. 92-1). Section repealed effective April 24, 1996 (Supp. 96-2).

R18-11-204. Repealed

Historical Note
Former Section R9-21-204 renumbered and amended as Section R9-21-207, former Section R9-21-206 renumbered and amended as Section R9-21-204 effective January 29, 1980 (Supp. 80-1). Former Section R9-21-204 renumbered as Section R9-21-203, former Section R9-21-205 renumbered as Section R9-21-204 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-204 renumbered and amended as Section R9-21-205, former Section R9-21-203 renumbered and amended as Section R9-21-204 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-204 renumbered without change as Section R18-11-204 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).

R18-11-205. Repealed

Historical Note
Former Section R9-21-205 repealed, new Section R9-21-205 adopted effective January 29, 1980 (Supp. 80-1). Former Section R9-21-205 renumbered as Section R9-21-204, former Section R9-21-206 renumbered as Section R9-21-205 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-205 renumbered and amended as Section R9-21-206, former Section R9-21-204 renumbered and amended as Section R9-21-205 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-205 renumbered without change as Section R18-11-205 (Supp. 87-3). Section repealed, new Section adopted effective February 18, 1992 (Supp. 92-1). Section repealed April 24, 1996 (Supp. 96-2).

R18-11-206. Repealed

Historical Note
Former Section R9-21-206 renumbered and amended as Section R9-21-204, new Section R9-21-206 adopted effective January 29, 1980 (Supp. 80-1). Amended by adding subsection (B) effective October 14, 1981 (Supp. 81-5). Amended subsection (B) and Table 1 effective January 29, 1982 (Supp. 82-1). Amended subsection (B) and Table 1 effective August 13, 1982 (Supp. 82-4). Former Section R9-21-206 renumbered as Section R9-21-205, former Section R9-21-207 renumbered as Section R9-21-206 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-206 renumbered and amended as Section R9-21-207, former Section R9-21-205 renumbered and amended as R9-21-206 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-206 renumbered without change as Section R18-11-206 (Supp. 87-3).

R18-11-207. Repealed

Historical Note
Former Section R9-21-207 repealed, former Section R9-21-204 renumbered and amended as Section R9-21-207 effective January 29, 1980 (Supp. 80-1). Former Section R9-21-207 renumbered as Section R9-21-206, former Section R9-21-208 renumbered as Section R9-21-207 and amended effective January 7,

1985 (Supp. 85-1). Former Section R9-21-207 renumbered without change as Section R9-21-208, former Section R9-21-206 renumbered and amended as Section R9-21-207 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-207 renumbered without change as Section R18-11-207 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).

R18-11-208. Repealed

Historical Note

Former Section R9-21-208 repealed, new Section R9-21-208 adopted effective January 29, 1980 (Supp. 80-1). Former Section R9-21-208 renumbered as Section R9-21-207, Appendices 1 through 9 amended as Appendix A (now shown following R9-21-213), former Section
R9-21-209 renumbered as R9-21-208 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-208 renumbered and amended as Section R9-21-209, former Section R9-21-207 renumbered without change as Section R9-21-208 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-208 renumbered without change as Section R18-11-208 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).

R18-11-209. Repealed

Historical Note

Former Section R9-21-209 renumbered and amended as Section R9-21-210, new Section R9-21-209 adopted effective January 29, 1980 (Supp. 80-1). Former Section R9-21-209 renumbered as Section R9-21-208, Tables I and II amended as Appendix B (now shown following R9-21-213 and Appendix A), former Section R9-21-210 renumbered as Section R9-21-209 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-209 renumbered and amended as Section R9-21-210, former Section R9-21-208 renumbered and amended as Section R9-21-209 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-209 renumbered without change as Section R18-11-209 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).

R18-11-210. Repealed

Historical Note

Former Section R9-21-210 renumbered and amended as Section R9-21-211, former Section R9-21-209 renumbered and amended as Section R9-21-210 effective January 29, 1980 (Supp. 80-1). Amended subsection (A) effective April 17, 1984 (Supp. 84-2). Former Section R9-21-210 renumbered as Section R9-21-209, former Section R9-21-211 renumbered as Section R9-21-210 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-210 renumbered and amended as Section R9-21-211, former Section R9-21-209 renumbered and amended as Section R9-21-210 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-210 renumbered without change as Section R18-11-210 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).

R18-11-211. Repealed

Historical Note

Former Section R9-21-210 renumbered and amended as Section R9-21-211 effective January 29, 1980 (Supp. 80-1). Amended subsections (D), (G) three (I), and added (J) effective October 14, 1981 (Supp. 81-5). Former Section R9-21-211 renumbered as Section R9-21-210, former Section R9-21-212 renumbered as Section R9-21-211 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-211 renumbered and amended as Section R9-21-212, former Section R9-21-210 renumbered and amended as Section R9-21-211 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-211 renumbered without change as Section R18-11-211 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).

R18-11-212. Repealed

Historical Note

Adopted effective January 29, 1980 (Supp. 80-1). Former Section R9-21-212 renumbered as Section R9-21-211, former Section R9-21-213 renumbered as Section R9-21-212 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-212 repealed, former Section R9-21-211 renumbered and amended as Section R9-21-212 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-212 renumbered without change as Section R18-11-212 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).

R18-11-213. Repealed

Historical Note

Adopted effective January 29, 1980 (Supp. 80-1). Amended effective April 17, 1984 (Supp. 84-2). Former Section R9-21-213 renumbered as Section R9-21-212, former Section R9-21-103 renumbered as Section R9-21-213 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-213 renumbered without change as Section R9-21-214, new Section R9-21-213 adopted effective August 12, 1986 (Supp. 86-4). Former Section R9-21-213 renumbered without change as Section R18-11-213 (Supp. 87-3). Amended effective December 1, 1988 (Supp. 88-4). Section repealed effective February 18, 1992 (Supp. 92-1).

R18-11-214. Repealed

Historical Note

Former Section R9-21-213 renumbered without change as Section R9-21-214 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-214 renumbered without change as Section R18-11-214 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).

Appendix A. Repealed

Historical Note

Former Section R9-21-208, Appendices 1 through 9 renumbered and amended as new Appendix A adopted effective January 7, 1985 (Supp. 85-1). Amended effective August 12, 1986 (Supp. 86-4). Appendix repealed effective February 18, 1992 (Supp. 92-1).

Appendix B. Repealed

Historical Note

Former R9-21-209, Table 1 and Table 2 renumbered and amended as Appendix B adopted effective January 7, 1985 (Supp.85-1). Amended effective August 12, 1986 (Supp. 86-4). Appendix repealed effective February 18, 1992 (Supp. 92-1).

ARTICLE 3. RECLAIMED WATER QUALITY STANDARDS

R18-11-301. Definitions

The terms in this Article have the following meanings:

"Direct reuse" has the meaning prescribed in R18-9-701(1).

"Disinfection" means a treatment process that uses oxidants, ultraviolet light, or other agents to kill or inactivate pathogenic organisms in wastewater.

"Filtration" means a treatment process that removes particulate matter from wastewater by passage through porous media.

"Gray water" means wastewater, collected separately from a sewage flow, that originates from a clothes washer, bathtub, shower, or sink, but it does not include wastewater from a kitchen sink, dishwasher, or a toilet.

"Industrial wastewater" means wastewater generated from an industrial process.

"Landscape impoundment" means a manmade lake, pond, or impoundment of reclaimed water where swimming, wading, boating, fishing, and other water-based recreational activities are prohibited. A landscape impoundment is created for storage, landscaping, or for aesthetic purposes only.

"NTU" means nepholometric turbidity unit.

"On-site wastewater treatment facility" has the meaning prescribed in A.R.S. § 49-201(24).

"Open access" means that access to reclaimed water by the general public is uncontrolled.

"Reclaimed water" has the meaning prescribed in A.R.S. § 49-201(31).

"Recreational impoundment" means a manmade lake, pond, or impoundment of reclaimed water where boating or fishing is an intended use of the impoundment. Swimming and other full-body recreation activities (for example, water-skiing) are prohibited in a recreational impoundment.

"Restricted access" means that access to reclaimed water by the general public is controlled.

"Secondary treatment" means a biological treatment process that achieves the minimum level of effluent quality defined by the federal secondary treatment regulation at 40 CFR § 133.102.

"Sewage" means untreated wastes from toilets, baths, sinks, lavatories, laundries, and other plumbing fixtures in places of human habitation, employment, or recreation.

Historical Note

Adopted effective July 9, 1981 (Supp. 81-4). Former Section R9-21-301 renumbered without change as Section R18-11-301 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1). New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

R18-11-302. Applicability

This Article applies to the direct reuse of reclaimed water, except for:

1. The direct reuse of gray water, or
2. The direct reuse of reclaimed water from an onsite wastewater treatment facility regulated by a general Aquifer Protection Permit under 18 A.A.C. 9, Article 3.

Historical Note

Adopted effective June 8, 1981 (Supp. 81-3). Amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-302 renumbered without change as Section R18-11-302 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1). New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

R18-11-303. Class A+ Reclaimed Water

A. Class A+ reclaimed water is wastewater that has undergone secondary treatment, filtration, nitrogen removal treatment, and disinfection. Chemical feed facilities to add coagulants or polymers are required to ensure that filtered effluent before disinfection complies with the 24-hour average turbidity criterion prescribed in subsection (B)(1). Chemical feed facilities may remain idle if the 24-hour average turbidity criterion in (B)(1) is achieved without chemical addition.

B. An owner of a facility shall ensure that:

1. The turbidity of Class A+ reclaimed water at a point in the wastewater treatment process after filtration and immediately before disinfection complies with the following:
   a. The 24-hour average turbidity of filtered effluent is two NTUs or less, and
   b. The turbidity of filtered effluent does not exceed five NTUs at any time.
2. Class A+ reclaimed water meets the following criteria after disinfection treatment and before discharge to a reclaimed water distribution system:
   a. There are no detectable fecal coliform organisms in four of the last seven daily reclaimed water samples taken, and
   b. The single sample maximum concentration of fecal coliform organisms in a reclaimed water sample is less than 23 / 100 ml.
   c. If alternative treatment processes or alternative turbidity criteria are used, or reclaimed water is blended with other water to produce Class A+ reclaimed water under subsection (C), there are no detectable enteric virus in four of the last seven monthly reclaimed water samples taken.
3. The 5-sample geometric mean concentration of total nitrogen in a reclaimed water sample is less than 10 mg / L.

C. An owner of a facility may use alternative treatment methods other than those required by subsection (A), or comply with alternative turbidity criteria other than those required by subsection (B)(1), or blend reclaimed water with other water to produce Class A+ reclaimed water provided the owner demonstrates through pilot plant testing, existing water quality data, or other means that the alternative treatment methods, alternative turbidity criteria, or blending reliably produces a reclaimed water that meets the disinfection criteria in subsection (B)(2) and the total nitrogen criteria in subsection (B)(3) before discharge to a reclaimed water distribution system.

D. Class A+ reclaimed water is not required for any type of direct reuse. A person may use Class A+ reclaimed water for any type of direct reuse listed in Table A.

Historical Note

Adopted effective January 7, 1985 (Supp. 85-1). Amended effective August 12, 1986 (Supp. 86-4). Former Section R9-21-303 renumbered without change as Section R18-11-303 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1). New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

R18-11-304. Class A Reclaimed Water

A. Class A reclaimed water is wastewater that has undergone secondary treatment, filtration, and disinfection. Chemical feed facilities to add coagulants or polymers are required to ensure that filtered effluent before disinfection complies with the 24-hour average turbidity criterion prescribed in subsection (B)(1). Chemical feed facilities may remain idle if the 24-hour average turbidity criterion in subsection (B)(1) is achieved without chemical addition.

