TITLE 18. ENVIRONMENTAL QUALITY
CHAPTER 9. DEP'T. OF ENVIRONMENTAL QUALITY - WATER POLLUTION CONTROL
ARTICLE 8. ADVANCED WATER PURIFICATION

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PART A. GENERAL PROVISIONS

R18-9-A801. Definitions

In addition to the definitions in A.R.S. § 49-201, the following terms apply to this Article:

"Action level" means a value or criterion established in an AWP Permit at a critical control point that, when exceeded, triggers a required response or action to prevent a potentially hazardous event and will involve actions or responses such as additional monitoring, treatment adjustments, public notification or other corrective responses or actions.

"Acute exposure threats" means the increased imminent risk of adverse health effects, including infectious diseases and toxic effects from short-term exposures to contaminants in water which triggers public notice pursuant to A.A.C. R18-4-119 (40 CFR §141.201).

"ADEQ" or "Department" means Arizona Department of Environmental Quality.

"Advanced Oxidation Process (AOP)" means a set of chemical treatment processes whereby oxidation of organic contaminants occurs on a molecular level through reactions with hydroxyl radicals or similarly aggressive radical oxidant species.

"Advanced treated water", "ATW", or "Purified Water" means water produced by an AWTF. ATW can be from more than one AWTF.

"Advanced Water Purification" or "AWP" or "Direct Potable Reuse" or "DPR" means the introduction of ATW directly into a DWTF or PWS distribution system to consumers.

"Advanced Water Purification Responsible Agency" or "AWPRA" means the applicant or permittee, comprising one or more AWPRA Partners, responsible for compliance with the requirements of the AWP program for a particular AWP project.

"Advanced Water Purification Responsible Agency Partner" or "AWPRA Partner" means any entity that collects or provides treated wastewater to the AWP project, performs wastewater

source control or treatment pursuant to this Article, or utilizes AWP project water as a source for delivery to a drinking water distribution system.

“AWP project” or “Advanced Water Purification project” means all facilities related to the advanced treatment of treated wastewater to drinking water standards operating under an AWP permit or demonstration permit.

“AWP project treatment train” means the treatment train that is designed to meet the requirements contained in this Article. Portions of the WRF or DWTFs can be part of the treatment train along with the AWTF.

“AWPRA facility” or “facility” means a DWTF, or AWTF, or a collection system, or wastewater treatment plant involved in the production of advanced treated water

“Advanced Water Treatment Facility” or “AWTF” means a facility where treated wastewater is treated, under this Article, to drinking water standards for distribution for human consumption.

“Alert level” means a value or criterion established in an AWP Permit at a critical control point that, when exceeded, alerts an operator that a potential problem may require a response.

“Amendment” means a change to the permit language resulting from a modification event.

“AWP” means Advanced Water Purification.

“Barrier” means a measure (technical, operational or managerial) implemented to control microbial or chemical constituents in advanced treated water.

“Best Management Practices” or “Best Practices” means a set of principles, guidelines and standards that an AWPRA follows to ensure high levels of quality, safety, efficiency and reliability. The principles, guidelines and standards in an AWP guidance document constitute Best Management Practice or Best Practice.

“Bioassay” means tests performed using live cell cultures or mixtures of cellular components in which the potency of a chemical or water concentrate is tested based on its effect on a measurable constituent, such as inhibition or the induction of a response (including carcinogenicity and mutagenicity). Bioassays can be used to measure synergistic, additive, and antagonistic interactions between compounds that may be present in a mixture.

“Blending” means the mixing of ATW with another water source that will result in raw water augmentation or treated water augmentation directly to the distribution system. Blending does not apply to Engineering Storage Basin where storage of only ATW takes place.

“Challenge test” means a study comparing a pathogen, surrogate parameter, or indicator compound concentration between the influent and effluent of a treatment process to determine the removal capacity of the treatment process. The concentration in the influent must be high enough to ensure that a measurable concentration is detected in the effluent (i.e., filtrate detection limit).

“Chemical” means any substance, used in or produced by a reaction involving changes to atoms or molecules, that has a defined composition and which is either naturally occurring or manufactured.

“Chemical peak” means abnormal increase in the level of a chemical that represents a potential human health hazard that is the result of intentional or unintentional illicit discharges of chemicals to the sewershed. Chemical peaks are different from normal facility variation in water quality.

“Compliance schedule” means a list of required items assigned by the Department to the Permittee to be completed in the AWP permit.

“Constituent(s) of Concern” or “COCs” means a potentially harmful or difficult to treat substance that could cause treatment interference, pass-through, or a violation either of a treatment technique requirement or of an Maximum Contaminant Level (MCL) in finished water. Constituents of concern include target chemicals in Tiers 1, 2, and 3.

“Constituent” means any physical, chemical, biological, or radiological substance or matter found in water and wastewater.

“Continuous online analyzers” means a monitoring sensor or device that monitors in real time, positioned directly in the process flow or sample line to measure treatment performance. This kind of monitoring occurs continuously, with a sample interval of 15 minutes or less.

“Critical Control Point” or “CCP” means a point in the treatment train that is specifically designed to reduce, prevent, or eliminate process failure, and for which controls exist to ensure the proper performance of that process, verified via monitoring.

“Demonstration permit” means an AWP permit that does not include distribution of ATW to drinking water consumers.

“Department” means the Arizona Department of Environmental Quality.

“Direct integrity test” means a physical test applied to a membrane unit in order to identify and isolate integrity breaches (i.e., leaks that could result in contamination of the filtrate).

“Director” means the Director of the Arizona Department of Environmental Quality…

“Disinfection treatment process” means a treatment process that either physically or chemically eliminates or inactivates pathogenic microorganisms.

“Draft permit” means a preliminary draft of a permit on which the Director has not yet made a Final Permit Determination.

“Drinking Water Treatment Facility” or “DWTF” means a water treatment facility that is designed and operated to meet the requirements of the Safe Drinking Water Act.

“Engineered Storage Buffer” or “ESB” means a storage facility used to provide retention time before ATW is introduced into a DWTF or distribution system.

“Enhanced Source Control” or “ESC” means a program that enables the AWPRA to prevent COCs, including target chemicals, from negatively impacting the AWTF, or the water it produces, by controlling them at their source.

“Exceedance” means an increase in the concentration of a COC beyond an established level such as an MCL, alert level or an action level.

“Excursion” means a deviation from established water quality boundaries for a process or at any point in a treatment train.

“Failure Response Time” or “FRT” means the maximum possible time from when a failure occurs in the treatment system to when the quality of the final product water is no longer affected by the failure. FRT is calculated as a sum of the sampling interval, sample turnaround time and system reaction time, with overall FRT based on treatment process with the highest individual FRT.

“Failure” means a condition in which an excursion in water quality or loss of performance occurs in one or more of the unit processes that results in a treatment train to not meet a performance metric or deviate from an approved operational range for parameters, necessitating a shutdown of a specific train or the entire plant for compliance.

“Filtration treatment process” means a treatment process that physically separates a constituent of concern from water.

“Finished water” or “potable water” or “finished drinking water” means water produced by an AWTF, which is also permitted as a DWTF, and is introduced into a Public Water System distribution system for human consumption without additional treatment, except for measures

required to uphold water quality within the distribution system (e.g., booster disinfection, corrosion control chemical addition).

"Good engineering practice" means a set of principles, guidelines and standards that engineers follow to ensure their work meets high levels of quality, safety, efficiency and reliability. The principles, guidelines and standards in an AWP guidance document constitute good engineering practice.

"Health Advisory" or "HA" means an estimate of acceptable levels for a chemical substance based on health effects information.

"Impactful non-domestic dischargers" means a non-domestic discharger that has been determined by the AWPRA to adversely impact public health or AWPRA treatment processes through a significant impact analysis pursuant to R18-9-E824(C).

"Indicator compound" or "Indicator" or "Performance Based Indicator" or "PBI" means a chemical found in treated wastewater that serves as a representative substance for a particular group of trace organic compounds, embodying their physical, chemical, and biodegradation properties.

"Interference" means a discharge which alone, or in conjunction with a discharge or discharges from other sources both: (1) inhibits or disrupts the WRF or AWTF, and (2) is a cause of a violation of any requirement of the AWP permit.

"ISWC" means Initial Source Water Characterization pursuant to R18-9-C814.

"Local limit" means a set of specific, local, relevant, and enforceable limits, control measures, and best management practices established to protect the AWPRA Facilities from pass through or interference that may result in a threat to public health.

"Log Reduction Value" or "LRV" means a measure of a treatment train or a treatment process' ability to remove or inactivate microorganisms such as bacteria, protozoa and viruses. LRV is the log reduction validated or credited for a treatment process or treatment train.

"Log reduction" means the logarithm base 10 of the ratio of the levels of a pathogenic organism or other contaminant before and after treatment. A reduction in the concentration of a contaminant or microorganism by a factor of 10. For example, 1 log reduction corresponds to a 90-percent reduction from the original concentration.

“Maximum Contaminant Level” or “MCL” has the same meaning set forth in Title 18, Chapter 4, Article 1 of the Code.

“Modification” means a change or changes to the treatment train or operations or any other component that will result in a change in the water quality of any unit of operation or the finished water.

“Municipal wastewater” means wastewater that contains predominantly domestic waste and may include commercial and industrial waste.

“Non-domestic sources” means both industrial and commercial sources.

“National Pretreatment Program” or “NPP” means a federal program under the Clean Water Act that is meant to protect infrastructure and receiving water to make them fishable and swimmable. This program is designed to reduce conventional and toxic pollutant levels discharged by industries and other nondomestic wastewater sources into municipal sewer systems and into the environment. The NPP’s implementing regulations are found at Title 40 of the Code of Federal Regulations, Parts 122, 123, 124, and 403 and chapter I, subchapter N.

“NPP AWPRA” means an AWPRA subject to R18-9-C813(B).

“Non-NPP AWPRA” means an AWPRA subject to R18-9-C813(C).

“Off-specification water” or “off-spec water” means water quality that does not meet established drinking water standards such as drinking water MCLs or other requirements (such as surrogates or indicators) as outlined in the AWP program.

“Operational barrier” means a barrier in the form of measures that include operations and monitoring plans, failure and response plans, and operator training and certification.

“Operational parameter” means a measurable property used to characterize or partially characterize the operation of a treatment process and must confirm the treatment barriers are intact to ensure the process is meeting the water quality and pathogen/chemical removal goals.

“Original drinking water” means finished water that was being distributed prior to the introduction of AWP water.

“Oxidized wastewater” means wastewater that is treated to a level beyond simple removal of floating and suspended solids and meets the secondary treatment levels as described in AAC R18-9-B204(B)(1) .

“Ozone with biologically active filtration” or “Ozone/BAC” means an ozonation process immediately followed by biologically activated carbon.

“Pass-through” means a condition where a constituent of concern enters the waterworks in quantities or concentrations that have a significant potential to have serious adverse effects on public health or to cause a violation either of a treatment technique requirement or of an MCL in finished water.

“Pathogen control point critical limits” means a specific monitoring point at the effluent of each pathogen removal process with a critical limit or monitoring value that indicates if that treatment is effective.

“Pathogen” means a microorganism such as bacteria, virus, or protozoa that can cause human illness.

“Pilot Study” or “Pilot train” or “Pilot” means a preliminary study and treatment train, of any scale representative to the full-scale facility, which is conducted to evaluate the feasibility, duration, cost, adverse events, and to improve upon the study design prior to performance of a full-scale project.

“Potentially impactful non-domestic discharger” means a non-domestic discharger that has been determined by the AWPRA to present potential risks to public health or treatment processes and which must be identified and tracked by the AWPRA pursuant to subsection (B)(4) of R18-9-E824.

“Product water” or “produced water” means water exiting a specific treatment process or a combination of treatment processes..

“Public Water System” or “PWS” has the same definition as the one incorporated by reference at A.A.C. R18-4-103 (40 CFR 141.2).

“Quantitative Polymerase Chain Reaction” or “qPCR” or “real-time PCR” or “quantitative real-time PCR” means a PCR-based technique that couples amplification of a target DNA sequence with quantification of the concentration of that DNA species in the reaction.

“Raw water augmentation” means introducing ATW into the raw water supply upstream of a DWTF.

"Real time monitoring" or "online monitoring" means treatment performance monitoring using instruments directly in the process flow or sample line. This kind of monitoring occurs continuously or semi-continuously, with a sample interval of 15 minutes or less.

"Recalcitrant Total Organic Carbon" or "rTOC" means the TOC found in finished water, which eventually becomes wastewater. Unlike anthropogenic TOC present in wastewater, recalcitrant TOC may not be effectively eliminated by the wastewater treatment plant and remains a constituent of the TOC in the treated wastewater.

"Redundancy" means the use of multiple treatment barriers to attenuate the same type of constituent, so that if one barrier fails, performs inadequately, or is taken offline for maintenance, the overall system will still perform effectively and risk is reduced.

"Reference Dose" or "RfD" means an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

"Reference pathogens" means Enteric viruses (specifically norovirus), Giardia lamblia cysts, and Cryptosporidium oocysts.

"Reliability" means the ability of a treatment process or treatment train to consistently achieve the desired degree of treatment, based on its inherent redundancy, robustness, and resilience

"Resilience" means the ability of a treatment train to adapt successfully and restore performance rapidly when failure occurs.

"Robustness" means the ability of an AWP system to address a broad variety of (i) constituents and (ii) changes in the concentrations of the constituents in the source water and resist a failure.

"Safe Drinking Water Act" or "SDWA" means the Safe Drinking Water Act (Pub. L. 93-523, as amended; 42 U.S.C. 300f et seq.).

"SCADA" or "SCADA System" means Supervisory Control and Data Acquisition system.

"Secondary treatment" means treated wastewater that meets the following treatment levels:

a. Five-day biochemical oxygen demand (BOD5) less than 30 mg/l (30-day average) and 45 mg/l (seven-day average), or carbonaceous biochemical oxygen demand (CBOD5) less than 25 mg/l (30-day average) or 40 mg/l (seven-day average);

b. Total suspended solids (TSS) less than 30 mg/l (30-day average) and 45 mg/l (seven-day average);

c. pH maintained between 6.0 and 9.0 standard units; and

d. A removal efficiency of 85 percent for BOD5, CBOD5, and TSS;

“Surrogate parameter” or “Surrogate” means a measurable chemical or physical property, microorganism, or chemical that has been demonstrated to provide a direct correlation with the concentration of an indicator compound or pathogen; that may be used to monitor the efficacy of constituent reduction by a treatment process; and/or that provides an indication of a treatment process failure.

“Target chemical” means any unregulated chemical causing a potential human health concern that may be present in the treated wastewater.

“Technical barrier” or “treatment barrier” means a barrier which can be viewed as a physical barrier that can be credited with treatment performance and are purification units in constant operation.

“Tier 1 chemicals” means MCLs per Code of Federal Regulations (CFR), etc. Contaminants that are regulated under SDWA, which includes MCLs or treatment techniques.

“Tier 2 chemicals” means AWP-specific contaminants that are not regulated in SDWA, but may be present in treated wastewater and may pose human health concerns.

“Tier 3 chemicals” means Performance Based Indicators that are used to monitor the performance of the treatment trains.

“Treated water augmentation” means finished drinking water from an AWTF, permitted as a DWTF, which is directly introduced into a distribution system for human consumption.

