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**NOTICES OF PROPOSED RULEMAKING**

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This section of the *Arizona Administrative Register* contains Notices of Proposed Rulemakings.

A proposed rulemaking is filed by an agency upon completion and submittal of a Notice of Rulemaking Docket Opening. Often these two documents are filed at the same time and published in the same *Register* issue.

When an agency files a Notice of Proposed Rulemaking under the Administrative Procedure Act (APA), the notice is published in the *Register* within three weeks of filing. See the publication schedule in the back of each issue of the *Register* for more information.

Under the APA, an agency must allow at least 30 days to elapse after the publication of the Notice of Proposed Rulemaking in the *Register* before beginning any proceedings for making, amending, or repealing any rule. (A.R.S. §§ 41-1013 and 41-1022)

The Office of the Secretary of State is the filing office and publisher of these rules. Questions about the interpretation of the proposed rules should be addressed to the agency the promulgated the rules. Refer to item #4 below to contact the person charged with the rulemaking and item #10 for the close of record and information related to public hearings and oral comments.

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**NOTICE OF PROPOSED RULEMAKING**

**TITLE 4. PROFESSIONS AND OCCUPATIONS**

**CHAPTER 11. STATE BOARD OF DENTAL EXAMINERS**

[R15-110]

**PREAMBLE**

- | <b><u>1. Articles, Parts or Sections Affected (as applicable)</u></b> | <b><u>Rulemaking Action</u></b> |
|---|---------------------------------|
| R4-11-201   | Amend                           |
| R4-11-202   | Amend                           |
| R4-11-203   | Amend                           |
| R4-11-204   | Amend                           |
| R4-11-205   | Amend                           |
| R4-11-301   | Amend                           |
| R4-11-302   | Repeal                          |
| R4-11-303   | Amend                           |
| R4-11-304   | Amend                           |
| R4-11-305   | 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. § 32-1207  
Implementing statute: A.R.S. §§ 32-1232, 32-1233, 32-1234(A) and (E), 32-1240, 32-1284(A) and (B), 32-1285, and 32-1292.01
- 3. 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: 21 A.A.R. 1988, September 18, 2015 (*in this issue*)
- 4. The agency’s contact person who can answer questions about the rulemaking:**  
Name: Elaine Hugunin, Executive Director  
Address: State Board of Dental Examiners  
4205 N. 7th Ave., Suite 300  
Phoenix, AZ 85013  
Telephone: (602) 542-4493  
Fax: (602) 242-1445  
E-mail: elaine.hugunin@azdentalboard.us  
Website: www.dentalboard.az.gov
- 5. An agency’s justification and reason why a rule should be made, amended, repealed or renumbered, to include an explanation about the rulemaking:**  
The Five-Year rule review identified necessary amendments to A.A.C. Title 4, Chapter 11, Article 2, Licensure by Credential; Article 3, Examinations Licensing Qualifications, Application and Renewal, and Time-Frames. The Board has proposed the following changes to these A.A.C. Articles:



- Repeals the consideration of an application for licensure by credential at the next scheduled Board meeting in A.A.C. R4-11-201. When licensure by credential was enacted, the Board reviewed every application. The Board has not delegated the issuance of licenses to the Executive Director. Now the Board reviews applications with disclosures.
- For consistency, adds United States territory and District of Columbia throughout Article 2.
- Repeals R4-11-201(A)(2)(c) which required a detailed report prepared by a Board recognized organization (PBIS). The Committee agreed that it was impossible to compare an older exam with present day WREB. The Board began reviewing comparison reports in 2003. Since that time, the Board not denied licensure based on the comparison report.
- Amend R4-11-203(A) and (B) Dental Hygienist Licensure by Credential; Application to mirror R4-11-202(A) and (B) Dental Licensure by Credential; Application. The repealed text in R4-11-203(A) currently exists in Arizona Revised Statutes § 32-1284.
- Adds accepting a verified third-party transcript provider for dental, dental hygiene or denturist transcripts to R4-11-301(A)(3). At the April 11, 2014 meeting, the Board voted to open a docket for this amendment.
- Amendment to R4-11-301(A)(4) updates language regarding proof of dental hygiene clinical examination taken within the last five years to match A.R.S. § 32-1285, amended in 2013.
- Amend R4-11-301(A)(6) to require Healthcare Provider CPR for applicants. Healthcare Provider CPR is required to renew a license.
- Amend R4-11-301(A)(7) to allow license verifications from other states to be accepted without being sent directly to the Board. More and more states are using electronic methods of transmitting verifications of licensure. Indiana was the first state to send digital verifications and two more states have recently contacted the Board to set us up to retrieve their digital verifications.
- Amends R4-11-301(A)(9) to clarify that denturist applicants need a Health Integrity and Protection Data Bank report.
- Repeals R4-11-302 – Determination of Successful Completion of Licensure Examinations. The Board no longer gives examinations.
- Adds Mobile Dental Facility and Portable Dental Unit Permits to R4-11-303 License Timeframe Rules
- Updates R4-11-304 to clarify Radiography Certification by Credential.
- Amendment to R4-11-305 updates names of anesthesia and sedation permits.

The rule will include format, style, and grammar necessary to comply with the current rules of the Secretary of State.

The Board believes that approval of these rules will benefit the public health and safety by clearly establishing the procedures for licensure by credential, examinations, licensing qualifications, application and renewal, and time-frames.

**6. 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:**

The agency did not review or rely on any study relevant to the rule.

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

Not applicable

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

The proposed rule will impact the Board, licensees and the public.

The amended rule's impact on established Board of Dental Examiners' procedures and office related costs is minimal. The rule's net economic impact for the Board is minimal.

The Board estimates the amended rule will have minimal economic impact on licensees. The cost to the individual or entity is minimal.

The amended rule has no economic impact on the public.

The Board, licensees, and the public benefit from rules that are clear, concise, and understandable. The Board believes that approval of these rules will benefit the public health and safety by clearly establishing the procedures for licensure by credential, examinations, licensing qualifications, application and renewal, and time-frames.



**9. The agency’s contact person who can answer questions about the economic, small business and consumer impact statement:**

Name: Elaine Hugunin, Executive Director  
Address: State Board of Dental Examiners  
4205 N. 7th Ave., Suite 300  
Phoenix, AZ 85013  
Telephone: (602) 542-4493  
Fax: (602) 242-1445  
E-mail: elaine.hugunin@azdentalboard.us  
Website: www.dentalboard.az.gov

**10. The time, place, and nature of the proceedings to make, amend, repeal, or renumber the rule, or if no proceeding is scheduled, where, when, and how persons may request an oral proceeding on the proposed rule:**

Comments may be written or presented orally. Written comments must be received by 5:00 p.m., Monday, October 19, 2015. An oral proceeding is scheduled for:

Date: October 19, 2015  
Time: 10:00 a.m.  
Location: 4205 N. 7th Ave., Suite 300  
Phoenix, AZ 85013

A person may request information about the oral proceeding by contacting the person listed above.

**11. 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:**

Not applicable

**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 require the Board to issue a license or certificate as specified under A.R.S. §§ 32-1234, 32-1240, and 32-1292.01. This license or certificate arguably falls within the definition of general permit in A.R.S. §§ 41-1001 and 41-1037. The Board chooses to issue the specific license or certificate as required by our statutes.

**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:**

No

**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

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

None

**13. The full text of the rules follows:**

**TITLE 4. PROFESSIONS AND OCCUPATIONS**

**CHAPTER 11. STATE BOARD OF DENTAL EXAMINERS**

**ARTICLE 2. LICENSURE BY CREDENTIAL**

Section

- R4-11-201. Clinical Examination: Requirements
- R4-11-202. Dental Licensure by Credential: Application
- R4-11-203. Dental Hygienist Licensure by Credential: Application
- R4-11-204. Dental Assistant Radiography Certification by Credential
- R4-11-205. Application for Dental Assistant Radiography Certification by Credential

**ARTICLE 3. EXAMINATIONS, LICENSING QUALIFICATIONS, APPLICATION AND RENEWAL, TIME-FRAMES**

Section

- R4-11-301. Application
- R4-11-302. ~~Determination of Successful Completion of Licensure Examination Repealed~~
- R4-11-303. Application Processing Procedures: Issuance, Denial, and Renewal of Dental Licenses, Restricted Permits, Dental Hygiene Licenses, Dental Consultant Licenses, Denturist Certificates, Drug or Device Dispensing Registrations, ~~and Business Entity Registration, and Mobile Dental Facility and Portable Dental Unit Per-~~



- R4-11-304. mits  
Application Processing Procedures: Issuance and Denial of Dental Assistant Certificates Radiography Certification by Credential
- R4-11-305. Application Processing Procedures: Issuance, Denial, and Renewal of General Anesthesia and Semi-conscious Deep Sedation Permits, Conscious Parenteral Sedation Permits, and Oral Conscious Sedation Permits, and Permit to Employ a Physician Anesthesiologist or CRNA

## ARTICLE 2. LICENSURE BY CREDENTIAL

### R4-11-201. Clinical Examination; Requirements

- A. ~~The Board shall:~~
- ~~1. Consider an application for licensure at the next scheduled Board meeting after the application is administratively complete.~~
  2. If an applicant is applying under A.R.S. §§ 32-1240(A) or 32-1292.01(A), the Board shall ensure that the applicant has passed the clinical examination of another state, United States territory, District of Columbia or a regional testing agency, that maintains a standard of licensure determined by the Board to be substantially equivalent to that of Arizona based on review of any one of the following forms of evidence that are satisfactory to the Board Satisfactory completion of the clinical examination may be demonstrated by one of the following:
    - a1. Certified documentation, sent directly from another state, United States territory, District of Columbia or a regional testing agency, that shows that confirms successful completion of the clinical examination or multiple examinations the applicant passed are Board approved and administered by the state, United States territory, District of Columbia or regional testing agency. The certified documentation shall contain the name of the applicant, date of examination or examinations, total score for each examination, name of any separately scored component of the examination, and separate scores for each component and proof of a passing score; or
    - b2. Certified documentation sent directly from another state, United States territory or District of Columbia dental board that shows the applicant passed that state's, United States territory or District of Columbia's clinical examination before that state's, United States territory or District of Columbia's participation in a regional examination. The certified documentation shall contain the name of applicant, date of examination or examinations, total score for each examination, name of any separately scored component of the examination and separate scores for each component and proof of a passing score; or
    - e. A detailed report prepared by a Board-recognized organization capable of assessing whether a clinical examination submitted maintains all of the following clinical examination elements in Arizona's standard of licensure:
      - i. The purposes, interpretations, and uses of the clinical examination are clearly stated in order to make appropriate pass or fail decisions.
      - ii. The knowledge, skills, and abilities that are important in the clinical practice of dentistry or dental hygiene are identified.
      - iii. Examination specifications provide a detailed description of the content of the examination and specify the scorable tasks that are used to evaluate each discipline. The specifications should include scoring weights associated with each content area.
      - iv. Policies and procedures are defined and published to standardize examination administration. This administrative protocol addresses legal issues and fair testing practices.
      - v. The state or testing agency provides candidates with clear and comprehensive information about the examination program, including application requirements, examination content, performance expectations, reporting of results, and an appeals process.
      - vi. Policies for examiner selection and retention are defined and published.
      - vii. An examiner training program is established and implemented. The program introduces examiners to appropriate applications of the agency's evaluation criteria and assesses their ability to apply the criteria. The methodology of examiner standardization and its results are documented.
      - viii. Post-examination analyses are routinely conducted. Reliability and other factors affecting validity are investigated.
      - ix. A program is developed and implemented for on-going evaluation of examiner ratings. The examining agency provides examiners with feedback on their individual rating performance. Policies and procedures are defined for remediation or discontinuance of examiners based on analyses of their performance.
- B. An applicant shall meet the licensure requirements in R4-11-301 and R4-11-303. ~~The applicant is exempt from complying with R4-11-301(A)(4)~~

### R4-11-202. Dental Licensure by Credential; Application

- A. A dentist applying under A.R.S. § 32-1240(A) shall comply with all other applicable requirements in A.R.S. Title 32, Chapter 11 and this Article.
- B. A dentist applying under A.R.S. § 32-1240(A)(1) shall:
1. Have a current dental license in another state, territory or district of the United States;



- 2. Submit a written affidavit affirming that the dentist has practiced dentistry for a minimum of 5000 hours during the five years immediately before applying for licensure by credential. For purposes of this subsection, dental practice includes experience as a dental educator at a dental program accredited by the American Dental Association Commission on Dental Accreditation or employment as a dentist in a public health setting;
  - 3. Submit a written affidavit affirming that the applicant has complied with the continuing dental education requirement of the state in which the applicant is currently licensed; and
  - 4. Provide evidence regarding the clinical examination by complying with one of the subsections in ~~R4-11-201(A)(2)~~ R4-11-201(A)(1).
- C.** A dentist applying under A.R.S. § 32-1240(A)(2) shall submit certified documentation sent directly from the applicable ~~state, United States territory, District of Columbia or regional testing agency~~ to the Board that contains the name of applicant, date of examination or examinations, ~~total score for each examination, name of any separately scored component of the examination and scores for each component and proof of a passing score.~~
- D.** For any application submitted under A.R.S. § 32-1240(A), the Board may request additional clarifying evidence required under the applicable subsection in ~~R4-11-201(A)(2)~~ R4-11-201(A)(1).
- E.** An applicant for dental licensure by credential shall pay the fee prescribed in A.R.S. § 32-1240, except the fee is reduced by 50% for applicants who will be employed or working under contract in:
- 1. Underserved areas, such as declared or eligible Health Professional Shortage Areas (HPSAs); or
  - 2. Other facilities caring for underserved populations as recognized by the Arizona Department of Health Services and approved by the Board.
- F.** An applicant for dental licensure by credential who works in areas or facilities described in subsection (E) shall:
- 1. Commit to a three-year, exclusive service period,
  - 2. File a copy of a contract or employment verification statement with the Board, and
  - 3. As a licensee, submit an annual contract or employment verification statement to the Board by December 31 of each year.
- G.** A licensee's failure to comply with the requirements in subsection (F) is considered unprofessional conduct and may result in disciplinary action based on the circumstances of the case.

**R4-11-203. Dental Hygienist Licensure by Credential; Application**

- A.** A dental hygienist applying under A.R.S. § 32-1292.01(A) shall:
- ~~1. Comply with all other applicable requirements in A.R.S. Title 32, Chapter 11 and this Article; and~~
  - 2. ~~Not be the subject of final or pending disciplinary action in any state, territory, or district of the United States or have resigned or surrendered a license while under investigation by or while disciplinary action was pending before any professional licensing agency.~~
- ~~**B.** The Board shall:~~
- ~~1. Suspend an application for licensure by credential if disciplinary action by a dental regulatory agency against the applicant is currently pending in another jurisdiction, and~~
  - ~~2. Not issue or deny licensure by credential to the applicant until the matter is resolved.~~
- ~~**C.**~~**A** dental hygienist applying under A.R.S. § 32-1292.01(A)(1) shall:
- 1. Have a current dental hygienist license in another state, territory, or district of the United States;
  - 2. Submit a written affidavit affirming that the applicant has practiced as a dental hygienist for a minimum of 1000 hours during the two years immediately before applying for licensure by credential. For purposes of this subsection, dental hygienist practice includes experience as a dental hygienist educator at a dental program accredited by the American Dental Association Commission on Dental Accreditation or employment as a dental hygienist in a public health setting;
  - 3. Submit a written affidavit affirming that the applicant has complied with the continuing dental hygienist education requirement of the state in which the applicant is currently licensed; and
  - 4. Provide evidence regarding the clinical examination by complying with one of the subsections in ~~R4-11-201(A)(2)~~ R4-11-201(A)(1).
- ~~**D.**~~**C.** A dental hygienist applying under A.R.S. § 32-1292.01(A)(2) shall submit certified documentation sent directly from the applicable ~~state or regional testing agency~~ to the Board that contains the name of applicant, date of examination or examinations, ~~total score for the examination, name of any separately scored component of the examination and separate scores for each component and proof of a passing score.~~
- ~~**E.**~~**D.** For any application submitted under A.R.S. § 32-1292.01(A), the Board may request additional clarifying evidence as required under the applicable subsection in ~~R4-11-201(A)(2)~~ R4-11-201(A).
- ~~**F.**~~**E.** An applicant for dental hygienist licensure by credential shall pay the fee prescribed in A.R.S. § 32-1292.01, except the fee is reduced by 50% for applicants who will be employed or working under contract in:
- 1. Underserved areas such as declared or eligible Health Professional Shortage Areas (HPSAs); or
  - 2. Other facilities caring for underserved populations, as recognized by the Arizona Department of Health Services and approved by the Board.
- ~~**G.**~~**F.** An applicant for dental hygienist licensure by credential who works in areas or facilities described in subsection ~~(F)~~ (E) shall:
- 1. Commit to a three-year exclusive service period,
  - 2. File a copy of a contract or employment verification statement with the Board, and





3. As a licensee, submit an annual contract or employment verification statement to the Board by December 31 of each year.