B. An owner of a facility shall ensure that:
1. The turbidity of Class A reclaimed water at a point in the wastewater treatment process after filtration and immediately before disinfection complies with the following:
   a. The 24-hour average turbidity of filtered effluent is two NTUs or less, and
   b. The turbidity of filtered effluent does not exceed five NTUs at any time.
2. Class A reclaimed water meets the following criteria after disinfection treatment and before discharge to a reclaimed water distribution system:
   a. There are no detectable fecal coliform organisms in four of the last seven daily reclaimed water samples taken, and
   b. The single sample maximum concentration of fecal coliform organisms in a reclaimed water sample is less than 23 / 100 ml.
   c. If alternative treatment processes or alternative turbidity criteria are used, or reclaimed water is blended with other water to produce Class A reclaimed water under subsection (C), there are no detectable enteric virus in four of the last seven monthly reclaimed water samples taken.

C. An owner of a facility may use alternative treatment methods other than those required by subsection (A), or comply with alternative turbidity criteria other than those required by subsection (B)(1), or blend reclaimed water with other water to produce Class A reclaimed water provided the owner demonstrates through pilot plant testing, existing water quality data, or other means that the alternative treatment methods, alternative turbidity criteria, or blending reliably produces a reclaimed water that meets the disinfection criteria in subsection (B)(2) before discharge to a reclaimed water distribution system.

D. A person shall use Class A reclaimed water for a type of direct reuse listed as Class A in Table A. A person may use Class A reclaimed water for a type of direct reuse listed as Class B or Class C in Table A.

Historical Note

Adopted effective January 7, 1985 (Supp. 85-1). Amended effective August 12, 1986 (Supp. 86-4). Former Section R9-21-304 renumbered without change as Section R18-11-304 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1). New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

R18-11-305. Class B+ Reclaimed Water

A. Class B+ reclaimed water is wastewater that has undergone secondary treatment, nitrogen removal treatment, and disinfection.

B. An owner of a facility shall ensure that:
1. Class B+ reclaimed water meets the following criteria after disinfection treatment and before discharge to a reclaimed water distribution system:
   a. The concentration of fecal coliform organisms in four of the last seven daily reclaimed water samples is less than 200 / 100 ml.
   b. The single sample maximum concentration of fecal coliform organisms in a reclaimed water sample is less than 800 / 100 ml.
2. The 5-sample geometric mean concentration of total nitrogen in a reclaimed water sample is less than 10 mg / L.

C. Class B+ reclaimed water is not required for a type of direct reuse. A person may use Class B+ reclaimed water for a type of direct reuse listed as Class B or Class C in Table A. A person shall not use Class B+ reclaimed water for a type of direct reuse listed as Class A in Table A.

Historical Note

New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

R18-11-306. Class B Reclaimed Water

A. Class B reclaimed water is wastewater that has undergone secondary treatment and disinfection.

B. An owner of a facility shall ensure that Class B reclaimed water meets the following criteria after disinfection treatment and before discharge to a reclaimed water distribution system:
1. The concentration of fecal coliform organisms in four of the last seven daily reclaimed water samples is less than 200 / 100 ml.
2. The single sample maximum concentration of fecal coliform organisms in a reclaimed water sample is less than 800 / 100 ml.

C. A person shall use a minimum of Class B reclaimed water for a type of direct reuse listed as Class B in Table A. A person may use Class B reclaimed water for a type of direct reuse listed as Class C in Table A. A person shall not use Class B reclaimed water for a type of direct reuse listed as Class A in Table A.

Historical Note

New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

R18-11-307. Class C Reclaimed Water

A. Class C reclaimed water is wastewater that has undergone secondary treatment in a series of wastewater stabilization ponds, including aeration, with or without disinfection.

B. The owner of a facility shall ensure that:
1. The total retention time of Class C reclaimed water in wastewater stabilization ponds is at least 20 days.
2. Class C reclaimed water meets the following criteria after treatment and before discharge to a reclaimed water distribution system:
   a. The concentration of fecal coliform organisms in four of the last seven reclaimed water samples taken is less than 1000 / 100 ml.
   b. The single sample maximum concentration of fecal coliform organisms in a reclaimed water sample is less than 4000 / 100 ml.

C. A person shall use a minimum of Class C reclaimed water for a type of direct reuse listed as Class C in Table A. A person shall not use Class C reclaimed water for a type of direct reuse listed as Class A or Class B in Table A.

Historical Note

New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

R18-11-308. Industrial Reuse

A. The reclaimed water quality requirements for the following direct reuse applications are industry-specific and shall be determined by the Department on a case-by-case basis in a reclaimed water permit issued by the Department under 18 A.A.C. 9, Article 7:
1. Direct reuse of industrial wastewater containing sewage.
2. Direct reuse of industrial wastewater for the production or processing of any crop used as human or animal food.

B. The Department shall use best professional judgment to determine the reclaimed water quality requirements needed to protect public health and the environment for a type of direct reuse specified in subsection (A).

Historical Note
New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

R18-11-309. Reclaimed Water Quality Standards for an Unlisted Type of Direct Reuse

A. The Department may prescribe in an individual reclaimed water permit issued under 18 A.A.C. 9, Article 7, reclaimed water quality requirements for a type of direct reuse not listed in Table A. Before permitting a direct reuse of reclaimed water not listed in Table A, the Department shall, using its best professional judgment, determine and require compliance with reclaimed water quality requirements needed to protect public health and the environment.

B. Department may determine that Class A+, A, B+, B, or C reclaimed water is appropriate for a new type of direct reuse.

C. The Department shall consider the following factors when prescribing reclaimed water quality requirements for a new type of direct reuse:
1. The risk to public health;
2. The degree of public access to the site where the reclaimed water is reused and human exposure to the reclaimed water;
3. The level of treatment necessary to ensure that the reclaimed water is aesthetically acceptable;
4. The level of treatment necessary to prevent nuisance conditions;
5. Specific water quality requirements for the intended type of direct reuse;
6. The means of application of the reclaimed water;
7. The degree of treatment necessary to avoid a violation of surface water quality standards or aquifer water quality standards;
8. The potential for improper or unintended use of the reclaimed water;
9. The reuse guidelines, criteria, or standards adopted or recommended by the U.S. Environmental Protection Agency or other federal or state agencies that apply to the new type of direct reuse; and
10. Similar wastewater reclamation experience of reclaimed water providers in the United States.

Historical Note
New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

Table A. Minimum Reclaimed Water Quality Requirements for Direct Reuse

Type of Direct Reuse	Minimum Class of Reclaimed Water Required
Irrigation of food crops	A
Recreational impoundments	A
Residential landscape irrigation	A
Schoolground landscape irrigation	A
Open access landscape irrigation	A
Toilet and urinal flushing	A
Fire protection systems	A
Spray irrigation of an orchard or vineyard	A
Commercial closed loop air conditioning systems	A
Vehicle and equipment washing (does not include self-service vehicle washes)	A
Snowmaking	A
Surface irrigation of an orchard or vineyard	B
Golf course irrigation	B
Restricted access landscape irrigation	B
Landscape impoundment	B
Dust control	B
Soil compaction and similar construction activities	B
Pasture for milking animals	B
Livestock watering (dairy animals)	B
Concrete and cement mixing	B
Materials washing and sieving	B
Street cleaning	B
Pasture for non-dairy animals	C
Livestock watering (non-dairy animals)	C
Irrigation of sod farms	C
Irrigation of fiber, seed, forage, and similar crops	C
Silviculture	C

Note: Nothing in this Article prevents a wastewater treatment plant from using a higher quality reclaimed water for a type of direct reuse than the minimum class of reclaimed water listed in Table A. For example, a wastewater treatment plant may provide Class A reclaimed water for a type of direct reuse where Class B or Class C reclaimed water is acceptable.

Historical Note
New Table adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).

ARTICLE 4. AQUIFER WATER QUALITY STANDARDS

R18-11-401. Definitions

In addition to the definitions contained in A.R.S. §§ 49-101 and 49-201, the terms of this Article shall have the following meanings:
1. "Beta particle and photon radioactivity from man-made radionuclides" means all radionuclides emitting beta particles or photons, except Thorium-232, Uranium-235, Uranium-238 and their progeny.
2. "Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements.
3. "Drinking water protected use" means the protection and maintenance of aquifer water quality for human consumption.

4. "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.
5. "Mg/l" means milligrams per liter.
6. "Millirem" means 1/1000 of a rem. A rem means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system.
7. "Non-drinking water protected use" means the protection and maintenance of aquifer water quality for a use other than for human consumption.
8. "pCi" means picocurie, or the quantity of radioactive material producing 2.22 nuclear transformations per minute.
9. "Total trihalomethanes" means the sum of the concentrations of the following trihalomethane compounds: trichloromethane (chloroform), dibromochloromethane, bromodichloromethane and tribromomethane (bromoform).

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Amended effective August 14, 1992 (Supp. 92-3).

R18-11-402. Repealed

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Repealed effective August 14, 1992 (Supp. 92-3).

R18-11-403. Analytical Methods

Analysis of a sample to determine compliance with an aquifer water quality standard shall be in accordance with an analytical method specified in A.A.C. Title 9, Chapter 14, Article 6 or an alternative analytical method that is approved by the Director of the Arizona Department of Health Services pursuant to A.A.C. R9-14-607(B).

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Amended effective August 14, 1992 (Supp. 92-3).

R18-11-404. Laboratories

A test result from a sample taken to determine compliance with an aquifer water quality standard shall be valid only if the sample has been analyzed by a laboratory that is licensed by the Arizona Department of Health Services for the analysis performed.

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Amended effective August 14, 1992 (Supp. 92-3).

R18-11-405. Narrative Aquifer Water Quality Standards

A. A discharge shall not cause a pollutant to be present in an aquifer classified for a drinking water protected use in a concentration which endangers human health.

B. A discharge shall not cause or contribute to a violation of a water quality standard established for a navigable water of the state.

C. A discharge shall not cause a pollutant to be present in an aquifer which impairs existing or reasonably foreseeable uses of water in an aquifer.

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Amended effective August 14, 1992 (Supp. 92-3).

R18-11-406. Numeric Aquifer Water Quality Standards: Drinking Water Protected Use

A. The aquifer water quality standards in this Section apply to aquifers that are classified for drinking water protected use.