“Trace Organic Compounds” or “TOrCs” means compounds such as pharmaceuticals, personal care products, and hormones.

“Treated wastewater” means any water source, of predominantly municipal origin, from a wastewater treatment plant that has undergone treated wastewater characterization for either enhanced wastewater treatment or secondary wastewater treatment and originates from a wastewater treatment plant that has liquid stream treatment processes that, at a minimum, are designed and operated to produce oxidized wastewater to achieve a defined source water quality for additional treatment by a supplier utilizing Advanced Water Purification.

“Treatment interference” or “interference” means a discharge from a non-domestic source which alone or in conjunction with a discharge or discharges from other sources inhibits or disrupts the

AWPRA's treatment processes or operations that have a significant potential to have serious adverse effects on public health or to cause a violation either of a treatment technique requirement or of an MCL in finished drinking water.

"Treatment mechanism" means a physical, biological, or chemical action within each treatment process that reduces the concentration of a pathogen or a chemical contaminant.

"Treatment process" means a sequence of physical, chemical, or biological procedures applied to municipal wastewater or treated wastewater to remove pathogens and/or chemical constituents.

"Treatment technique" or "treatment standard" means a required process intended to reduce the level of a contaminant in drinking water.

"Treatment train" means a grouping of physical, chemical, and biological treatment technologies or processes that conditions or treats water to achieve a specific water quality goal.

"Upset" means a condition in which a temporary excursion in water quality or loss of performance in one or more of the unit processes, however, one that does not result in a treatment train to meet a performance metric. An upset may or may not result in a failure and may not necessarily lead to a shutdown.

"Water Reclamation Facility" or "WRF" or "Wastewater Treatment Plant" or "WWTP" means an arrangement of devices and structures for collecting, treating, neutralizing, stabilizing, or disposing of domestic wastewater, industrial wastes, and biosolids. For purposes of AWP, a wastewater treatment plant does not include industrial wastewater treatment plants or complexes whose primary function is the treatment of industrial wastes, notwithstanding the fact that human wastes generated incidentally to the industrial process are treated therein.

"10^{-4} cancer risk" means the concentration of a chemical corresponding to an excess estimated lifetime cancer risk of 1 in 10,000.

R18-9-A802. Program Review

A. The Department shall review the AWP program upon a significant update to the "IRIS Database" (incorporated by reference), the "Safe Drinking Water Act - Health Advisories Table" (incorporated by reference), scientific developments surrounding pathogen hazard, or at the Director's discretion.
B. During its review, the Department shall assess the program rules and components for adequacy against the most currently available data and best available science.

C. As a result of its review, the Department shall determine whether any rule should be amended or repealed, and whether any material incorporated by reference should be updated.

R18-9-A803. Applicability of Safe Drinking Water Act

A. For the purposes of this Article, treated wastewater is considered a surface water under the SDWA. Nothing in this section exempts an applicable facility from SDWA requirements.

B. In addition to meeting the requirements of this Article, an AWTF using treated wastewater to produce ATW to augment source water for drinking water distribution shall meet all applicable requirements contained in the SDWA, along with all applicable requirements in Chapters 4 and 5 of this Title.

C. An AWTF that treats treated wastewater to ATW for raw water augmentation, or to finished water for human consumption and distribution through pipes or other constructed conveyances, are PWSs for the purposes of compliance with the SDWA and all applicable requirements of this Title.

PART B. GENERAL PROGRAM REQUIREMENTS

R18-9-B804. Advanced Water Treatment Operator Certification

A. Definitions. In addition to the definitions for this Article, the following terms apply to this section:

"Absence" means an operator in Direct Responsible Charge (DRC) that is not present onsite for a maximum of an eight hour period, i.e., a shift.

"Advanced Water Purification Responsible Agency administrator" or "AWPRA administrator" means an individual appointed or authorized to exercise managerial control over a designated AWP project.

"Advanced Water Treatment certified operator" or "AWT operator" or "operator" means an individual who has passed the AWT validated examination, meets the AWT qualifying experience requirements of this section, and holds current certificates, issued by the Department, in either:

1) The field of drinking water treatment with at least a Grade 3 or Grade 4 drinking water treatment certification or,
2) The field of wastewater treatment with at least a Grade 4 wastewater treatment certification.

"AWT qualifying experience" means at least one year of hands-on experience in the operation of a minimum of three AWT processes, all within a single AWT train. Experience gained during piloting will be accepted as AWT qualifying experience. All AWP piloting requirements apply

including continuous operation during the entire duration of the pilot plant as well as scaling requirements.

"AWT validated examination" means an examination that is approved by the Department after being reviewed to ensure that the examination is based on the knowledge, skills and abilities needed to operate an AWTF.

"Direct Responsible Charge" or "DRC" means the person who has overall responsibility for the day-to-day, hands-on, operation of an AWTF.

"AWPRA facility" or "facility" means DWTF, or AWTF, or a collection system, or wastewater treatment plant involved in the production of advanced treated water.

"Professional Development Hour" or "PDH" means one hour of participation in an organized educational activity related to engineering, biological or chemical sciences, a closely related technical or scientific discipline, or operations management.

"Qualifying experience" means the same as applicable categories for receiving the certification as defined in A.A.C. R18-5-101.

"Shift operator" means a person in direct charge of the operation of a treatment facility for a specified period of the day and must be present at the site during the duration of the shift.

B. Applicability.
   1. The rules in this subsection apply to owners and operators of facilities in Arizona.

C. Certification Committee.
   1. Upon the effective date of this rule, the Director shall establish a certification committee which may, at the Department's request, make recommendations and provide the Department with technical advice and assistance related to the AWT operator certification.
   2. The AWT operator certification committee shall consist of eleven members, appointed by the Director as follows:
      a. An employee of the Department who shall serve as the executive secretary and who is responsible for maintaining records of all meetings,
      b. A currently employed operator with both Grade 4 water treatment certification and AWT operator certification,
      c. A currently employed operator with both Grade 3 water treatment certification and AWT operator certification,
      d. A currently employed operator with both Grade 4 wastewater treatment certification and AWT operator certification,
      e. A currently employed wastewater collection system operator with Grade 4 certification,
      f. A currently employed water distribution system operator with Grade 4 certification,

g. A faculty member teaching environmental engineering in the water or wastewater fields at an Arizona university or community college,
h. A professional engineer, registered and residing in Arizona, engaged in consulting in the field of environmental engineering,
i. An elected or appointed municipal official,
j. A representative of a wastewater treatment facility with a design flow of greater than 5 million gallons per day (MGD) and which participates in the NPP, and
k. A representative of a wastewater treatment facility with a design flow of less than 5 MGD, which is not a participant in the NPP.

3. The certification committee shall meet at least twice a year. At the first meeting of each calendar year, the certification committee shall select, from among its members, a chairperson and other officers as necessary.
4. A certification committee member shall serve a term of three years.
5. A certification committee member may be reappointed, but a member shall not serve more than three consecutive terms.
6. A meeting quorum consists of the chairperson or the chairperson's designated representative, the executive secretary or the executive secretary's designated representative, and three other members of the committee.
7. In the event of a vacancy caused by death, resignation, or removal for cause, the Director shall appoint a successor for the unexpired term.

D. General Requirements.
1. A facility owner shall ensure that, at all times:
a. A facility has an operator in DRC who has both Grade 4 drinking water treatment certification along with AWT operator certification and is on-site,
b. An operator makes all decisions about operational process control or system integrity regarding water quality or water quantity that affects public health,
i. An AWPRA administrator who is not a certified operator may make a planning decision regarding water quality or water quantity if the decision is not a direct operational process control or system integrity decision that affects public health.
c. In the absence of the operator in DRC, the operator in charge of the AWTF is the shift operator,
d. Any and all AWTFs must have an operator in DRC and must only be operated by staff with an AWT operator certification,

e. Operators in DRC and shift operators operating an AWTF must be certified as AWT operators,
f. All CCPs shall be operated by an AWT operator, and
h. The names of all current operators shall be reported to the Department as a component of the Operations Plan submitted pursuant to R18-9-F836.

2. If the owner of a facility replaces an operator in DRC with another operator, the facility owner shall notify the Department in writing within 10 days of the replacement.
3. An operator shall notify the Department in writing within 10 days of the date the operator either ceases operation of a facility or commences operation of another facility.
4. An operator shall operate each facility in compliance with applicable state and federal law.
5. An AWPRA permittee shall ensure that all collection systems encompassed by the enhanced source control program prescribed in R18-9-E824 are operated by a Grade 4 collection system operator.
6. An AWPRA permittee shall ensure that all WRFs providing treated wastewater to an AWTF are operated by a Grade 4 wastewater treatment plant operator.

E. Certification

1. The Department shall issue an AWT operator certificate to an applicant if the applicant:
   a. Meets the experience requirements in subsection (K) for the applicable class and grade as outlined in this section,
   b. Passes a written AWT examination, and
   c. Has not had an operator's certificate revoked in Arizona or permanently revoked in another jurisdiction.
2. To apply for operator certification, an applicant shall submit to the Department, or arrange to have submitted to the Department, the following information, as applicable, on a form approved the Director:
   a. The applicant's full name, Social Security number, and operator number(s);
   b. The applicant's current mailing address, home and work telephone numbers, fax number, and e-mail address;
   c. The applicant's place of employment, including the facility identification number;
   d. The class and grade of the facility where the applicant is employed;
   e. Proof of successful completion of the AWT examination and other applicable certificates; and
   f. Documentation of the applicant's experience required under this section.

F. Examination.

1. The Department shall provide examinations for certification of operators. The Department may contract with third party examiners for administration of examinations, based on its assessment of the quality of the examination services. The Department shall ensure that a list of approved examiners is available upon request.
2. The Department shall validate all examinations before administration. Each examination shall include topics such as advanced treatment technologies, system maintenance, regulatory protocols, safety, mathematics, and general system management.
3. The examiner shall grade the examination and make the results available to the applicant and the Department within seven days of the date of the examination.
4. An applicant shall not be admitted to an examination without a valid picture I.D.
5. An individual must achieve a score of seventy percent on the examination in order to attain a passing grade.

G. Certificate Renewal.
1. If the Department renews a certificate, the certificate is renewed for a three year term, unless the operator requests a shorter renewal term in writing.
2. An operator may renew their certificate without retaking the exam in accordance with the following:
   a. Prior to the end of their certificate term, or
   b. Following the expiration of the term, if the operator submits a completed renewal form to the Department within 90 days of the expiration date.
3. To renew a certificate, an operator shall complete and submit to the Department an operator certificate renewal, on a form approved by the Director.
4. An operator shall provide the following documentation to the Department, upon request, if necessary to verify:
   a. Completion of at least 30 PDHs accumulated during the certification term, of which:
      i. At least 10 PDHs directly relate to the specific job functions of the operator.
   b. Verification, in writing, by the operator's supervisor, or the entity that provides the education or training, of the operator's satisfaction of each PDH.
5. An operator shall maintain documentation of completion of PDHs for a minimum of five years.
6. As an alternative to the requirements of subsection (G)(2), an operator may renew a certificate by taking and passing an AWT operator examination.

H. Certificate Expiration.

1. A certification is valid for three years and shall expire if not renewed at the end of the certification term, or within ninety days of expiration, in accordance with subsection (G)(2)(b).
2. A person with an expired certificate shall re-apply in accordance with subsections (E) and (F) in order to be certified as an AWT operator.

I. AWT Operator Certificate Denial, Suspension, Probation and Revocation.

1. The Department may deny, suspend, or revoke an AWT operator certificate, and may place an operator on probation.
2. The Department shall deny a certificate if the application is deficient, the applicant fails to obtain a passing score on the examination, or upon any other determination that the applicant has not met the requirements of this section.
3. The Department may revoke or suspend a certificate, or place an operator on probation, if the Department determines that the operator:
    a. Operates a facility in a manner that violates federal or state law;
    b. Negligently operates a facility or negligently supervises the operation of a facility;
    c. Fails to comply with a Department order or court order;
    d. Obtains, or attempts to obtain, a certificate by fraud, deceit, or misrepresentation;
    e. Engages in fraud, deceit, or misrepresentation in the operation or supervision of a facility;
    f. Knowingly or negligently prepares a false or fraudulent report or record regarding the operation or supervision of a facility;
    g. Endangers the public health, safety, or welfare;
    h. Fails to comply with the terms or conditions of probation or suspension; or
    i. Fails to cooperate with an investigation by the Department including failing or refusing to provide information required by this section.
4. The action the Department takes under subsection (I)(3) may be made at the Department's discretion upon an examination of the individual facts and circumstances, the number of findings the Department makes under (I)(3), and upon consideration of other factors, such as but not limited to, additional aggravating circumstances not considered under (I)(3).
5. In performing any action under this subsection, the Department shall comply with the requirements in A.R.S. Title 41, Chapter 6, Article 10 and 18 A.A.C. 1, Article 2.

J. Reciprocity.

1. The Department shall issue a certificate to an applicant who holds a valid certificate from another jurisdiction, if the applicant:

a. Passes a written, validated AWT operator examination in Arizona or in another jurisdiction that administers an AWT examination that is substantially equivalent to the examination in Arizona and validated by the Department, and
b. Submits written evidence of the experience required under subsection (K).

K. Experience

1. The Department shall consider the following criteria to determine whether an applicant has the experience required for AWT operator certification:
   a. Years of experience as a Grade 4 drinking water treatment operator,
   b. Years of experience as a Grade 4 wastewater treatment operator, or
   c. Years of experience as a Grade 3 drinking water treatment operator.
2. An applicant shall provide written evidence of qualifying experience at the applicable facility.
3. Experience working at an AWTF will count towards experience at a Grade 4 plant.
4. An applicant shall meet the following requirements, in addition to the application requirements, to be eligible to take the examination:
   a. An applicant with a drinking water treatment Grade 4 certification must have at least one year of qualifying experience operating a Grade 4 drinking water treatment facility.
   b. An applicant with drinking water treatment Grade 3 certification must have at least two years of qualifying experience operating a Grade 3 drinking water treatment facility.
   c. An applicant with wastewater treatment Grade 4 certification must have at least two years of qualifying experience operating a Grade 4 wastewater treatment facility.
5. An applicant that meets the requirements of this section and has passed the AWT examination shall be certified in accordance with the following:
   a. An applicant with a drinking water treatment Grade 4 certification must have at least one year of AWT qualifying experience. This applicant will receive certification as AWT DRC.
   b. An applicant with drinking water treatment Grade 3 certification must have at least one year of AWT qualifying experience. This applicant will receive certification as AWT shift operator.
   c. An applicant with wastewater treatment Grade 4 certification must have at least one year of AWT qualifying experience. This applicant will receive certification as AWT shift operator.

L. Class of Facilities

1. The Department shall classify a facility as follows:

a. An existing drinking water treatment plant, or portion thereof, will receive credits for treatment and shall be classified as an AWTF,
b. A water distribution system shall be classified based on the grading systems prescribed in A.A.C. R18-5-115(B),
c. A wastewater treatment plant that supplies treated wastewater to an AWTF will be classified as a Grade 4 facility, or
d. Wastewater collection systems that collect and convey wastewater as a supply to an AWTF will be classified as a Grade 4 collection system.