~~H.C.~~ A licensee's failure to comply with the requirements in ~~R4-11-203(G)~~ R4-11-203(F) is considered unprofessional conduct and may result in disciplinary action based on the circumstances of the case.

**R4-11-204. Dental Assistant Radiography Certification by Credential**

Eligibility. To be eligible for dental assistant radiography certification by credential, an applicant shall have a current certificate or other form of approval for taking dental radiographs, issued by a professional licensing agency in another ~~jurisdiction of the United States state, United States territory or District of Columbia~~ that required successful completion of a written and clinical dental radiography examinations examination or a single dental radiography examination with written and clinical components.

**R4-11-205. Application for Dental Assistant Radiography Certification by Credential**

- A. An applicant for dental assistant radiography certification by credential shall provide to the Board a completed application, on a form furnished by the Board that contains the following information:
  1. A sworn statement of the applicant's eligibility, and
  2. A letter of endorsement that verifies compliance with R4-11-204.
- B. Based upon review of information provided under subsection (A), the Board or its designee shall request that an applicant for dental assistant radiography certification by credential provide a copy of a certified document that indicates the reason for a name change if the applicant's documentation contains different names.

**ARTICLE 3. EXAMINATIONS, LICENSING QUALIFICATIONS, APPLICATION AND RENEWAL,  
TIME-FRAMES**

**R4-11-301. Application**

- A. An applicant for licensure or certification shall provide the following information and documentation ~~on a form provided by the Board:~~
  1. A sworn statement of the applicant's qualifications for the license or certificate on a form provided by the Board;
  2. A photograph of the applicant that is no more than 6 months old;
  3. An official, sealed transcript sent directly to the Board from ~~either:~~
    - a. ~~the~~ The applicant's dental, dental hygiene, or denturist school ~~to the Board;~~ or
    - b. A verified third-party transcript provider.
  4. Except for a dental consultant license applicant, dental and dental hygiene applicants provide proof of successfully completing a clinical examination by submitting:
    - a. If applying for dental licensure by examination, a copy of the certificate or score card from the Western Regional Examining Board, indicating that the applicant passed the Western Regional Examining Board examination within the five years immediately before the date the application is filed with the Board; ~~or~~
    - b. ~~If applying for licensure by credential, certified documentation sent directly from the applicable testing agency or state to the Board containing the name of the applicant, date of examination or examinations, total score for each examination, name of any separately scored component of the examination, and scores for each component~~ If applying for dental hygiene licensure by examination, a copy of the certificate or scorecard from the Western Regional Examining Board or an Arizona Board-approved clinical examination administered by a state or regional testing agency. The certificate or scorecard must indicate that the applicant passed the examination within the five years immediately before the date the application is filed with the Board; or
    - c. If applying for licensure by credential, certified documentation sent directly from the applicable state, United States territory, District of Columbia or regional testing agency to the Board containing the name of the applicant, date of examination or examinations and proof of a passing score;
  5. Except for a dental consultant license applicant as provided in A.R.S. § 32-1234(A)(7), dental and dental hygiene applicants must have an official score card sent directly from the National Board examination to the Board;
  6. A copy showing the expiration date of the applicant's current cardiopulmonary resuscitation healthcare provider level certificate from the American Red Cross, the American Heart Association, or another certifying agency that follows the same procedures, standards, and techniques for CPR training and certification as the American Red Cross or American Heart Association;
  7. A license or certification verification from any other jurisdiction in which an applicant is licensed or certified, sent directly from that jurisdiction to the Board. If the license verification cannot be sent directly to the Board from the other jurisdiction, the applicant must submit a written affidavit affirming that the license verification submitted was issued by the other jurisdiction;
  8. If ~~the~~ a dental or dental hygiene applicant has been licensed in another jurisdiction for more than six months, a copy of the self-inquiry from the National Practitioner Data Bank that is no more than ~~6 months~~ 30 days old;
  9. ~~If the applicant has never been licensed to practice in any jurisdiction or has been practicing for less than six months, a letter of endorsement from the dental, dental hygiene, or denturist school from which the applicant graduated that confirms the applicant's graduation~~ If a denturist applicant has been certified in another jurisdiction for more than six months, a copy of the self-inquiry from the Health Integrity and Protection Data Bank that is no more than 30 days old;



- 10. If the applicant is in the military or employed by the United States government, a letter of endorsement from the applicant's commanding officer or supervisor that confirms the applicant's military service or United States government employment record; and
- 11. The jurisprudence examination fee.
- B. The Board may request that an applicant provide:
  - 1. An official copy of the applicant's dental, dental hygiene, or denturist school diploma,
  - 2. A copy of a certified document that indicates the reason for a name change if the applicant's application contains different names,
  - 3. Written verification of the applicant's work history, and
  - 4. A copy of a high school diploma or equivalent certificate.
- C. An applicant shall pass the Arizona jurisprudence examination with a minimum score of 75%.

**R4-11-302. ~~Determination of Successful Completion of Licensure Examination Repealed~~**

~~To determine the minimum passing grade in all examinations conducted by the Board:~~

- ~~1. The Board may require a composite average of 75% for successful completion of the examination; or~~
- ~~2. The Board may use a performance rating of 0 to 6 to evaluate each procedure performed and require a specific point total to achieve successful completion.~~
- ~~3. The Board shall vote, at least 30 days before the examination, to determine which scoring system is to be used. For the percentage system the Board shall also determine the relative values of the individual procedures tested. For the proficiency evaluation the Board shall determine the minimum point total required to successfully complete the examination.~~

**R4-11-303. Application Processing Procedures: Issuance, Denial, and Renewal of Dental Licenses, Restricted Permits, Dental Hygiene Licenses, Dental Consultant Licenses, Denturist Certificates, Drug or Device Dispensing Registrations, and Business Entity Registration and Mobile Dental Facility and Portable Dental Unit Permits**

- A. The Board office shall complete an administrative completeness review within 24 days of the date of receipt of an application for a license, certificate, permit, or registration.
  - 1. Within 14 calendar days of receiving an initial or renewal application for a dental license, restricted permit, dental hygiene license, dental consultant license, denturist certificate, drug dispensing registration, ~~or~~ business entity registration, mobile dental facility or portable dental unit permit the Board office shall notify the applicant, in writing, whether the application package is complete or incomplete.
  - 2. If the application package is incomplete, the Board office shall provide the applicant with a written notice that includes a comprehensive list of the missing information. The 24-day time-frame for the Board office to finish the administrative completeness review is suspended from the date the notice of incompleteness is served until the applicant provides the Board office with all missing information.
  - 3. If the Board office does not provide the applicant with notice regarding administrative completeness, the application package shall be deemed complete 24 days after receipt by the Board office.
- B. An applicant with an incomplete application package shall submit all missing information within 60 calendar days of service of the notice of incompleteness.
- C. Upon receipt of all missing information, the Board office shall notify the applicant, in writing, within 10 calendar days, that the application package is complete. If an applicant fails to submit a complete application package within the time allowed in subsection (B), the Board office shall close the applicant's file. An applicant whose file is closed and who later wishes to obtain a license, certificate, permit, or registration shall apply again as required in R4-11-301.
- D. The Board shall not approve or deny an application until the applicant has fully complied with the requirements of A.A.C. Title 4, Chapter 11, Article 3.
- E. The Board shall complete a substantive review of the applicant's qualifications in no more than 90 calendar days from the date on which the administrative completeness review of an application package is complete.
  - 1. If the Board finds an applicant to be eligible for a license, certificate, permit, or registration and grants the license, certificate, permit, or registration, the Board office shall notify the applicant in writing.
  - 2. If the Board finds an applicant to be ineligible for a license, certificate, permit, or registration, the Board office shall issue a written notice of denial to the applicant that includes:
    - a. Each reason for the denial, with citations to the statutes or rules on which the denial is based;
    - b. The applicant's right to request a hearing on the denial, including the number of days the applicant has to file the request;
    - c. The applicant's right to request an informal settlement conference under A.R.S. § 41-1092.06; and
    - d. The name and telephone number of an agency contact person who can answer questions regarding the application process.
  - 3. If the Board finds deficiencies during the substantive review of an application package, the Board office may issue a comprehensive written request to the applicant for additional documentation. An additional supplemental written request for information may be issued upon mutual agreement between the Board or Board office and the applicant.



4. The 90-day time-frame for a substantive review of an applicant's qualifications is suspended from the date of a written request for additional documentation until the date that all documentation is received. The applicant shall submit the additional documentation before the next regularly scheduled Board meeting.
  5. If the applicant and the Board office mutually agree in writing, the 90-day substantive review time-frame may be extended once for no more than 45 days.
- F. The following time-frames apply for an initial or renewal application governed by this Section:
1. Administrative completeness review time-frame: 24 calendar days.
  2. Substantive review time-frame: 90 calendar days.
  3. Overall time-frame: 114 calendar days.
- G. An applicant whose license is denied has a right to a hearing, an opportunity for rehearing, and, if the denial is upheld, may seek judicial review pursuant to A.R.S. Title 41, Chapter 6, Article 10, and A.R.S. Title 12, Chapter 7, Article 6.

**R4-11-304. Application Processing Procedures: Issuance and Denial of Dental Assistant Certificates Radiography Certification by Credential**

- A. Within 14 calendar days of receiving an application from an applicant for a dental assistant ~~certificate~~ radiography certification by credential, the Board or its designee shall notify the applicant, in writing, that the application package is complete or incomplete. If the package is incomplete, the notice shall specify what information is missing.
- B. An applicant with an incomplete application package shall supply the missing information within 60 calendar days from the date of the notice. If the applicant fails to do so, an applicant shall begin the application process anew.
- C. Upon receipt of all missing information, within 10 calendar days, the Board or its designee shall notify the applicant, in writing, that the application is complete.
- D. The Board or its designee shall not process an application until the applicant has fully complied with the requirements of this Article.
- E. The Board or its designee shall notify an applicant, in writing, whether the certificate is granted or denied, no later than 90 calendar days after the date of the notice advising the applicant that the package is complete.
- ~~F. The Board or its designee shall deny certification if an applicant fails the clinical or written portions of the Dental Assisting National Board examination.~~
- ~~GE.~~ The notice of denial shall inform the applicant of the following:
1. The reason for the denial, with a citation to the statute or rule which requires the applicant to pass the examination;
  2. The applicant's right to request a hearing on the denial, including the number of days the applicant has to file the request;
  3. The applicant's right to request an informal settlement conference under A.R.S. § 41-1092.06; and
  4. The name and telephone number of an agency contact person or a designee who can answer questions regarding the application process.
- ~~HG.~~ The following time-frames apply for certificate applications governed by this Section:
1. Administrative completeness review time-frame: 24 calendar days.
  2. Substantive review time-frame: 90 calendar days.
  3. Overall time-frame: 114 calendar days.
- ~~HI.~~ An applicant whose certificate is denied has a right to a hearing, an opportunity for rehearing, and, if the denial is upheld, may seek judicial review pursuant to A.R.S. Title 41, Chapter 6, Article 10, and A.R.S. Title 12, Chapter 7, Article 6.

**R4-11-305. Application Processing Procedures: Issuance, Denial, and Renewal of General Anesthesia and Semi-conscious Deep Sedation Permits, Conscious Parenteral Sedation Permits, and Oral Conscious Sedation Permits, and Permit to Employ a Physician Anesthesiologist or CRNA**

- A. The Board office shall complete an administrative completeness review within 24 days from the date of the receipt of an application for a permit.
1. Within 14 calendar days of receiving an initial or renewal application for a general anesthesia and ~~semi-conscious deep sedation permit, conscious parenteral sedation permit, or oral conscious sedation permit~~ or permit to employ a physician anesthesiologist or CRNA the Board office shall notify the applicant, in writing, whether the application package is complete or incomplete.
  2. If the application package is incomplete, the Board office shall provide the applicant with a written notice that includes a comprehensive list of the missing information. The 24-day time-frame for the Board office to finish the administrative completeness review is suspended from the date the notice of incompleteness is served until the applicant provides the Board office with all missing information.
  3. If the Board office does not provide the applicant with notice regarding administrative completeness, the application package shall be deemed complete 24 days after receipt by the Board office.
- B. An applicant with an incomplete application package shall submit all missing information within 60 calendar days of service of the notice of incompleteness.
- C. Upon receipt of all missing information, the Board office shall notify the applicant, in writing, within 10 calendar days, that the application package is complete. If an applicant fails to submit a complete application package within the time allowed in subsection (B), the Board office shall close the applicant's file. An applicant whose file is closed and who later wishes to obtain a permit shall apply again as required in A.A.C. Title 4, Chapter 11, Article 13.
- D. The Board shall not approve or deny an application until the applicant has fully complied with the requirements of this





Section and A.A.C. Title 4, Chapter 11, Article 13.

- E. The Board shall complete a substantive review of the applicant's qualifications in no more than 120 calendar days from the date on which the administrative completeness review of an application package is complete.
  - 1. If the Board finds an applicant to be eligible for a permit and grants the permit, the Board office shall notify the applicant in writing.
  - 2. If the Board finds an applicant to be ineligible for a permit, the Board office shall issue a written notice of denial to the applicant that includes:
    - a. Each reason for the denial, with citations to the statutes or rules on which the denial is based;
    - b. The applicant's right to request a hearing on the denial, including the number of days the applicant has to file the request;
    - c. The applicant's right to request an informal settlement conference under A.R.S. § 41-1092.06; and
    - d. The name and telephone number of an agency contact person who can answer questions regarding the application process.
  - 3. If the Board finds deficiencies during the substantive review of an application package, the Board office shall issue a comprehensive written request to the applicant for additional documentation.
  - 4. The 120-day time-frame for a substantive review of an applicant's qualifications is suspended from the date of a written request for additional documentation until the date that all documentation is received.
  - 5. If the applicant and the Board office mutually agree in writing, the 120-day substantive review time-frame may be extended once for no more than 60 days. ~~The applicant shall submit the additional documentation before the next regularly scheduled Board meeting.~~
- F. The following time-frames apply for an initial or renewal application governed by this Section:
  - 1. Administrative completeness review time-frame: 24 calendar days.
  - 2. Substantive review time-frame: 120 calendar days.
  - 3. Overall time-frame: 144 calendar days.

**NOTICE OF PROPOSED RULEMAKING**

**TITLE 18. ENVIRONMENTAL QUALITY**

**CHAPTER 11. DEPARTMENT OF ENVIRONMENTAL QUALITY  
WATER QUALITY STANDARDS**

[R15-119]

**PREAMBLE**

- |   |                                 |
|---|---------------------------------|
| <b><u>1. Article, Part of Sections Affected (as applicable)</u></b> | <b><u>Rulemaking Action</u></b> |
| 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. 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: 21 A.A.R. 1989, September 18, 2015 (*in this issue*)
  - 4. The agency's contact person who can answer question about the rulemaking:**  
 Name: Wendy LeStarge  
 Address: Arizona Department of Environmental Quality  
 1110 W. Washington St.  
 Phoenix, AZ 85007  
 Telephone: (602) 771-4836 (Toll-free number in Arizona: (800) 234-5677)  
 Fax: (602) 771-4834



E-mail: [lestarge.wendy@azdeq.gov](mailto:lestarge.wendy@azdeq.gov)

**5. 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 the U.S. Environmental Protection Agency (EPA).

The Arizona Department of Environmental Quality (ADEQ), as the state agency responsible for administering the CWA, previously amended the rules in 2009. 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. After obtaining approval from the Governor's Office according to Executive Order 2015-01 (Internal Review of Administrative Rules; Moratorium to Promote Job Creation and Customer-Service-Oriented Agencies), ADEQ proposes the following clean-up 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 standard that allows ADEQ to look at certain factors in determining the time needed in the compliance schedule. The factors listed in subsection (A)(1) 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-one 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 clearly state what standards are being used in permits and for compliance, ADEQ proposes to repeal the current standards for these twenty-one 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
Chromium (Total)	Full and partial 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.