B. The following are the aquifer water quality standards for inorganic chemicals:

Pollutant	**mg/L)**
Antimony	0.006
Arsenic	0.05
Asbestos	7 million fibers/liter (longer than 10 mm)
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium	0.1
Cyanide (As Free Cyanide)	0.2
Fluoride	4.0
Lead	0.05
Mercury	0.002
Nickel	0.1
Nitrate (as N)	10
Nitrite (as N)	1
Nitrate and nitrite (as N)	10
Selenium	0.05
Thallium	0.002

C. The following are the aquifer water quality standards for organic chemicals:

Pollutant	**(mg/L)**
Benzene	0.005
Benzo (a) pyrene	0.0002
Carbon Tetrachloride	0.005
o-Dichlorobenzene	0.6
para-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
cis-1,2-Dichloroethylene	0.07
trans-1,2-Dichloroethylene	0.1
1,2-Dichloropropane	0.005
Dichloromethane	0.005
Di (2-ethylhexyl) adipate	0.4
Di (2-ethylhexyl) pthalate	0.006
Ethylbenzene	0.7
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Monochlorobenzene	0.1
Pentachlorophenol	0.001
Styrene	0.1
2,3,7,8-TCDD (Dioxin)	0.00000003
Tetrachloroethylene	0.005
Toluene	1
Trihalomethanes (Total)	0.10
1,2,4-Trichlorobenzene	0.07
1,1,1-Trichloroethane	0.20
1,1,2-Trichloroethane	0.005
Trichloroethylene	0.005
Vinyl Chloride	0.002
Xylenes (Total)	10

D. The following are the aquifer water quality standards for pesticides and polychlorinated biphenyls (PCBs):

Pollutant	**(mg/L)**
Alachlor	0.002
Atrazine	0.003
Carbofuran	0.04
Chlordane	0.002
Dalapon	0.2
1,2-Dibromo-3-Chloropropane (DBCP)	0.0002
2,4,-Dichlorophenoxyacetic Acid(2,4-D)	0.07
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Ethylene Dibromide (EDB)	0.00005
Glyphosate	0.7
Heptachlor	0.0004
Heptachlor Epoxide	0.0002
Lindane	0.0002
Methoxychlor	0.04
Oxamyl	0.2
Picloram	0.5
Polychlorinated Biphenols (PCBs)	0.0005
Simazine	0.004
Toxaphene	0.003
2,4,5-Trichlorophenoxypropionic Acid (2,4,5-TP or Silvex)	0.05

E. The following are the aquifer water quality standards for radionuclides:

1. The maximum concentration for gross alpha particle activity, including Radium-226 but excluding radon and uranium, shall not exceed 15 pCi/l.
2. The maximum concentration for combined Radium-226 and Radium-228 shall not exceed 5 pCi/l.
3. The average annual concentration of beta particle and photon radioactivity from man-made radionuclides shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.
4. Except for the radionuclides listed in this subsection, the concentration of man-made radionuclides causing 4 millirem total body or organ dose equivalents shall be calculated on the basis of a 2-liter-per-day drinking water intake using the 168-hour data listed in "Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure," National Bureau of Standards Handbook 69, National Bureau of Commerce, as amended August 1963 (and no future editions), incorporated herein by reference and on file with the Office of the Secretary of State and with the Department. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 millirem/year. The following average annual concentrations are assumed to produce a total body or organ dose of 4 millirem/year:

Radionuclide	**Critical Organ**	**pCi/l**
Tritium	Total body	20,000
Strontium-90	Bone Marrow	8

F. The aquifer water quality standard for microbiological contaminants is based upon the presence or absence of total coliforms in a 100-milliliter sample. If a sample is total coliform-positive, a 100-milliliter repeat sample shall be taken within two weeks of the time the sample results are reported. Any total coliform-positive repeat sample following a total coliform-positive sample constitutes a violation of the aquifer water quality standard for microbiological contaminants.

G. The following are the aquifer water quality standards for turbidity:

1. One nephelometric turbidity unit as determined by a monthly average except that five or fewer nephelometric turbidity units may be allowed if it can be determined that the higher turbidity does not interfere with disinfection, prevent maintenance of effective disinfectant agents in water supply distribution systems, or interfere with microbiological determinations.
2. Five nephelometric turbidity units based on an average of two consecutive days.

Historical Note

Adopted effective January 4, 1990 (Supp. 90-1).
Amended effective August 14, 1992 (Supp. 92-3).
Amended effective May 26, 1994 (Supp. 94-2).

R18-11-407. Aquifer Water Quality Standards in Reclassified Aquifers

A. All aquifers in the state are classified for drinking water protected use except for aquifers which are reclassified to a non-drinking water protected use pursuant to A.R.S. § 49-224 and A.A.C. R18-11-503.

B. Aquifer water quality standards for drinking water protected use apply to reclassified aquifers except where expressly superseded by aquifer water quality standards adopted pursuant to subsection (C) of this Section.

C. The Director shall adopt, by rule, aquifer water quality standards for reclassified aquifers within one year of the date of the order reclassifying the aquifer to a nondrinking water protected use. The Director shall adopt aquifer water quality standards for reclassified aquifers only for pollutants that are specifically identified in a petition for reclassification as prescribed by A.R.S. § 49-223(D) and A.A.C. R18-11-503(B). Aquifer water quality standards for reclassified aquifers shall be sufficient to protect the use of the reclassified aquifer.

Historical Note

Adopted effective January 4, 1990 (Supp. 90-1).
Amended effective August 14, 1992 (Supp. 92-3).

R18-11-408. Petition for Adoption of a Numeric Aquifer Water Quality Standard

A. Any person may petition the Director to adopt, by rule, a numeric aquifer water quality standard for a pollutant for which no numeric aquifer water quality standard exists.

B. Petitions for adoption of a numeric aquifer water quality standard shall be filed with the Department and shall comply with the requirements applicable to petitions for rule adoption as provided by A.R.S. § 41-1033 and A.A.C. R18-1-302, except as otherwise provided by A.R.S. § 49-223 or this Section.

C. In addition to the requirements of A.A.C. R18-1-302, a petition for rule adoption to establish a numeric aquifer water quality standard shall include specific reference to:

1. Technical information that the pollutant is a toxic pollutant.
2. Technical information upon which the Director reasonably may base the establishment of a numeric aquifer water quality standard.
3. Evidence that the pollutant that is the subject of the petition is or may in the future be present in an aquifer or

part of an aquifer that is classified for drinking water protected use. Evidence may include, but is not limited to, any of the following:

a. A laboratory analysis of a water sample by a laboratory licensed by the Arizona Department of Health Services which indicates the presence of the pollutant in the aquifer.
b. A hydrogeological study which demonstrates that the pollutant that is the subject of the petition may be present in an aquifer in the future. The hydrogeological study shall include the following:
   i. A description of the use that results in a discharge of the pollutant that is the subject of the petition.
   ii. A description of the mobility of the pollutant in the vadose zone and in the aquifer.
   iii. A description of the persistence of the pollutant in the vadose zone and in the aquifer.

D. Within 180 calendar days of the receipt of a complete petition for rule adoption to establish a numeric aquifer water quality standard, the Director shall make a written determination of whether the petition should be granted or denied. The Director shall give written notice by regular mail of the determination to the petitioner.

E. If the petition for rule adoption is granted, the Director shall initiate rulemaking proceedings to adopt a numeric aquifer water quality standard. The Director shall, within one year of the date that the petition for adoption of a numeric aquifer water quality standard is granted, either adopt a rule establishing a numeric aquifer water quality standard or publish a notice of termination of rulemaking in the Arizona Administrative Register.

F. If the petition for rule adoption is denied, the Director shall issue a denial letter to the petitioner which explains the reasons for the denial. The denial of a petition for rule adoption to establish a numeric aquifer water quality standard is not subject to judicial review.

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).

Appendix 1. Repealed

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Repealed effective August 14, 1992 (Supp. 92-3).

Appendix 2. Repealed

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Repealed effective August 14, 1992 (Supp. 92-3).

Appendix 3. Repealed

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Repealed effective August 14, 1992 (Supp. 92-3).

Appendix 4. Repealed

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Repealed effective August 14, 1992 (Supp. 92-3).

Appendix 5. Repealed

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Repealed effective August 14, 1992 (Supp. 92-3).

Appendix 6. Repealed

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Repealed effective August 14, 1992 (Supp. 92-3).

Appendix 7. Repealed

Historical Note
Adopted effective January 4, 1990 (Supp. 90-1).
Repealed effective August 14, 1992 (Supp. 92-3).

ARTICLE 5. AQUIFER BOUNDARY AND PROTECTED USE CLASSIFICATION

R18-11-501. Definitions

In addition to the definitions contained in A.R.S. § 49-201, the words and phrases of this Article shall have the following meaning:

1. "Drinking water protected use" means the protection and maintenance of aquifer water quality for human consumption.
2. "Hardrock areas containing little or no water" means areas of igneous or metamorphic rock which do not yield usable quantities of water.
3. "Nondrinking water protected use" means the protection and maintenance of aquifer water quality for a use other than human consumption.
4. "Usable quantities" means five gallons of water per day.

Historical Note
Adopted effective October 22, 1987 (Supp. 87-4).

R18-11-502. Aquifer boundaries

A. Except as provided in subsection (B) of this rule, aquifer boundaries for the aquifers in this state are identified and defined as being identical to the hydrologic basin and subbasin boundaries, as found by the Director of the Department of Water Resources, Findings and Order In the Matter of The Designation of Groundwater Basins and Subbasins In The State of Arizona (dated June 21, 1984), pursuant to A.R.S. §§ 45-403 and 45-404, which is incorporated herein by reference and on file with the Department of Environmental Quality and the Office of the Secretary of State.

B. Excluded from the boundaries of the aquifers are hard rock areas which contain little or no water, as identified in Plate 1 of the Department of Water Resources, Water Resource Hydrologic Map Series Report Number 2 (dated January 1981) and as further identified in the Bureau of Mines, University of Arizona County Geologic Map Series (individual county maps dated 1957 through 1960), which are incorporated herein by reference and on file with the Department of Environmental Quality and the Office of the Secretary of State.

C. The Director may, by rule, modify or add an aquifer boundary provided that one or more of the following applies:

1. The Department of Water Resources modifies the boundaries of its basins or subbasins.
2. The Director is made aware of new technical information or data which supports refinement of an aquifer boundary.

D. Facilities located outside of the boundaries defined in these rules shall be subject to A.R.S. § 49-241 except as provided therein.

Historical Note
Adopted effective October 22, 1987 (Supp. 87-4).

R18-11-503. Petition for reclassification

A. Any person may petition the Director to reclassify an aquifer from a drinking water protected use to a nondrinking water protected use pursuant to A.R.S. § 49-224(C).

B. A written petition for reclassification pursuant to A.R.S. § 49-224(C) or A.R.S. § 49-224(D) shall be filed with the Department and shall include the following categories of information:

1. The proposed protected use for which the reclassification is being requested.
2. The pollutant and affected aquifer water quality standards for which the reclassification is being requested.
3. A hydrogeologic report which demonstrates that the aquifer proposed for reclassification is or will be hydrologically isolated, to the extent described in A.R.S. § 49-224(C)(1). This report and demonstration of hydrologic isolation for the area containing such aquifer, and immediate adjacent geologic units, shall include at least the following:
   a. Hydrogeologic area maps and cross sections.
   b. An analysis of subsurface geology, including geologic and hydrologic separation.
   c. Water level elevation or piezometric level contour maps.
   d. Analysis of hydrologic characteristics of the aquifer and the immediate adjacent geologic units.
   e. Description of existing water quality and analysis of water chemistry.
   f. Projected annual quantity of water to be withdrawn.
   g. Identification of pumping centers, cones of depression and areas of recharge.
   h. A water balance.
   i. Existing flow direction and evaluation of the effects of seasonal and future pumping on flow.
   j. An evaluation as to whether the reclassification will contribute to or cause a violation of aquifer water quality standards in other aquifers, or in parts of the aquifer not being proposed for reclassification.
4. Documentation demonstrating that water from the aquifer or part of the aquifer for which reclassification is proposed is not being used as drinking water. This documentation shall include at least the following:
   a. A list of all wells or springs including their location, ownership and use within the aquifer or part of the aquifer being proposed for reclassification.
   b. Identification of groundwater withdrawal rights, on file with the Department of Water Resources, within the aquifer or part of the aquifer being proposed for reclassification.
   c. A comprehensive list of agencies, persons and other information sources consulted for aquifer use documentation.
5. A cost-benefit analysis developed pursuant to the requirements of A.R.S. § 49-224(C)(3), except for petitions submitted pursuant to A.R.S. § 49-224(D). This analysis shall identify potential future uses of the aquifer being proposed for reclassification, as well as other opportunity costs associated with reclassification, and shall contain a description of the cost-benefit methodology used, including all assumptions, data, data sources and criteria considered and all supporting statistical analyses.