2. For a multi-facility system, the Department shall grade each facility based on subsection (L)(1).

M. Transition.

1. A transition period of two years will be allowed from the date when the rules were effectuated.

R18-9-B805. Advanced Water Purification Responsible Agency Formation

A. An AWPRA shall be the entity responsible for complying with the requirements of this Article. Only one AWPRA shall be designated for an AWP project.

B. Joint Plan. An AWPRA shall develop a Joint Plan describing all partner coordination procedures, including but not limited to, the following:

1. Identification of each partner associated with the AWP project throughout the project's expected operational life, a description of the roles and responsibilities of each partner, including designation of a lead partner responsible for fulfilling the requirements under the communication plan established in accordance with subsection (C)(4), and the legal authority of each partner to fulfill its roles and responsibilities,
2. Procedures to ensure that the AWPRA will have knowledge of the current treatment and water quality monitoring status of any WRF delivering treated wastewater as a source to the AWP project,
3. Procedures to ensure the enhanced source control program complies with the requirements in this Article, pursuant to R18-9-E824,
4. A communication plan ensuring the timely dissemination of information regarding both treated wastewater quality status and monitoring as well as finished water quality status and monitoring among all partners,

5. Procedures to provide access to the AWPRA and all partner facilities, operations, and records for inspection at any time by the Department,
6. Procedures to execute cross-connection control requirements, pursuant to Chapter 4, Article 2 and R18-9-F832 of this Article,
7. Procedures to execute corrosion control requirements, pursuant to Chapter 4, Article 1 and R18-9-F832,
8. Procedures to notify partners and the Department of treatment failure incidents and corresponding corrective actions taken,
9. A plan outlining all enforcement and corrective actions taken should a partner fail to meet the requirements of this Article or violate the Joint Plan, and
10. Procedures to address changes to the AWPRA partners, including the addition of new partners and the removal of existing partners, in accordance with the requirements of the AWP program.

C. The AWPRA and all partners shall sign the Joint Plan.

D. The Joint Plan shall include copies of all necessary agreements executed to facilitate the operation of the AWP project, including but not limited to copies of permits, memorandums of understanding, joint powers agreements, or intergovernmental agreements.

E An AWPRA shall adhere to the reporting requirements established pursuant to R18-9-E830.

R18-9-B806. General Requirements

A. Distribution of ATW is prohibited until distribution approval is explicitly given to the AWPRA through either:
   1. Issuance of the AWP permit, if full scale certification was completed and approved as part of the application, or
   2. After satisfaction of the compliance schedule requirements in an issued AWP permit established by the Department pursuant to R18-9-C816(E).

B. Construction materials used at the AWTF, including materials used at AWPRA partner facilities, except for WRFs, that collect, treat, store, or distribute water for human consumption through pipes or other constructed conveyances, shall be lead-free as prescribed in A.R.S. § 49-353(B). This subsection shall not apply to leaded joints necessary for the repair of cast iron pipes.

C. Treated wastewater used to supply an AWP project shall be municipal wastewater in origin.

D. Confidentiality of Information. In accordance with A.R.S. § 49-205, any information submitted to the Director pursuant to this Article may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words “confidential business

information" on each page containing such information. If no claim is made at the time of submission, the Director may make the information available to the public without further notice.

1. If a claim is asserted, the information will be treated in accordance with the procedures in A.R.S. § 49-205 (Availability of information to the public).
2. Claims of confidentiality for the following information will be denied:
   a. The name and address of any permit applicant or permittee,
   b. Information which deals with the existence, absence, or level of contaminants in drinking water.

R18-9-B807. Inspections, Violations, and Enforcement

A. The Department shall conduct inspections of a permitted AWPRA facility as specified under A.R.S. § 41-1009.

B. A person who owns or operates an AWPRA facility contrary to a provision of Article 8 of this Chapter or violates a condition of an AWP permit or demonstration permit is subject to the enforcement actions established under A.R.S. Title 49, Chapter 2, Article 4.

R18-9-B808. Recordkeeping

A. The AWPRA shall collect and retain the following information for at least ten years:
   1. Copies of laboratory analyses and chain of custody forms,
   2. The results of all analyses of chemicals and pathogens, including laboratory data, and
   3. Copies of all plans and technical components prepared and submitted to the Department under the AWP permit application.

B. For the records described in subsections (A)(1) through (A)(3), the following certification statement signed by a responsible agent of the AWPRA: "I certify, under penalty of law, that the activities conducted pursuant to the requirements of Title 18, Chapter 9, Article 8 have been made under my direction and supervision and under a system designed to ensure that qualified personnel properly gather and evaluate the information to determine whether the applicable requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

R18-9-B809. Compliance with Plans

A. An AWPRA shall conform to all proposed plans and specifications when constructing any part of their pilot facility such that the facility accurately reflects the proposal as recorded.

1. Prior to issuance of an AWP permit or demonstration permit and when the pilot facility is the same as the proposed full-scale facility, any change in a proposed design that will affect finished water quality, capacity, flow, or performance, shall be documented by the AWPRA applicant and submitted to the Department for review and approval, during the AWP permit stage, in the form of revised plans and specifications, along with a written statement regarding the reasons for the change.
    a. Record drawings documenting these changes, prepared by a professional engineer registered in Arizona, pursuant to R18-9-B810, shall accompany the submission to the Department.

B. An AWPRA shall conform to all approved plans and specifications when constructing any part of their full-scale facility.
    1. Following issuance of an AWP permit, any change in an approved design that will affect finished water quality, capacity, flow, or performance, shall be submitted by the AWPRA permittee to the Department for review and approval through a permit amendment.
        a. If there is a change to an approved design, the AWPRA shall notify the Department and shall not proceed with any construction related to the design change without written approval from the Department, except in cases of emergency in which the AWPRA must act promptly to respond to an immediate and significant threat to human health and approval from the Department would unduly delay or prevent the AWPRA from addressing the threat.
            i. In instances of emergency, the AWPRA shall, at the first available and safe moment, but not exceeding 30 days of the emergency, notify the Department of the emergency, detail the change made from the approved design, and describe all response methods utilized during the emergency to protect ATW quality.
        b. An AWPRA's failure to notify and obtain the Department's approval of a change in an approved design under this subsection is subject to enforcement as a permit violation pursuant to R18-9-B807.

R18-9-B810. Record Drawings

A. An Arizona-registered professional engineer shall clearly and accurately record or mark, on a complete set of working project drawings, each deviation from the original plan, and a written summary of each deviation which shall include, but is not limited to:
    1. A description of the deviation,
    2. The reason for the deviation, and

3. The projected impact the deviation will have on ATW quality.
    a. If an impact is identified, the description shall be accompanied by an explanation on how the AWPRA will address the impact to maintain compliance with ATW quality standards.

B. The set of marked drawings and written summary of deviations becomes the record drawings, reflecting the project as actually built.

C. The professional engineer registered in Arizona shall sign, date, and place their engineer's seal on each sheet of the record drawings and written summary of deviations and submit them to the Department as part of the permit application. The record drawings shall be accompanied by an engineer's certificate of completion, signed by the professional engineer.

D. Quality control testing results and calculations shall be submitted with the engineer's certificate of completion together with field notes and the name of the individual witnessing the tests.

R18-9-B811. Outreach; Public Communications Plan

A. An AWPRA applicant/permittee shall develop a Public Communications Plan for the purpose of providing drinking water consumers in the service area with education, awareness, and transparency related to the AWP project.

B. Public Communications Plan. The Plan shall include, but is not limited to, the following:
    1. Consumer Notification.
        a. An AWPRA applicant shall notify all drinking water consumers of its intention to apply for an AWP Permit for treatment and distribution of ATW as a drinking water source.
        b. An AWPRA applicant/permittee shall maintain communication with the consumers throughout all major program phases, including planning, application, operations, and post-operations.
        c. Throughout the planning phase, the AWPRA applicant shall communicate its intention to implement an AWP project in the manner prescribed in this subsection.
            i. Communication to the public through the use of a local, publicly-accessible repository in which the AWPRA posts information about the AWP project, contains a forum for public question and comment, and a place for responses. Such a repository shall be active at the time the AWPRA applicant submits an application for an AWP permit to the Department, and shall be maintained for the lifetime of the project.
            ii. At least one notification by mail or by another Department-approved method to all of its consumers prior to a public meeting related to the AWP project.
            iii. Scheduling and holding at least one public meeting during the planning stage of the AWP project.

iv. Communication to the public through at least one additional Department-approved method.
v. Provision of all relevant information in appropriate languages as necessary as well as contact information provided to the public on how a consumer may obtain translated written communications or request language assistance for written and oral communications.

d. During the application phase, the AWPRA applicant shall schedule and hold at least one public meeting no less than six months prior to distributing AWP finished water from the AWP project.

2. Acceptable Methods of Communication.
   a. Department-approved methods of communication include the following:
      i. Coverage through a local news outlet (e.g. television, newspaper, social media),
      ii. Community event(s) (e.g. setting up table/booth),
      iii. Local school(s) and school events,
      iv. Providing opt-in email or text notifications to customers,
      v. Consumer confidence reports, water bill inserts, or other mail notification,
      vi. Neighborhood association meeting(s) and civic organizations, or
      vii. Other methods may be accepted at the Director's discretion.
3. Community Engagement.
   a. An AWPRA applicant shall involve local government(s) throughout the AWP project phases, as necessary.
   b. An AWPRA applicant shall develop a list of all relevant stakeholders and interest-holders that they intend to communicate with. Such a list shall, at a minimum, include local health authorities and medical professionals, and may additionally include:
      i. City/town councils and boards,
      ii. Local elected officials,
      iii. Community organizations that represent disproportionately impacted communities,
      iv. Local environmental groups,
      v. Industry groups, or
      vi. Schools/school boards.
   c. An AWPRA applicant may conduct surveys, focus groups, or other means of collecting local information for the purpose of demonstrating community perception and opinion of the prospective AWP project introduction, and throughout all succeeding project phases.
4. Certification.

a. An AWPRA applicant shall certify the Plan meets the minimum requirements in this section.
b. The certified Plan shall include metrics demonstrating compliance with the requirements of this section, including, but not limited to:
    i. Access to the publicly-accessible repository, such as a web address,
    ii. Description of the methodology selected for communication,
    iii. The numbers of mailers sent,
    iv. The number of government entities and other leaders reached,
    v. A description of the public meetings held including date, time, and method of notice, and
    vi. A description of any outreach conducted in other languages.
c. An AWPRA applicant shall submit a draft Plan as a component of the AWP permit application pursuant to R18-9-C816.
d. After being issued the AWP permit, and at least 30 days prior to distributing ATW, an AWPRA permittee shall submit a certified final Plan to the Department pursuant to the compliance schedule set forth in their AWP permit.

PART C. PRE-PERMIT AND PERMIT REQUIREMENTS

R18-9-C812. Pre-Application Conference; Project Advisory Committee

A. Upon request of the AWPRA applicant, the Department shall schedule and hold pre-application conference(s) with the AWPRA applicant to discuss the requirements of this Article.
B. Following a pre-application conference or at the Director's discretion, the Department may assemble a project advisory committee (PAC) for the purpose of providing project-specific technical consultation to the Department throughout the application process.
    1. The PAC may be composed of appropriate experts selected by the Department to assist in review as necessary.
    2. Experts may include, but are not limited to, toxicologists, State of Arizona licensed engineers, epidemiologists, microbiologists, chemists, and utility representatives.
    3. PAC recommendations are advisory only.

R18-9-C813. Applicant Pathways

A. An AWPRA applicant shall submit the application components in the order and format set forth in this section, in addition to the order and format prescribed by the applicable rules within this Article.

B. NPP AWPRA. An AWPRA with all WRF partner(s) subject to NPP may elect to either:
   1. Submit the ISWC Plan and the Pilot Study Plan to the Department for review and comment prior to the AWP permit application in the order and format set forth in R18-9-C814 and R18-9-C815, or
   2. Submit the ISWC Report and Piloting Report to the Department for approval as components of the AWP permit application pursuant to R18-9-C816.

C. Non-NPP AWPRA. An AWPRA with at least one WRF partner not subject to NPP shall, throughout the pre-application period and in the order and format set forth in R18-9-C814 and R18-9-C815, submit the ISWC Plan and the Pilot Study Plan to the Department for review and comment.
   1. The Non-NPP AWPRA shall additionally submit the ISWC Report and Pilot Report to the Department for approval pursuant to R18-9-C816.

R18-9-C814. Initial Source Water Characterization

A. An AWPRA applicant shall develop an ISWC Plan and shall conduct initial monitoring of any treated wastewater proposed to be used as a source for an AWTF.

B. ISWC Plan. An ISWC monitoring plan, or ISWC Plan, shall be developed and followed when conducting initial monitoring in accordance with this section.
   1. A Non-NPP AWPRA applicant shall submit the ISWC Plan to the Department for review and comment prior to conducting initial source water monitoring under this section.
      a. Along with the ISWC Plan, the AWPRA applicant shall submit the following additional preliminary components to the Department for review and comment:
         i. A draft enhanced source control plan, or ESC plan, prepared pursuant to R18-9-E824,
         ii. A draft technical, managerial, and financial, or TMF Capacity Plan, prepared pursuant to R18-9-F833,
         iii. A proposed pilot train designed pursuant to R18-9-C815, and
         iv. A draft Public Communications Plan prepared pursuant to R18-9-B811.
   2. An NPP AWPRA applicant may submit the ISWC Plan to the Department for review and comment prior to conducting initial source water monitoring under this section, an approach recommended by the Department, or otherwise shall submit the ISWC Plan and Report to the

Department as a component of the AWP permit application prepared pursuant to R18-9-C816.

a. An AWPRA applicant that elects to submit the ISWC Plan to the Department for review and comment prior to conducting initial source water monitoring under this section may also elect whether or not to submit the additional preliminary components listed in subsection (B)(1)(a) to the Department for contemporaneous review and comment.

C. Monitoring. An AWPRA applicant shall conduct initial source water monitoring at all WRF delivering treated wastewater as a source to an AWTF.

1. Monitoring shall be conducted at a location before any treatment process that will be used for a treatment credit in the AWP project and before the point of diversion to the AWTF.
2. Chemical Monitoring.
   a. The AWPRA applicant shall collect a minimum of twelve monthly composite samples representative of seasonal variability.
   b. If there is wide variability in a chemical concentration, meaning the coefficient of variation is greater than 50 percent, the AWPRA applicant shall reasonably increase the sampling interval in order to evidence this variability.
   c. The AWPRA applicant shall sample for the following chemicals, excluding those identified on the projected chemical treatment list developed in R18-9-E826:
      i. Tier 1 chemicals,
      ii. Tier 2 chemicals pursuant R18-9-E826(D)(4)(f)(ii), and
      iii. Any projected Tier 3 chemicals.
3. Pathogen Monitoring.
   a. The AWPRA applicant shall utilize reference pathogens to monitor pathogen treatment within the AWP project and establish log reduction requirements consistent with either a standard log reduction approach or a site-specific log reduction approach pursuant to R18-9-E828.
   b. Standard Log Reduction. If the AWPRA applicant selects the standard log reduction approach to pathogen control, no initial pathogen monitoring is required as part of ISWC.
   c. Site-Specific Log Reduction. If the AWPRA applicant selects the site-specific log reduction approach to pathogen control, the AWPRA applicant shall perform initial pathogen monitoring as part of ISWC by following the prescribed sampling protocol pursuant to R18-9-E828(C).
4. In addition to the requirements of this section, initial source water monitoring under an ISWC Plan shall be conducted using good engineering practices. Initial source water monitoring

conducted in a manner consistent with the criteria contained in (TBD Guidance Document - incorporated by reference) shall be considered to have been conducted using good engineering practices.

a. Other methods for initial source water monitoring shall be approved if the AWPRA applicant can demonstrate that the methods are sufficiently detailed and robust for the purpose of characterizing the treated wastewater used as a source for an AWTF in such a manner that informs the proposed pilot and full-scale treatment train design and serves as an accurate representation of the collection system.