Appendix B Surface Waters and Designated Uses

Appendix B lists surface waters in Arizona, their locations, and their designated uses. ADEQ proposes the following types of corrections throughout Appendix B:

- Changing 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;
- 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.
- Verifying reference locations, such as road names or other surface waters;
- Eliminating 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).
- Eliminating “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 of the State of Arizona Surface Water Quality Standards. 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. Also, 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	Adding two segments to accurately reflect the manmade tunnel and lined channel at the Asarco Ray Mine that conveys flow in Mineral Creek around mining operations
MG	Unnamed wash	Permitted outfall from City of Phoenix Cave Creek WRF no longer exists so deleted as EDW
MG	Unnamed wash	A new listing for the new outfall from Town of Cave Creek WRF 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 listed Paradise Lake as a water of the U.S. in 1996 in response to the homeowners association that owns the lake, who were concerned that treated effluent discharged to the lake would degrade water quality. Paradise Lake was constructed around 1960. It is privately-owned and has no significant nexus with any surface waters. ADEQ's rationale for listing was the foreign and interstate commerce due to foreign ownership of property surrounding the lake. Since the 1996 listing, the homeowners association no longer has the water right 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. ADEQ is proposing to remove Paradise Lake from Appendix B of the State of Arizona Surface Water Quality Standards in light of recent court cases that call into question the validity of the justification based solely on foreign and interstate commerce.
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.
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 Transcept 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 Arizona Pollutant Discharge Elimination System (AZPDES) permitting program. Under § 402 of the Clean Water Act, 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 1988. 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.

#### Background on Grand Canyon surface waters

The Grand Canyon National Park’s two wastewater treatment plants discharge to Bright Angel Wash and Transcept 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.

ADEQ has determined that copper occurs in naturally higher concentrations in these surface waters and the aquatic life has naturally adapted to this mineralized environment so the higher site-specific standard is still protective of the environment. As aquatic wildlife is more sensitive to dissolved metals in water than humans or livestock, the numeric criteria for this designated use is still over a thousand times lower than the numeric criterion set for full body contact or even agricultural livestock watering uses.

#### Background on this Rulemaking

Originally, ADEQ received permission to proceed with rulemaking from Governor Brewer’s office at the end of 2013. In fall 2014, ADEQ met with a broad spectrum of stakeholders to discuss the proposed changes and the scope of this rulemaking. ADEQ previously published a Notice of Proposed Rulemaking on December 26, 2014, with an oral proceeding set for January 26, 2015. On January 23, 2015, ADEQ filed a 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) dated January 5, 2015.

Since January 2015, ADEQ made the following changes to the proposed rules:



- Added language in R18-11-109(F) that while the nutrient standards are limited to the listed surface waters and their perennial tributaries, ADEQ has authority to apply the nutrient standards to a discharge depending on the impact to the downstream surface water.
- Deleted redundant language in R18-11-121 because the flexible standard applies to all the situations.
- Added the calculation formula for ammonia and pH-dependent parameters in Tables 10 through 12 for consistency purposes.
- Proposed to delete Coors Lake from Appendix B.

Because the public comment period was not completed on the previous Notice of Proposed Rulemaking, ADEQ filed a Notice of Termination to terminate the Notice of Proposed Rulemaking published December 26, 2014. ADEQ then filed this Notice of Proposed Rulemaking that includes the additional changes. The Governor's Office authorized this rulemaking to proceed according to Executive Order 2015-01 (Internal Review of Administrative Rules; Moratorium to Promote Job Creation and Customer-Service-Oriented Agencies).

**6. 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:**

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 *Ceriodaphnia 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 *Ceriodaphnia dubia* in Site and Reconstituted Laboratory Water Under Static Test Conditions" (October 2008).

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

Not applicable

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

The overall impact of the proposed changes should be very minor. A few of the rule changes may have a more specific, but overall beneficial impact. The nutrient change in R18-11-106 should benefit a wastewater treatment facility that discharges to a tributary of one of the listed waters. Such a facility will no longer have to conform with rigorous nutrient standards unless their discharges have the potential to impact the downstream surface waters. Other proposed rule changes promote flexibility. ADEQ is expanding the process that allows an outside party to submit a scientifically defensible study to support development of the site-specific standard under R18-11-115. The flexibility in time allowed in a compliance schedule should benefit the regulated community by allowing more time to achieve compliance.

For the numeric water quality standards in Table 1, Appendix A, that are reverting to the 2003 version, ADEQ already uses the 2003 version in AZPDES permits because ADEQ cannot use criteria not approved by EPA. Changes to designated uses in Appendix B may impact entities that discharge to those surface waters; the proposed changes to Boulder Creek and Mineral Creek should benefit any entity that discharges to these surface waters because the new designated uses have higher pollutant limits.

The proposed site-specific standards in Appendix C would allow ADEQ to issue an AZPDES permit for an entity that can discharge at or below the site specific standard which will lessen the burden to any AZPDES permit applicant seeking to discharge to these surface waters.

**9. The agency's contact person who can answer questions about the economic, small business, and consumer impact statement:**

Name: Wendy LeStarge  
 Address: Arizona Department of Environmental Quality  
 1110 W. Washington St.  
 Phoenix, AZ 85007  
 Telephone: (602) 771-4836 (Toll-free number in Arizona: (800) 234-5677)  
 Fax: (602) 771-4834  
 E-mail: lestarge.wendy@azdeq.gov

**10. The time, place, and nature of the proceedings to make, amend, repeal, or renumber the rule or, if no proceeding is scheduled, where, when, and how persons may request an oral proceeding on the proposed rule:**

ADEQ has scheduled an oral proceeding to receive oral comments on the rules, in accordance with A.R.S. § 41-1023; the time, place, and location of the hearing is listed below:

Date: October 19, 2015



Time: 10:00 a.m.
Location: Arizona Department of Environmental Quality
1110 W. Washington, Room 3175 A & B
Phoenix, AZ 85007
Nature: Oral Proceeding on the proposed rules, with opportunity for formal comments on the record

Written, faxed, or e-mailed comments may be made with the contact person listed in item #4. Written comments on the proposed rules or preliminary economic, small business, and consumer impact statement must be received by 5:00 p.m. October 19, 2015. Upon request, ADEQ will provide appropriate auxiliary aids and services to persons with disabilities, at no charge, to assist in accessible communication to enable people who have speech, hearing, vision, learning, or other impairments to participate equally, including qualified sign language interpreters. To request an auxiliary aid or service, to obtain this document in alternative format, or for further information, please contact Alicia Pollard at (602) 771-4791 or via email at aap@azdeq.gov as early as possible to allow time to arrange the accommodation. TTY/TTD Services: 7-1-1. The ADA does not require ADEQ to take any action that would fundamentally alter the nature of its programs, services or activities, or impose an undue financial or administrative burden on ADEQ. This rulemaking's public record will close at 5:00 p.m. on October 19, 2015.

- 11. 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 analysis has been submitted.
12. A 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
13. The full text of the rules 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):

<i>E. coli</i>	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 <sup>1</sup>	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.	<b>Dissolved oxygen</b>	<b>A&amp;Ww</b>	<b>A&amp;We</b>
	Single sample minimum <sup>2</sup>	6.0	7.0
2.	<b>Dissolved oxygen in effluent dependent waters</b>		
	(single sample minimum)	<b>A&amp;Wedw</b>	
	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.
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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
<u>A&amp;Ww</u>	<u>6.0</u>
<u>A&amp;Wc</u>	<u>7.0</u>
<u>A&amp;W edw for a sample taken from three hours after sunrise to sunset</u>	<u>3.0</u>
<u>A&amp;W edw for a sample taken from sunset to three hours after sunrise</u>	<u>1.0</u>
<u>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</u>	

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.~~

<del>Surface Water</del>	<del>Annual Mean</del>	<del>90th Percentile</del>	<del>Single Sample Maximum</del>
<del>Total phosphorus</del>	<del>—</del>	<del>—</del>	<del>0.75</del>
<del>Total nitrogen</del>	<del>—</del>	<del>—</del>	<del>1.80</del>

- 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. ~~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	<del>1.00</del> <u>0.1</u>	<del>1.50</del> <u>0.25</u>	<del>2.50</del> <u>0.30</u>
Total nitrogen	<del>0.10</del> <u>1.00</u>	<del>0.25</del> <u>1.50</u>	<del>0.30</del> <u>2.50</u>

- 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. <sup>"1"</sup> Includes A&Wc, A&Ww, A&Wedw, and A&We.
- 2. <sup>"2"</sup> ~~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  $35^{\circ}01'30''/111^{\circ}44'12''$  to its confluence with the Verde River at  $34^{\circ}40'41''/111^{\circ}56'30''$  (approximately 50.3 river miles);
3. West Fork of Oak Creek, from its headwaters at  $35^{\circ}02'44''/111^{\circ}54'48''$  to its confluence with Oak Creek at  $34^{\circ}59'14''/111^{\circ}44'46''$  (approximately 15.8 river miles);
4. Peeples Canyon Creek, from its headwaters at  $34^{\circ}23'57''/113^{\circ}19'45''$  to its confluence with the Santa Maria River at  $34^{\circ}20'36''/113^{\circ}15'12''$  (approximately 8.1 river miles);
5. Burro Creek, from its headwaters at  $34^{\circ}52'46.5''/113^{\circ}05'13.5''$  to its confluence with Boulder Creek at  $34^{\circ}37'4.5''/113^{\circ}18'36''$  (approximately 29.5 miles);
6. Francis Creek, from its headwaters at  $34^{\circ}54'38''/113^{\circ}20'30''$  to its confluence with Burro Creek at  $34^{\circ}44'29''/113^{\circ}14'37''$  (approximately 22.9 river miles);
7. Bonita Creek, from its boundary of the San Carlos Indian Reservation at  $33^{\circ}03'08''/109^{\circ}33'41''$  to its confluence with the Gila River at  $32^{\circ}53'36''/109^{\circ}28'43''$  (approximately 14.7 river miles);
8. Cienega Creek, from its confluence with Gardner Canyon and Spring Water Canyon at  $31^{\circ}47'38.5''/110^{\circ}35'21.5''$  to the USGS gaging station at  $32^{\circ}02'09''/110^{\circ}40'34''$  (#09484600) (approximately 28.3 river miles);
9. Aravaipa Creek, from its confluence with Stowe Gulch at  $32^{\circ}52'10''/110^{\circ}22'03''$  to the downstream boundary of the Aravaipa Canyon Wilderness Area at  $32^{\circ}54'23''/110^{\circ}33'42''$  (approximately 15.5 river miles);
10. Cave Creek, from its headwaters at  $31^{\circ}50'30''/109^{\circ}17'04.5''$  to the Coronado National Forest boundary at  $31^{\circ}54'38''/109^{\circ}08'40''$  (approximately 10.4 river miles);
11. South Fork of Cave Creek, from its headwaters at  $31^{\circ}50'20''/109^{\circ}16'33''$  to its confluence with Cave Creek at  $31^{\circ}53'04''/109^{\circ}10'30''$  (approximately 8.6 river miles);
12. Buehman Canyon Creek, from its headwaters at  $32^{\circ}52'0.5''/110^{\circ}39'54.5''$  to its confluence with unnamed tributary at  $32^{\circ}24'31.5''/110^{\circ}32'08''$   $32^{\circ}24'31''/110^{\circ}32'08''$  (approximately 9.8 river miles);
13. Lee Valley Creek, from its headwaters at  $33^{\circ}55'49''/109^{\circ}31'34''$  to its confluence with Lee Valley Reservoir at  $33^{\circ}56'28''/109^{\circ}30'15.5''$  (approximately 1.6 river miles);
14. Bear Wallow Creek, from its headwaters at  $33^{\circ}35'54''/109^{\circ}26'54.5''$  to the boundary of the San Carlos Indian Reservation at  $33^{\circ}37'52''/109^{\circ}29'44''$  (approximately 4.25 river miles);
15. North Fork of Bear Wallow Creek, from its headwaters at  $33^{\circ}34'47.5''/109^{\circ}21'59.5''$  to its confluence with Bear Wallow Creek at  $33^{\circ}35'54''/109^{\circ}26'54.5''$  (approximately 3.8 river miles);
16. South Fork of Bear Wallow Creek, from its headwaters at  $33^{\circ}34'38.5''/109^{\circ}23'58''$  to its confluence with Bear Wallow Creek at  $33^{\circ}35'54''/109^{\circ}26'54.5''$  (approximately 3.8 river miles);
17. Snake Creek, from its headwaters at  $33^{\circ}37'21.5''/109^{\circ}26'11''$  to its confluence with the Black River at  $33^{\circ}40'31.5''/109^{\circ}28'58.5''$  (approximately 6.2 river miles);
18. Hay Creek, from its headwaters at  $33^{\circ}51'00''/109^{\circ}28'48''$  to its confluence with the West Fork of the Black River at  $33^{\circ}48'30''/109^{\circ}25'19''$  (approximately 5.5 river miles);
19. Stinky Creek, from the White Mountain Apache Indian Reservation boundary at  $33^{\circ}52'36.5''/109^{\circ}29'45''$  to its confluence with the West Fork of the Black River at  $33^{\circ}51'21.5''/109^{\circ}27'09.5''$  (approximately 3.0 river miles);
20. KP Creek, from its headwaters at  $33^{\circ}34'03''/109^{\circ}21'19''$  to its confluence with the Blue River at  $33^{\circ}31'44''/109^{\circ}12'04.5''$  (approximately 12.7 river miles);
21. Davidson Canyon, from the unnamed spring at  $31^{\circ}59'00''/110^{\circ}38'46''$   $31^{\circ}59'00''/110^{\circ}38'49''$  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  $34^{\circ}26'48.7''/111^{\circ}32'25''$  to its confluence with the Verde River at  $34^{\circ}18'21.8''/111^{\circ}40'31.6''$  (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/water/science/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/water/science/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.
    - e. 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	44 140	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 milli-rem / year See (f)													
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	<del>18,667</del> TTHM See (g)	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 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	<del>1,307</del> 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)	<del>2,133</del> 470	<del>9,333</del> 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-Chloronaphthalene	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	1606583		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	1854029	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		100 T	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	<del>18,667</del> TTHM See (g)	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			
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	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-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) phthalate	117817	6	3	<del>1,200</del> 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				
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	<del>74</del> 580	<del>11,200</del> 9,800	<del>11,200</del> 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	<del>0.2</del> 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 G	See (d) & Table 14 G	See (d) & Table 13 G	See (d) & Table 14 G	See (d) & Table 13 G	See (d) & Table 14 G	See (d) & Table 15 G	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	<del>210</del> 140 T	<del>511</del> 4,600 T	28,000 T	28,000 T	See (d) & Table 16 Z	See (d) & Table 17 Z	See (d) & Table 16 Z	See (d) & Table 17 Z	See (d) & Table 16 Z	See (d) & Table 17 Z	See (d) & Table 18 Z			
Nitrate	1479755 8	10,000		3,733,333	3,733,333										
Nitrite	1479765 0	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-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	400	54	400	54	400	54			
Pentachlorophenol	87865	1	<del>370</del> <u>1,000</u>	12	28,000	See (e), (i) & Table 22 10	See (e), (i) & Table 23 10	See (e), (i) & Table 22 10	See (e), (i) & Table 23 10	See (e), (i) & Table 22 10	See (e), (i) & Table 23 10	See (e), (i) & Table 24 10		
Permethrin	52645531	350		46,667	46,667	<del>0.3</del>	<del>0.2</del>	<del>0.3</del>	<del>0.2</del>	<del>0.3</del>	<del>0.2</del>			
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									
Polychlorinated biphenyls (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 g		See (d) & Table 19 g		See (d) & Table 19 g		See (d) & Table 19 g		
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	<del>93,333</del> <u>56,000</u>	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	<del>4 T</del> <u>7.2 T</u>	75 T	75 T	700 D	150 D	700 D	150 D	700 D	150 D			
Toluene	108883	1,000	<del>29,907</del> <u>201,000</u>	<del>373,333</del> <u>280,000</u>	<del>373,333</del> <u>280,000</u>	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
Tributyltin						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	<del>1,866,667</del>	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 propionic acid (2,4,5-TP)	93721	50		7,467	7,467									
Trihalomethanes (T)		80												
Tritium		<u>20,000 pCi/L</u>												
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 2	See (d) & Table 20 2	See (d) & Table 20 2	See (d) & Table 20 2	See (d) & Table 20 2	See (d) & Table 20 2	See (d) & Table 21 2	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<sub>3</sub>, 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<sub>3</sub>.
- 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<sub>3</sub>.
- 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.