Historical Note
Adopted effective October 22, 1987 (Supp. 87-4).

R18-11-504. Agency action on petition

A. Upon receipt of a petition for reclassification, the Director shall review the petition for compliance with the requirements of R18-11-503. If additional information is necessary, the petitioner shall be notified of specific deficiencies in writing within 30 calendar days of receipt of the petition.

B. Within 120 calendar days after receipt of a complete petition, and after consultation with the appropriate advisory council pursuant to A.R.S. §§ 49-224(C) and 49-204, the Director shall make a final decision to grant or deny the petition and shall notify the petitioner of such decision and the reason for such determination in writing.

C. Upon a decision to grant a petition for aquifer reclassification, the Director shall initiate proceedings for promulgation of aquifer water quality standards and, if applicable, for aquifer boundary designation for the reclassified aquifers.

Historical Note
Adopted effective October 22, 1987 (Supp. 87-4).

R18-11-505. Public participation

A. Within 30 days of receipt of a complete petition for reclassification filed pursuant to A.R.S. § 49-224(D), or if the Director deems it necessary to consider a reclassification under A.R.S. § 49-224(C), the Director shall give public notice of the proposed reclassification pursuant to A.A.C. R18-1-401.

B. The Director shall hold at least one public hearing at a location as near as practicable to the aquifer proposed for reclassification. The Director shall give notice of each public hearing and conduct the public hearing in accordance with the provisions of A.A.C. R18-1-402.

Historical Note
Adopted effective June 29, 1989 (Supp. 89-2).

R18-11-506. Rescission of reclassification

The Director may, by rule, rescind an aquifer reclassification and return an aquifer to a drinking water protected use if he determines that any of the conditions under which the reclassification was granted are no longer valid. If the Director initiates a change under this Section, he shall consult with the appropriate advisory council pursuant to A.R.S. §§ 49-224(C) and 49-204.

Historical Note
Adopted effective October 22, 1987 (Supp. 87-4).

ARTICLE 6. IMPAIRED WATER IDENTIFICATION

Article 6, consisting of Sections R18-11-601 through R18-11-606, made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).

R18-11-601. Definitions

In addition to the definitions established in A.R.S. §§ 49-201 and 49-231, and A.A.C. R18-11-101, the following terms apply to this Article:

1. "303(d) List" means the list of surface waters or segments required under section 303(d) of the Clean Water Act and A.R.S. Title 49, Chapter 2, Article 2.1, for which TMDLs are developed and submitted to EPA for approval.
2. "Attaining" means there is sufficient, credible, and scientifically defensible data to assess a surface water or segment and the surface water or segment does not meet the definition of impaired or not attaining.
3. "AZPDES" means the Arizona Pollutant Elimination Discharge System.
4. "Credible and scientifically defensible data" means data submitted, collected, or analyzed using:

a. Quality assurance and quality control procedures under A.A.C. R18-11-602;
b. Samples or analyses representative of water quality conditions at the time the data were collected;
c. Data consisting of an adequate number of samples based on the nature of the water in question and the parameters being analyzed; and
d. Methods of sampling and analysis, including analytical, statistical, and modeling methods that are generally accepted and validated by the scientific community as appropriate for use in assessing the condition of the water.

5. "Designated use" means those uses specified in 18 A.A.C. 11, Article 1 for each surface water or segment whether or not they are attaining.
6. "EPA" means the U.S. Environmental Protection Agency.
7. "Impaired water" means a Navigable water for which credible scientific data exists that satisfies the requirements of A.R.S. § 49-232 and that demonstrates that the water should be identified pursuant to 33 United States Code § 1313(d) and the regulations implementing that statute. A.R.S. § 49-231(1).
8. "Laboratory detection limit" means a "Method Reporting Limit" (MRL) or "Reporting Limit" (RL). These analogous terms describe the laboratory reported value, which is the lowest concentration level included on the calibration curve from the analysis of a pollutant that can be quantified in terms of precision and accuracy.
9. "Monitoring entity" means the Department or any person who collects physical, chemical, or biological data used for an impaired water identification or a TMDL decision.
10. "Naturally occurring condition" means the condition of a surface water or segment that would have occurred in the absence of pollutant loadings as a result of human activity.
11. "Not attaining" means a surface water is assessed as impaired, but is not placed on the 303(d) List because:
    a. A TMDL is prepared and implemented for the surface water;
    b. An action, which meets the requirements of R18-11-604(D)(2)(h), is occurring and is expected to bring the surface water to attaining before the next 303(d) List submission; or
    c. The impairment of the surface water is due to pollution but not a pollutant, for which a TMDL load allocation cannot be developed.
12. "NPDES" means National Pollutant Discharge Elimination System.
13. "Planning List" means a list of surface waters and segments that the Department will review and evaluate to determine if the surface water or segment is impaired and whether a TMDL is necessary.
14. "Pollutant" means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. 33 U.S.C. 1362(6). Characteristics of water, such as dissolved oxygen, pH, temperature, turbidity, and suspended sediment are considered pollutants if they result or may result in the non-attainment of a water quality standard.
15. "Pollution" means "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water." 33 U.S.C. 1362(19).
16. "QAP" means a quality assurance plan detailing how environmental data operations are planned, implemented, and assessed for quality during the duration of a project.
17. "Sampling event" means one or more samples taken under consistent conditions on one or more days at a distinct station or location.
18. "SAP" means a site specific sampling and analysis plan that describes the specifics of sample collection to ensure that data quality objectives are met and that samples collected and analyzed are representative of surface water conditions at the time of sampling.
19. "Spatially independent sample" means a sample that is collected at a distinct station or location. The sample is independent if the sample was collected:
    a. More than 200 meters apart from other samples, or
    b. Less than 200 meters apart, and collected to characterize the effect of an intervening tributary, outfall or other pollution source, or significant hydrographic or hydrologic change.
20. "Temporally independent sample" means a sample that is collected at the same station or location more than seven days apart from other samples.
21. "Threatened" means that a surface water or segment is currently attaining its designated use, however, trend analysis, based on credible and scientifically defensible data, indicates that the surface water or segment is likely to be impaired before the next listing cycle.
22. "TMDL" means total maximum daily load.
23. "TMDL decision" means a decision by the Department to:
    a. Prioritize an impaired water for TMDL development,
    b. Develop a TMDL for an impaired water, or
    c. Develop a TMDL implementation plan.
24. *"Total maximum daily load" means an estimation of the total amount of a pollutant from all sources that may be added to a water while still allowing the water to achieve and maintain applicable surface water quality standards. Each total maximum daily load shall include allocations for sources that contribute the pollutant to the water, as required by section 303(d) of the clean water act (33 United States Code section 1313(d)) and regulations implementing that statute to achieve applicable surface water quality standards.* A.R.S. § 49-231(4).
25. "Water quality standard" means a standard composed of designated uses (classification of waters), the numerical and narrative criteria applied to the specific water uses or classification, the antidegradation policy, and moderating provisions, for example, mixing zones, site-specific alternative criteria, and exemptions, in A.A.C. Title 18, Chapter 11, Article 1.
26. "WQARF" means the water quality assurance revolving fund established under A.R.S. § 49-282.

Historical Note

New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).

R18-11-602. Credible Data

A. Data are credible and relevant to an impaired water identification or a TMDL decision when:
1. Quality Assurance Plan. A monitoring entity, which contribute data for an impaired water identification or a TMDL decision, provides the Department with a QAP that contains, at a minimum, the elements listed in subsections (A)(1)(a) through (A)(1)(f). The Department may accept a QAP containing less than the required

elements if the Department determines that an element is not relevant to the sampling activity and that its omission will not impact the quality of the results based upon the type of pollutants to be sampled, the type of surface water, and the purpose of the sampling.

a. An approval page that includes the date of approval and the signatures of the approving officials, including the project manager and project quality assurance manager;
b. A project organization outline that identifies all key personnel, organizations, and laboratories involved in monitoring, including the specific roles and responsibilities of key personnel in carrying out the procedures identified in the QAP and SAP, if applicable;
c. Sampling design and monitoring data quality objectives or a SAP that meets the requirements of subsection (A)(2) to ensure that:
    i. Samples are spatially and temporally representative of the surface water,
    ii. Samples are representative of water quality conditions at the time of sampling, and
    iii. The monitoring is reproducible;
d. The following field sampling information to assure that samples meet data quality objectives:
    i. Sampling and field protocols for each parameter or parametric group, including the sampling methods, equipment and containers, sample preservation, holding times, and any analysis proposed for completion in the field or outside of a laboratory;
    ii. Field and laboratory methods approved under subsection (A)(5);
    iii. Handling procedures to identify samples and custody protocols used when samples are brought from the field to the laboratory for analysis;
    iv. Quality control protocols that describe the number and type of field quality control samples for the project that includes, if appropriate for the type of sampling being conducted, field blanks, travel blanks, equipment blanks, method blanks, split samples, and duplicate samples;
    v. Procedures for testing, inspecting, and maintaining field equipment;
    vi. Field instrument calibration procedures that describe how and when field sampling and analytical instruments will be calibrated;
    vii. Field notes and records that describe the conditions that require documentation in the field, such as weather, stream flow, transect information, distance from water edge, water and sample depth, equipment calibration measurements, field observations of watershed activities, and bank conditions. Indicate the procedures implemented for maintaining field notes and records and the process used for attaching pertinent information to monitoring results to assist in data interpretation;
    viii. Minimum training and any specialized training necessary to do the monitoring, that includes the proper use and calibration of field equipment used to collect data, sampling protocols, quality assurance/quality control procedures, and how training will be achieved;
e. Laboratory analysis methods and quality assurance/ quality control procedures that assure that samples meet data quality objectives, including:
    i. Analytical methods and equipment necessary for analysis of each parameter, including identification of approved laboratory methods described in subsection (A)(5), and laboratory detection limits for each parameter;
    ii. The name of the designated laboratory, its license number, if licensed by the Arizona Department of Health Services, and the name of a laboratory contact person to assist the Department with quality assurance questions;
    iii. Quality controls that describe the number and type of laboratory quality control samples for the project, including, if appropriate for the type of sampling being conducted, field blanks, travel blanks, equipment blanks, method blanks, split samples, and duplicate samples;
    iv. Procedures for testing, inspecting, and maintaining laboratory equipment and facilities;
    v. A schedule for calibrating laboratory instruments, a description of calibration methods, and a description of how calibration records are maintained; and
    vi. Sample equipment decontamination procedures that outline specific methods for sample collection and preparation of equipment, identify the frequency of decontamination, and describe the procedures used to verify decontamination;
f. Data review, management, and use that includes the following:
    i. A description of the data handling process from field to laboratory, from laboratory to data review and validation, and from validation to data storage and use. Include the role and responsibility of each person for each step of the process, type of database or other storage used, and how laboratory and field data qualifiers are related to the laboratory result;
    ii. Reports that describe the intended frequency, content, and distribution of final analysis reports and project status reports;
    iii. Data review, validation, and verification that describes the procedure used to validate and verify data, the procedures used if errors are detected, and how data are accepted, rejected, or qualified; and
    iv. Reconciliation with data quality objectives that describes the process used to determine whether the data collected meets the project objectives, which may include discarding data, setting limits on data use, or revising data quality objectives.