D. Report. Within three months of the conclusion of initial source water monitoring for both chemicals and pathogens, if applicable under subsection (C)(3)(c), whichever concludes later, and utilizing the data collected under such monitoring, an ISWC Report shall be prepared that includes, but is not limited to, the following:

1. The date, time, frequency and exact place of sampling,
2. The name of each individual who performed the sampling,
3. The procedures used to collect the samples,
4. The dates the sample analyses were completed,
5. The name of each individual or laboratory performing sample analysis,
6. The analytical techniques or methods used to perform the sampling and analysis,
7. The chain of custody records,
8. Any field notes relating to the information described under this subsection,
9. The sampling results which account for seasonal variability,
10. Corresponding laboratory data for all samples, and
11. A copy of the ISWC Plan developed in subsection (B).

E. Report Submission.

1. A Non-NPP AWPRA applicant shall submit the ISWC Report in subsection (D) to the Department for review and comment as a component of the Pilot Study Plan prepared pursuant to R18-9-C815. Additionally, a Non-NPP AWPRA applicant shall submit the ISWC Report as a component of the AWP permit application prepared pursuant to R18-9-C816.
2. An NPP AWPRA applicant, if electing to submit a Pilot Study Plan to the Department for review and comment, may include the ISWC Report in subsection (D) as a component, or otherwise shall submit the ISWC Report as a component of the AWP permit application prepared pursuant to R18-9-C816.

F. The Department shall consider an AWPRA applicant's conformance with the ISWC requirements in this Article as a component of the AWP permit application. The Director shall deny an AWP

permit application if a determination is made that, under the ISWC Plan, monitoring was improperly conducted or is otherwise insufficient to achieve the objectives of chemical and pathogen characterization, or if the ISWC Report is incomplete or otherwise insufficient to demonstrate compliance with the Plan.

R18-9-C815. Pilot Study

A. An AWPRA applicant shall develop a Pilot Study Plan and conduct piloting on a pilot treatment train.
   1. If an AWPRA builds a pilot facility to full scale, an AWPRA may conduct full scale verification pursuant to R18-9-F835 instead of the piloting requirements in this section.
      a. For the purposes of the AWP permit pursuant to R18-9-C816, the Full Scale Verification Plan and Report shall be submitted instead of the Pilot Study Plan and Pilot Study Report.

B. Pilot Study Plan. A Pilot Study Plan shall be followed when constructing the pilot treatment train and piloting in accordance with this section.
   1. A Non-NPP AWPRA applicant shall submit the Pilot Study Plan to the Department for review and comment prior to conducting piloting under this section.
   2. An NPP AWPRA applicant may submit the Pilot Study Plan to the Department for review and comment prior to conducting piloting under this section, an approach recommended by the Department, or otherwise shall submit the Pilot Study Plan to the Department as a component of the AWP permit application prepared pursuant to R18-9-C816.
   3. Pilot Study Plan. The Plan shall include, but is not limited to, the following:
      a. The pilot study objectives,
      b. A description of the proposed pilot treatment train,
      c. The design criteria for each treatment component pursuant to R18-9-F832,
      d. A design report and drawing,
      e. An explanation of the pilot train's representation of the scale and the performance of the proposed full-scale AWTF and the selected treatment components therein,
      f. A time period for which the pilot study will be conducted of no less than one year of continuous operation,
      g. A monitoring plan which shall include, but is not limited to, the following:
         i. The proposed monitoring and instrumentation,
         ii. The proposed chemical CCPs designated pursuant to R18-9-E827(D),
         iii. The proposed pathogen CCPs designated pursuant to R18-9-E828(D), and

iii. A finished water sampling plan, and

h. The proposed Tier 3 chemical list prepared pursuant to R18-9-E827, and

i. The projected chemical treatment list prepared pursuant to R18-9-E826(E).

4. The Pilot Study Plan may include:

a. The ISWC Report prepared pursuant to R18-9-C814(D), if finalized prior to piloting. This approach is recommended by the Department.

5.. The pilot treatment train shall be selected from, and optimized in accordance with, the projected chemical treatment list developed pursuant to R18-9-E826(F) and pathogen log reduction values established pursuant to R18-9-E828.

6. If a Pilot Study Plan includes the discharge of effluent and the facility is subject to the Aquifer Protection Permit program, or "APP" program, as prescribed in Articles 1, 2, and 3 of this Chapter, an APP application for permit coverage shall be submitted and effective before pilot train operation.

C. Piloting. Pathogen and chemical removal shall be demonstrated during the pilot study by conducting sampling in accordance with the established monitoring plan developed in subsection (B)(3)(g).

1. Sampling shall be conducted at a minimum of two locations, the influent and effluent of the pilot treatment train, in accordance with the proposed CCPs.

2 In addition to the requirements of this section, the pilot study shall be conducted using good engineering practices. A pilot study conducted in a manner consistent with the criteria contained in (TBD Guidance Document - incorporated by reference) shall be considered to have been conducted using good engineering practices.

a. Other pilot study approaches shall be approved if the AWPRA applicant can demonstrate that the study sufficiently and consistently verifies the performance of chosen treatment components, provides the opportunity to evaluate the effectiveness of different types of treatment components, and informs the design of the full-scale AWP treatment train.

D. Report. At the conclusion of piloting a Pilot Study Report shall be prepared and submitted to the Department as a component of the AWP permit application pursuant to R18-9-C816. The Pilot Study Report shall include, but is not limited to, the following:

1. A demonstration of the effectiveness, reliability, and consistency of the treatment components in achieving pathogen and chemical removal in accordance with the Pilot Study Plan under subsection (B),

2. A list of WRF operational parameters and ranges that produced the AWTF treated wastewater influent water quality.

E. The Department shall consider an AWPRA applicant's conformance with the pilot study requirements in this Article as a component of the AWP Permit application. The Director shall deny an AWP Permit application if a determination is made that, under the Pilot Study Plan, piloting was improperly conducted or is otherwise insufficient to achieve the objectives of the pilot study, or if the Pilot Study Report is incomplete or otherwise insufficient to demonstrate compliance with the Pilot Study Plan.

R18-9-C816. Advanced Water Purification Permit

A. An AWPRA applicant for an AWP permit shall provide the Department with the following information on an application form prescribed by the Director:
   1. Application: Administrative Requirements.
      a. The names and mailing addresses of all AWPRA partners,
      b. The names and mailing addresses of the representative of the AWPRA and owners and operators of all AWPRA partner facilities,
      c. The legal description, including latitude and longitude, of the location of all AWPRA partner facilities,
      d. The expected operational life of the AWPRA partner facilities,
      e. The permit number for any other federal or state environmental permit issued to any AWPRA partner for that facility or site,
      f. A copy of the AWPRA's Joint Plan and corresponding agreements pursuant to R18-9-B805,
      g. A copy of the certificate of disclosure required by A.R.S. § 49-109,
      h. Evidence that the AWTF complies with applicable municipal or county zoning ordinances, codes, and regulations,
      i. Certification in writing that the information submitted in the application is true and accurate to the best of the AWPRA applicant's knowledge, and
      j. All applicable fees established in 18 A.A.C. 14;
   2. Application: Technical Requirements.
      a. Copies of the following documents:
         i. Detailed completed or prospective construction plans of the site, presented in legible form and of sufficient scale and detail to establish construction requirements and to facilitate effective review,
         ii. Record drawings pursuant to R18-9-B810,

iii. Complete specifications to supplement the completed or prospective construction plans in subsection (A)(2)(a)(i), including vendor data demonstrating validation information, and

iv. A design report which:

(1) Describes the completed or prospective construction and the basis of design,

(2) Provides design data and other pertinent information that defines the work, and

(3) Establishes the adequacy of the design to meet the system demand and comply with the requirements of this Article,

b. A Full-Scale Verification Plan, including data demonstrating scaling feasibility, prepared pursuant to R18-9-F835,

c. A draft Operations Plan prepared pursuant to R18-9-F836,

d. The Pilot Study Plan and report prepared pursuant to R18-9-C815,

e. A list of construction material used pursuant to R18-9-B806,

f. A demonstration of TMF capacity pursuant to R18-9-F833,

g. An initial Enhanced Source Control Plan pursuant to the program developed in R18-9-E824,

h. The ISWC Plan and ISWC Report prepared pursuant to R18-9-C814,

i. A demonstration of compliance with all minimum design requirements pursuant to R18-9-F832,

j. The proposed pathogen and chemical action levels for ongoing monitoring,

k. The draft Public Communications Plan pursuant to R18-9-B811, and

l. Any other relevant information required by the Department to determine whether to issue a permit.

B. Draft permit. The Department shall provide the AWPRA applicant with a draft of the AWP permit prior to publication of the Notice of Preliminary Decision pursuant to R18-9-D820.

C. Permit issuance or denial. The following requirements apply in addition to the requirements in R18-9-D823:

1. The Director shall issue an AWP permit, based upon the information obtained by or made available to the Department, if the Director determines that the AWPRA applicant is in compliance with this Article, and the applicable requirements in Chapter 4, Articles 1 and 2, and Chapter 5, Article 5.

2. The Director shall provide the AWPRA applicant with written notification of the final determination to issue or deny the permit within the overall licensing time-frame requirements under 18 A.A.C. 1, Article 5, Table 10 and the following:

a. The AWPRA applicant's right to appeal the final permit determination, including the number of days the applicant has to file a protest and the name and telephone number of the Department contact person who can answer questions regarding the appeals process,
b. If the AWP permit is denied under R18-9-D823, the reason for the denial with reference to the statute or rule on which the denial is based, and
c. The AWPRA applicant's right to request an informal settlement conference under A.R.S. §§ 41-1092.03(A) and 41-1092.06.

D. The Department shall only approve an AWP permit for an AWPRA applicant when all AWPRA partners are in compliance with this Chapter and Chapter 4, Articles 1 and 2 or are making satisfactory progress towards compliance under a schedule previously approved by the Department.

E. Post-Permit Issuance Compliance Schedule.
1. The following technical components are not required as part of the application in subsection (A) but are required prior to distribution of ATW, submitted in the time and manner set forth in a compliance schedule which shall be established by the Department under the AWP permit:
a. The final design documents including as-built construction and configuration reports of all engineered elements of the facility prepared pursuant to R18-9-B810 and any document changes from what was proposed in the pre-construction application requirements.
b. An Operations Plan prepared pursuant to R18-9-F836, including, but not limited to, the following:
i. A list of operators who are certified by the Department appropriately for all facilities within an AWP project, including any potable water distribution systems,
c. The Full-Scale Verification Report prepared pursuant to R18-9-F835,
d. A vulnerability assessment prepared pursuant to R18-9-F837,
e. Compliance with approved plans pursuant to R18-9-B809,
f. The final Public Communications Plan pursuant to R18-9-B811,
g. The final Enhanced Source Control Plan pursuant to the program developed in R18-9-E824,
h. A engineer's certificate of completion of a final inspection of the AWTF signed, dated, and sealed by an Arizona-registered professional engineer in a format approved by the Department, and
i. Any other relevant information required by the Department.

F. Distribution of ATW is prohibited until all post-permit compliance schedule requirements pursuant to subsection (E) are met.

G. All design plans, specifications, and design reports submitted under this section shall be signed, dated, and sealed by an Arizona-registered professional engineer. The Arizona-registered professional engineer shall make the following demonstration to the Department for each person principally responsible for designing the facility:

1. Pertinent licenses or certifications held by the person,
2. Professional training relevant to the design of an AWTF, WRF or DWTF, and
3. Work experience relevant to the design of AWTF, WRFs or DWTFs.

R18-9-C817. Demonstration Permit

A. An AWPRA may apply for an AWP demonstration permit for the purpose of showcasing the AWTF for public outreach, AWP finished water tasting, and other related non-distribution purposes.

B. Introduction of ATW into a drinking water distribution system for human consumption is prohibited under an AWP demonstration permit.

C. Demonstration Permit Application.

1. An AWPRA applying for an AWP demonstration permit shall meet all the application requirements of R18-9-C816, excluding requirements to demonstrate full-scale verification.
2. The AWPRA applicant applying for an AWP demonstration permit shall submit a preliminary application containing the information required in subsection (C)(1) to the Department on an application form prescribed by the Director.
3. The Department shall, based on the preliminary application and in consultation with the AWPRA applicant, provide the AWPRA applicant notice of any additional information that is necessary to complete the application.

D. All design plans, specifications, and design reports submitted under this section shall be signed, dated, and sealed by an Arizona-registered professional engineer. The Arizona-registered professional engineer shall make the following demonstration to the Department for each person principally responsible for designing the facility:

1. Pertinent licenses or certifications held by the person,
2. Professional training relevant to the design of an AWTF, WRF or DWTF, and
3. Work experience relevant to the design of AWTF, WRFs or DWTFs.

E. Demonstration AWTFs may be of any scale.

F. An AWPRA permittee issued a demonstration permit may request that an operator of the demonstration facility be credited advanced water treatment operator certification experience for a verified full-scale AWTF commensurate with the relative experience he or she obtained by operating the demonstration facility.

G. The public notice and public participation requirements in R18-9-D819 and R18-9-D820 apply to demonstration permits issued under this section.

H. The permit suspension, revocation, denial, and termination requirements in R18-9-D823 apply to demonstration permits issued under this section.

I. The permit term and permit renewal requirements in R18-9-D822 apply to demonstration permits issued under this section.

R18-9-C818. Compliance Schedule

A. An AWPRA permittee shall follow the compliance schedule established in the AWP permit.
   1. If a compliance schedule provides that an action is required more than one year after the date of permit issuance, the schedule shall establish interim requirements and dates for their achievement.
   2. If the time necessary for completion of an interim requirement is more than one year and is not readily divisible into stages for completion, the permit shall contain interim dates for submission of reports on progress toward completion of the interim requirements and shall indicate a projected completion date.
   3. An AWPRA permittee shall submit to the Department a compliance schedule item report documenting that the required action was taken within the time period specified in the compliance schedule of the AWP permit.
   4. After reviewing the compliance schedule activity, the Director may amend the AWP permit, based on changed circumstances relating to the required action.

B. Distribution of ATW is prohibited until the Department approves all compliance schedule items established under the AWP permit pursuant to R18-9-C816(E).

C. The Department shall consider all of the following factors when setting any additional compliance schedule requirements not prescribed under R18-9-C816(E):
   1. The impact on ATW quality,
   2. The impact on drinking water customers,
   3. The requirements for permit amendment, and
   4. Any other factors determined at the Director's discretion.