**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





Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
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

<u>Aquatic and Wildlife coldwater</u>		<u>Aquatic and Wildlife warmwater and edw</u>		<u>Aquatic and Wildlife ephemeral</u>	
<u>Hard. mg/L</u>	<u>Std. µg/L</u>	<u>Hard. mg/L</u>	<u>Std. µg/L</u>	<u>Hard. mg/L</u>	<u>Std. µg/L</u>
<u>20</u>	<u>0.42</u>	<u>20</u>	<u>0.74</u>	<u>20</u>	<u>11.3</u>
<u>100</u>	<u>2.0</u>	<u>100</u>	<u>4.3</u>	<u>100</u>	<u>64.6</u>
<u>400</u>	<u>7.7</u>	<u>400</u>	<u>19.1</u>	<u>400</u>	<u>290</u>
$e^{(1.0166*LN(Hardness)-3.924)}*(1.136672-LN(Hardness)*0.041838)$		$e^{(1.128*LN(Hardness)-3.6867)}*(1.136672-LN(Hardness)*0.041838)$		$e^{(1.128*LN(Hardness)-0.9697)}*(1.136672-LN(Hardness)*0.041838)$	

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



Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	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	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
$e^{(0.7409 \cdot \text{LN}(\text{Hardness}) - 4.719)} \cdot (1.101672 - \text{LN}(\text{Hardness})) \cdot 0.041838$		$e^{(0.7852 \cdot \text{LN}(\text{Hardness}) - 2.715)} \cdot (1.101672 - \text{LN}(\text{Hardness})) \cdot 0.041838$	



**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**

<u>Acute Aquatic and Wildlife coldwater, warmwater and edw</u>		<u>Chronic Aquatic and Wildlife coldwater, warmwater and edw</u>		<u>Acute Aquatic and Wildlife ephemeral</u>	
<u>Hard. mg/L</u>	<u>Std. ug/L</u>	<u>Hard. mg/L</u>	<u>Std. ug/L</u>	<u>Hard. mg/L</u>	<u>Std. ug/L</u>
<u>20</u>	<u>152</u>	<u>20</u>	<u>19.8</u>	<u>20</u>	<u>512</u>
<u>100</u>	<u>570</u>	<u>100</u>	<u>74.1</u>	<u>100</u>	<u>1912</u>
<u>400</u>	<u>1773</u>	<u>400</u>	<u>231</u>	<u>400</u>	<u>5950</u>
$c^{(0.819*LN(Hardness)+3.7256)}*(0.316)$		$c^{(0.819*LN(Hardness)+0.6848)}*(0.86)$		$c^{(0.819*LN(Hardness)+4.9361)}*(0.316)$	

**Table 5. Chronic Water Quality Standards for Dissolved Cadmium Aquatic and Wildlife warmwater, and edw**

Hard mg/L	Std. 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	0.02	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



Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	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	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. ug/L	Hard. mg/L	Std. ug/L	Hard. mg/L	Std. ug/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

Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	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	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**

<u>Acute Aquatic and Wildlife coldwater, warmwater and edw</u>		<u>Chronic Aquatic and Wildlife coldwater, warmwater and edw</u>		<u>Acute Aquatic and Wildlife ephemeral</u>	
<u>Hard. mg/L</u>	<u>Std. ug/L</u>	<u>Hard. mg/L</u>	<u>Std. ug/L</u>	<u>Hard. mg/L</u>	<u>Std. ug/L</u>
<u>20</u>	<u>10.8</u>	<u>20</u>	<u>0.4</u>	<u>20</u>	<u>22.8</u>
<u>100</u>	<u>64.6</u>	<u>100</u>	<u>2.5</u>	<u>100</u>	<u>136.3</u>
<u>400</u>	<u>281</u>	<u>400</u>	<u>10.9</u>	<u>400</u>	<u>592.7</u>
$e^{(1.273*LN(Hardness)-1.46)*(1.46203-(LN(Hardness)))*(0.145712))}$		$e^{(1.273*LN(Hardness)-4.705)*(1.46203-(LN(Hardness)))*(0.145712))}$		$e^{(1.273*(LN(Hardness))-0.7151)*(1.46203-(LN(Hardness)))*(0.145712))}$	

**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



Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L	Hard mg/L	Std. µg/L
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

<u>Acute Aquatic and Wildlife coldwater, warmwater and edw</u>		<u>Chronic Aquatic and Wildlife coldwater, warmwater and edw</u>		<u>Acute Aquatic and Wildlife ephemeral</u>	
<u>Hard. mg/L</u>	<u>Std. µg/L</u>	<u>Hard. mg/L</u>	<u>Std. µg/L</u>	<u>Hard. mg/L</u>	<u>Std. µg/L</u>
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



Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L
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**

<u>Acute Aquatic and Wildlife coldwater, warmwater, edw, and ephemeral</u>	
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



Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L
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**

<u>Acute and Chronic Aquatic and Wildlife coldwater, warm-water and edw</u>		<u>Acute Aquatic and Wildlife ephemeral</u>	
<u>Hard. mg/L</u>	<u>Std. µg/L</u>	<u>Hard. mg/L</u>	<u>Std. µg/L</u>
<u>20</u>	<u>30.0</u>	<u>20</u>	<u>284</u>
<u>100</u>	<u>117</u>	<u>100</u>	<u>1112</u>
<u>400</u>	<u>379</u>	<u>400</u>	<u>3599</u>
$e^{(0.8473 * \text{LN}(\text{Hardness}) + 0.884)} * (0.978)$		$e^{(0.8473 * \text{LN}(\text{Hardness}) + 3.1342)} * (0.978)$	

**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**

<u>Acute Aquatic and Wildlife coldwater, warmwater and edw</u>		<u>Chronic Aquatic and Wildlife coldwater, warmwater and edw</u>		<u>Acute Aquatic and Wildlife ephemeral</u>	
<u>pH</u>	<u>µg/L</u>	<u>pH</u>	<u>µg/L</u>	<u>pH</u>	<u>µg/L</u>
<u>3</u>	<u>0.16</u>	<u>3</u>	<u>0.1</u>	<u>3</u>	<u>0.66</u>
<u>6</u>	<u>3.3</u>	<u>6</u>	<u>2.1</u>	<u>6</u>	<u>13.5</u>
<u>9</u>	<u>67.7</u>	<u>9</u>	<u>42.7</u>	<u>9</u>	<u>274</u>
<u>e<sup>(1.005*(pH)-4.83)</sup></u>		<u>e<sup>(1.005*(pH)-5.29)</sup></u>		<u>e<sup>(1.005*(pH)-3.4306)</sup></u>	

**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

Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	Hard: mg/L	Std: µg/L	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	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 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

Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L
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





Hard- mg/L	Std. µg/L	Hard- mg/L	Std. µg/L	Hard- mg/L	Std. µg/L	Hard- mg/L	Std. µg/L	Hard- mg/L	Std. µg/L	Hard- mg/L	Std. µg/L	Hard- mg/L	Std. µg/L	Hard- mg/L	Std. µg/L	Hard- mg/L	Std. µg/L	Hard- mg/L	Std. µg/L
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



Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L	Hard- mg/L	Std- µg/L
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



Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	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	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	2234	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

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
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	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 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	<del>9.65</del> <u>9.7</u>	14.4
7.8	<del>8.41</del> <u>8.1</u>	12.1
7.9	<del>6.77</del> <u>6.8</u>	10.1
8.0	<del>5.62</del> <u>5.6</u>	<del>8.40</del> <u>8.4</u>
8.1	<del>4.64</del> <u>4.6</u>	<del>6.95</del> <u>7.0</u>
8.2	<del>3.83</del> <u>3.8</u>	<del>5.72</del> <u>5.7</u>
8.3	<del>3.15</del> <u>3.2</u>	<del>4.71</del> <u>4.7</u>
8.4	<del>2.59</del> <u>2.6</u>	<del>3.88</del> <u>3.9</u>
8.5	<del>2.14</del> <u>2.1</u>	<del>3.20</del> <u>3.2</u>
8.6	<del>1.77</del> <u>1.8</u>	<del>2.65</del> <u>2.7</u>
8.7	<del>1.47</del> <u>1.5</u>	<del>2.20</del> <u>2.2</u>
8.8	<del>1.23</del> <u>1.2</u>	<del>1.84</del> <u>1.8</u>
8.9	<del>1.04</del> <u>1.0</u>	<del>1.56</del> <u>1.6</u>
9.0	<del>0.885</del> <u>0.9</u>	<del>1.32</del> <u>1.3</u>
Formula:	$CMC = \frac{0.275}{1+10^{(7.204-pH)}} \pm \frac{39.0}{1+10^{(pH-7.204)}}$	$CMC = \frac{0.411}{1+10^{(7.204-pH)}} \pm \frac{58.4}{1+10^{(pH-7.204)}}$

**Table 26 12.** Chronic Criteria for Total Ammonia (mg/L as N) Aquatic and Wildlife coldwater, warmwater, and edw

pH	Temperature, °C									
	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



pH	Temperature, °C									
	0	14	16	18	20	22	24	26	28	30
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

pH	Temperature, °C										
	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	

$$CCC = \left( \frac{0.0577}{1+10^{7.688 - pH}} \pm \frac{2.487}{1+10^{pH - 7.688}} \right) - \text{MIN } 2.85, 1.45 \cdot 10^{0.028 \cdot (25-T)}$$

**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 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&We				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	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&We				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&We				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&We				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&We				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°36'40"/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 35°15'05"/112°12'58" 35°15'04"/112°12'58"					A&We			PBC			AgL
CG	Cataract Lake		Igneous		A&Wc			FBC		DWS	FC		AgL
CG	Chuar Creek	Headwaters to confluence with unnamed tributary at 36°41'36"/111°52'17" 36°11'35"/111°52'20"			A&Wc			FBC			FC		
CG	Chuar Creek	Below unnamed tributary at 36°41'36.4"/111°52'17" to confluence with the Colorado River at 36°08'20.4"/111°48'58.7" 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		
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 $36^{\circ}08'06''/112^{\circ}14'34.8''$			A&Ww			FBC			FC		
CG	Deer Creek	Headwaters to confluence with unnamed tributary at $36^{\circ}26'16''/112^{\circ}28'15.5''$ $36^{\circ}26'15''/112^{\circ}28'20''$			A&We			FBC			FC		
CG	Deer Creek	Below confluence with unnamed tributary to confluence with Colorado River at $36^{\circ}23'20''/112^{\circ}30'28.8''$			A&Ww			FBC			FC		
CG	Detrital Wash	Headwaters to Lake Mead at $36^{\circ}02'20''/114^{\circ}27'47''$				A&We			PBC				
CG	Dogtown Reservoir	$35^{\circ}12'40''/112^{\circ}07'46''$ $35^{\circ}12'40''/112^{\circ}07'54''$	Igneous		A&We			FBC		DWS	FC	AgI	AgL
CG	Dragon Creek	Headwaters to confluence with Milk Creek at $36^{\circ}12'25''/112^{\circ}09'33''$			A&We			FBC			FC		
CG	Dragon Creek	Below confluence with Milk Creek to confluence with Crystal Creek at $36^{\circ}10'12''/112^{\circ}12'10.8''$			A&Ww			FBC			FC		
CG	Garden Creek	Headwaters to confluence with Pipe Creek at $36^{\circ}05'35''/112^{\circ}06'40''$			A&Ww			FBC			FC		
CG	Gonzalez Lake	$35^{\circ}15'26''/112^{\circ}12'07''$ $35^{\circ}15'26''/112^{\circ}12'09''$	Shallow		A&Ww			FBC			FC	AgI	AgL
CG	Grand Wash	Headwaters to Lake Mead at $36^{\circ}15'29''/114^{\circ}00'18''$				A&We			PBC				
CG	Grapevine Creek	Headwaters to confluence with the Colorado River at $36^{\circ}03'29''/112^{\circ}00'00''$			A&Ww			FBC			FC		
CG	Grapevine Wash	Headwaters to Lake Mead at $36^{\circ}06'29''/114^{\circ}00'07''$				A&We			PBC				
CG	Hakatai Canyon Creek	Headwaters to confluence with the Colorado River at $36^{\circ}14'42''/112^{\circ}22'59''$			A&Ww			FBC			FC		
CG	Hance Creek	Headwaters to confluence with the Colorado River at $36^{\circ}02'46''/111^{\circ}57'07''$			A&Ww			FBC			FC		
CG	Havasu Canyon Creek	From the Havasupai Indian Reservation ; boundary to confluence with the Colorado River at $36^{\circ}18'29''/112^{\circ}45'43''$			A&Ww			FBC			FC		
CG	Hermit Creek	Headwaters to Hermit Pack Trail crossing at $36^{\circ}03'23''/112^{\circ}13'25''$ $36^{\circ}03'38''/112^{\circ}14'00''$			A&We			FBC			FC		
CG	Hermit Creek	Below Hermit Pack Trail crossing to confluence with the Colorado River at $36^{\circ}06'00''/112^{\circ}32'04''$			A&Ww			FBC			FC		
CG	Horn Creek	Headwaters to confluence with the Colorado River at $36^{\circ}05'56''/112^{\circ}07'59''$			A&Ww			FBC			FC		
CG	Hualapai Wash	Headwaters to Lake Mead at $36^{\circ}00'40''/114^{\circ}07'37''$				A&We			PBC				
CG	Jacob Lake	$36^{\circ}42'26''/112^{\circ}13'48''$ $36^{\circ}42'27''/112^{\circ}13'50''$	Sedimentary		A&We			FBC			FC		
CG	Kaibab Lake	$35^{\circ}17'04''/112^{\circ}09'17''$ $35^{\circ}17'04''/112^{\circ}09'32''$	Igneous		A&We			FBC		DWS	FC	AgI	AgL
CG	Kanab Creek	Headwaters to confluence with the Colorado River at $36^{\circ}23'31''/112^{\circ}37'44''$			A&Ww			FBC		DWS	FC		AgL
CG	Kwagunt Creek	Headwaters to confluence with unnamed tributary at $36^{\circ}13'29''/111^{\circ}55'24''$ $36^{\circ}13'37''/111^{\circ}54'50''$			A&We			FBC			FC		
CG	Kwagunt Creek	Below confluence with unnamed tributary to confluence with the Colorado River at $36^{\circ}15'47''/111^{\circ}49'40.8''$			A&Ww			FBC			FC		
CG	Lake Mead	$36^{\circ}01'00''/114^{\circ}44'15''$ $36^{\circ}06'18''/114^{\circ}26'33''$	Deep		A&We			FBC		DWS	FC	AgI	AgL
CG	Lake Powell	$36^{\circ}57'00''/111^{\circ}29'15''$ $36^{\circ}59'53''/111^{\circ}08'17''$	Deep		A&We			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	
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" 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&Wc		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 $36^{\circ}21'35.5''/112^{\circ}22'46''$ $36^{\circ}21'36''/112^{\circ}22'43''$		A&Wc			FBC		FC		
CG	Saddle Canyon Creek	Below confluence with unnamed tributary to confluence with Colorado River at $36^{\circ}22'52''/112^{\circ}23'16.8''$			A&Ww		FBC		FC		
CG	Santa Fe Reservoir	$35^{\circ}14'26''/112^{\circ}11'04''$ $35^{\circ}14'31''/112^{\circ}11'10''$	Igneous	A&Wc			FBC	DWS	FC		
CG	Sapphire Canyon Creek	Headwaters to confluence with the Colorado River at $36^{\circ}08'49''/112^{\circ}17'28''$			A&Ww		FBC		FC		
CG	Serpentine Canyon Creek	Headwaters to confluence with the Colorado River at $36^{\circ}12'22''/112^{\circ}19'37''$			A&Ww		FBC		FC		
CG	Shinumo Creek	Headwaters to confluence with unnamed tributary at $36^{\circ}18'21''/112^{\circ}18'03''$ $36^{\circ}18'18''/112^{\circ}18'07''$			A&Wc		FBC		FC		
CG	Shinumo Creek	Below confluence with unnamed tributary to confluence with the Colorado River at $36^{\circ}14'13''/112^{\circ}20'52.8''$			A&Ww		FBC		FC		
CG	Short Creek	Tributary Headwaters to confluence with the Virgin River at $36^{\circ}58'23''/113^{\circ}16'08''$				A&We		PBC			
CG	Slate Creek	Headwaters to confluence with the Colorado River at $36^{\circ}08'06''/112^{\circ}14'42''$			A&Ww		FBC		FC		
CG	Spring Canyon Creek	Headwaters to confluence with the Colorado River at $36^{\circ}01'08''/113^{\circ}21'00''$			A&Ww		FBC		FC		
CG	Stone Creek	Headwaters to confluence with the Colorado River at $36^{\circ}20'49''/112^{\circ}27'14''$			A&Ww		FBC		FC		
CG	Tapeats Creek	Headwaters to confluence with the Colorado River at $36^{\circ}22'16''/112^{\circ}28'05''$			A&Wc		FBC		FC		
CG	Thunder River	Tributary Headwaters to confluence with Tapeats Creek at $36^{\circ}23'31''/112^{\circ}27'00''$			A&Wc		FBC		FC		
CG	Trail Canyon Creek	Headwaters to confluence with the Colorado River at $35^{\circ}50'20''/113^{\circ}19'37''$			A&Ww		FBC		FC		
CG	Transept Canyon	Headwaters to Grand Canyon National Park North Rim WWTP outfall at $36^{\circ}12'20''/112^{\circ}03'35''$ $36^{\circ}12'20''/112^{\circ}03'35''$				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 $36^{\circ}06'11''/112^{\circ}13'05''$			A&Ww		FBC		FC		
CG	Truxton Wash	Tributary Headwaters to Red Lake at $35^{\circ}37'23''/114^{\circ}03'00''$				A&We		PBC			
CG	Turquoise Canyon Creek	Tributary Headwaters to confluence with the Colorado River at $36^{\circ}09'14''/112^{\circ}18'07''$			A&Ww		FBC		FC		
CG	Unkar Creek	Below confluence with unnamed tributary at $36^{\circ}07'54''/111^{\circ}54'06''$ to confluence with Colorado River at $36^{\circ}04'48''/111^{\circ}52'22.8''$			A&Ww		FBC		FC		
CG	Unnamed Wash (EDW)	Grand Canyon NP National Park Desert View WWTP outfall at $36^{\circ}02'06''/111^{\circ}49'13''$ to confluence with Cedar Canyon				A&Wedw		PBC			
CG	Unnamed Wash (EDW)	Valle Airpark WRF outfall at $35^{\circ}38'34''/112^{\circ}09'22''$ to confluence with Spring Valley Wash at $35^{\circ}38'29''/112^{\circ}10'47''$				A&Wedw		PBC			
CG	Vasey's Paradise	A spring at $36^{\circ}26'49''/111^{\circ}50'46''$ $36^{\circ}29'52''/111^{\circ}51'26''$			A&Wc		FBC		FC		
CG	Virgin River	Tributary Headwaters to confluence with the Colorado River at $36^{\circ}47'28''/114^{\circ}06'11''$			A&Ww		FBC		FC	AgI	AgL