2. Sampling and analysis plan.
    a. A monitoring entity shall develop a SAP that contains, at a minimum, the following elements:
        i. The experimental design of the project, the project goals and objectives, and evaluation criteria for data results;
        ii. The background or historical perspective of the project;
        iii. Identification of target conditions, including a discussion of whether any weather, seasonal

variations, stream flow, lake level, or site access may affect the project and the consideration of these factors;

iv. The data quality objectives for measurement of data that describe in quantitative and qualitative terms how the data meet the project objectives of precision, accuracy, completeness, comparability, and representativeness;

v. The types of samples scheduled for collection;

vi. The sampling frequency;

vii. The sampling periods;

viii. The sampling locations and rationale for the site selection, how site locations are benchmarked, including scaled maps indicating approximate location of sites; and

ix. A list of the field equipment, including tolerance range and any other manufacturer's specifications relating to accuracy and precision.

b. The Department may accept a SAP containing less than the required elements if the Department determines that an element is not relevant to the sampling activity and that its omission will not impact the quality of the results based upon the type of pollutants to be samples, the type of surface water, and the purpose of the sampling.

3. The monitoring entity may include any of the following in the QAP or SAP:

a. The name, title, and role of each person and organization involved in the project, identifying specific roles and responsibilities for carrying out the procedures identified in the QAP and SAP;

b. A distribution list of each individual and organization receiving a copy of the approved QAP and SAP;

c. A table of contents;

d. A health and safety plan;

e. The inspection and acceptance requirements for supplies;

f. The data acquisition that describes types of data not obtained through this monitoring activity, but used in the project;

g. The audits and response actions that describe how field, laboratory, and data management activities and sampling personnel are evaluated to ensure data quality, including a description of how the project will correct any problems identified during these assessments; and

h. The waste disposal methods that identify wastes generated in sampling and methods for disposal of those wastes.

4. Exceptions. The Department may determine that the following data are also credible and relevant to an impaired water identification or TMDL decision when data were collected, provided the conditions in subsections (A)(5), (A)(6), and (B) are met, and where the data were collected in the surface water or segment being evaluated for impairment:

a. The data were collected before July 12, 2002 and the Department determines that the data yield results of comparable reliability to the data collected under subsections (A)(1) and (A)(2);

b. The data were collected after July 12, 2002 as part of an ongoing monitoring effort by a governmental agency and the Department determines that the data yield results of comparable reliability to the data collected under subsections (A)(1) and (A)(2); or

c. The instream water quality data were or are collected under the terms of a NPDES or AZPDES permit or a compliance order issued by the Department or EPA, a consent decree signed by the Department or EPA, or a sampling program approved by the Department or EPA under WQARF or CERCLA, and the Department determines that the data yield results of comparable reliability to data collected under subsections (A)(1) and (A)(2).

5. Data collection, preservation, and analytical procedures. The monitoring entity shall collect, preserve, and analyze data using methods of sample collection, preservation, and analysis established under A.A.C. R9-14-610.

6. Laboratory. The monitoring entity shall ensure that chemical and toxicological samples are analyzed in a state-licensed laboratory, a laboratory exempted by the Arizona Department of Health Services for specific analyses, or a federal or academic laboratory that can demonstrate proper quality assurance/quality control procedures substantially equal to those required by the Arizona Department of Health Services, and shall ensure that the laboratory uses approved methods identified in A.A.C. R9-14-610.

B. Documentation for data submission. The monitoring entity shall provide the Department with the following information either before or with data submission:

1. A copy of the QAP or SAP, or both, revisions to a previously submitted QAP or SAP, and any other information necessary for the Department to evaluate the data under subsection (A)(4);

2. The applicable dates of the QAP and SAP, including any revisions;

3. Written assurance that the methods and procedures specified in the QAP and SAP were followed;

4. The name of the laboratory used for sample analyses and its certification number, if the laboratory is licensed by the Arizona Department of Health Services;

5. The quality assurance/quality control documentation, including the analytical methods used by the laboratory, method number, detection limits, and any blank, duplicate, and spike sample information necessary to properly interpret the data, if different from that stated in the QAP or SAP;

6. The data reporting unit of measure;

7. Any field notes, laboratory comments, or laboratory notations concerning a deviation from standard procedures, quality control, or quality assurance that affects data reliability, data interpretation, or data validity; and

8. Any other information, such as complete field notes, photographs, climate, or other information related to flow, field conditions, or documented sources of pollutants in the watershed, if requested by the Department for interpreting or validating data.

C. Recordkeeping. The monitoring entity shall maintain all records, including sample results, for the duration of the listing cycle. If a surface water or segment is added to the Planning List or to the 303(d) List, the Department shall coordinate with the monitoring entity to ensure that records are kept for the duration of the listing.

Historical Note

New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).

R18-11-603. General Data Interpretation Requirements

A. The Department shall use the following data conventions to interpret data for impaired water identifications and TMDL decisions:
1. Data reported below laboratory detection limits.
   a. When the analytical result is reported as <X, where X is the laboratory detection limit for the analyte and the laboratory detection limit is less than or equal to the surface water quality standard, consider the result as meeting the water quality standard:
      i. Use these statistically derived values in trend analysis, descriptive statistics or modeling if there is sufficient data to support the statistical estimation of values reported as less than the laboratory detection limit; or
      ii. Use one-half of the value of the laboratory detection limit in trend analysis, descriptive statistics, or modeling, if there is insufficient data to support the statistical estimation of values reported as less than the laboratory detection limit.
   b. When the sample value is less than or equal to the laboratory detection limit but the laboratory detection limit is greater than the surface water quality standard, shall not use the result for impaired water identifications or TMDL decisions;
2. Identify the field equipment specifications used for each listing cycle or TMDL developed. A field sample measurement within the manufacturer's specification for accuracy meets surface water quality standards;
3. Resolve a data conflict by considering the factors identified under the weight-of-evidence determination in R18-11-605(B);
4. When multiple samples from a surface water or segment are not spatially or temporally independent, or when lake samples are from multiple depths, use the following resultant value to represent the specific dataset:
   a. The appropriate measure of central tendency for the dataset for:
      i. A pollutant listed in the surface water quality standards 18 A.A.C. 11, Article 1, Appendix A, Table 1, except for nitrate or nitrate/nitrite;
      ii. A chronic water quality standard for a pollutant listed in 18 A.A.C. 11, Article 1, Appendix A, Table 2;
      iii. A surface water quality standard for a pollutant that is expressed as an annual or geometric mean;
      iv. The surface water quality standard for temperature or the single sample maximum water quality standard for suspended sediment concentration, nitrogen, and phosphorus in R18-11-109;
      v. The surface water quality standard for radiochemicals in R18-11-109(G); or
      vi. Except for chromium, all single sample maximum water quality standards in R18-11-112.
   b. The maximum value of the dataset for:
      i. The acute water quality standard for a pollutant listed in 18 A.A.C. 11, Article 1, Appendix A, Table 2 and acute water quality standard in R18-11-112;
      ii. The surface water quality standard for nitrate or nitrate/nitrite in 18 A.A.C. 11, Article 1, Appendix A, Table 1;
      iii. The single sample maximum water quality standard for bacteria in subsections R18-11-109(A); or
      iv. The 90th percentile water quality standard for nitrogen and phosphorus in R18-11-109(F) and R18-11-112.
   c. The worst case measurement of the dataset for:
      i. Surface water quality standard for dissolved oxygen under R18-11-109(E). For purposes of this subsection, worst case measurement means the minimum value for dissolved oxygen;
      ii. Surface water quality standard for pH under R18-11-109(B). For purposes of this subsection, "worst case measurement" means both the minimum and maximum value for pH.

B. The Department shall not use the following data for placing a surface water or segment on the Planning List, the 303(d) List, or in making a TMDL decision.
1. Any measurement outside the range of possible physical or chemical measurements for the pollutant or measurement equipment,
2. Uncorrected data transcription errors or laboratory errors, and
3. An outlier identified through statistical procedures, where further evaluation determines that the outlier represents a valid measure of water quality but should be excluded from the dataset.

C. The Department may employ fundamental statistical tests if appropriate for the collected data and type of surface water when evaluating a surface water or segment for impairment or in making a TMDL decision. The statistical tests include descriptive statistics, frequency distribution, analysis of variance, correlation analysis, regression analysis, significance testing, and time series analysis.

D. The Department may employ modeling when evaluating a surface water or segment for impairment or in making a TMDL decision, if the method is appropriate for the type of waterbody and the quantity and quality of available data meet the requirements of R18-11-602. Modeling methods include:
1. Better Assessment Science Integrating Source and Nonpoint Sources (BASINS),
2. Fundamental statistics, including regression analysis,
3. Hydrologic Simulation Program-Fortran (HSPF),
4. Spreadsheet modeling, and
5. Hydrologic Engineering Center (HEC) programs developed by the Army Corps of Engineers.

Historical Note

New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).

R18-11-604. Types of Surface Waters Placed on the Planning List and 303(d) List

A. The Department shall evaluate, at least every five years, Arizona's surface waters by considering all readily available data.
1. The Department shall place a surface water or segment on:
   a. The Planning List if it meets any of the criteria described in subsection (D), or
   b. The 303(d) List if it meets the criteria for listing described in subsection (E).
2. The Department shall remove a surface water or segment from the Planning List based on the requirements in R18-11-605(E)(1) or from the 303(d) List, based on the requirements in R18-11-605(E)(2).

3. The Department may move surface waters or segments between the Planning List and the 303(d) List based on the criteria established in R18-11-604 and R18-11-605.

B. When placing a surface water or segment on the Planning List or the 303(d) List, the Department shall list the stream reach, derived from EPA's Reach File System or National Hydrography Dataset, or the entire lake, unless the data indicate that only a segment of the stream reach or lake is impaired or not attaining its designated use, in which case, the Department shall describe only that segment for listing.

C. Exceptions. The Department shall not place a surface water or segment on either the Planning List or the 303(d) List if the non-attainment of a surface water quality standard is due to one of the following:

1. Pollutant loadings from naturally occurring conditions alone are sufficient to cause a violation of applicable water quality standards;
2. The data were collected within a mixing zone or under a variance or nutrient waiver established in a NPDES or AZPDES permit for the specific parameter and the result does not exceed the alternate discharge limitation established in the permit. The Department may use data collected within these areas for modeling or allocating loads in a TMDL decision; or
3. An activity exempted under R18-11-117, R18-11-118, or a condition exempted under R18-11-119.

D. Planning List.

1. The Department shall:
   a. Use the Planning List to prioritize surface waters for monitoring and evaluation as part of the Department's watershed management approach;
   b. Provide the Planning List to EPA; and
   c. Evaluate each surface water and segment on the Planning List for impairment based on the criteria in R18-11-605(D) to determine the source of the impairment.
2. The Department shall place a surface water or segment on the Planning List based the criteria in R18-11-605(C). The Department may also include a surface water or segment on the Planning List when:
   a. A TMDL is completed for the pollutant and approved by EPA;
   b. The surface water or segment is on the 1998 303(d) List but the dataset used for the listing:
      i. Does not meet the credible data requirements of R18-11-602, or
      ii. Contains insufficient samples to meet the data requirements under R18-11-605(D);
   c. Some monitoring data exist but there are insufficient data to determine whether the surface water or segment is impaired or not attaining, including:
      i. A numeric surface water quality standard is exceeded, but there are not enough samples or sampling events to fulfill the requirements of R18-11-605(D);
      ii. Evidence exists of a narrative standard violation, but the amount of evidence is insufficient, based on narrative implementation procedures and the requirements of R18-11-605(D)(3);
      iii. Existing monitoring data do not meet credible data requirements in R18-11-602; or
      iv. A numeric surface water quality standard is exceeded, but there are not enough sample results above the laboratory detection limit to support statistical analysis as established in R18-11-603(A)(1).
   d. The surface water or segment no longer meets the criteria for impairment based on a change in the applicable surface water quality standard or a designated use approved by EPA under section 303(c)(1) of the Clean Water Act, but insufficient current or original monitoring data exist to determine whether the surface water or segment will meet current surface water quality standards;
   e. Trend analysis using credible and scientifically defensible data indicate that surface water quality standards may be exceeded by the next assessment cycle;
   f. The exceedance of surface water quality standards is due to pollution, but not a pollutant;
   g. Existing data were analyzed using methods with laboratory detection limits above the numeric surface water quality standard but analytical methods with lower laboratory detection limits are available;
   h. The surface water or segment is expected to attain its designated use by the next assessment as a result of existing or proposed technology-based effluent limitations or other pollution control requirements under local, state, or federal authority. The appropriate entity shall provide the Department with the following documentation to support placement on the Planning List:
      i. Verification that discharge controls are required and enforceable;
      ii. Controls are specific to the surface water or segment, and pollutant of concern;
      iii. Controls are in place or scheduled for implementation; and
      iv. There are assurances that the controls are sufficient to bring about attainment of water quality standards by the next 303(d) List submission; or
   i. The surface water or segment is threatened due to a pollutant and, at the time the Department submits a final 303(d) List to EPA, there are no federal regulations implementing section 303(d) of the Clean Water Act that require threatened waters be included on the list.