PART D. GENERAL PERMIT REQUIREMENTS

R18-9-D819. Public Notice

A. AWP Permits.

1. The Department shall provide the entities specified in subsection (A)(2) with monthly written notification, by regular mail or electronically, of the following:
   a. Receipt of AWP permit or demonstration permit applications,
   b. Preliminary and final determinations by the Director related to issuance or denial of an AWP permit or demonstration permit,
   c. Issuance of significant permit amendments,
   d. A determination made by the Director to revoke a permit, and
   e. Issuance of a permit renewal.
2. Entities.
   a. Each county department of health, environmental service department, or comparable department;
   b. A federal, state, local agency, or council of government, that may be affected by the permit action; and
   c. A person who requested, in writing, notification of the activities described in subsection (A)(1).

B. The Department shall additionally post the information referenced in subsections (A)(1) and (2) on the Department website: www.azdeq.gov

R18-9-D820. Public Participation

A. Notice of Preliminary Decision.

1. The Department shall publish a notice of preliminary decision regarding the issuance or denial of a significant amendment or a final permit determination related to an AWP project on its website as well as in one or more newspapers of general circulation where the AWTF is located.
   a. Along with the public notice, the Department shall provide a copy of the draft permit along with a fact sheet for the AWP project.
   b. The AWPRA applicant or permittee of the AWP project shall publish the notice of preliminary decision regarding the issuance or denial of a significant amendment or a final permit determination in a mailer sent to all drinking water customers within their service area.

2. The Department shall accept written comments from the public before a significant amendment or a final permit determination is made.
3. The written public comment period begins on the publication date of the notice of preliminary decision and extends for 30 days.

B. Public hearing.
1. The Department shall provide, at minimum, a 30-day notice and shall conduct a public hearing to address a notice of preliminary decision regarding a significant amendment or final permit determination if:
   a. Significant public interest in a public hearing exists, or
   b. Significant issues or information has been brought to the attention of the Department that have not been considered previously in the permitting process.
2. If, after publication of the notice of preliminary decision, the Department determines that a public hearing is necessary, the Department shall schedule a public hearing and publish notice of the public hearing on its website and in one or more newspapers of general circulation where the facility is located.
   a. The AWPRA applicant or permittee of the AWP project shall publish the notice of public hearing in a mailer sent to all drinking water customers within their service area.
3. The Department shall accept written public comment until the close of the hearing record as specified by the person presiding at the public hearing.

C. The Department shall respond in writing to all comments submitted during the formal public comment period.

D. The Department shall notify an AWPRA applicant or permittee of a significant amendment or final permit determination through regular or electronic mail.
1. Simultaneously, and in the same manner, the Department shall provide a notice of the amendment or determination along with the summary of response to comments to any person who submitted comments or attended a public hearing on the significant amendment or final permit determination.
2. The AWPRA applicant or permittee of the AWP project shall publish the final determination regarding the issuance or denial of a significant amendment or a final permit determination in a mailer sent to all drinking water customers within their service area.

R18-9-D821. Permit Amendments

A. The Director may amend an AWP permit based upon a request or upon the Director's initiative.

1. A permittee shall submit a request for permit amendment in writing on a form prescribed by the Director with the applicable fee established in 18 A.A.C. 14, explaining the facts and reasons justifying the request.
2. The Department shall process amendment requests following the licensing time-frames established under 18 A.A.C. 1, Article 5, Table 10.
3. An amended permit supersedes the previous permit upon the effective date of the amendment.

B. Significant Amendment.
1. Significant AWP permit amendments include, but are not limited to:
   a. Changes to the enhanced source control program that will result in a change in the water quality of any unit of operation or the ATW,
   b. Any modification to the facility that will result in a change in the water quality of any unit of operation or the ATW,
   c. Any change to the CCPs,
   d. Reductions to monitoring,
   e. Changes to any approved blending plans,
   f. Significant source water quality changes that will result in a change in the water quality of any unit of operation or the ATW,
   g. Any other modification that is not minor under subsection (C), and
   h. The addition or removal of an AWPRA partner from the AWPRA.
2. An AWPRA permittee shall submit, along with the detailed permit amendment request in subsection (A)(1), an explanation of the proposed modifications as well as the safeguards that the AWTF will implement to ensure that the quality of the water served will not be adversely affected by any modification.

C. Minor Amendment.
1. Minor AWP permit amendments include, but are not limited to:
   a. Correcting typographical errors;
   b. Changing non-technical administrative information;
   c. Correcting minor technical errors, such as locational information and citations of law;
   d. Increasing the frequency of monitoring or reporting;
   e. Making changes in a recordkeeping retention requirement; and
   f. Changes to the treatment train, monitoring equipment, or any other component that is not a replacement of, or substantially similar to the approved components, but will not result in a change in the ATW.

D. The public notice and public participation requirements in R18-9-D819 and R18-9-D820 apply to a significant amendment. A minor amendment does not require public notice or public participation.

R18-9-D822. Permit Term; Permit Renewal

A. An AWP permit and demonstration permit are valid for five years from the date the permit is issued.

B. An AWPRA permittee authorized under an AWP permit or demonstration permit shall submit an application for renewal on a form prescribed by the Director with the applicable fee established in 18 A.A.C. 14 at least 180 calendar days before the end of the permit term.

1. If an administratively complete application for renewal of an AWP permit or demonstration permit is not received by the Department prior to the end of the permit term, the AWP permit or demonstration permit expires.
2. If an administratively complete application for renewal of an AWP permit or demonstration permit is received by the Department prior to the end of the permit term, the AWP permit or demonstration permit retains its validity until the renewal is issued.

C. The AWPRA permittee shall demonstrate the following requirements to the Department in a renewal application submitted on a form prescribed by the Director:

1. Continued compliance throughout the most recent AWP permit term, or otherwise documentation of data related to any excursion from approved AWP water quality parameters and evidence of corrective actions taken in response to the excursion,
    a. Excursions shall be monitored at all AWP project components including, but not limited to:
        i. The treatment process at the AWTF,
        ii. The treatment process at the WRF,
        iii. The collection system, and
        iv. Any non-domestic discharger regulated under the enhanced source control program.
2. Facility design documents and as-built construction and configuration reports of all engineered elements of the facility which accurately represent the most current facility, pursuant to R18-9-B810, along with documentation of any compliance challenges with the approved facility design within the most recent AWP permit term,
3. Any proposed modification to an operation, treatment process, treatment configuration, or water quality parameter from the facility design most recently approved under an AWP permit shall result in preparation and submission of the following documents to the Department, as necessary or upon the Director's determination:

a. Detailed construction plans of the site and work to be done, presented in legible form and of sufficient scale, to establish construction requirements to facilitate effective review,
b. Complete specifications to supplement the construction plans in subsection (C)(3)(a), including vendor data demonstrating validation information,
c. A design plan that describes the proposed construction and basis of design, provides design data and other pertinent information that defines the work to be done, and establishes the adequacy of the design to meet the system demand and the requirements of this Article,
d. A certificate of completion of a final inspection of the AWTF signed, dated, and sealed by an Arizona-registered professional engineer in a format approved by the Department,
e. A Pilot Study Plan and report prepared pursuant to R18-9-C815,
f. A list of construction material used pursuant to R18-9-B806, and

4. An updated Operations Plan, prepared pursuant to R18-9-F836, and revised, as necessary, which includes, but is not limited to:
   a. A updated list of operators who are certified by the Department appropriately for all facilities within an AWP project, including any potable water distribution systems, and
   b. Documentation of any periods of operator absence within the most recent AWP permit term, and
5. An updated vulnerability assessment, prepared pursuant to R18-9-F837, along with documentation of any compliance challenges with the vulnerability mitigation approach previously adopted within the most recent AWP permit term,
6. An updated Public Communications Plan, prepared pursuant to R18-9-B811, along with documentation of any changes to the AWPRA's service area during the most recent AWP permit term that affected plan implementation,
7. An updated Enhanced Source Control Plan, prepared pursuant to the program developed in R18-9-E824, with documentation of any changes to the Plan within the most recent AWP permit term,
8. An updated TMF demonstration, prepared pursuant to R18-9-F833, with documentation of any changes made to the previously approved demonstration in effect during the most recent AWP permit term,
9. Documentation of source water characterization in compliance with the approach under ISWC pursuant to R18-9-C814, as applicable if changes to the sewershed occur which impact the source water characterization report in effect during the most recent AWP permit term,
10. A renewed demonstration of compliance with all minimum design requirements pursuant to R18-9-F832, and

11. An updated Monitoring Plan, prepared pursuant to R18-9-E829, including the proposed pathogen and chemical action levels.

R18-9-D823. Permit Suspension, Revocation, Denial, or Termination

A. The Director may, after notice and opportunity for hearing, suspend or revoke an AWP permit or demonstration permit upon a determination of any of the following:
   1. The AWPRA permittee failed to comply with any applicable provision of this Title or any permit condition,
   2. The AWPRA permittee misrepresented or omitted a fact, information, or data related to an AWP permit application or permit condition,
   3. A permitted activity is causing or will cause a violation of the SDWA or any requirement of this Article at the entry point to a distribution system for delivery to drinking water consumers,
   4. A permitted AWP facility is causing or will cause imminent and substantial endangerment to public health or the environment,
   5. The AWPRA permittee failed to maintain the financial capability pursuant to R18-9-F833, or
   6. The AWPRA permittee failed to construct a facility within five years of permit issuance.

B. The Director may deny an AWP permit or demonstration permit upon a determination that the AWPRA applicant has:
   1. Failed or refused to correct a deficiency in the permit application;
   2. Failed to demonstrate that the facility and the operation will comply with the requirements of this Article and all applicable requirements in Chapters 4 and 5 of this Title. The Director shall base this determination on:
      a. The information submitted in the AWP permit application,
      b. Any information submitted to the Department following a public hearing, or
      c. Any relevant information that is developed or acquired by the Department, or
   3. Provided false or misleading information.

C. The Director may terminate an AWP permit or AWP demonstration permit if the AWP project covered under the permit:
   1. Is in substantial non-compliance with this Article or the SDWA such that the continued operation of the facility presents a risk to public health or public safety that can not be sufficiently abated or addressed through other enforcement mechanisms available to the Department under this Article,
   2. Fails to pay any fee required under A.A.C. Title 18, Chapter 14,
   3. Is determined to have provided false information to the Department, or certified false or misleading reports,

4. Is abandoned or no longer actively distributing or producing water under an AWP permit or demonstration permit,
5. Experiences a change in ownership or operation such that the AWPRA is no longer the responsible entity under the AWP permit or demonstration permit, or
6. At the permit holder's request upon prior notification to the Department.

PART E. CONSTITUENT CONTROL, MONITORING, AND REPORTING

R18-9-E824. Enhanced Source Control

A. Treated wastewater used to supply an AWP project shall originate from a WRF that has local authority to implement an enhanced source control program, including authority for oversight, enforcement, and inspection.

B. An AWPRA applicant shall develop, and an AWPRA permittee shall maintain, a locally authorized enhanced source control program which shall:
   1. Include enforcement for civil and criminal complaints for program violations in a court of competent jurisdiction within the State of Arizona;
   2. Identify, control, or eliminate COCs discharged into the collection systems through the use of COC control methods including local ordinances and local limits;
   3. Include a summary of local limits and other discharge control methods;
   4. Include a list of potentially impactful non-domestic dischargers in the service area;
      a. A potentially impactful non-domestic discharger is a source that meets one of more of the following:
         i. The source is subject to NPP pretreatment standards;
         ii. The source may adversely affect the AWTF operation including pass-through or interference;
         iii. The source has potential to have serious adverse effects on public health;
         iv. The source has potential to prevent the AWPRA from achieving requisite treatment standards for any contaminant regulated under this Article;
         v. The source has potential to cause a violation of a Tier 1 standard, or
         vi. The source has otherwise been designated as potentially impactful by the WRF.
      b. The potentially impactful non-domestic discharger list shall be utilized to generate a list of impactful non-domestic dischargers, subject to additional control measures, in accordance with subsection (C);

c. The list shall be reported to ADEQ every year through the annual report prepared pursuant to R18-9-E831;
d. The list shall be continuously updated with newly introduced chemicals or new potentially impactful non-domestic dischargers, or as a result of any other event that causes a change within the collection systems impacting the ATW quality;
e. The list shall be verified through open and ongoing communication, as well as routine site visits with the identified potentially impactful non-domestic discharger:
    i. Verification may include inquiry into chemical use, potential discharges, and any potential or planned changes in operation that could impact the ATW quality; and
f. The list shall be accompanied by collection system investigations to identify sources of Tier 1 or 2 chemical peaks that have a significant impact on ATW quality:
    i. These investigations shall occur at all necessary sewer lines, manholes, force mains, lift stations, and other collection system components.

5. Include a map of the collection system components, which shall be submitted to the Department and shall include locations of the potentially impactful non-domestic discharges in the collection system;
6. Include a list of all WRFs in the collection system that provide treated wastewater to the AWPRA as a source under the AWP program along with a description or map of their respective boundaries;
7. Include activities that protect the WRF(s) and AWTF(s) from COC pass-through or interference which may include, but are not limited to, the creation of additional local limits or addressing routine monitoring activities;
8. Include a pollutant reduction and elimination plan that addresses both non-domestic and domestic dischargers with the goal of mitigating or eliminating COCs prior to entry into the collection system. The plan shall, at a minimum, include the following:
    a. A determination of whether targeted outreach is necessary;
        i. Targeted outreach programs shall be developed for non-domestic dischargers determined to be impactful in accordance with subsection (C)(2);
    b. Education and encouragement of non-domestic dischargers determined to not be impactful in accordance with subsection (C)(2) to participate in pollution prevention programs or environmental stewardship programs that reduce or eliminate the discharge of COCs into the collection system, including the requirement to consider alternatives to COC usage,
    c. A public outreach program for domestic dischargers; and
    d. Notification and public hearings on the AWP program and significant program developments;

9. Include a septage hauler control program that tracks and monitors loads, including a load sampling program,
    a. Results from load sampling shall be maintained for a minimum of five years;
10. Implement a program to receive early warning for the purpose of attaining advanced notice of an incoming COC peak. An early warning system shall include, at a minimum, the following:
    a. Online monitoring instrumentation located either in the influent to the WRF, in the collection system, or at the discharging entity that measures COCs or surrogate parameter(s) and that indicates potential treatment interference, pass-through, or a violation of an AWP action level;
    b. A process for notification to the AWPRA of any discharge that can potentially result in the release of contaminants above local limits established pursuant to subsection (B)(3);
    c. Cooperation with local county public health departments, as necessary, to track COC peaks from disease outbreaks or other impactful health events;
    d. A response plan developed pursuant to subsection (B)(10), and
    e. Other early warning measures required by the Department, which are necessary to protect the operations of the AWPRA project treatment or prevent contamination of the ATW, based on a review of application components submitted to the Department for review, and on the availability of such measures;
11. Be audited at least every five years by an independent party to assess the effectiveness of the enhanced source control program in controlling the discharge of contaminants;
12. Include a clear and comprehensive response plan to address COC exceedances. The response plan shall be created in partnership with all relevant AWPRA partners. The plan shall include, at a minimum, the following:
    a. A procedure for addressing COC peaks with the potential to impact ATW quality;
    b. An investigation and identification of the exceedance source, or if no source is identified, the initiation of a collection system sampling program;
    c. The designation of the leading facility responsible for communication with the AWPRA partners;
    d. A procedure for when and how to notify the Department upon a COC exceedance;
    e. A procedure for the bypass and/or shutdown of the AWTF, if necessary;
    f. An effective training program ensuring the understanding of the response plan by the responsible personnel;
    g. A review of the operation and calibration records for online meters and any relevant analytical methods upon the detection of a COC exceedance; and

h. Submission of a memorandum of understanding (MOU) or other contractual agreement between all entities necessary to effectuate the response plan.