CG	Vishnu Creek	<del>Tributary</del> Headwaters to confluence with the Colorado River at 36°03'18"/111°59'42"			A&Ww			FBC			FC		
CG	Warm Springs Creek	<del>Tributary</del> Headwaters to confluence with the Colorado River at 36°11'49"/113°04'55"			A&Ww			FBC			FC		
CG	West Cataract Creek	<del>Tributary</del> 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	<del>Tributary</del> 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°31'45"/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		
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	<del>Tributary Headwaters</del> 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" 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" 32°50'22"/114°26'25" 32°50'58"/114°26'14"			A&Ww			FBC			FC		
CL	YPG Pond				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°01'40"/111°24'09" 35°01'06"/111°24'18"	Igneous	A&We				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	<del>Tributary Headwaters</del> to confluence with Nutrioso Creek at 33°57'22"/109°12'58"			A&We			FBC			FC		AgL
LC	Barbershop Canyon Creek	<del>Tributary Headwaters</del> to confluence with East Clear Creek at 34°33'00"/111°09'43"			A&We			FBC			FC		AgL
LC	Bear Canyon Creek	<del>Tributary Headwaters</del> to confluence with General Springs Canyon at 34°32'18"/111°12'15"			A&We			FBC			FC		AgL
LC	Bear Canyon Creek	<del>Tributary Headwaters</del> to confluence with Willow Creek at 34°27'29"/111°00'00"			A&We			FBC			FC		AgL
LC	Bear Canyon Lake	34°24'40"/111°00'09" 34°24'00"/111°00'06"	Sedimentary	A&We				FBC			FC	AgI	AgL
LC	Becker Lake	34°09'16"/109°18'18" 34°09'11"/109°18'23"	Shallow	A&We				FBC			FC		AgL
LC	Billy Creek	<del>Tributary Headwaters</del> to confluence with Show Low Creek at 34°12'25"/110°00'00"			A&We			FBC			FC		AgL
LC	Black Canyon Creek	<del>Tributary Headwaters</del> to confluence with Chevelon Creek at 34°47'38"/110°36'22"			A&We			FBC			FC	AgI	AgL
LC	Black Canyon Lake	34°19'50"/110°41'59" 34°20'32"/110°40'13"	Sedimentary	A&We				FBC		DWS	FC	AgI	AgL
LC	Blue Ridge Reservoir	34°33'15"/111°11'01" 34°32'40"/111°11'33"	Deep	A&We				FBC			FC	AgI	AgL
LC	Boot Lake	34°58'53"/111°20'00" 34°58'54"/111°20'11"	Igneous	A&We				FBC			FC		AgL
LC	Bow and Arrow Wash (EDW)	Estates at Pine Canyon WWTP outfall #1 at 35°09'31"/111°38'24" <del>Headwaters</del> to confluence with Rio de Flag at 35°10'35"/111°36'42"				A&We	A&Wedw			PBC			



LC	Buck Springs Canyon Creek	<u>Tributary Headwaters to confluence with Leonard Canyon Creek at 34°28'52"/111°05'24"</u>		A&Wc				FBC			FC		AgL
LC	Bunch Reservoir	<u>34°02'12"/109°26'45" 34°02'20"/109°26'48"</u>	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Camillo Tank	<u>34°55'03"/111°22'41" 34°55'03"/111°22'40"</u>	Igneous		A&Ww			FBC			FC		AgL
LC	Carnero Lake	<u>34°06'57"/109°31'39" 34°06'57"/109°31'42"</u>	Shallow	A&Wc				FBC			FC		AgL
LC	Chevelon Canyon Lake	<u>34°30'39"/110°49'28" 34°29'18"/110°49'30"</u>	Sedimentary	A&Wc				FBC			FC	AgI	AgL
LC	Chevelon Creek	<u>Tributary Headwaters to confluence with the Little Colorado River at 34°57'04"/110°31'30"</u>		A&Wc				FBC			FC	AgI	AgL
LC	Chevelon Creek, West Fork	<u>Tributary Headwaters to confluence with Chevelon Creek at 34°36'58"/110°46'05"</u>		A&Wc				FBC			FC		AgL
LC	Chilson Tank	<u>34°51'46"/111°22'52" 34°51'43"/111°22'54"</u>	Igneous		A&Ww			FBC			FC		AgL
LC	Clear Creek	<u>Tributary Headwaters to confluence with the Little Colorado River at 34°59'13"/110°38'17"</u>		A&Wc				FBC		DWS	FC		AgL
LC	Clear Creek Reservoir	<u>34°58'40"/110°38'33" 34°57'09"/110°39'14"</u>	Shallow	A&Wc				FBC		DWS	FC	AgI	AgL
LC	Coconino Reservoir	<u>35°00'16"/111°23'52" 35°00'05"/111°24'10"</u>	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Colter Creek	<u>Tributary Headwaters to confluence with Nutrioso Creek at 33°58'19"/109°12'29"</u>		A&Wc				FBC			FC		AgL
LC	Colter Reservoir	<u>33°56'40"/109°28'50" 33°56'39"/109°28'53"</u>	Shallow	A&Wc				FBC			FC		AgL
LC	Concho Creek	<u>Tributary Headwaters to confluence with Carrizo Wash at 34°36'25"/109°33'54"</u>		A&Wc				FBC			FC		AgL
LC	Concho Lake	<u>34°26'36"/109°37'40" 34°26'37"/109°37'40"</u>	Shallow	A&Wc				FBC			FC	AgI	AgL
LC	Cow Lake	<u>34°53'19"/111°18'49" 34°53'14"/111°18'51"</u>	Igneous		A&Ww			FBC			FC		AgL
LC	Coyote Creek	<u>Tributary Headwaters to confluence with the Little Colorado River at 34°18'22"/109°20'53"</u>		A&Wc				FBC			FC	AgI	AgL
LC	Crisis Lake (Snake Tank #2)	<u>34°47'51"/111°17'01" 34°47'51"/111°17'32"</u>			A&Ww			FBC			FC		AgL
LC	Dane Canyon Creek	<u>Tributary Headwaters to confluence with Barbershop Canyon Creek at 34°30'29"/111°09'07"</u>		A&Wc				FBC			FC		AgL
LC	Daves Tank	<u>34°44'23"/111°17'08" 34°44'22"/111°17'15"</u>			A&Ww			FBC			FC		AgL
LC	Deep Lake	<u>35°03'30"/111°24'55" 35°03'34"/111°25'00"</u>	Igneous		A&Ww			FBC			FC		AgL
LC	Dry Lake (EDW)	<u>34°37'52"/110°23'40" 34°38'02"/110°23'40"</u>	Igneous EDW			A&Wedw			PBC				
LC	Ducksnest Lake	<u>34°59'15"/111°23'53" 34°59'14"/111°23'57"</u>			A&Ww			FBC			FC		AgL
LC	East Clear Creek	<u>Tributary Headwaters to confluence with Clear Creek at 34°38'31"/110°59'49"</u>		A&Wc				FBC			FC	AgI	AgL
LC	Ellis Wiltbank Reservoir	<u>34°05'25"/109°28'24" 34°05'25"/109°28'25"</u>	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Estates at Pine Canyon lakes (EDW)	<u>35°09'32"/111°38'26"</u>	EDW			A&Wedw			PBC				



LC	Fish Creek	<del>Tributary</del> Headwaters to confluence with the Little Colorado River at <del>34°04'05"/109°26'49"</del>		A&Wc				FBC		FC		AgL
LC	Fool's Hollow Lake	<del>34°16'14"/110°04'15" 34°16'30"/110°03'43"</del>	Igneous	A&Wc				FBC		FC		AgL
LC	General Springs Canyon Creek	<del>Tributary</del> Headwaters to confluence with East Clear Creek at <del>34°32'17"/111°12'18"</del>		A&Wc				FBC		FC		AgL
LC	Geneva Reservoir	<del>34°01'44"/109°31'44" 34°01'45"/109°31'46"</del>	Igneous		A&Ww			FBC		FC		AgL
LC	Hall Creek	<del>Tributary</del> Headwaters to confluence with the Little Colorado River at <del>34°03'58"/109°27'07"</del>		A&Wc				FBC		FC	AgI	AgL
LC	Hart Canyon Creek	<del>Tributary</del> Headwaters to confluence with Willow Creek at <del>34°30'40"/110°59'28"</del>		A&Wc				FBC		FC		AgL
LC	Hay Lake	<del>34°00'11"/109°25'55" 34°00'11"/109°25'57"</del>	Igneous	A&Wc				FBC		FC		AgL
LC	Hog Wallow Lake	<del>33°58'57"/109°25'38" 33°58'57"/109°25'39"</del>	Igneous	A&Wc				FBC		FC	AgI	AgL
LC	Horse Lake	<del>35°03'53"/111°27'51" 35°03'55"/111°27'50"</del>			A&Ww			FBC		FC		AgL
<del>LC</del>	<del>Huffer Tank</del>	<del>34°27'45"/111°23'09"</del>			<del>A&amp;Ww</del>			<del>FBC</del>		<del>FC</del>		<del>AgL</del>
LC	Hulsey Creek	<del>Tributary</del> Headwaters to confluence with Nutrioso Creek at <del>33°56'28"/109°11'28"</del>		A&Wc				FBC		FC		AgL
LC	Hulsey Lake	<del>33°55'57"/109°09'33" 33°55'58"/109°09'40"</del>	Sedimentary	A&Wc				FBC		FC		AgL
LC	Indian Lake	<del>35°00'38"/111°22'37" 35°00'39"/111°22'41"</del>			A&Ww			FBC		FC		AgL
LC	Jack's Canyon Creek	<del>Tributary</del> Headwaters to confluence with the Little Colorado River at <del>35°00'07"/110°39'07"</del>		A&Wc				FBC		FC	AgI	AgL
LC	Jarvis Lake	<del>33°58'59"/109°12'33" 33°58'59"/109°12'36"</del>	Sedimentary		A&Ww			FBC		FC		AgL
LC	Kinnikinick Lake	<del>34°53'52"/111°18'20" 34°53'53"/111°18'18"</del>	Igneous	A&Wc				FBC		FC		AgL
LC	Knoll Lake	<del>34°25'38"/111°05'10" 34°25'38"/111°05'13"</del>	Sedimentary	A&Wc				FBC		FC		AgL
LC	Lake Humphreys (EDW)	<del>35°11'51"/111°35'16" 35°11'51"/111°35'19"</del>	EDW			A&Wedw			PBC			
LC	Lake Mary, Lower	<del>35°06'22"/111°34'20" 35°06'21"/111°34'38"</del>	Igneous	A&Wc				FBC		DWS	FC	AgL
LC	Lake Mary, Upper	<del>35°04'45"/111°31'56" 35°03'23"/111°28'34"</del>	Igneous	A&Wc				FBC		DWS	FC	AgL
LC	Lake of the Woods	<del>34°09'39"/109°58'45" 34°09'40"/109°58'47"</del>	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 <del>33°56'35"/109°29'06"</del>		A&Wc				FBC		FC		AgL
LC	Lee Valley Reservoir	<del>33°56'30"/109°30'00" 33°56'29"/109°30'04"</del>	Igneous	A&Wc				FBC		FC	AgI	AgL
LC	Leonard Canyon Creek	<del>Tributary</del> Headwaters to confluence with Clear Creek at <del>34°37'26"/111°02'20"</del>		A&Wc				FBC		FC		AgL
LC	Leonard Canyon Creek, East Fork	<del>Tributary</del> Headwaters to confluence with Leonard Canyon Creek at <del>34°25'52"/111°05'06"</del>		A&Wc				FBC		FC		AgL
LC	Leonard Canyon Creek, Middle Fork	<del>Tributary</del> Headwaters to confluence with Leonard Canyon, West Fork at <del>34°26'17"/111°06'47"</del>		A&Wc				FBC		FC		AgL



LC	Leonard Canyon Creek, West Fork	<del>Tributary</del> Headwaters to confluence with Leonard Canyon, East Fork at $34^{\circ}28'01''/111^{\circ}05'28''$		A&Wc				FBC			FC		AgL
LC	Lily Creek	<del>Tributary</del> Headwaters to confluence with Coyote Creek at $33^{\circ}59'46''/109^{\circ}03'58''$		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 $34^{\circ}53'20''/110^{\circ}07'41''$		A&Wc				FBC		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	<del>Tributary</del> Headwaters to confluence with the Little Colorado River at $34^{\circ}00'14''/109^{\circ}27'22''$		A&Wc				FBC			FC		AgL
LC	Little Colorado River, South Fork	<del>Tributary</del> Headwaters to confluence with the Little Colorado River at $34^{\circ}05'20''/109^{\circ}24'58''$		A&Wc				FBC			FC		AgL
LC	Little Colorado River, West Fork (OAW)	Headwaters to Government Springs at $33^{\circ}59'33''/109^{\circ}27'52''$		A&Wc				FBC			FC		
LC	Little Colorado River, West Fork	Below Government Springs to confluence with the Little Colorado River at $34^{\circ}00'14''/109^{\circ}27'21.6''$		A&Wc				FBC			FC		AgL
LC	Little George Reservoir	$34^{\circ}00'37''/109^{\circ}19'15''$	Igneous		A&Ww			FBC			FC	AgI	
LC	Little Mormon Lake	$34^{\circ}17'00''/109^{\circ}58'03'' 34^{\circ}17'00''/109^{\circ}58'06''$	Igneous		A&Ww			FBC			FC	AgI	AgL
LC	Little Ortega Lake	$34^{\circ}22'45''/109^{\circ}40'00'' 34^{\circ}22'47''/109^{\circ}40'06''$	Igneous	A&Wc				FBC			FC		
LC	Long Lake, Lower	$34^{\circ}46'45''/111^{\circ}12'00'' 34^{\circ}47'16''/111^{\circ}12'40''$	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Long Lake, Upper	$35^{\circ}00'00''/111^{\circ}21'00'' 35^{\circ}00'08''/111^{\circ}21'23''$	Igneous	A&Wc				FBC			FC		AgL
LC	Long Tom Tank	$34^{\circ}20'37''/110^{\circ}49'20'' 34^{\circ}20'35''/110^{\circ}49'22''$		A&Wc				FBC			FC		AgL
LC	Lower Walnut Canyon Lake (EDW)	$35^{\circ}12'04''/111^{\circ}34'07''$		EDW			A&Wedw		PBC				
LC	Lyman Reservoir	$34^{\circ}21'30''/109^{\circ}21'30'' 34^{\circ}21'21''/109^{\circ}21'35''$	Deep	A&Wc				FBC			FC	AgI	AgL
LC	Mamie Creek	<del>Tributary</del> Headwaters to confluence with Coyote Creek at $33^{\circ}59'24''/109^{\circ}03'50''$		A&Wc				FBC			FC		AgL
LC	Marshall Lake	$35^{\circ}07'10''/111^{\circ}32'01'' 35^{\circ}07'18''/111^{\circ}32'07''$	Igneous	A&Wc				FBC			FC		AgL
LC	McKay Reservoir	$34^{\circ}01'27''/110^{\circ}29'07'' 34^{\circ}01'27''/109^{\circ}13'48''$		A&Wc				FBC			FC	AgI	AgL
LC	Merritt Draw Creek	<del>Tributary</del> Headwaters to confluence with Barbershop Canyon Creek at $34^{\circ}29'38''/111^{\circ}09'54''$		A&Wc				FBC			FC		AgL
LC	Mexican Hay Lake	$34^{\circ}01'57''/109^{\circ}21'25'' 34^{\circ}01'58''/109^{\circ}21'25''$	Igneous	A&Wc				FBC			FC	AgI	AgL
LC	Milk Creek	<del>Tributary</del> Headwaters to confluence with Hulsey Creek at $33^{\circ}56'31''/109^{\circ}11'17''$		A&Wc				FBC			FC		AgL
LC	Miller Canyon Creek	<del>Tributary</del> Headwaters to confluence with East Clear Creek at $34^{\circ}33'00''/111^{\circ}14'17''$		A&Wc				FBC			FC		AgL
LC	Miller Canyon Creek, East Fork	<del>Tributary</del> Headwaters to confluence with Miller Canyon Creek at $34^{\circ}30'18''/111^{\circ}14'53''$		A&Wc				FBC			FC		AgL