E. 303(d) List. The Department shall:

1. Place a surface water or segment on the 303(d) List if the Department determines:
   a. Based on R18-11-605(D), that the surface water or segment is impaired due to a pollutant and that a TMDL decision is necessary; or
   b. That the surface water or segment is threatened due to a pollutant and, at the time the Department submits a final 303(d) List to EPA, there are federal regulations implementing section 303(d) of the Clean Water Act that require threatened waters be included on the list.
2. Provide public notice of the 303(d) List according to the requirements of A.R.S. § 49-232 and submit the 303(d) List according to section 303(d) of the Clean Water Act.

Historical Note

New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).

R18-11-605. Evaluating A Surface Water or Segment For Listing and Delisting

A. The Department shall compile and evaluate all reasonably current, credible, and scientifically defensible data to determine whether a surface water or segment is impaired or not attaining.

B. Weight-of-evidence approach.

1. The Department shall consider the following concepts when evaluating data:
   a. Data or information collected during critical conditions may be considered separately from the complete dataset, when the data show that the surface water or segment is impaired or not attaining its designated use during those critical conditions, but attaining its uses during other periods. Critical conditions may include stream flow, seasonal periods, weather conditions, or anthropogenic activities;
   b. Whether the data indicate that the impairment is due to persistent, seasonal, or recurring conditions. If the data do not represent persistent, recurring, or seasonal conditions, the Department may place the surface water or segment on the Planning List;
   c. Higher quality data over lower quality data when making a listing decision. Data quality is established by the reliability, precision, accuracy, and representativeness of the data, based on factors identified in R18-11-602(A) and (B), including monitoring methods, analytical methods, quality control procedures, and the documented field and laboratory quality control information submitted with the data. The Department shall consider the following factors when determining higher quality data:
      i. The age of the measurements. Newer measurements are weighted heavier than older measurements, unless the older measurements are more representative of critical flow conditions;
      ii. Whether the data provide a direct measure of an impact on a designated use. Direct measurements are weighted heavier than measurements of an indicator or surrogate parameter; or
      iii. The amount or frequency of the measurements. More frequent data collection are weighted heavier than nominal datasets.
2. The Department shall evaluate the following factors to determine if the water quality evidence supports a finding that the surface water or segment is impaired or not attaining:
   a. An exceedance of a numeric surface water quality standard based on the criteria in subsections (C)(1), (C)(2), (D)(1), and (D)(2);
   b. An exceedance of a narrative surface water quality standard based on the criteria in subsections (C)(3) and (D)(3);
   c. Additional information that determines whether a water quality standard is exceeded due to a pollutant, suspected pollutant, or naturally occurring condition:
      i. Soil type, geology, hydrology, flow regime, biological community, geomorphology, climate, natural process, and anthropogenic influence in the watershed;
      ii. The characteristics of the pollutant, such as its solubility in water, bioaccumulation potential, sediment sorption potential, or degradation characteristics, to assist in determining which data more accurately indicate the pollutant's presence and potential for causing impairment; and
      iii. Available evidence of direct or toxic impacts on aquatic life, wildlife, or human health, such as fish kills and beach closures, where there is sufficient evidence that these impacts occurred due to water quality conditions in the surface water.
   d. Other available water quality information, such as NPDES or AZPDES water quality discharge data, as applicable.
   e. If the Department determines that a surface water or segment does not merit listing under numeric water quality standards based on criteria in subsections (C)(1), (C)(2), (D)(1), or (D)(2) for a pollutant, but there is evidence of a narrative standard exceedance in that surface water or segment under subsection (D)(3) as a result of the presence of the same pollutant, the Department shall list the surface water or segment as impaired only when the evidence indicates that the numeric water quality standard is insufficient to protect the designated use of the surface water or segment and the Department justifies the listing based on any of the following:
      i. The narrative standard data provide a more direct indication of impairment as supported by professionally prepared and peer-reviewed publications;
      ii. Sufficient evidence of impairment exists due to synergistic effects of pollutant combinations or site-specific environmental factors; or
      iii. The pollutant is bioaccumulative, relatively insoluble in water, or has other characteristics that indicate it is occurring in the specific surface water or segment at levels below the laboratory detection limits, but at levels sufficient to result in an impairment.
3. The Department may consider a single line of water quality evidence when the evidence is sufficient to demonstrate that the surface water or segment is impaired or not attaining.

C. Planning List.

1. When evaluating a surface water or segment for placement on the Planning List.
   a. Consider at least ten spatially or temporally independent samples collected over three or more temporally independent sampling events; and
   b. Determine numeric water quality standards exceedances. The Department shall:
      i. Place a surface water or segment on the Planning List following subsection (B), if the number of exceedances of a surface water quality standard is greater than or equal to the number listed in Table 1, which provides the number of exceedances that indicate a minimum of a 10 percent exceedance frequency with a minimum of a 80 percent confidence level using a binomial distribution for a given sample size; or
      ii. For sample datasets exceeding those shown in Table 1, calculate the number of exceedances

using the following equation: ($X \geq x | n, p$) where n = number of samples; p = exceedance probability of 0.1; x = smallest number of exceedances required for listing with "n" samples; and confidence level ≥ 80 percent.

Table 1.

MINIMUM NUMBER OF SAMPLES EXCEEDING THE NUMERIC STANDARD								
Number of Samples		Number of Samples Exceeding Standard	Number of Samples		Number of Samples Exceeding Standard	Number of Samples		Number of Samples Exceeding Standard
From	To		From	To		From	To	
10	15	3	173	181	22	349	357	41
16	23	4	182	190	23	358	367	42
24	31	5	191	199	24	368	376	43
32	39	6	200	208	25	377	385	44
40	47	7	209	218	26	386	395	45
48	56	8	219	227	27	396	404	46
57	65	9	228	236	28	405	414	47
66	73	10	237	245	29	415	423	48
74	82	11	246	255	30	424	432	49
83	91	12	256	264	31	433	442	50
92	100	13	265	273	32	443	451	51
101	109	14	274	282	33	452	461	52
110	118	15	283	292	34	462	470	53
119	126	16	293	301	35	471	480	54
127	136	17	302	310	36	481	489	55
137	145	18	311	320	37	490	499	56
146	154	19	321	329	38	500		57
155	163	20	330	338	39			
164	172	21	339	348	40			

2. When there are less than ten samples, the Department shall place a surface water or segment on the Planning List following subsection (B), if three or more temporally independent samples exceed the following surface water quality standards:
   a. The surface water quality standard for a pollutant listed in 18 A.A.C. 11, Article 1, Appendix A, Table 1, except for nitrate or nitrate/nitrite;
   b. The surface water quality standard for temperature or the single sample maximum water quality standard for suspended sediment concentration, nitrogen, and phosphorus in R18-11-109;
   c. The surface water quality standard for radiochemicals in R18-11-109(G);
   d. The surface water quality standard for dissolved oxygen under R18-11-109(E);
   e. The surface water quality standard for pH under R18-11-109(B); or
   f. The following surface water quality standards in R18-11-112:
      i. Single sample maximum standards for nitrogen and phosphorus,
      ii. All metals except chromium, or
      iii. Turbidity.
3. The Department shall place a surface water or segment on the Planning List if information in subsections (B)(2)(c), (B)(2)(d), and (B)(2)(e) indicates that a narrative water quality standard violation exists, but no narrative implementation procedure required under A.R.S. § 49-232(F) exists to support use of the information for listing.

D. 303(d) List.
1. When evaluating a surface water or segment for placement on the 303(d) List.
   a. Consider at least 20 spatially or temporally independent samples collected over three or more temporally independent sampling events; and
   b. Determine numeric water quality standards exceedances. The Department shall:
      i. Place a surface water or segment on the 303(d) List, following subsection (B), if the number of exceedances of a surface water quality standard is greater than or equal to the number listed in Table 2, which provides the number of exceedances that indicate a minimum of a 10 percent exceedance frequency with a minimum of a 90 percent confidence level using a binomial distribution, for a given sample size; or
      ii. For sample datasets exceeding those shown in Table 2, calculate the number of exceedances using the following equation: ($X \geq x | n, p$) where n = number of samples; p = exceedance probability of 0.1; x = smallest number of exceedances required for listing with "n" samples; and confidence level ≥ 90 percent.

Table 2.

MINIMUM NUMBER OF SAMPLES EXCEEDING THE NUMERIC STANDARD								
Number of Samples		Number of Samples Exceeding Standard	Number of Samples		Number of Samples Exceeding Standard	Number of Samples		Number of Samples Exceeding Standard
From	To		From	To		From	To	
20	25	5	174	182	24	344	352	43
26	32	6	183	191	25	353	361	44
33	40	7	192	199	26	362	370	45
41	47	8	200	208	27	371	379	46
48	55	9	209	217	28	380	388	47
56	63	10	218	226	29	389	397	48
64	71	11	227	235	30	398	406	49
72	79	12	236	244	31	407	415	50
80	88	13	245	253	32	416	424	51
89	96	14	254	262	33	425	434	52
97	104	15	263	270	34	435	443	53
105	113	16	271	279	35	444	452	54
114	121	17	280	288	36	453	461	55
122	130	18	289	297	37	462	470	56
131	138	19	298	306	38	471	479	57
139	147	20	307	315	39	480	489	58
148	156	21	316	324	40	490	498	59
157	164	22	325	333	41	499	500	60
165	173	23	334	343	42			

2. The Department shall place a surface water or segment on the 303(d) List, following subsection (B) without the required number of samples or numeric water quality standard exceedances under subsection (D)(1), if either the following conditions occur:
   a. More than one temporally independent sample in any consecutive three-year period exceeds the surface water quality standard in:
      i. The acute water quality standard for a pollutant listed in 18 A.A.C. 11, Article 1, Appendix A, Table 2 and the acute water quality standards in R18-11-112;
      ii. The surface water quality standard for nitrate or nitrate/nitrite in 18 A.A.C. 11, Article 1, Appendix A, Table 1; or
      iii. The single sample maximum water quality standard for bacteria in subsections R18-11-109(A).
   b. More than one exceedance of an annual mean, 90th percentile, aquatic and wildlife chronic water quality standard, or a bacteria 30-day geometric mean water quality standard occurs, as specified in R18-11-109, R18-11-110, R18-11-112, or 18 A.A.C. 11, Article 1, Appendix A, Table 2.
3. Narrative water quality standards exceedances. The Department shall place a surface water or segment on the Planning List if the listing requirements are met under A.R.S. § 49-232(F).