13. Prohibit the discharge of any of the following to the WRF:
    a. Pollutants which create a fire or explosion hazard, including, but not limited to, waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR Part 261.21,
    b. Pollutants which will cause corrosive structural damage;
        i. Including discharges with a pH lower than 5.0, unless the treatment works is designed to accommodate such discharges.
    c. Solid or viscous pollutants in amounts which will cause obstruction to the flow resulting in interference;
    d. Any pollutant, including oxygen demanding pollutants (biochemical oxygen demand, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause Interference;
    e. Heat in amounts which will inhibit biological activity resulting in Interference;
        i. Including heat in such quantities that the temperature at the WRF exceeds 40 °C (104 °F), unless the approval authority, upon request of the WRF, approves alternate temperature limits;
    f. Petroleum oil, non biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
    g. Pollutants which result in the presence of toxic gas, vapors, or fumes in a quantity that may cause acute worker health and safety problems; and
    h. Any trucked or hauled pollutants, except at discharge points designated by the WRF.
14. Include local authority for the AWPRA to take the following actions to determine compliance of a potentially impactful non-domestic discharger with a local ordinance:
    a. Receive and analyze all self-monitoring reports and notices submitted by potentially impactful non-domestic dischargers;
    b. Randomly sample and analyze effluent from potentially impactful non-domestic dischargers and conduct surveillance and inspection activities needed to identify, independently of any information supplied by such users, occasional or continuing noncompliance with any local limit or requirement; and
    c. Investigate instances of noncompliance with any ESC ordinance when notice of any actual or probable noncompliance has been received by the AWPRA;

15. Report all program elements in this subsection to the Department annually, pursuant to R18-9-E831;
16. Include any other relevant information required by the Department.

C. Impactful Non-Domestic Dischargers List.
   1. From the potentially impactful non-domestic dischargers list developed in subsection (D)(4), the AWPRA applicant shall develop a list of impactful non-domestic dischargers by conducting a significant impact analysis for each potentially impactful non-domestic discharger that considers, but is not limited to, the following factors:
      a. Average wastewater discharged into the collection system;
      b. Dilution of discharge within the collection system;
      c. The nature of the discharge and its constituents;
      d. The ability of downstream treatment processes to address the discharge; and
      e. The effect the discharge will have on treatment processes and finished AWP water.
   2. The AWPRA Permittee shall subject the identified impactful non-domestic dischargers in the collection system to additional control measures including, but not limited to:
      a. Locally established discharge limits,
      b. Locally established monitoring, and
      c. Targeted outreach.
   3. The list shall be reported to ADEQ every year through the annual report prepared pursuant to R18-9-E831.

D. In addition to the requirements of this section, an enhanced source control program shall be developed, conducted and maintained using good engineering practices. An enhanced source control program that is in alignment with the criteria contained in (TBD Guidance Document - incorporated by reference) shall be considered to have been designed using good engineering practices.
   1. Other enhanced source control program components shall be approved if the AWPRA applicant can demonstrate that the method is sufficiently detailed and robust for the purpose of enhanced source control, pursuant to this Article.

E. An AWPRA shall form and maintain a source control committee that includes representatives from each AWPRA partner that supplies treated wastewater to the AWP project or that owns and/or operates a WRF that provides treatment, as well as representatives from key non-domestic dischargers and others that discharge to the collection system chemicals that may pose a risk to public health.

R18-9-E825. Tier 1 Chemical Control; Maximum Contaminant Levels

A. For the purposes of this Article, Tier 1 chemicals are the (incorporated by reference) version of the Primary Drinking Water Maximum Contaminant Levels under 40 CFR 141 Subpart G.

B. Copies of the incorporated material are available for review at the Arizona Department of Environmental Quality, 1110 W. Washington St., Phoenix, AZ, 85007, and are available from the U.S. General Printing office at http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR

R18-9-E826. Tier 2 Chemical Control; Advanced Water Purification-Specific Chemicals

A. An AWPRA shall conduct a Tier 2 analysis under this section in order to propose alert and action levels for Tier 2 chemicals at the AWTF and to identify the chemical controls necessary to be implemented by the AWPRA in the following manner:
   1. An AWPRA applicant shall conduct the analysis as a required technical component of their permit application for an AWP permit or an AWP demonstration permit, pursuant to R18-9-C816 and R18-9-C817, respectively.
   2. Once permitted, an AWPRA permittee shall conduct a new Tier 2 analysis under this section:
      a. If the AWPRA is aware of, becomes aware of, or should reasonably be aware of:
         i. The identification of additional potentially impactful non-domestic dischargers pursuant to R18-9-E824(B)(4), or
         ii. Significant volumetric adjustments to an AWPRA WRF's total daily volume of treated wastewater that are likely to modify the calculation for the safe volume of water consumed per day in relation to each chemical pursuant to subsection (D)(5)(f) of this section, or
      b. If changes to any component of the permitted AWP project occur that will result in an exceedance of an action level, or
      c. At a minimum, every five years as a component of a permit renewal application pursuant to R18-9-D822.

B. Non-Domestic Dischargers List. The AWPRA Applicant shall list all non-domestic dischargers in any collection system that is ultimately treated by the AWPRA WRF.

C. Chemical Inventory List. The AWPRA Applicant shall generate a list of chemicals that are used, stored or discharged by all non-domestic dischargers in the list from subsection (B) above.
   1. The AWPRA applicant shall add chemicals used at the WRF and the AWTF to the chemical inventory list.

D. Tier 2 Analysis. The AWPRA applicant shall conduct the following analysis for each chemical identified in the Chemical Inventory List in subsection (C) above:

1. Calculate the projected daily load for each chemical in the inventory list generated in subsection (C) for each non-domestic discharger in the list generated in subsection (B) (Mass loading of contaminant (lb/day) = Flow (MGD) x Maximum Concentration (mg/L) x 8.34 (for unit conversion));
2. Calculate the projected total daily load of each chemical in the inventory list generated in subsection (C) for all non-domestic dischargers in the list generated in subsection (B), cumulatively. (Total Contaminant Load (lb/day) = ∑ Mass loading (lb/day) for all dischargers);
3. Calculate the projected daily concentration of each chemical in the chemical inventory list in the treated wastewater by comparing the collection system's projected total daily load from subsection (D)(2) for each chemical in the chemical inventory list against the total influent flow of treated wastewater at the head of the proposed AWTF using the following formula:

$$Expected\ concentration\ (mg/L) = \frac{Total\ Contaminant\ Load\ (\frac{lb}{day})}{Total\ Influent\ Flow\ (MGD) \times 8.34}$$

4. For chemicals with established health advisories in the HA Table:
   a. Compare the projected daily concentration calculated in subsection (D)(3) with the lowest health advisory value, from one of the following values:
      i. One-day (mg/L),
      ii. Ten-day (mg/L),
      iii. DWEL (mg/L),
      iv. Life-time (mg/L), or
      v. mg/L at 10^{-4} Cancer Risk; and
   b. If the projected daily concentration exceeds the health advisory value, the chemical is considered to be a Tier 2 chemical and the analysis in subsection (D)(5) need not be conducted for that chemical;
5. Safe Volume of Water Consumed Analysis.
   a. Obtain the Reference Dose (RfD) (mg/kg-day), Cancer Slope Factor (CSF) or both, if issued, from the IRIS Database (incorporated by reference) or the Safe Drinking Water Act - Health Advisories Table (HA Table)(incorporated by reference):
      i. If neither an RfD, nor a CSF has been issued for a particular chemical in the IRIS Database or HA Table:

(1) The chemical shall be considered a Tier 2 chemical along with those determined to be Tier 2 chemicals in subsection (D)(5)(f)(ii);

(2) An AWPRA applicant shall determine the chemical's health risk through a reasonably appropriate bioanalytical studies and/or bioassays;

(3) Alert and action levels shall be proposed for the chemical that are reasonably protective of human health utilizing the results of the bioanalytical studies or bioassays; and

(4) The AWPRA permittee shall monitor the IRIS Database or Health Advisories Table and update the action level as necessary upon any change therein, or

ii. If a particular chemical has either an RfD and a CSF or only a CSF issued in the IRIS database or the HA Table, then proceed to the Risk Specific Dose calculation step in subsection (D)(5)(d), or

iii. If a chemical has only an RfD issued in the IRIS database or the HA Table, skip the Risk Specific Dose calculation in subsection (D)(5)(d) below and proceed to the calculation of the safe exposure level in subsection (D)(5)(e);

d. Calculate the Risk Specific Dose (RSD) (mg/kg-day) using the following formula: RSD = 10^{-4} / CSF;

e. Calculate the safe exposure level (mg) of each chemical using the minimum value of either the RfD or the RSD, an average body weight (BW) of 70 kg, and 10% of an average life expectancy of 70 years (Safe Exposure level (mg) = min (RfD or RSD) x BW (kg) x 70 years x 365 days/year x 0.10);

f. Calculate the safe volume of water consumed (L/day) in relation to each chemical using the corresponding safe exposure level and life span assumptions from subsection (D)(5)(e) and the expected contaminant concentration from subsection (D)(3), as follows:

$$Safe\ volume\ of\ water\ consumed\ \left(\frac{L}{day}\right) = \frac{Safe\ Exposure\ level\ (mg)}{Expected\ concentration\ \left(\frac{mg}{L}\right) \times (70 \times 365) days\ \times 0.10}$$

i. If the safe volume of water consumed is ≥ 2.5 L/day, the contaminant is not expected to pose any health consequences and monitoring is not required pursuant to R18-9-E829, or

ii. If the safe volume of water consumed is < 2.5 L/day, monitoring is required pursuant to R18-9-E829;

6. Each chemical determined under subsection (D)(5)(f)(ii) to require monitoring and subsection (D)(4)(b) is considered to be a Tier 2 chemical;
7. Action Levels. An AWPRA applicant shall propose an action level for each Tier 2 chemical with a corresponding health advisory value.
    a. Tier 2 chemicals with corresponding health advisory values in the HA Table shall be assigned the lowest of the following:
        i. One-day (mg/L),
        ii. Ten-day (mg/L),
        iii. DWEL (mg/L),
        iv. Life-time (mg/L), or
        v. mg/L at 10-4 Cancer Risk; and
    b. Tier 2 chemicals without corresponding health advisory values in the HA Table shall determine the chemical's health risk through reasonably appropriate bioanalytical studies and/or bioassays;
        i. Alert and action levels shall be proposed for the chemical that are reasonably protective of human health utilizing the results of the bioanalytical studies or bioassays.

E. Pass-Through or Interference Chemical List. The AWPRA applicant shall analyze the chemical inventory list in subsection (C) in order to identify chemicals that are known to or expected to pass through or interfere with AWTF treatment processes. The AWPRA applicant shall generate a list to be used in subsection (F).

F. Projected Chemical Treatment List. Based on the Tier 1 MCLs, the Tier 2 list generated in subsection (D)(5)(f)(ii) or (D)(7), and the pass through or interference chemical list generated in subsection (E), the AWPRA applicant shall select an optimized pilot and full-scale AWTF treatment train and compile a list of chemicals that are projected to be treated by the selected treatment train.
    1. During the pilot study, pursuant to R18-9-C815, the AWPRA applicant shall demonstrate chemical control of all chemicals on the Projected Chemical Treatment List through treatment at the pilot treatment train.
    2. All chemicals that are not able to be controlled through treatment at the pilot or full-scale AWTF shall be controlled through measures adopted by the AWPRA in its Enhanced Source Control Program pursuant to R18-9-E824.
        a. The selected control measures shall be submitted to the Department along with the Enhanced Source Control Plan pursuant to R18-9-C816 and R18-9-C817.

G. An AWPRA permittee shall maintain the lists of chemicals identified under subsections (C) and (E) and, if a new Tier 2 analysis conducted under subsection (D) results in a modification to any component of the AWP project, the AWPRA shall request an amendment to their AWP Permit pursuant to R18-9-D821.

R18-9-E827. Tier 3 Chemical Control; Performance-Based Indicators

A. An AWPRA applicant shall identify Tier 3 chemicals for the purpose of monitoring the efficacy of reduction by a treatment component at the pilot and full-scale treatment trains or to provide an indication of a process's failure.
   1. An AWPRA applicant shall include an initial Tier 3 chemical list along with proposed critical control points, or CCPs, as a component of the Pilot Study Plan prepared pursuant to R18-9-C815.

B. Tier 3 chemicals are composed of performance-based indicators or PBIs which the AWPRA applicant shall select based on the requirements of this section.
   1. The AWPRA applicant shall monitor each PBI and demonstrate chemical removal for all selected treatment components in the treatment train.
   2. PBIs may be grouped under a surrogate such that the AWPRA applicant may monitor removal of that surrogate in place of PBIs if the following requirements are met:
      a. All PBIs in the group share similar properties such that removal of the surrogate is adequately representative of every PBI in that group, and
      b. The AWPRA applicant demonstrates that the surrogate is directly correlated to the concentration of a PBI.

C. PBIs. Each PBI shall be selected from pre-existing chemicals identified in the treated wastewater either through the ISWC report pursuant to R18-9-C814(D) or shall otherwise be introduced by the AWPRA applicant.
   1. Pre-Existing. PBIs selected from pre-existing chemicals identified in the treated wastewater shall be selected in accordance with, but not limited to, the following criteria:
      a. Concentration. To demonstrate adequate percentage of removal, a PBI shall have a median concentration at least five times greater than its Method Reporting Limit (MRL), measured as the Detection Ratio (DR).
      b. Prevalence. To adequately reflect treatment efficacy, the PBI shall have a consistent Detection Frequency (DF) of greater than 80% in the treated wastewater. Measurements shall be made in accordance with well established analytical methods,

c. Measurability. Measurements demonstrating Concentration and Prevalence pursuant to subsections (C)(1)(a) and (b) shall be made in accordance with established and appropriate analytical methods that are sufficiently precise and sensitive.

d. Specificity. The PBI shall be removable by the targeted treatment process(es) it is intended to monitor.

i. The PBI shall meet the Prevalence and Concentration criteria at the influent of the targeted treatment process pursuant to subsections (C)(1)(a) and (b).

e. Sensitivity. The PBI shall be sufficiently sensitive such that the targeted treatment process achieves at least 75% removal when functioning as designed.

f. Diversity. For all PBIs selected from pre-existing chemicals, the AWPRA applicant shall demonstrate the following:

i. Each chemical treatment process is monitored by at least one PBI, and

ii. The treatment train as a whole is monitored by at least one PBI which is partially removed by each treatment process, but only removed to at least 75% if all treatment processes are functioning as intended.

2. Introduced. If no pre-existing chemicals are relevant as a PBI for a specific treatment process, the AWPRA applicant shall introduce a PBI for the purpose of testing the selected treatment process for requisite chemical removal in compliance with this section. For each introduced PBI an AWPRA applicant shall:

a. Reasonably demonstrate the selected treatment process performance, and

b. Include an established procedure for introduction into the treatment train.

D. CCPs. For each PBI, the AWPRA applicant shall designate CCPs where monitoring will occur in the pilot treatment train to indicate individual process performance.

1. The AWPRA applicant may propose CCPs at only the treatment train influent and effluent points if all PBIs are demonstrated to be sufficiently recalcitrant to upstream and downstream processes.