LC	Mineral Creek	<del>Tributary Headwaters</del> 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°03'42"/109°41'18" 34°02'52"/109°41'19"	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	Nutriosio Creek	<del>Tributary Headwaters</del> to confluence with the Little Colorado River at 34°09'04"/109°17'35"		A&Wc				FBC			FC	AgI	AgL
LC	Paddy Creek	<del>Tributary Headwaters</del> to confluence with Nutriosio Creek at 33°54'47"/109°10'16"		A&Wc				FBC			FC		AgL
LC	Phoenix Park Wash	<del>Tributary Headwaters</del> 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				
<del>LC</del>	<del>Pool Corral Lake</del>	33°58'16"/109°24'53"	<del>Igneous</del>	<del>A&amp;Ww</del>				<del>FBC</del>			<del>FC</del>	<del>AgI</del>	<del>AgL</del>
LC	Porter Creek	<del>Tributary Headwaters</del> 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	<del>Tributary Headwaters</del> 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				
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	<del>Tributary Headwaters</del> to confluence with Nutriosio 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
<del>LC</del>	<del>Salt House Lake</del>	33°57'06"/109°20'12"	<del>Igneous</del>	<del>A&amp;Ww</del>				<del>FBC</del>			<del>FC</del>	<del>AgI</del>	<del>AgL</del>
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	<u>34°10'27"/109°57'27" 34°10'31"/109°57'31"</u>	Igneous	A&Wc			FBC			FC	AgI	AgL
LC	Show Low Creek	<u>Tributary Headwaters to confluence with Silver Creek at 34°25'26"/110°04'05"</u>		A&Wc			FBC			FC	AgI	AgL
LC	Show Low Lake	<u>34°11'25"/109°59'55" 34°11'36"/110°00'12"</u>	Igneous	A&Wc			FBC			FC	AgI	AgL
LC	Silver Creek	<u>Tributary Headwaters to confluence with the Little Colorado River at 34°44'24"/110°02'17"</u>		A&Wc			FBC			FC	AgI	AgL
LC	Slade Reservoir	<u>33°59'50"/109°20'00" 33°59'41"/109°20'26"</u>	Igneous		A&Ww		FBC			FC	AgI	AgL
LC	Soldiers Annex Lake	<u>34°47'13"/111°13'48" 34°47'15"/111°13'51"</u>	Igneous	A&Wc			FBC			FC	AgI	AgL
LC	Soldiers Lake	<u>34°47'49"/110°13'59" 34°47'47"/111°14'04"</u>	Igneous	A&Wc			FBC			FC	AgI	AgL
LC	Spaulding Tank	<u>34°30'17"/111°02'03" 34°30'17"/111°02'06"</u>			A&Ww		FBC			FC		AgL
LC	Sponseller Lake	<u>34°14'10"/109°50'42" 34°14'09"/109°50'45"</u>	Igneous	A&Wc			FBC			FC		AgL
LC	St Johns Reservoir (Little Reservoir)	<u>34°29'14"/109°21'57" 34°29'10"/109°22'06"</u>	Igneous		A&Ww		FBC			FC	AgI	AgL
LC	Telephone Lake (EDW)	<u>34°17'35"/110°02'39" 34°17'35"/110°02'42"</u>	EDW			A&Wedw		PBC				
LC	Tremaine Lake	<u>34°46'00"/111°14'10" 34°46'02"/111°13'51"</u>	Igneous	A&Wc			FBC			FC		AgL
LC	Tunnel Reservoir	<u>34°01'51"/109°26'32" 34°01'53"/109°26'34"</u>	Igneous	A&Wc			FBC			FC	AgI	AgL
LC	Turkey Draw (EDW)	<u>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"</u>				A&Wedw		PBC				
LC	Unnamed Wash (EDW)	<u>Bison Ranch WWTP outfall at 34°23'31"/110°31'29" to Pierce Seep at 34°23'35"/110°31'22"</u>				A&Wedw		PBC				
LC	Unnamed Wash (EDW)	<u>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"</u>				A&Wedw		PBC				
LC	Unnamed Wash (EDW)	<u>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"</u>				A&Wedw		PBC				
LC	Unnamed Wash (EDW)	<u>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" 35°05'24"/111°30'42" 35°05'23"/111°30'46"</u>				A&Wedw		PBC				
LC	Vail Lake	<u>35°05'24"/111°30'42" 35°05'23"/111°30'46"</u>	Igneous	A&Wc			FBC			FC		AgL
LC	Walnut Creek	<u>Tributary Headwaters to confluence with Billy Creek at 34°09'50"/109°58'48"</u>		A&Wc			FBC			FC		AgL
LC	Water Canyon Creek	<u>Tributary Headwaters to confluence with the Little Colorado River at 34°06'47"/109°18'43"</u>		A&Wc			FBC			FC		AgL
LC	Water Canyon Reservoir	<u>34°00'45"/109°20'05" 34°00'16"/109°20'05"</u>	Igneous		A&Ww		FBC			FC	AgI	AgL
LC	Whale Lake (EDW)	<u>35°12'32"/111°34'42" 35°11'13"/111°35'21"</u>	EDW			A&Wedw		PBC				
LC	Whipple Lake	<u>34°16'47"/109°58'28" 34°16'49"/109°58'29"</u>	Igneous		A&Ww		FBC			FC		AgL





LC	White Mountain Lake	34°21'54"/109°59'38" 34°21'57"/109°59'21"	Igneous	A&We				FBC			FC	AgI	AgL
LC	White Mountain Reservoir	34°00'45"/109°30'48" 34°00'12"/109°30'39"	Igneous	A&We				FBC			FC	AgI	AgL
LC	Willow Creek	<del>Tributary</del> Headwaters to confluence with Clear Creek at 34°38'31"/110°59'49"		A&We				FBC			FC		AgL
LC	Willow Springs Canyon Creek	<del>Tributary</del> Headwaters to confluence with Chevelon Creek at 34°21'32"/110°53'20"		A&We				FBC			FC		AgL
LC	Willow Springs Lake	34°18'45"/110°52'34" 34°18'13"/110°52'16"	Sedimentary	A&We				FBC			FC	AgI	AgL
LC	Woodland Reservoir	34°07'36"/109°57'06" 34°07'35"/109°57'01"	Igneous	A&We				FBC			FC	AgI	AgL
LC	Woods Canyon Creek	<del>Tributary</del> Headwaters to confluence with Chevelon Creek at 34°21'32"/110°53'20"		A&We				FBC			FC		AgL
LC	Woods Canyon Lake	34°20'05"/110°56'35" 34°20'09"/110°56'45"	Sedimentary	A&We				FBC			FC	AgI	AgL
LC	Zuni River	<del>Tributary</del> Headwaters to confluence with the Little Colorado River at 34°38'42"/109°40'26"		A&We				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
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	<del>Tributary</del> 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&We			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&We			FBC			FC	AgI	AgL



MG	Big Bug Creek	Below confluence with Eugene Gulch to confluence with Agua Fria River at <u>34°18'54"/112°03'58"</u>			A&Ww			FBC		FC	AgI	AgL
MG	Black Canyon Creek	<u>Tributary Headwaters to confluence with the Agua Fria River at 34°04'12"/112°09'29"</u>			A&Ww			FBC		FC		AgL
MG	Blind Indian Creek	<u>Tributary Headwaters to confluence with the Hassayampa River at 34°12'40"/112°32'17"</u>			A&Ww			FBC		FC		AgL
MG	Bonsall Park Lake	<u>Urban Lake; 59th Avenue &amp; Bethany Home Road, Phoenix at 33°31'23"/112°11'05" 33°31'24"/112°11'08"</u>	Urban		A&Ww				PBC	FC		
MG	Canal Park Lake	<u>Urban Lake; College Avenue &amp; Curry Road, Tempe at 33°26'57"/111°56'14" 33°26'54"/111°56'19"</u>	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 <u>33°34'24"/112°06'25"</u>				A&We			PBC			
MG	Centennial Wash	<u>Tributary Headwaters to confluence with the Gila River at 33°13'44"/112°46'16" 33°16'32"/112°48'08"</u>				A&We			PBC			AgL
MG	Centennial Wash Ponds	<u>33°55'10"/113°23'05" 33°54'52"/113°23'47"</u>			A&Ww			FBC		FC		AgL
MG	Chaparral Park Lake	<u>Urban Lake; Hayden Road &amp; Chaparral Road, Scottsdale at 33°30'41"/111°54'25" 33°30'40"/111°54'27"</u>	Urban		A&Ww				PBC	FC	AgI	
MG	Cortez Park Lake	<u>Urban Lake; 35th Avenue &amp; Dunlap, Glendale at 33°34'13"/112°07'51" 33°34'13"/112°07'52"</u>	Urban		A&Ww				PBC	FC	AgI	
MG	Desert Breeze Lake	<u>Urban Lake; Galaxy Drive, West Chandler at 33°18'47.5"/111°55'08" 33°18'47"/111°55'10"</u>	Urban		A&Ww				PBC	FC		
MG	Devils Canyon	<u>Tributary Headwaters to confluence with Mineral Creek at 33°12'58"/110°59'42"</u>			A&Ww				FBC	FC		AgL
MG	Dobson Lake	<u>Urban Lake; Dobson Road &amp; Los Lagos Vista Avenue, Mesa at 33°22'17"/111°53'12" 33°22'48"/111°52'35"</u>	Urban		A&Ww				PBC	FC		
MG	East Maricopa Floodway	<u>From Brown and Greenfield Rds to the Gila River Indian Reservation Boundary</u>			A&We				PBS			AgL
MG	Eldorado Park Lake	<u>Urban Lake; Miller Road &amp; Oak Street, Tempe at 33°28'25"/111°54'51" 33°28'25"/111°54'53"</u>	Urban		A&Ww				PBC	FC		
MG	Encanto Park Lake	<u>Urban Lake; 15th Avenue &amp; Encanto Blvd., Phoenix at 33°28'36"/112°05'17" 33°28'28"/112°05'18"</u>	Urban		A&Ww				PBC	FC	AgI	
MG	Fain Lake	<u>City Town of Prescott Valley Park Lake at 34°34'29"/112°21'03" 34°34'29"/112°21'06"</u>	Urban		A&Ww				PBC	FC		
MG	French Gulch	Headwaters to confluence with Hassayampa River			A&Ww				PBC			AgL
MG	Galena Gulch	<u>Tributary Headwaters to confluence with the Agua Fria River at 34°28'37"/112°15'14"</u>				A&We			PBC			AgL
MG	Galloway Gal- loway Wash (EDW)	<u>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</u>					A&Wedw		PBC			
MG	Gila River	<u>San Carlos Indian Reservation boundary to the Ashurst-Hayden Dam at 33°06'01"/111°14'46"</u>			A&Ww			FBC		FC	AgI	AgL