E. Removing a surface water, segment, or pollutant from the Planning List or the 303(d) List.
1. Planning List. The Department shall remove a surface water, segment, or pollutant from the Planning List when:
   a. Monitoring activities indicate that:
      i. There is sufficient credible data to determine that the surface water or segment is impaired under subsection (D), in which case the Department shall place the surface water or segment on the 303(d) List. This includes surface waters with an EPA approved TMDL when the Department determines that the TMDL strategy is insufficient for the surface water or segment to attain water quality standards; or
      ii. There is sufficient credible data to determine that the surface water or segment is attaining all designated uses and standards.
   b. All pollutants for the surface water or segment are delisted.
2. 303(d) List. The Department shall:
   a. Remove a pollutant from a surface water or segment from the 303(d) List based on one or more of the following criteria:
      i. The Department developed, and EPA approved, a TMDL for the pollutant;
      ii. The data used for previously listing the surface water or segment under R18-11-605(D) is superseded by more recent credible and scientifically defensible data meeting the requirements of R18-11-602, showing that the surface water or segment meets the applicable numeric or narrative surface water quality standard. When evaluating data to remove a pollutant from the 303(d) List, the monitoring entity shall collect the more recent data under similar hydrologic or climatic conditions as occurred when the samples were taken that indicated impairment, if those conditions still exist;
      iii. The surface water or segment no longer meets the criteria for impairment based on a change in

the applicable surface water quality standard or a designated use approved by EPA under section 303(c)(1) of the Clean Water Act;
iv. The surface water or segment no longer meets the criteria for impairment for the specific narrative water quality standard based on a change in narrative water quality standard implementation procedures;
v. A re-evaluation of the data indicate that the surface water or segment does not meet the criteria for impairment because of a deficiency in the original analysis; or
vi. Pollutant loadings from naturally occurring conditions alone are sufficient to cause a violation of applicable water quality standards;
b. Remove a surface water, segment, or pollutant from the 303(d) List, based on criteria that are no more stringent than the listing criteria under subsection (D);
c. Remove a surface water or segment from the 303(d) List if all pollutants for the surface water or segment are removed from the list;
d. Remove a surface water, segment, or pollutant, from the 303(d) List and place it on the Planning List, if:
i. The surface water, segment or pollutant was on the 1998 303(d) List and the dataset used in the original listing does not meet the credible data requirements under R18-11-602, or contains insufficient samples to meet the data requirements under subsection (D); or
ii. The monitoring data indicate that the impairment is due to pollution, but not a pollutant.

Historical Note

New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).

R18-11-606. TMDL Priority Criteria for 303(d) Listed Surface Waters or Segments

A. In addition to the factors specified in A.R.S. § 49-233(C), the Department shall consider the following when prioritizing an impaired water for development of TMDLs:
1. A change in a water quality standard;
2. The date the surface water or segment was added to the 303(d) List;
3. The presence in a surface water or segment of species listed as threatened or endangered under section 4 of the Endangered Species Act;
4. The complexity of the TMDL;
5. State, federal, and tribal policies and priorities; and
6. The efficiencies of coordinating TMDL development with the Department's surface water monitoring program, the watershed monitoring rotation, or with remedial programs.

B. The Department shall prioritize an impaired surface water or segment for TMDL development based on the factors specified in A.R.S. § 49-233(C) and subsection (A) as follows:
1. Consider an impaired surface water or segment a high priority if:
a. The listed pollutant poses a substantial threat to the health and safety of humans, aquatic life, or wildlife based on:
i. The number and type of designated uses impaired;
ii. The type and extent of risk from the impairment to human health, aquatic life, or wildlife;
iii. The pollutant causing the impairment, or
iv. The severity, magnitude, and duration the surface water quality standard was exceeded;
b. A new or modified individual NPDES or AZPDES permit is sought for a new or modified discharge to the impaired water;
c. The listed surface water or segment is listed as a unique water in A.A.C. R18-11-112 or is part of an area classified as a "wilderness area," "wild and scenic river," or other federal or state special protection of the water resource;
d. The listed surface water or segment contains a species listed as threatened or endangered under the federal Endangered Species Act and the presence of the pollutant in the surface water or segment is likely to jeopardize the listed species;
e. A delay in conducting the TMDL could jeopardize the Department's ability to gather sufficient credible data necessary to develop the TMDL;
f. There is significant public interest and support for the development of a TMDL;
g. The surface water or segment has important recreational and economic significance to the public; or
h. The pollutant is listed for eight years or more.
2. Consider an impaired surface water or segment a medium priority if:
a. The surface water or segment fails to meet more than one designated use;
b. The pollutant exceeds more than one surface water quality standard;
c. A surface water quality standard exceedance is correlated to seasonal conditions caused by natural events, such as storms, weather patterns, or lake turnover;
d. It will take more than two years for proposed actions in the watershed to result in the surface water attaining applicable water quality standards;
e. The type of pollutant and other factors relating to the surface water or segment make the TMDL complex; or
f. The administrative needs of the Department, including TMDL schedule commitments with EPA, permitting requirements, or basin priorities that require completion of the TMDL.
3. Consider an impaired surface water or segment a low priority if:
a. The Department has formally submitted a proposal to delist the surface water, segment, or pollutant to EPA based on R18-11-605(E)(2). If the Department makes the submission outside the listing process cycle, the change in priority ranking will not be effective until EPA approves the submittal;
b. The Department has modified, or formally proposed for modification, the designated use or applicable surface water quality standard, resulting in an impaired water no longer being impaired, but the modification has not been approved by EPA;
c. The surface water or segment is expected to attain surface water quality standards due to any of the following:
i. Recently instituted treatment levels or best management practices in the drainage area,

ii. Discharges or activities related to the impairment have ceased, or
iii. Actions have been taken and controls are in place or scheduled for implementation that will likely to bring the surface water back into compliance;

d. The surface water or segment is ephemeral or intermittent. The Department shall re-prioritize the surface water or segment if the presence of the pollutant in the listed water poses a threat to the health and safety of humans, aquatic life, or wildlife using the water, or the pollutant is contributing to the impairment of a downstream perennial surface water or segment;
e. The pollutant poses a low ecological and human health risk;
f. Insufficient data exist to determine the source of the pollutant load;
g. The uncertainty of timely coordination with national and international entities concerning international waters;
h. Naturally occurring conditions are a major contributor to the impairment; and
i. No documentation or effective analytical tools exist to develop a TMDL for the surface water or segment with reasonable accuracy.

C. The Department will target surface waters with high priority factors in subsections (B)(1)(a) through (B)(1)(d) for initiation of TMDLs within two years following EPA approval of the 303(d) List.

D. The Department may shift priority ranking of a surface water or segment for any of the following reasons:

1. A change in federal, state, or tribal policies or priorities that affect resources to complete a TMDL;
2. Resource efficiencies for coordinating TMDL development with other monitoring activities, including the Department's ambient monitoring program that monitors watersheds on a five-year rotational basis;
3. Resource efficiencies for coordinating TMDL development with Department remedial or compliance programs;
4. New information is obtained that will revise whether the surface water or segment is a high priority based on factors in subsection (B); and
5. Reduction or increase in staff or budget involved in the TMDL development.

E. The Department may complete a TMDL initiated before July 12, 2002 for a surface water or segment that was listed as impaired on the 1998 303(d) List but does not qualify for listing under the criteria in R18-11-605, if:

1. The TMDL investigation establishes that the water quality standard is not being met and the allocation of loads is expected to bring the surface water into compliance with standards,
2. The Department estimates that more than 50 percent of the cost of completing the TMDL has been spent,
3. There is community involvement and interest in completing the TMDL, or
4. The TMDL is included within an EPA-approved state workplan initiated before July 12, 2002.

Historical Note

New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).

49-202. Designation of state agency

A. The department is designated as the agency for this state for all purposes of the clean water act, including section 505, the resource conservation and recovery act, including section 7002, and the safe drinking water act. The department may take all actions necessary to administer and enforce these acts as provided in this section, including entering into contracts, grants and agreements, the adoption, modification or repeal of rules, and initiating administrative and judicial actions to secure to this state the benefits, rights and remedies of such acts.

B. The department shall process requests under section 401 of the clean water act for certification of permits required by section 404 of the clean water act in accordance with subsections C through H of this section. Subsections C and D, subsection E, paragraph 3, subsection F, paragraph 3 and subsection H of this section apply to the certification of nationwide or general permits issued under section 404 of the clean water act. If the department has denied or failed to act on certification of a nationwide permit or general permit, subsections C through H of this section apply to the certification of applications for or notices of coverage under those permits.

C. The department shall review the application for section 401 certification solely to determine whether the effect of the discharge will comply with the water quality standards for navigable waters established by department rules adopted pursuant to section 49-221, subsection A, and section 49-222. The department's review shall extend only to activities conducted within the ordinary high watermark of navigable waters. To the extent that any other standards are considered applicable pursuant to section 401(a)(1) of the clean water act, certification of these standards is waived.

D. The department may include only those conditions on certification under section 401 of the clean water act that are required to ensure compliance with the standards identified in subsection C of this section. The department may impose reporting and monitoring requirements as conditions of certification under section 401 of the clean water act only in accordance with department rules.

E. Until January 1, 1999:

1. The department may request supplemental information from the section 401 certification applicant if the information is necessary to make the certification determination pursuant to subsection C of this section. The department shall request this information in writing within thirty calendar days after receipt of the application for section 401 certification. The request shall specifically describe the information requested. Within fifteen calendar days after receipt of the applicant's written response to a request for supplemental information, the department shall either issue a written determination that the application is complete or request specific additional information. The applicant may deem any additional requests for supplemental information as a denial of certification for purposes of subsection H of this section. If the department fails to act within the time limits prescribed by this subsection, the application is deemed complete.

2. The department shall grant or deny section 401 certification and shall send a written notice of the department's decision to the applicant within thirty calendar days after receipt of a complete application for certification. Written notice of a denial of section 401 certification shall include a detailed description of the reasons for denial.
3. The department may waive its right to certification by giving written notice of that waiver to the applicant. The department's failure to grant or deny an application within the time limits prescribed by this section is deemed a waiver of certification pursuant to this subsection and section 401(a)(2) of the clean water act.
F. Beginning January 1, 1999:
1. The department may request supplemental information from the section 401 certification applicant if the information is necessary to make the certification determination pursuant to subsection C of this section. The department shall request this information in writing. The request shall specifically describe the information requested. After receipt of the applicant's written response to a request for supplemental information, the department shall either issue a written determination that the application is complete or request specific additional information. The applicant may deem any additional requests for supplemental information as a denial of certification for purposes of subsection H of this section. In all other instances, the application is complete on submission of the information requested by the department.
2. The department shall grant or deny section 401 certification and shall send a written notice of the department's decision to the applicant after receipt of a complete application for certification. Written notice of a denial of section 401 certification shall include a detailed description of the reasons for denial.
3. The department may waive its right to certification by giving written notice of that waiver to the applicant. The department's failure to act on an application is deemed a waiver pursuant to this subsection and section 401(a)(2) of the clean water act.
G. The department shall adopt rules specifying the information the department requires an applicant to submit under this section in order to make the determination required by subsections C and D of this section. Until these rules are adopted, the department shall require an applicant to submit only the following information for certification under this section:
1. The name, address and telephone number of the applicant.
2. A description of the project to be certified, including an identification of the navigable waters in which the certified activities will occur.
3. The project location, including latitude, longitude and a legal description.
4. A United States geological service topographic map or other contour map of the project area, if available.
5. A map delineating the ordinary high watermark of navigable waters affected by the activity to be certified.
6. A description of any measures to be applied to the activities being certified in order to control the discharge of pollutants to navigable waters from those activities.