E. In addition to the requirements of this section, Tier 3 chemical list compilation and monitoring shall be generated, designed and conducted using good engineering practices. Tier 3 chemicals or Tier 3 chemical monitoring generated, designed and conducted in a manner consistent with the criteria contained in (TBD Guidance Document - incorporated by reference) shall be considered to have been generated, designed and conducted using good engineering practices.

1. Other methods for generating, designing and conducting Tier 3 chemicals and monitoring shall be approved if the AWPRA applicant can demonstrate that the alternative method is sufficiently detailed and robust for the purpose of monitoring the efficacy of reduction by a treatment process at the pilot or full-scale treatment train, or to provide an indication of process failure.

R18-9-E828. Pathogen Control

A. The AWP project shall be designed and constructed to achieve pathogen reduction by following the prescribed methods to determine LRVs for enteric viruses, Giardia lamblia cysts, and Cryptosporidium oocysts, also referred to collectively as reference pathogens, as outlined in either subsection (B) or (C) of this section.

B. Standard Log Reduction. An AWPRA applicant choosing the standard log reduction approach shall design the AWP project to achieve the following cumulative validated treatment values from raw wastewater to finished water:
   1. 13 log reduction for enteric viruses,
   2. 10 log reduction for Giardia lamblia cysts, and
   3. 10 log reduction for Cryptosporidium oocysts.

C. Site-Specific Log Reduction. An AWPRA applicant choosing a site-specific log reduction approach shall design the AWP project based on cumulative validated treatment values determined through reference pathogen monitoring pursuant to subsection (C)(3)(c) of R18-9-C814 and the following:
   1. Site-specific pathogen monitoring for the reference pathogens shall be conducted over a period of at least 24 months and shall include, at a minimum:
      a. One month of initial composite sampling consistent with the following requirements:
         i. For the first month:
            (1) One sample taken daily,
            (2) The samples obtained in subsection (C)(1)(a)(i)(1) shall be used, at the end of the first month, to identify the day of the week that yields the highest pathogen density.
      b. At least 23 months of pathogen monitoring consistent with the following requirements:
         i. One sample taken per month at the same day of the week throughout the sampling period as established in subsection (C)(1)(a).
         ii. The sample obtained in subsection (C)(1)(b)(i) shall be taken consistently during the same week each month.
   2. Any missed sample collected under subsections (C)(1)(a) or (b) of this section shall result in an extension of the sampling period by another week or month as appropriate and cannot be replaced with a sample from a different day,
   3. Sampling shall occur at a location in the WRF treatment train before the first disinfection treatment process and before treated wastewater transference to the AWTF,
   4. Laboratory analysis of samples collected pursuant to this section shall follow qPCR or culture methods with standard quality assurance and quality control procedures and recovery correction,

5. Sample results below method reporting limit (MRL) shall be reported at the MRL of the analytical instrument for characterization calculations and be flagged as such,
6. Non-detects from laboratory analysis must be demonstrated with a large sample volume analysis.
7. An AWPRA applicant shall have a cumulative validated treatment of not less than 8 log for enteric viruses, 6 log for Giardia lamblia cysts, and 5.5 log for Cryptosporidium oocysts even if non-detects are demonstrated by the sampling program,
8. The highest sample concentration for each reference pathogen shall be used to calculate the required log removal targets,
9. Norovirus shall be used as the representative enteric virus for baseline virus enumeration.
    i. The AWPRA applicant shall utilize either qPCR or culture methods for analysis,
    ii. All corresponding recovery-corrected data shall be documented for review, and
    iii. The results shall be documented for review with accompanying quality assurance and quality control.

D. CCPs. For each reference pathogen, the AWPRA applicant shall designate CCPs where monitoring will occur in the pilot plant and the full scale plant in order to assess individual process performance.
1. CCP designation shall be accompanied by a comprehensive plan for monitoring and reporting, including, but not limited to, the following elements:
    i. Type of monitoring (i.e. online monitoring, continuous monitoring, grab samples, etc.),
    ii. Frequency of monitoring (i.e. 15-minute, hourly, daily, weekly, etc),
    iii. Instantaneous flow rate and flow totalizing capability for the purpose of calculating residence times and responses,
    iv. Demonstrated operational parameters confirming the treatment barriers are intact such as to ensure the process is meeting the water quality parameters and pathogen removal goals,
    v. A list of the identified Action levels and Alert limits, accompanied by the corresponding responses for all CCPs, pursuant to R18-9-F836.
2. CCP monitoring shall occur at all validated treatment process locations,
3. The AWPRA applicant shall document the CCP methods and the following elements as components of the Operations Plan prepared pursuant to R18-9-F836:
    i. All delay times from the pathogen sampling time, instrument analysis time, operator response time, as well as anticipated time to respond to a failure, and
    ii. Automated shutdown procedures based on pathogen CCP failure, along with a description of shutdown sequences, procedures, and timing.

E. In addition to the requirements of this section, pathogen monitoring shall be designed and conducted using good engineering practices. Pathogen monitoring conducted in a manner consistent with the

criteria contained in (TBD Guidance Document - incorporated by reference) shall be considered to have been designed and conducted using good engineering practices.

1. Other methods for designing and conducting pathogen monitoring shall be approved if the AWPRA applicant can demonstrate that the method is sufficiently detailed and robust for the purpose of characterizing pathogens in a treated wastewater source.

R18-9-E829. Ongoing Monitoring Requirements

A. The AWPRA permittee shall perform ongoing monitoring in compliance with the requirements of this section.
   1. The AWPRA permittee shall assure compliance with both pathogen control log reduction targets and chemical control limits for Tiers 1, 2, and 3 at the AWTF treated wastewater influent and the AWP finished water.
   2. The AWPRA permittee shall assure continued process performance at CCPs.
   3. The AWPRA permittee shall perform sampling on the finished water prior to distribution to an entry point to a distribution system pursuant to the requirements of the SDWA.

B. Pathogen Control Monitoring.
   1. An AWPRA Permittee shall monitor in a manner proposed pursuant to R18-9-E828.

C. Tier 1 Chemical Control Monitoring.
   1. The AWPRA permittee shall monitor for all Tier 1 chemicals at a quarterly interval, except for TOC and Nitrate/Nitrite, measured as Nitrogen, which shall be monitored pursuant to subsection (F) and R18-9-F834, respectively,
   2. The AWPRA permittee shall conduct Tier 1 monitoring at two locations relative to the AWTF:
      a. The treated wastewater influent; and
      b. The finished water effluent.
   3. Violations of Tier 1 chemicals, except for TOC and Nitrogen, are the corresponding SDWA-MCL values at the finished water effluent,
   4. Nothing in this section exempts the AWPRA permittee from SDWA monitoring requirements applicable to surface water treatment plants.

D. Tier 2 Chemical Control Monitoring.
   1. The AWPRA permittee shall monitor for all Tier 2 chemicals monthly,
   2. The AWPRA permittee shall conduct Tier 2 monitoring at two locations relative to the AWTF:
      a. The treated wastewater influent; and

b. The finished water effluent.

3. Compliance monitoring for Tier 2 chemicals occurs at the finished water location.
   a. If a monitoring result for a Tier 2 chemical indicates an exceedance of an action level, the AWPRA shall collect a confirmation sample within 24 hours of the exceedance.
   b. A Tier 2 action level is violated when the average of the initial sample and the confirmation sample exceeds the action level.
      i. Upon violation, an AWPRA shall notify the Department and conduct any required response procedures pursuant to R18-9-E830, R18-9-F836 and subsections (D)(3)(c) through (D)(3)(f),
   c. Basic Response Procedure. Upon a violation as described in subsection (D)(3)(b), and with the goal of reducing the concentration of the exceeded chemical to a level below the action level, the AWPRA shall:
      i. increase the monitoring frequency of the chemical to weekly,
      ii. initiate an investigation of the source of the chemical, the cause of the elevated result, and the efficacy of the treatment process.
   d. An AWPRA shall conduct the corresponding Advanced Response Procedure in subsection (D)(3)(e) if either of the following two results occur:
      i. A Tier 2 chemical with a non-cancer toxicological endpoint has a subsection (D)(3)(b) result of 10 times the action level, or
      ii. A Tier 2 chemical considered to pose a cancer risk (corresponding to a lifetime cancer risk of $1x10^{-4}$) has a subsection (D)(3)(b) result of 100 times the action level.
   e. Advanced Response Procedure.
      i. If a subsection (D)(3)(d)(i) result occurs, an AWPRA shall:
         (1) Notify ADEQ within 24 hours of the notification of the result, and
         (2) Report that detection in the water system's annual consumer confidence report (CCR).
      ii. If a subsection (D)(3)(d)(ii) result occurs, an AWPRA shall:
         (1) Cease distribution of ATW immediately,
         (2) Notify ADEQ within 24 hours of the notification of the result,
         (3) Provide public notification if ATW with those exceedances was distributed (if diverted, public notice is not required),
         (4) Report the result in the water system's annual consumer confidence report (CCR),

(5) Utilize treatment or blending to meet the exceeded Tier 2 chemical's action level upon returning the ATW to distribution, and

(6) Propose corrective actions, such as rectifying changes to the treatment and operations of the AWTF, and installing new control measures for the treated wastewater source.

f. Reduced Monitoring Frequency Criteria. ADEQ may allow, upon request, a decrease in the Tier 2 sampling frequency from monthly to quarterly, based on a review of the most recent two years of monthly analytical results showing a chemical has not been detected.

i. The monitoring frequency may be decreased from quarterly to annually following ADEQ approval, based on a review of the most recent three years of quarterly analytical results showing the chemical has not been detected.

ii. The Department may revert a required sampling frequency to previous intervals at their discretion.

E. Tier 3 Chemical Control Monitoring. The AWPRA permittee shall:

1. Monitor for all Tier 3 chemicals at the designated CCPs in the manner and timeframes proposed by the AWPRA pursuant to R18-9-E827 and R18-9-F836.

F. Ammonia and Nitrite/Nitrate measured as Nitrogen.

1. The AWPRA permittee shall monitor for Ammonia and Nitrite/Nitrate as Nitrogen using continuous online analyzers.
2. The AWPRA permittee shall conduct Ammonia, Nitrite/Nitrate monitoring at two locations relative to the AWTF:
   a. The treated wastewater influent; and
   b. The AWP finished water effluent.
3. The AWPRA permittee shall demonstrate that all Ammonia has been removed at the AWP finished water location.
4. The AWPRA permittee shall operate the facility in such a manner that:
   a. Nitrite measured as nitrogen does not exceed 1 mg/L at the AWP finished water location daily on an absolute basis; and
   b. Nitrate measured as nitrogen does not exceed 10 mg/L at the AWP finished water location daily on an absolute basis.
5. Upon the exceedance of 1 mg/L of nitrite and 10 mg/L of nitrate on an absolute basis measured as Nitrogen daily, a public notification is required pursuant to R18-4-119 (40 CFR 141.201 et seq.).

G. TOC monitoring. The AWPRA permittee shall follow all TOC monitoring requirements established pursuant to R18-9-F834.

H. WRF Operational Parameters.

1. The AWPRA permittee shall provide a list of WRF operational parameters and ranges that produced the AWTF treated wastewater influent water quality as components of:
    i. The Pilot Study Plan pursuant to R18-9-C815, and
    ii. The AWP permit application pursuant to R18-9-C816.
2. At the WRF, the AWPRA permittee shall monitor for the parameters identified in subsection (F) and process control parameters.
3. Any significant change in the operational parameters or their ranges must be approved by the Department pursuant to R18-9-D821.
    a. Significant change, for the purposes of this subsection, means a change that will result in a change in the defined water quality leaving the WRF.

I. In addition to the requirements of this section, ongoing monitoring shall be developed, proposed and conducted using good engineering practices, proper sampling procedures, and reliable equipment. An AWP monitoring program that is in alignment with the criteria contained in (TBD Guidance Documents - incorporated by reference) shall be considered to have been developed, proposed, and conducted using good engineering practices, proper sampling procedures, and reliable equipment.

1. Other monitoring program components shall be approved if the AWPRA permittee can demonstrate that the method is sufficiently detailed and robust for the purpose of AWP monitoring pursuant to this Article.

R18-9-E830. Reporting Requirements

A. An AWPRA permittee shall report to the Department in accordance with R18-9-E829, R18-9-C816, any other monitoring and reporting requirements in this Article and, specifically, the following subsections.

B. Pathogen Reporting.

1. An AWPRA permittee shall report ongoing pathogen monitoring results monthly using the AWP online portal.
2. Ongoing pathogen reporting includes, but is not limited to, the following:
    i. A summary of the overall treatment train pathogen LRV performance,
    ii. A summary of the individual treatment process performance monitoring data,

iii. The date, duration, and cause of each occurrence of LRV performance below the selected reference pathogen approach LRV Values in either subsections (B) or (C) of R18-9-E828,
iv. A summary of excursions of operational parameters outside the Department approved operating envelope,
v. Submission of calibration records for instruments that monitor pathogen control point critical limits quarterly.
vi. Dates and descriptions of major equipment and process failures and corrective actions,
vii. A summary of the water quality complaints and reports of gastrointestinal illness received from customers,
viii. A summary of activities of the wastewater source control program to control pathogens,
ix. Investigation or incident reports regarding a cross-connection.

3. An AWPRA permittee shall report other applicable items in the manner, and on the corresponding intervals, proposed by the AWPRA and approved by the Department, in accordance with subsection (D) of R18-9-E828 and pathogen monitoring specifics found in an AWPRA's AWP Permit.

C. Tier 1 Reporting.

1. An AWPRA permittee shall report Tier 1 chemical monitoring results quarterly using the AWP online portal.
2. Ongoing Tier 1 Chemical reporting includes, but is not limited to, the following:
   i. A summary of the overall treatment train chemical control performance,
   ii. A summary of chemicals detected as a result of monitoring conducted pursuant to R18-9-E829,
   iii. Investigation or incident reports regarding a cross-connection,
   iv. A summary of activities of the wastewater source control program to control chemicals,
   v. Dates and descriptions of major equipment and process failures and corrective actions,
   vi. A summary of individual treatment process performance monitoring data.
3. An AWPRA permittee shall report other applicable items in the manner, and on the corresponding intervals, proposed by the AWPRA and approved by the Department, in accordance with R18-9-E825, R18-9-E829 and chemical monitoring requirements in an AWPRA's AWP Permit.

D. Tier 2 Reporting.

1. An AWPRA permittee shall report Tier 2 chemical monitoring results monthly using the AWP online portal.
2. Ongoing Tier 2 Chemical reporting includes, but is not limited to:

i. A summary of overall treatment train chemical control performance,
ii. A summary of chemicals detected as a result of monitoring conducted pursuant to R18-9-E829,
iii. Investigation or incident reports regarding a cross-connection,
iv. A summary of enhanced source control activities,
v. Dates and descriptions of major equipment and process failures and corrective actions,
vi. A summary of individual treatment process performance monitoring data.

3. An AWPRA permittee shall report other applicable items in the manner, and on the corresponding intervals, proposed by the AWPRA and approved by the Department, in accordance with R18-9-E826, R18-9-E829 and chemical monitoring requirements in an AWPRA's AWP Permit.