MG	Gila River	Ashurst-Hayden 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
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°34'58.6"/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&We			FBC		DWS	FC		AgL
MG	Hank Raymond Lake Lower Lake Pleasant	33°50'48"/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&We			FBC		DWS	FC		
MG	Hassayampa River	Headwaters to confluence with unnamed tributary at 34°26'09"/112°30'32"			A&We			FBC			FC	AgI	AgL
MG	Hassayampa River	Below confluence with unnamed tributary to 8 miles south of Wickenburg 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&We			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
MG	Lynx Creek	Headwaters to confluence with unnamed tributary at 34°34'29"/112°21'05" 34°34'29"/112°21'07"			A&We			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	<u>34°31'08"/112°23'05" 34°31'07"/112°23'07"</u>	Deep	A&Wc				FBC		DWS	FC	AgI	AgL
MG	Maricopa Park Lake	<u>33°35'30"/112°18'16" 33°35'28"/112°18'15"</u>	Urban		A&Ww				PBC		FC		
MG	Martinez Canyon	<u>Tributary Headwaters to confluence with Box Canyon at 33°06'33"/111°12'48"</u>			A&Ww			FBC			FC		AgL
MG	Martinez Creek	<u>Tributary Headwaters to confluence with the Hassayampa River at 33°59'56"/112°44'38"</u>			A&Ww			FBC			FC	AgI	AgL
MG	McKellips Park Lake	<u>Urban Lake; Miller Road &amp; McKellips Road, Scottsdale at 33°27'14"/111°54'45" 33°27'14"/111°54'49"</u>	Urban		A&Ww				PBC		FC	AgI	
MG	McMicken Wash (EDW)	<u>City of Peoria Jomax WWTP outfall at 33°43'30"/112°20'14" 33°43'31"/112°20'15" to confluence of McMicken Wash with Agua Fria River at 33°39'39"/112°18'56"</u>				A&Wedw			PBC				
MG	Mineral Creek	<u>Tributary Headwaters to the Gila River at 34°17'42"/112°13'34" 33°12'34"/110°59'58"</u>			A&Ww			FBC			FC		AgL
MG	<u>Mineral Creek (diversion channel)</u>	<u>33°12'34"/110°59'58" to 33°09'18"/110°58'32"</u>						PBC					
MG	<u>Mineral Creek</u>	<u>End of diversion channel to confluence with Gila River</u>			A&Ww			FBC			FC		AgL
MG	Minnehaha Creek	<u>Tributary Headwaters to confluence with the Hassayampa River at 34°11'49"/112°32'24"</u>			A&Ww			FBC			FC		AgL
MG	Mountain Valley Park Ponds (EDW)	<u>Town of Prescott Valley WWTP outfall 002 at 34°26'07"/112°18'48" 34°36'07"/112°18'48" to Navajo Wash</u>	EDW				A&Wedw		PBC				
MG	New River	<u>Headwaters to H7 at 33°54'19.5"/112°08'46" Interstate 17</u>			A&Ww			FBC			FC	AgI	AgL
MG	New River	<u>Below H7 Interstate 17 to confluence with Agua Fria River at 33°30'47"/112°18'14"</u>				A&We			PBC				AgL
MG	Painted Rock Reservoir	<u>33°04'15"/113°00'30" 33°04'23"/113°00'38"</u>	Sedimentary		A&Ww			FBC			FC	AgI	AgL
MG	Papago Park Ponds	<u>Urban Lake; Galvin Parkway, Phoenix at 33°26'56"/111°56'50" 33°27'15"/111°56'45"</u>	Urban		A&Ww				PBC		FC		
MG	Papago Park South Pond	<u>Urban Lake; Curry Road, Tempe 33°26'22"/111°55'55"</u>	Urban		A&Ww				PBC		FC		
MG	Perry Mesa Tank	<u>34°11'03"/112°01'59" 34°11'03"/112°02'01"</u>			A&Ww			FBC			FC		AgL
MG	Phoenix Area Canals	<u>Granite Reef Dam to all municipal WTP intakes</u>								DWS		AgI	AgL
MG	Phoenix Area Canals	<u>Below municipal WTP intakes and all other locations</u>										AgI	AgL
MG	Picacho Reservoir	<u>32°51'47"/111°28'49" 32°51'10"/111°28'25"</u>	Shallow		A&Ww			FBC			FC	AgI	AgL
MG	Poland Creek	<u>Headwaters to confluence with Lorena Gulch at 34°12'32"/112°19'07"</u>			A&Wc			FBC			FC		AgL
MG	Poland Creek	<u>Below confluence with Lorena Gulch to confluence with Black Canyon Creek at 34°14'20"/112°12'54"</u>			A&Ww			FBC			FC		AgL
MG	Queen Creek	<u>Headwaters to the Town of Superior WWTP outfall at 33°16'45"/111°17'25" 33°16'45"/111°07'25"</u>			A&Ww				PBC				AgL
MG	Queen Creek (EDW)	<u>Below Town of Superior WWTP outfall to confluence with Potts Canyon at 33°17'17"/111°11'36"</u>					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°24'42"/112°08'00"			A&Ww				PBC		FC			
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				
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
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&We		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		
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	<u>Tributary Headwaters to confluence with Sonoita Creek at 31°32'35"/110°44'42"</u>				A&We			PBC				AgL
SC	Hit Tank	<u>32°43'57"/111°03'18"</u>				A&Ww			FBC		FC		AgL
SC	Holden Canyon Creek	<u>Headwaters to U.S./Mexico border at 31°23'38"/111°15'54" in the Coronado National Forest</u>				A&Ww			FBC		FC		
SC	Huachuca Tank	<u>31°21'41"/110°30'42" 31°21'11"/110°30'18"</u>				A&Ww			FBC		FC		AgL
SC	Julian Wash	<u>Tributary Headwaters to confluence with the Santa Cruz River at 32°11'20"/110°59'13"</u>				A&We			PBC				
SC	Kennedy Lake	<u>Urban Lake; Mission Road &amp; Ajo Road, Tucson at 32°10'48.5"/111°00'27" 32°10'49"/111°00'27"</u>	Urban			A&Ww			PBC		FC		
SC	Lakeside Lake	<u>Urban Lake; 8300 East Stella Road, Tucson at 32°11'40.5"/110°49'00" 32°11'11"/110°49'00"</u>	Urban			A&Ww			PBC		FC		
SC	Lemmon Canyon Creek	<u>Headwaters to confluence with unnamed tributary at 32°23'47"/110°47'46" 32°23'48"/110°47'49"</u>				A&We			FBC		FC		
SC	Lemmon Canyon Creek	<u>Below unnamed tributary to confluence with Sabino Canyon Creek at 32°23'02"/110°47'28"</u>				A&Ww			FBC		FC		
SC	Los Robles Wash	<u>Tributary Headwaters to confluence with the Santa Cruz River at 32°32'43"/111°23'53"</u>				A&We			PBC				
SC	Madera Canyon Creek	<u>Headwaters to confluence with unnamed tributary at 31°43'42"/110°52'50" 31°43'42"/110°52'51"</u>				A&We			FBC		FC		AgL
SC	Madera Canyon Creek	<u>Below unnamed tributary to confluence with the Santa Cruz River at 31°46'55"/111°00'58"</u>				A&Ww			FBC		FC		AgL
SC	Mattie Canyon	<u>Tributary Headwaters to confluence with Cienega Creek at 31°51'31"/110°34'25" "</u>				A&Ww			FBC		FC		AgL
SC	Nogales Wash	<u>Tributary Headwaters to confluence with Potrero Creek at 31°24'07"/110°57'11"</u>				A&Ww			PBC		FC		
SC	Oak Tree Canyon	<u>Tributary Headwaters to confluence with Cienega Creek at 31°48'43"/110°35'24"</u>				A&We			PBC				
SC	Palisade Canyon Creek	<u>Headwaters to confluence with unnamed tributary at 32°22'34"/110°45'35" 32°21'59"/110°46'16"</u>				A&We			FBC		FC		
SC	Palisade Canyon Creek	<u>Below unnamed tributary to confluence with Sabino Canyon Creek at 32°21'54"/110°46'23"</u>				A&Ww			FBC		FC		
SC	Pantano Wash	<u>Tributary Headwaters to confluence with Tanque Verde Creek at 32°16'23"/110°54'18"</u>				A&We			PBC				
SC	Paradise Lake	<u>32°44'18"/111°40'42"</u>	Urban			A&Ww			PBC				AgL
SC	Parker Canyon Creek	<u>Headwaters to confluence with unnamed tributary at 31°24'17"/110°28'44.5" 31°24'17"/110°28'47"</u>				A&We			FBC		FC		
SC	Parker Canyon Creek	<u>Below unnamed tributary to U.S./Mexico border at 31°19'59"/110°33'58"</u>				A&Ww			FBC		FC		
SC	Parker Canyon Lake	<u>31°25'35"/110°27'15"</u>	Deep			A&We			FBC		FC	AgI	AgL
SC	Patagonia Lake	<u>31°29'30"/110°52'00" 31°29'56"/110°50'49"</u>	Deep			A&Ww			FBC		FC	AgI	AgL
SC	Peña Blanca Lake	<u>31°24'12"/111°05'04" 31°24'15"/111°05'12"</u>	Igneous			A&Ww			FBC		FC	AgI	AgL
SC	Potrero Creek	<u>Headwaters to Interstate 19 at 31°23'24"/110°57'30"</u>				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
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°54'49"/111°47'48" 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&We			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 upwelling point to confluence with 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" 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&We			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&We			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 at $31^{\circ}52'47''/110^{\circ}26'25''$ at $31^{\circ}52'48''/110^{\circ}26'27''$		A&Wc				FBC			FC		AgL
SC	Wakefield Canyon	Below confluence with unnamed tributary to <u>confluence with</u> Cienega Creek at $31^{\circ}52'47.5''/110^{\circ}26'25''$			A&Ww			FBC			FC		AgL
SC	Wild Burro Canyon	Headwaters to confluence with unnamed tributary at $32^{\circ}28'36''/111^{\circ}05'18''$ $32^{\circ}27'43''/111^{\circ}05'47''$			A&Ww			FBC			FC		AgL
SC	Wild Burro Canyon	Below confluence with unnamed tributary to <u>confluence with</u> Santa Cruz River at $32^{\circ}28'34''/111^{\circ}05'15.5''$				A&We			PBC				AgL
SC	Williams Ranch Tanks	$31^{\circ}55'15''/110^{\circ}25'30''$ $31^{\circ}55'14''/110^{\circ}25'31''$			A&Ww			FBC			FC		AgL
SP	Abbot Canyon	Headwaters to confluence with Whitewater Draw at $31^{\circ}33'32''/109^{\circ}48'39.6''$			A&Ww			FBC			FC		AgL
SP	Aravaipa Creek	Headwaters to confluence with Stowe Gulch at $32^{\circ}52'10''/110^{\circ}22'00''$			A&Ww			FBC			FC		AgL
SP	Aravaipa Creek (OAW)	Stowe Gulch <del>confluence</del> to downstream boundary of Aravaipa Canyon Wilderness Area at $32^{\circ}54'23''/110^{\circ}33'40''$			A&Ww			FBC			FC		AgL
SP	Aravaipa Creek	Below downstream boundary of Aravaipa Canyon Wilderness Area to <u>confluence with</u> the San Pedro River at $32^{\circ}50'20''/110^{\circ}42'50''$			A&Ww			FBC			FC		AgL
SP	Ash Creek	Chiricahua Mountains, near Whitewater Draw at $31^{\circ}50'28''/109^{\circ}40'01.2''$ <u>Headwaters</u> to $31^{\circ}50'28''/109^{\circ}40'04''$			A&Ww			FBC			FC	AgI	AgL
SP	Babocomari River	<del>Tributary</del> <u>Headwaters to confluence with</u> the San Pedro River at $31^{\circ}43'19''/110^{\circ}11'35''$			A&Ww			FBC			FC		AgL
SP	Bass Canyon Creek	Headwaters to confluence with unnamed tributary at $32^{\circ}26'06''/110^{\circ}13'18''$ $32^{\circ}26'06''/110^{\circ}13'22''$			A&Wc			FBC			FC		AgL
SP	Bass Canyon Creek	Below confluence with unnamed tributary to <u>confluence with</u> Hot Springs Canyon Creek at $32^{\circ}20'53''/110^{\circ}15'14''$			A&Ww			FBC			FC		AgL
SP	Bass Canyon Tank	$32^{\circ}24'00''/110^{\circ}13'00''$			A&Ww			FBC			FC		AgL
SP	Bear Creek	Headwaters to U.S./Mexico border at $31^{\circ}19'59''/110^{\circ}22'58.5''$			A&Ww			FBC			FC		AgL
SP	Big Creek	<del>Tributary</del> <u>Headwaters to confluence with</u> Pitchfork Canyon at $32^{\circ}35'24''/109^{\circ}57'07''$			A&Wc			FBC			FC		AgL
SP	Blacktail Pond	Fort Huachuca Military Reservation at $31^{\circ}24'13''/110^{\circ}17'21''$ $31^{\circ}24'13''/110^{\circ}17'23''$			A&Ww			FBC			FC		
SP	Blackwater Draw	Headwaters to the U.S./Mexico border at $31^{\circ}20'02''/109^{\circ}15'36''$ in the San Bernardino Valley			A&Ww			FBC			FC		AgL
SP	Booger Canyon Creek	<del>Tributary</del> <u>Headwaters to confluence with</u> Aravaipa Creek at $32^{\circ}54'54''/110^{\circ}29'35''$			A&Ww			FBC			FC		AgL
SP	Buck Canyon	Headwaters to <u>confluence with</u> Buck Creek Tank at $31^{\circ}33'06''/109^{\circ}52'43''$			A&Ww			FBC			FC		AgL
SP	Buck Canyon	Below Buck Creek Tank to <u>confluence with</u> Dry Creek at $31^{\circ}31'08''/109^{\circ}18'25''$				A&We			PBC				AgL
SP	Buehman Canyon Creek (OAW)	Headwaters to confluence with unnamed tributary at $32^{\circ}24'34.5''/110^{\circ}32'08''$ $32^{\circ}24'54''/110^{\circ}32'10''$			A&Ww			FBC			FC		AgL
SP	Buehman Canyon Creek	Below confluence with unnamed tributary at $32^{\circ}25'41''/110^{\circ}29'53''$ to <u>confluence with</u> San Pedro River			A&Ww			FBC			FC		AgL



SP	Bull Tank	<u>32°31'15"/110°12'45" 32°31'13"/110°12'52"</u>			A&Ww			FBC			FC		AgL
SP	Bullock Canyon	<del>Tributary</del> <u>Headwaters to confluence with Buehman Canyon at 32°23'00"/110°33'04"</u>			A&Ww			FBC			FC		AgL
SP	Carr Canyon Creek	Headwaters to confluence with unnamed tributary at <u>31°27'00"/110°15'45" 31°27'01"/110°15'48"</u>			A&Wc			FBC			FC		AgL
SP	Carr Canyon Creek	Below confluence with unnamed tributary to <u>confluence with the San Pedro River at 31°30'32"/110°07'37"</u>			A&Ww			FBC			FC		AgL
SP	Copper Creek	Headwaters to confluence with Prospect Canyon at <u>32°44'48"/110°30'18"</u>			A&Ww			FBC			FC		AgL
SP	Copper Creek	Below confluence with Prospect Canyon to <u>confluence with the San Pedro River at 32°41'17"/110°36'43"</u>				A&We			PBC				AgL
SP	Deer Creek	Headwaters to confluence with unnamed tributary at <u>32°59'56"/110°20'09" 32°59'57"/110°20'11"</u>			A&Wc			FBC			FC		AgL
SP	Deer Creek	Below confluence with unnamed tributary to <u>confluence with Aravaipa Creek at 32°54'25"/110°28'01"</u>			A&Ww			FBC			FC		AgL
SP	Dixie Canyon	Headwaters to <u>confluence with Mexican Canyon at 31°29'02"/109°45'04" in the Mule Mountains</u>			A&Ww			FBC			FC		AgL
SP	Double R Canyon Creek	<del>Tributary</del> <u>Headwaters to confluence with Bass Canyon at 32°21'06"/110°14'23"</u>			A&Ww			FBC			FC		
SP	Dry Canyon	Headwaters to <u>confluence with Abbot Canyon at 31°33'25"/109°43'23" in the Mule Mountains</u>			A&Ww			FBC			FC		AgL
SP	East Gravel Pit Pond	Fort Huachuca Military Reservation at <u>31°30'54"/110°19'42" 31°30'54"/110°19'44"</u>	Sedimentary		A&Ww			FBC			FC		
SP	Espiritu Canyon Creek	<del>Tributary</del> <u>Headwaters to confluence with Soza Wash at 32°18'52"/110°28'35"</u>			A&Ww			FBC			FC		AgL
SP	Fly Pond	Fort Huachuca Military Reservation at <u>31°32'53"/110°21'14" 31°32'53"/110°21'16"</u>			A&Ww			FBC			FC		
SP	Fourmile Canyon Creek	<del>Tributary</del> <u>Headwaters to confluence with Aravaipa Creek at 32°50'14"/110°20'08"</u>			A&Ww			FBC			FC		AgL
SP	Fourmile Canyon, Left Prong	Headwaters to confluence with unnamed tributary at <u>32°43'14"/110°23'43" 32°43'15"/110°23'46"</u>			A&Wc			FBC			FC		AgL
SP	Fourmile Canyon, Left Prong	Below confluence with unnamed tributary to <u>confluence with Fourmile Canyon Creek at 32°47'33"/110°22'36"</u>			A&Ww			FBC			FC		AgL
SP	Fourmile Canyon, Right Prong	<del>Tributary</del> <u>Headwaters to confluence with Fourmile Canyon at 32°47'33"/110°22'36"</u>			A&Ww			FBC			FC		AgL
SP	Gadwell Canyon	Headwaters to <u>confluence with Whitewater Draw at 31°36'50"/109°43'41" in the Mule Mountains</u>			A&Ww			FBC			FC		AgL
SP	Garden Canyon Creek	Headwaters to confluence with unnamed tributary at <u>31°29'00"/110°19'42" 31°29'01"/110°19'44"</u>			A&Wc			FBC		DWS	FC		AgI
SP	Garden Canyon Creek	Below confluence with unnamed tributary to <u>confluence with the San Pedro River at 31°41'46"/110°12'40"</u>			A&Ww			FBC		DWS	FC		AgI
SP	Glance Creek	Headwaters to <u>confluence with Whitewater Draw at 31°27'04"/109°42'29" in the Mule Mountains</u>			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	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
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	<del>Just above the</del> 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 <u>confluence with</u> Whitewater Draw at 31°28'03"/109°42'21"				A&We		PBC					AgL
SP	Oak Grove Creek Canyon	<del>Tributary</del> Headwaters to <u>confluence with</u> 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	<del>Tributary</del> Headwaters to <u>confluence with</u> the San Pedro River at 32°17'10"/110°22'48"				A&Ww		FBC			FC		AgL
SP	Parsons Canyon Creek	<del>Tributary</del> Headwaters to <u>confluence with</u> 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&We		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	<del>Tributary</del> Headwaters to <u>confluence with</u> Grant Creek at 32°40'05"/109°54'58"				A&We		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&We		FBC			FC	AgI	AgL
SP	Ramsey Canyon Creek	Below Forest Service Road #110 to <u>confluence with</u> 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&We		FBC			FC		AgL
SP	Rattlesnake Canyon	Below confluence with Brush Canyon to <u>confluence with</u> 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&We		FBC			FC		AgL
SP	Redfield Canyon Creek	Below confluence with unnamed tributary to <u>confluence with</u> 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&We		FBC			FC	AgI	AgL
SP	Rock Creek	<del>Tributary</del> Headwaters to <u>confluence with</u> Turkey Creek at 31°53'20"/109°30'00"-Alc						FBC			FC		AgL
SP	Rucker Canyon Creek	Headwaters to <u>confluence with</u> Whitewater Draw at 31°44'46"/109°26'06"	Igneous			A&We		FBC			FC		AgL
SP	Rucker Canyon Lake	31°46'46"/109°18'30"	Shallow			A&We		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 <u>confluence with</u> 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&We		FBC			FC	AgI	AgL
SP	Soldier Creek	<del>Tributary</del> Headwaters to <u>confluence with</u> Post Creek at 32°40'52"/109°54'40" 32°40'50"/109°54'41"				A&We		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 Baboemari 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
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°35'42"/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°31'41.5"/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
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)	<u>Tributary Headwaters to confluence with the Black River at 33°37'44"/109°31'23"</u>		A&We				FBC			FC		AgL
SR	Bear Wallow Creek, North Fork (OAW)	<u>Tributary Headwaters to confluence with Bear Wallow Creek at 33°35'53"/109°26'49"</u>		A&We				FBC			FC		AgL
SR	Bear Wallow Creek, South Fork (OAW)	<u>Tributary Headwaters to confluence with Bear Wallow Creek at 33°35'53"/109°26'49"</u>		A&We				FBC			FC		AgL
SR	Beaver Creek	<u>Tributary Headwaters to the confluence with Black River at 33°43'44"/109°21'07"</u>		A&We				FBC			FC	AgI	AgL
SR	Big Lake	<u>33°52'45"/109°25'00" 33°52'36"/109°25'33"</u>	Igneous	A&We				FBC		DWS	FC	AgI	AgL
SR	Black River	<u>Tributary Headwaters to the confluence with Salt River at 33°44'20"/110°13'30"</u>		A&We				FBC		DWS	FC	AgI	AgL
SR	Black River, East Fork	<u>Tributary From 33°51'19"/109°18'54" to confluence with the Black River at 33°45'07"/109°21'43"</u>		A&We				FBC		DWS	FC	AgI	AgL
SR	Black River, North Fork of East Fork	<u>Tributary Headwaters to confluence with Black River, East Fork at 33°56'47"/109°24'11"</u>		A&We				FBC		DWS	FC	AgI	AgL
SR	Black River, West Fork	<u>Tributary Headwaters to confluence with the Black River at 33°45'07"/109°21'43"</u>		A&We				FBC		DWS	FC	AgI	AgL
SR	Bloody Tanks Wash	Headwaters to Schultze Ranch at <u>33°22'29"/110°54'39" Road</u>			A&We				PBC				AgL
SR	Bloody Tanks Wash	Schultze Ranch <u>Road to confluence with Miami Wash at 33°25'05"/110°50'02"</u>			A&We				PBC				
SR	Boggy Creek	<u>Tributary to the Black River Headwaters to confluence with Centerfire Creek at 33°44'31"/109°26'20"</u>		A&We				FBC			FC	AgI	AgL
SR	Boneyard Creek	<u>Tributary Headwaters to confluence with Black River, East Fork at 33°51'22"/109°18'50"</u>		A&We				FBC			FC	AgI	AgL
SR	Boulder Creek	<u>Tributary Headwaters to confluence with LaBarge Creek at 33°30'54"/111°24'40"</u>			A&Ww			FBC			FC		
SR	Campaign Creek	<u>Tributary Headwaters to Roosevelt Lake at 33°37'30"/111°00'04"</u>			A&Ww			FBC			FC		AgL
SR	Canyon Creek	Headwaters to the White Mountain Apache Reservation at <u>33°57'53"/110°47'00" boundary</u>		A&We				FBC		DWS	FC	AgI	AgL
SR	Canyon Lake	<u>33°33'15"/111°26'30" 33°32'44"/111°26'19"</u>	Deep		A&Ww			FBC		DWS	FC	AgI	AgL
SR	Centerfire Creek	<u>Tributary Headwaters to confluence with the Black River at 33°42'47"/109°26'17"</u>		A&We				FBC			FC	AgI	AgL
SR	Chambers Draw Creek	<u>Tributary Headwaters to confluence with the North Fork of the East Fork of Black River at 33°53'03"/109°20'13"</u>		A&We				FBC			FC		AgL
SR	Cherry Creek	Headwaters to confluence with unnamed tributary at <u>34°05'09"/110°56'04" 34°05'09"/110°56'07"</u>		A&We				FBC			FC	AgI	AgL
SR	Cherry Creek	Below unnamed tributary to <u>confluence with the Salt River at 33°40'16"/110°48'03.6"</u>			A&Ww			FBC			FC	AgI	AgL
SR	Christopher Creek	<u>Tributary Headwaters to confluence with Tonto Creek at 34°18'36"/111°04'23"</u>		A&We				FBC			FC	AgI	AgL
SR	Cold Spring Canyon Creek	Headwaters to confluence with unnamed tributary at <u>33°49'50"/110°52'55" 33°49'50"/110°52'58"</u>		A&We				FBC			FC		AgL
SR	Cold Spring Canyon Creek	Below confluence with unnamed tributary to <u>confluence with Cherry Creek at 33°50'06"/110°51'28.8"</u>			A&Ww			FBC			FC		AgL