7. A description of the materials being discharged to or placed in navigable waters.
8. A copy of the application for a federal permit or license that is the subject of the requested certification.
H. Pursuant to title 41, chapter 6, article 10 an applicant for certification may appeal a denial of certification or any conditions imposed on certification. Any person who is or may be adversely affected by the denial of or imposition of conditions on the certification of a nationwide or general permit may appeal that decision pursuant to title 41, chapter 6, article 10.
I. Certification under section 401 of the clean water act is automatically granted for quarrying, crushing and screening of nonmetallic minerals in ephemeral waters if all of the following conditions are satisfied within the ordinary high watermark of jurisdictional waters:
1. There is no disposal of construction and demolition wastes and contaminated wastewater.
2. Water for dust suppression, if used, does not contain contaminants that could violate water quality standards.
3. Pollution from the operation of equipment in the mining area is removed and properly disposed.
4. Stockpiles of processed materials containing ten per cent or more of particles of silt are placed or stabilized to minimize loss or erosion during flow events. As used in this paragraph, "silt" means particles finer than 0.0625 millimeter diameter on a dry weight basis.
5. Measures are implemented to minimize upstream and downstream scour during flood events to protect the integrity of buried pipelines.
6. On completion of quarrying operations in an area, areas denuded of shrubs and woody vegetation are revegetated to the maximum extent practicable.
J. For purposes of subsection I of this section, "ephemeral waters" means waters of the state that have been designated as ephemeral in rules adopted by the department.
K. Certification under section 401 of the clean water act is automatically granted for any license or permit required for:
1. Corrective actions taken pursuant to chapter 6, article 1 of this title in response to a release of a regulated substance as defined in section 49-1001 except for those off-site facilities that receive for treatment or disposal materials that are contaminated with a regulated substance and that are received as part of a corrective action.
2. Response or remedial actions undertaken pursuant to chapter 2, article 5 of this title or pursuant to CERCLA.
3. Corrective actions taken pursuant to chapter 5, article 1 of this title or the resource conservation recovery act of 1976, as amended (42 United States Code sections 6901 through 6992).
4. Other remedial actions that have been reviewed and approved by the appropriate government authority and taken pursuant to applicable federal or state laws.

L. The department of environmental quality is designated as the state water pollution control agency for this state for all purposes of CERCLA, except that the department of water resources has joint authority with the department of environmental quality to conduct feasibility studies and remedial investigations relating to groundwater quality and may enter into contracts and cooperative agreements under section 104 of CERCLA for such studies and remedial investigations. The department of environmental quality may take all action necessary or appropriate to secure to this state the benefits of the act, and all such action shall be taken at the direction of the director of environmental quality as his duties are prescribed in this chapter.
M. The director and the department of environmental quality may enter into an interagency contract or agreement with the director of water resources under title 11, chapter 7, article 3 to implement the provisions of section 104 of CERCLA and to carry out the purposes of subsection L of this section.

49-203. Powers and duties of the director and department
A. The director shall:
1. Adopt, by rule, water quality standards in the form and subject to the considerations prescribed by article 2 of this chapter.
2. Adopt, by rule, a permit program that is consistent with but no more stringent than the requirements of the clean water act for the point source discharge of any pollutant or combination of pollutants into navigable waters. The program and the rules shall be sufficient to enable this state to administer the permit program identified in section 402(b) of the clean water act including the sewage sludge requirements of section 405 of the clean water act and as prescribed by article 3.1 of this chapter.
3. Adopt, by rule, a program to control nonpoint source discharges of any pollutant or combination of pollutants into navigable waters.
4. Adopt, by rule, an aquifer protection permit program to control discharges of any pollutant or combination of pollutants that are reaching or may with a reasonable probability reach an aquifer. The permit program shall be as prescribed by article 3 of this chapter.
5. Adopt, by rule, the permit program for underground injection control described in the safe drinking water act.
6. Adopt, by rule, technical standards for conveyances of reclaimed water and a permit program for the direct reuse of reclaimed water.
7. Adopt, by rule or as permit conditions, such discharge limitations, best management practice standards, new source performance standards, toxic and pretreatment standards and such other standards and conditions as are reasonable and necessary to carry out the permit programs and regulatory duties described in paragraphs 2 through 5 of this subsection.
8. Assess and collect fees to revoke, issue, deny, modify or suspend permits issued pursuant to this chapter and to process permit applications. The director may also assess and collect costs reasonably necessary if the director must

conduct sampling or monitoring relating to a facility because the owner or operator of the facility has refused or failed to do so on order by the director. The director shall set fees that are reasonably related to the department's costs of providing the service for which the fee is charged. State agencies are exempt from all fees imposed pursuant to this chapter. Monies collected from aquifer protection permit fees and from Arizona pollutant discharge elimination system permit fees shall be deposited, pursuant to sections 35-146 and 35-147, in the water quality fee fund established by section 49-210. Monies from other permit fees shall be deposited, pursuant to sections 35-146 and 35-147, in the water quality fee fund unless otherwise provided by law. Monies paid by an applicant for review by consultants for the department pursuant to section 49-241.02, subsection D, shall be deposited, pursuant to sections 35-146 and 35-147, in the water quality fee fund established by section 49-210.

9. Adopt, modify, repeal and enforce other rules that are reasonably necessary to carry out the director's functions under this chapter.

10. Require monitoring at an appropriate point of compliance for any organic or inorganic pollutant listed under section 49-243, subsection I if the director has reason to suspect the presence of the pollutant in a discharge.

11. Adopt rules establishing what constitutes a significant increase or adverse alteration in the characteristics or volume of pollutants discharged for purposes of determining what constitutes a major modification to an existing facility under the definition of new facility pursuant to section 49-201. Before the adoption of these rules, the director shall determine whether a change at a particular facility results in a significant increase or adverse alteration in the characteristics or volume of pollutants discharged on a case by case basis, taking into account site conditions and operational factors.

B. The director may:

1. On presentation of credentials, enter into, on or through any public or private property from which a discharge has occurred, is occurring or may occur or on which any disposal, land application of sludge or treatment regulated by this chapter has occurred, is occurring or may be occurring and any public or private property where records relating to a discharge or records that are otherwise required to be maintained as prescribed by this chapter are kept, as is reasonably necessary to ensure compliance with this chapter. The director or a department employee may take samples, inspect and copy records required to be maintained pursuant to this chapter, inspect equipment, activities, facilities and monitoring equipment or methods of monitoring, take photographs and take other action reasonably necessary to determine the application of, or compliance with, this chapter. The owner or managing agent of the property shall be afforded the opportunity to accompany the director or department employee during inspections and investigations, but prior notice of entry to the owner or managing agent is not required if reasonable grounds exist to believe that such notice would frustrate the enforcement of this chapter. If the director or department employee obtains any samples before leaving the premises, the director or department employee shall give the owner or managing agent a receipt describing the samples obtained and a portion of each sample equal in

volume or weight to the portion retained. If an analysis is made of samples, or monitoring and testing are performed, a copy of the results shall be furnished promptly to the owner or managing agent.
2. Require any person who has discharged, is discharging or may discharge into the waters of the state under article 3 or 3.1 of this chapter and any person who is subject to pretreatment standards and requirements or sewage sludge use or disposal requirements under article 3.1 of this chapter to collect samples, to establish and maintain records, including photographs, and to install, use and maintain sampling and monitoring equipment to determine the absence or presence and nature of the discharge or indirect discharge or sewage sludge use or disposal.
3. Administer state or federal grants, including grants to political subdivisions of this state, for the construction and installation of publicly and privately owned pollutant treatment works and pollutant control devices and establish grant application priorities.
4. Develop, implement and administer a water quality planning process, including a ranking system for applicant eligibility, wherein appropriated state monies and available federal monies are awarded to political subdivisions of this state to support or assist regional water quality planning programs and activities.
5. Enter into contracts and agreements with the federal government to implement federal environmental statutes and programs.
6. Enter into intergovernmental agreements pursuant to title 11, chapter 7, article 3 if the agreement is necessary to more effectively administer the powers and duties described in this chapter.
7. Participate in, conduct and contract for studies, investigations, research and demonstrations relating to the causes, minimization, prevention, correction, abatement, mitigation, elimination, control and remedy of discharges and collect and disseminate information relating to discharges.
8. File bonds or other security as required by a court in any enforcement actions under article 4 of this chapter.
C. Subject to section 38-503 and other applicable statutes and rules, the department may contract with a private consultant for the purposes of assisting the department in reviewing aquifer protection permit applications and on-site wastewater treatment facilities to determine whether a facility meets the criteria and requirements of this chapter and the rules adopted by the director. Except as provided in section 49-241.02, subsection D, the department shall not use a private consultant if the fee charged for that service would be greater than the fee the department would charge to provide that service. The department shall pay the consultant for the services rendered by the consultant from fees paid by the applicant or facility to the department pursuant to subsection A, paragraph 8 of this section.
D. The director shall integrate all of the programs authorized in this section and such other programs affording water quality protection that are administered by the department for purposes of administration and enforcement and shall avoid duplication and dual permitting to the maximum extent practicable.

49-221. Water quality standards in general

A. The director shall adopt, by rule, water quality standards for all navigable waters and for all waters in all aquifers to preserve and protect the quality of those waters for all present and reasonably foreseeable future uses.

B. The director may adopt, by rule, water quality standards for waters of the state other than those described in subsection A of this section, including standards for the use of water pumped from an aquifer that does not meet the standards adopted pursuant to section 49-223, subsections A and B and that is put to a beneficial use other than drinking water. These standards may include standards for the use of water pumped as part of a remedial action. In adopting such standards, the director shall consider the economic, social and environmental costs and benefits that would result from the adoption of a water quality standard at a particular level or for a particular water category.

C. In setting standards pursuant to subsection A or B of this section, the director shall consider, but not be limited to, the following:

1. The protection of the public health and the environment.
2. The uses which have been made, are being made or with reasonable probability may be made of these waters.
3. The provisions and requirements of the clean water act and safe drinking water act and the regulations adopted pursuant to those acts.
4. The degree to which standards for one category of waters could cause violations of standards for other, hydrologically connected, water categories.
5. Guidelines, action levels or numerical criteria adopted or recommended by the United States environmental protection agency or any other federal agency.
6. Any unique physical, biological or chemical properties of the waters.

D. Water quality standards shall be expressed in terms of the uses to be protected and, if adequate information exists to do so, numerical limitations or parameters, in addition to any narrative standards which the director may deem appropriate.

E. The director may adopt by rule water quality standards for the direct reuse of reclaimed water. In establishing these standards the director shall consider the following:

1. The protection of public health and the environment.
2. The uses that are being made or may be made of the reclaimed water.
3. The degree to which standards for the direct reuse of reclaimed water may cause violations of water quality standards for other hydrologically connected water categories.

49-222. Water quality standards for navigable waters

A. Standards for the quality of navigable waters shall assure water quality, if attainable, which provides for protecting the public health and welfare, and shall enhance the quality of water taking into consideration its use and value for public water supplies, the propagation of fish and wildlife and recreational, agricultural, industrial and other purposes including navigation.

B. Not later than January 1, 1990, the director shall adopt standards for the quality of all navigable waters which establish numeric limitations on the concentrations of each of the toxic pollutants listed by the administrator pursuant to section 307 of the clean water act (33 United States Code section 1317).

C. In setting numeric standards for the quality of navigable waters, the director may consider the effect of local water quality characteristics on the toxicity of specific pollutants and the varying sensitivities of local affected aquatic populations to such pollutants, and the extent to which the natural flow of the stream is intermittent or ephemeral, as a result of which the instream flow consists mostly of treated wastewater effluent, except that such standards shall not, in any event, be inconsistent with the clean water act. In applying such standards the director may establish appropriate mixing zones.