SR	Conklin Creek	<del>Tributary Headwaters to confluence with the Black River at 33°41'49"/109°27'36"</del>		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	<del>Tributary Headwaters to confluence with Fish Creek at 33°59'46"/110°17'31"</del>		A&Wc				FBC			FC	AgI	AgL
SR	Coyote Creek	<del>Tributary Headwaters to confluence with the Black River, East Fork at 33°50'53"/109°18'18"</del>		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	<del>Tributary Headwaters to confluence with the Black River, East Fork at 33°48'07"/109°19'26"</del>		A&Wc				FBC			FC		AgL
SR	Del Shay Creek	<del>Tributary Headwaters to confluence with Gun Creek at 34°00'22"/111°15'43"</del>			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" 33°55'54"/109°25'15" 33°55'47"/109°25'31"			A&Ww			FBC			FC		AgL
SR	Dipping Vat Reservoir		Igneous		A&Ww			FBC			FC		AgL
SR	Double Cienega Creek	<del>Tributary Headwaters to confluence with Fish Creek at 33°38'35"/109°22'08"</del>		A&Wc				FBC			FC		AgL
SR	Fish Creek	<del>Tributary Headwaters to confluence with the Black River at 33°42'40"/109°26'31"</del>		A&Wc				FBC			FC	AgI	AgL
SR	Fish Creek	<del>Tributary Headwaters to confluence with the Salt River at 33°34'37"/111°21'11"</del>			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	<del>Tributary Headwaters to confluence with Tonto Creek at 33°47'38"/111°15'22"</del>			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	<del>Tributary Headwaters to confluence with Beaver Creek at 33°42'07"/109°14'46"</del>		A&Wc				FBC			FC		AgL
SR	Hay Creek (OAW)	<del>Tributary Headwaters to confluence with the Black River, West Fork at 33°48'32"/109°25'16"</del>		A&Wc				FBC			FC		AgL
SR	Home Creek	<del>Tributary Headwaters to confluence with the Black River, West Fork at 33°45'43"/109°22'48"</del>		A&Wc				FBC			FC		AgL



SR	Horse Creek	<del>Tributary</del> 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	<del>Tributary</del> Headwaters to confluence with Tonto Creek at 34°20'24"/111°05'42"		A&Wc				FBC			FC	AgI	AgL
SR	Houston Creek	<del>Tributary</del> Headwaters to confluence with Tonto Creek at 34°07'30"/111°15'25"		A&Ww				FBC			FC		AgL
SR	Hunter Creek	<del>Tributary</del> 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	<del>Tributary</del> Headwaters to confluence with Pinal Creek at 33°27'04"/110°50'17"			A&We				PBC				
SR	Mule Creek	<del>Tributary</del> Headwaters to confluence with Canyon Creek at 34°16'34"/110°48'00"		A&Wc				FBC		DWS	FC	AgI	AgL
SR	Open Draw Creek	<del>Tributary</del> 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	<del>Tributary</del> 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
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°52'46"/111°00'14" 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" 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
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 <u>32°45'37"/109°52'22" 32°46'15"/109°51'45"</u>		A&Wc				FBC			FC		AgL
UG	Ash Creek	Below confluence with unnamed tributary to <u>confluence with the Gila River at- 32°53'35"/109°47'34.8"</u>			A&Ww			FBC			FC		AgL
UG	Bennett Wash (EDW)	ADOC Safford WWTP outfall at <u>32°50'20"/109°34'44"</u> Headwaters to the Gila River				A&We	A&Wedw		PBC				
UG	Bitter Creek	<del>Tributary</del> Headwaters to <u>confluence with the Gila River at 32°50'17"/109°40'59"</u>			A&Ww			FBC			FC		
UG	Blue River	Headwaters to confluence with Strayhorse Creek at <u>33°29'02"/110°12'12" 33°29'02"/109°12'14"</u>		A&Wc				FBC			FC	AgI	AgL
UG	Blue River	Below confluence with Strayhorse Creek to <u>confluence with San Francisco River at- 33°12'36"/109°11'27.6"</u>			A&Ww			FBC			FC	AgI	AgL
UG	Bonita Creek (OAW)	San Carlos Indian Reservation boundary to <u>confluence with the Gila River at- 32°53'35"/109°28'41"</u>			A&Ww			FBC		DWS	FC		AgL
UG	Buckalou Creek	<del>Tributary</del> Headwaters to <u>confluence with Castle Creek at 33°43'34"/109°09'07"</u>		A&Wc				FBC			FC		AgL
UG	Campbell Blue Creek	<del>Tributary</del> Headwaters to <u>confluence with the Blue River at 33°43'30"/109°02'46"</u>		A&Wc				FBC			FC		AgL
UG	Castle Creek	<del>Tributary</del> Headwaters to <u>confluence with Campbell Blue Creek at 33°44'06"/109°08'10"</u>		A&Wc				FBC			FC		AgL
UG	Cave Creek (OAW)	Headwaters to confluence with South Fork Cave Creek at <u>31°53'04"/109°10'27"</u>		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 <u>31°58'19"/109°03'00"</u>			A&Ww			FBC			FC	AgI	AgL
UG	Cave Creek, South Fork	<del>Tributary</del> Headwaters to <u>confluence with Cave Creek at 31°53'04"/109°10'27"</u>		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 <u>confluence with San Francisco River</u>				A&We			PBC				
UG	Chitty Canyon Creek	<del>Tributary</del> Headwaters to <u>confluence with Salt House Creek at 33°30'32"/109°24'04"</u>		A&Wc				FBC			FC		AgL
UG	Cima Creek	<del>Tributary</del> Headwaters to <u>confluence with Cave Creek at 31°52'19"/109°14'02"</u>		A&Wc				FBC			FC		AgL
UG	Cluff Ranch Pond #1	<u>32°48'55"/109°49'15" 32°48'55"/109°50'46"</u>	Sedimentary		A&Ww			FBC			FC	AgI	AgL
UG	Cluff Ranch Pond #2	<u>32°49'15"/109°50'33"</u>	Sedimentary		A&Ww			FBC			FC	AgI	AgL
UG	Cluff Ranch Pond #3	<u>32°48'20"/109°51'43" 32°48'21"/109°51'46"</u>	Sedimentary		A&Ww			FBC			FC	AgI	AgL
UG	Coleman Creek	<del>Tributary</del> Headwaters to <u>confluence with Campbell Blue Creek at 33°44'20"/109°09'32"</u>		A&Wc				FBC			FC		AgL
UG	Dankworth Ponds Lake	<u>32°43'15"/109°42'15" 32°43'13"/109°42'17"</u>	Sedimentary	A&Wc				FBC			FC		
UG	Deadman Canyon Creek	Headwaters to confluence with unnamed tributary at <u>32°43'50"/109°49'01" 32°43'50"/109°49'03"</u>		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
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	Footo 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" 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
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
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	<del>Tributary Headwaters to confluence with Granite Creek at 34°31'55"/112°28'19"</del>			A&Ww		FBC		FC		
VR	Bar Cross Tank	<del>35°00'40"/112°05'34" 35°00'41"/112°05'39"</del>			A&Ww		FBC		FC		AgL
VR	Barrata Tank	<del>35°02'43"/112°24'17" 35°02'43"/112°24'21"</del>			A&Ww		FBC		FC		AgL
VR	Bartlett Lake	<del>33°49'00"/111°37'45" 33°49'52"/111°37'44"</del>	Deep		A&Ww		FBC	DWS	FC	AgI	AgL
VR	Beaver Creek	<del>Tributary Headwaters to confluence with the Verde River at 34°34'26"/111°51'14"</del>			A&Ww		FBC		FC		AgL
VR	Big Chino Wash	<del>Tributary Headwaters to confluence with Sullivan Lake at 34°52'37"/112°28'37"</del>			A&We			PBC			AgL
VR	Bitter Creek	<del>Headwaters to the Jerome WWTP outfall at 34°45'08"/112°06'25" 34°45'12"/112°06'24"</del>			A&We			PBC			AgL
VR	Bitter Creek (EDW)	<del>Jerome WWTP outfall to the Yavapai Apache Indian Reservation at 34°45'45.5"/112°04'44" boundary</del>				A&Wedw		PBC			AgL
VR	Bitter Creek	<del>Below the Yavapai Apache Indian Reservation boundary to confluence with the Verde River at 34°46'37"/112°02'53"</del>			A&Ww		FBC		FC	AgI	AgL
VR	Black Canyon Creek	<del>Headwaters to confluence with unnamed tributary at 34°39'20"/112°05'05" 34°39'20"/112°05'06"</del>			A&Wc		FBC		FC		AgL
VR	Black Canyon Creek	<del>Below confluence with unnamed tributary to confluence with the Verde River at 34°40'59"/111°57'28.8"</del>			A&Ww		FBC		FC		AgL
VR	Bonita Creek	<del>Tributary Headwaters to confluence with Ellison Creek at 34°20'56"/111°14'20"</del>			A&Wc		FBC		FC		
VR	Bray Creek	<del>Tributary Headwaters to confluence with Webber Creek at 34°22'37"/111°20'53"</del>			A&Wc		FBC		FC		AgL
VR	Camp Creek	<del>Tributary Headwaters to confluence with the Verde River at 33°45'32"/111°30'14"</del>			A&Ww		FBC		FC		AgL
VR	<del>Carter Tank</del>	<del>34°52'27"/112°57'28"</del>			<del>A&amp;Ww</del>		<del>FBC</del>		<del>FC</del>		<del>AgL</del>
VR	Cereus Wash	<del>Headwaters to the Fort McDowell Indian Reservation at 33°34'13"/111°42'28" boundary</del>			A&We			PBC			
VR	Chase Creek	<del>Tributary Headwaters to confluence with the East Verde River at 34°22'48"/111°16'59"</del>			A&Wc		FBC	DWS	FC		
VR	Clover Creek	<del>Tributary Headwaters to confluence with headwaters of West Clear Creek at 34°33'04"/111°24'11"</del>			A&Wc		FBC		FC		AgL
VR	Coffee Creek	<del>Tributary Headwaters to confluence with Spring Creek at 34°48'18"/111°55'41"</del>			A&Ww		FBC		FC		AgL
VR	Colony Wash	<del>Headwaters to the Fort McDowell Indian Reservation at 33°35'42"/111°42'15" boundary</del>			A&We			PBC			
VR	Dead Horse Lake	<del>34°45'00"/112°00'30" 34°45'08"/112°00'42"</del>	Shallow		A&Ww		FBC		FC		
VR	Deadman Creek	<del>Tributary Headwaters to Horseshoe Reservoir at 34°00'00"/111°42'36"</del>			A&Ww		FBC		FC		AgL
VR	Del Monte Wash	<del>Headwaters to confluence with City of Cottonwood WWTP outfall 002 at 34°43'57"/112°02'46"</del>			A&We			PBC			
VR	Del Monte Wash (EDW)	<del>City of Cottonwood WWTP outfall 002 at 34°43'57"/112°02'46" to confluence with Verde River</del>				A&Wedw		PBC			
VR	Del Rio Dam Lake	<del>34°48'55"/112°28'00" 34°48'55"/112°28'03"</del>	Sedimentary		A&Ww		FBC		FC		AgL
VR	Dry Beaver Creek	<del>Tributary Headwaters to confluence with Beaver Creek at 34°37'59"/111°49'34"</del>			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	
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°58'45"/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
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" 34°47'07"/112°02'30" 34°46'51"/112°02'01"	Igneous			A&Wc		FBC			FC		
VR	Peck's Lake	35°06'42"/112°04'08" 35°06'42"/112°04'12"	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°43'42"				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
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" 34°35'45"/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 Magdalena – 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
CL	Yuma East Wetlands	From inlet culvert from Colorado River into restored channel to Ocean <del>bridge</del> Bridge	Selenium (T) Total residual chlorine	2.2 mg/L 33 µg/L (A&Ww acute) 20 µg/L (A&Ww chronic)
SR	<u>Pinto Creek</u>	<u>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"</u>	<u>Copper (D)</u>	<u>34 µg/L</u>
CG	<u>Bright Angel Wash</u>	<u>South Rim Grand Canyon National Park WWTP at 36°02'59"/112°09'02" to Coconino Wash</u>	<u>Copper (D)</u>	<u>42.5 µg/L</u>
CG	<u>Transcept Canyon</u>	<u>North Rim Grand Canyon WWTP at 36°12'20"/112°03'35" to 1km downstream</u>	<u>Copper (D)</u>	<u>42.5 µg/L</u>