E. Tier 3 Reporting.

1. An AWPRA permittee shall report Tier 3 chemical monitoring results in the manner, and on the corresponding intervals, proposed by the AWPRA and approved by the Department, in accordance with subsection D of R18-9-E827 and chemical monitoring requirements in an AWPRA's AWP Permit.

F. Ammonia and Nitrite/Nitrate as Nitrogen Reporting.

1. An AWPRA permittee shall report Ammonia and Nitrite/Nitrate as Nitrogen chemical monitoring results quarterly using the AWP online portal.
2. Ongoing Ammonia and Nitrite/Nitrate as Nitrogen reporting includes, but is not limited to:
   i. A summary of overall treatment train nitrogen species control performance,
   ii. A summary of nitrogen species detected as a result of monitoring conducted pursuant to R18-9-E829,
   iii. Investigation or incident reports regarding a cross-connection,
   iv. Dates and descriptions of major equipment and process failures and corrective actions,
   v. A summary of individual treatment process performance monitoring data.

G. TOC Reporting.

1. An AWPRA permittee shall report TOC monitoring results quarterly using the AWP online portal in accordance with the selected TOC management approach as described in subsections (B) and (C) in R18-9-F834.

H. WRF Operational Parameters Reporting.

1. An AWPRA permittee shall report the WRF Operational Parameter monitoring results monthly using the AWP online portal in accordance with subsection B of R18-9-F832.

I. The Director shall specify the format for submitting results pursuant to R18-9-E829.

R18-9-E831. Annual Report

An AWPRA Permittee shall submit an annual report to the Department postmarked no later than March 30th each year. The report shall include the following information from the previous calendar year:

1. Compliance Status. A summary of the compliance status of the AWP Permit and/or Demonstration Permit including:
   a. a list of violation(s),
   b. any corrective action(s) taken, and
   c. required sampling and monitoring activities at CCPs, and
   d. any other AWP permit or regulation compliance items.
2. Any off-spec water diversions, shutdowns and corrective action(s) taken,
3. Any expected change(s) in quantity and quality of the treated wastewater,
4. A summary of any operational or technical challenges in meeting finished water quality standards,
5. Any expected treatment changes and impact on subsequent unit processes in the treatment train,
6. A verification of all required maintenance performed at each CCP and any other process equipment, including evidence of calibration of instrumentation,
7. Enhanced Source Control Components. The AWPRA shall provide, at a minimum, the following information from the previous calendar year:
   a. A summary of all sampling activities conducted at the AWPRA facilities pursuant to subsection (B)(14) of R18-9-E824,
   b. A summary of any event that caused upset, interference, or pass-through at all AWPRA facilities,
   c. A report documenting review of local limits and any, subsequent updates or changes to local limits by the AWPRA,
   d. An update of the Potentially Impactful and Impactful Non-Domestic Dischargers lists pursuant to subsections (B)(4)(b) and (C)(3) of R18-9-E824,
      i. The update shall include a description of any challenges the Enhanced Source Control program is having and any proposed program changes,
   e. A list of Impactful Non-Domestic Dischargers in non-compliance and any corrective actions taken,
   f. All outreach activities conducted,

g. All staff training completed that relates to enhanced source control, the National Pretreatment Program, or towards operation or maintenance of an AWPRA facility,

h. A list of corrective actions or enforcement actions taken by the AWPRA against an AWPRA partner.

8. If applicable, the results of the annual Sight-Specific TOC approach procedures, the lower value of the two procedures, and the reestablished alert and action levels pursuant to subsection (C) of R18-9-F834.

9. Any other information necessary to assist the Department in assessing challenges to program implementation.

PART F. TECHNICAL AND OPERATIONAL REQUIREMENTS

R18-9-F832. Minimum Design Requirements

A. An AWPRA shall meet the following minimum design criteria in designing and constructing the pilot treatment train and the full scale treatment train.

1. Pathogen Control.

a. Treated Wastewater used in an AWP project shall receive continuous treatment pursuant to this section prior to distribution.

b. Pathogen log reduction credits will only be assigned for treatment barriers.

c. The AWP project treatment train (pilot and full scale) shall be designed and constructed to comply with the following:

i. At least one validated filtration treatment process and one validated disinfection treatment process targeting each of the three reference pathogens.

ii. Each treatment process:

(1) Shall be credited with a minimum validated pathogen log reduction of 0.5 LRV,

(2) Shall not be credited with more than 6 validated pathogen log reduction credits, and

(3) May receive pathogen log reduction credits for one or more pathogens.

iii. The treatment train cumulatively meets or exceeds either the Standard or Site-Specific log reduction targets pursuant to subsections (B) and (C) of R18-9-E828 for each reference pathogen.

iv. A pathogen monitoring strategy (including approved performance monitoring for surrogates) to receive LRVs for a treatment process.

d. Each treatment process used to meet the requirements in this subsection shall have the pathogen log reduction values validated for each reference pathogen. The AWPRA may use:
    i. A validation study report that was previously approved by the Department with elements as described in subsection (A)(1)(e),
    ii. The validation study subject to the protocol in Subsection (A)(1)(e),
    iii. The validation study protocol shall be prepared by a licensed Arizona engineer with experience in drinking water or wastewater treatment, specifically in evaluating pathogen control in public water supplies.
e. The validation study protocol shall:
    i. Identify the treatment mechanism(s) of pathogen reduction by each treatment process,
    ii. Identify the pathogen(s) being addressed by the treatment process, or appropriate surrogate(s) for the pathogen(s), that are used in the validation study,
        (1) The pathogen(s) and / or surrogate(s) selected for the validation study shall be the one(s) most resistant to the treatment mechanism(s),
    iii. Ensure that the pathogen(s) or surrogate(s) for the pathogen(s) are present in the test water in concentrations sufficient to demonstrate a pathogen log reduction,
    iv. Identify the factors that influence the pathogen reduction efficiency for the treatment mechanism(s) and includes at least:
        (1) Feed water characteristics such as temperature and pH,
        (2) Hydraulic loading,
        (3) Deterioration of components, and
        (4) Integrity failure.
    v. Identify the surrogate and/or operational parameters that can be measured continuously and that will correlate with the reduction of the pathogen(s) or surrogate(s) for the pathogen(s),
    vi. Identify the validation methodology to demonstrate the pathogen log removal capability of the treatment process,
        (1) The validation methodology shall involve a challenge test to quantify the reduction of the target pathogen or appropriate surrogate while concurrently monitoring the operational parameters to determine an operating envelope.
    vii. Describe the method to collect and analyze data to formulate evidence-based conclusions,

viii. Describe the method to determine the alert and action levels and the operational monitoring and control strategy,

xi. Describe the method to be used to calculate the LRV for the treatment process for each pathogen.

(1) The validated LRV shall not exceed that achieved by 95 percent of the challenge test results when the treatment process is operating in compliance with the alert and action levels,

x. Identify the circumstances that would require a re-validation or additional on-site validation (for example, when conditions are inconsistent with the previous validation study conditions).

f. The treatment train shall be continuously operated to achieve the LRV targets using validated treatment LRVs and must conform to the Operations Plan pursuant to R18-9-F836,

g. The treatment train shall include UV disinfection with a dose of at least 300 mJ per cm^2,

h. The SCADA system shall identify process failure to meet the alert and action levels and shall automatically discontinue the delivery of water to any distribution system if the treatment train does not meet the minimum design LRV target,

i. Treatment processes that are credited with pathogen log reductions must be continuously tracked with a SCADA system utilizing online monitoring for surrogates and/or operational parameters,

j. The treatment train shall be operated to continuously achieve either the Standard or Site-Specific pathogen reduction approaches pursuant to subsections (B) or (C) in R18-9-E828.

i. The Operation Plan shall be simultaneously followed pursuant to R18-9-F836.

k. Blending is not eligible to receive pathogen log reduction credit, nor validated treatment log reduction values.

2. Chemical Control

a. Treated wastewater used in an AWP project shall receive continuous treatment pursuant to this section prior to entering distribution,

b. The AWP project treatment train (both pilot and full scale) shall be designed and constructed to comply with the following:

i. All treatment trains shall have at least three diverse and separate treatment processes, including, but not limited to:

(1) An AOP that meets the requirements set forth in subsection (A)(3)(d), and

(2) A physical separation process.

c. Ozone/BAC processes shall be designed to provide no less than 1.0 log reduction of each of the following indicators: formaldehyde, acetone, carbamazepine, and sulfamethoxazole.

i. The ozonation process shall be designed to provide a ratio of the applied ozone dose to the design feed water total organic carbon (TOC) concentration greater than 1.0.

(1) Alternative design ratios may be used if reduction of 1.0 log for the indicators carbamazepine, and sulfamethoxazole is demonstrated during the pilot as part of the design of the ozonation process.

ii. BAC shall be designed with an empty bed contact time of at least 15 minutes.

(1) Alternative times may be used if reduction of 1.0 log for the indicators formaldehyde and acetone is demonstrated during pilot scale as part of the design of the ozonation process.

iii. Both Ozone and the BAC processes must be individually validated at full scale with the same level of removal for the four indicators listed in subsection (A)(2)(c).

iv. At full scale, the ozone/BAC process shall continually be monitored and recorded using the surrogate and/or operational parameters and with alert and action levels that are approved in the Operations Plan, pursuant to R18-9-F836.

d. Each reverse osmosis membrane selected shall meet the criteria set forth in ASTM D4194-23.

i. For a reverse osmosis treatment process, an AWPRA shall propose, as part of the engineering report:

(1) ongoing performance monitoring using at least one surrogate and/or operational parameter that is capable of being monitored and recorded continuously, and

(2) have associated alarms that indicate when the integrity of the reverse osmosis membrane has been compromised.

ii. The proposal shall identify the chemical control point and the surrogate(s) and/or operational parameter(s) and establish the alert and action levels for the surrogate(s) and/or operational parameter(s) that indicate when the integrity has been compromised.

f. During full-scale operation of a reverse osmosis treatment process, the AWPRA shall:

i. continuously monitor and record the surrogate and/or operational parameter(s) that indicate when the integrity of the process has been compromised, and

ii. record when the alert and action levels established are exceeded, according to the Operation Plan pursuant to R18-9-F836.

3. Other Requirements.
   a. TOC Removal. An AWPRA shall select and then achieve and maintain an up-to-date TOC limit in the ATW with associated alert and action levels pursuant to either subsection (B) or (C) in R18-9-F834.
   b. Corrosion Control. An AWPRA Permittee shall establish corrosion control provisions in the design and operation of the AWTF in accordance with, but not limited to, the following requirements:
      i. Within no less than six months of the introduction of ATW as a new water source, or following any treatment changes at the AWTF affecting ATW quality, an AWPRA Permittee shall control lead and copper pursuant to the requirements of R18-4-111 (40 CFR 141.80 et seq.).
      ii. An AWPRA Permittee shall evaluate any anticipated corrosivity effects through corrosivity tests or evaluations which shall include, but are not limited to:
         (1) Developing an understanding of factors affecting internal corrosion,
         (2) Determining the extent and magnitude of corrosion,
         (3) Assessing corrosion control alternatives,
         (4) Selecting a corrosion control strategy,
         (5) Implementing a corrosion control program,
         (6) Monitoring the effectiveness of the corrosion control program, and
         (7) Optimizing the control program, if necessary.
      iii. The Department may require an AWPRA Permittee to conduct additional corrosivity-related water quality monitoring,
      iv. In addition to the requirements of this subsection, corrosion control shall be conducted using good engineering practices and best management practices. Corrosion control conducted in a manner consistent with the criteria contained in (TBD Guidance Document - incorporated by reference) shall be considered to have been conducted using good engineering practices and best management practices.
         1. Alternative corrosion control criteria shall be approved if the AWPRA applicant can demonstrate that the corrosion control measures meet or exceed the criteria listed above.
   c. Nitrogen Management. An AWPRA shall choose one of the following three denitrification approaches:

i. WRF Approach. An AWPRA Applicant reliably denitrifying at the WRF(s) shall:
   (1) Include at least two CCPs to monitor ammonia, nitrate and nitrite. One CCP at a designated, off-spec diversion point which is monitored using continuous online analyzers; and another CCP for monitoring the ATW in order to verify compliance with the Nitrate and Nitrite as Nitrogen Tier I MCL pursuant to subsection (F) of R18-9-E829.

ii. AWTF Approach. An AWPRA Applicant removing nitrogen species at the AWTF shall:
   (1) Demonstrate nitrogen removal to the Nitrate and Nitrite as Nitrogen Tier I MCL pursuant to subsection (F) of R18-9-E829 through an AWTF treatment process configuration.
   (2) Include multiple CCPs. One CCP for monitoring ammonia, nitrite, and nitrate at the treated wastewater influent in order to assess the ongoing treatability within the treatment train. Another CCP located at each treatment barrier in the design responsible for the removal of ammonia (if applicable), nitrite, and nitrate. A final CCP for monitoring the ATW in order to verify compliance with the Nitrate and Nitrite as Nitrogen Tier I MCL pursuant to subsection (F) of R18-9-E829.

iii. Alternative Approach. An AWPRA Applicant shall demonstrate a design approach that effectively and reliably removes nitrogen species for the purposes of treatment train viability and water quality compliance with applicable MCLs.

d. AOP Treatment Process. An AWPRA Applicant shall include an AOP treatment process in their pilot and full scale treatment trains. Demonstration of AOP performance shall be achieved through one of the following two methods in subsections (A)(3)(d)(i) and (ii):

i. 1,4-Dioxane Indicator. AOP shall be validated to demonstrate that AOP can reliably achieve no less than 0.5 log reduction of the 1,4-dioxane indicator.
   (1) If 1,4-dioxane is used as the AOP Performance Benchmark, it shall be monitored as a Tier III PBI with an associated action level pursuant to R18-9-E827.

ii. Alternative Compound. An AWPRA Applicant may propose an alternative compound to 1,4-dioxane for AOP performance if the following criteria are met:
   (1) All AOP indicators shall be demonstrated to be resistant to elimination through other treatment methods, including biological degradation, adsorption processes, Reverse Osmosis/Nanofiltration, and conventional oxidation techniques such as hypochlorite, chloramines, permanganate, or chlorine dioxide (e.g., 1,4-Dioxane),

(2) Each pilot study should involve spiking and measuring indicator compound removal. Spiking 1,4-Dioxane (i.e., reference compound) and calculating removal percentages to compare with other widely accepted compounds,
(3) In pilot testing, the final concentration of any indicator compound (post-AOP treatment) should exceed the minimum reporting limit,
(4) Operating conditions and critical monitoring parameter ranges from pilot testing shall be reported for Departmental verification and setting of monitoring parameter ranges,
(5) An AWPRA Applicant must identify AWTF-specific AOP challenges, such as the scavenging of hydroxyl radicals by carbonates, bicarbonates, nitrites, nitrate, bromides and NOM, pH and UV light absorption,
(6) If comprehensive pilot testing is not conducted (e.g., shorter timelines or limited scope), an AOP treatment process shall be demonstrated to achieve at least 0.5 log removal of 1,4-dioxane,
(7) Any process sequence proposed must be validated with a rigorous study,
(8) At least nine indicator compounds, with at least one from each specific functional group and a demonstration of an equivalent removal from the same study that was used to establish the 0.5 log removal of 1,4-dioxane.

iii. AOP Validation Study Report. An AWPRA shall compile an AOP Validation STudy Report which identifies:
(1) The CCPs and/or surrogate(s) and/or operational parameter(s),
(2) Alert and Action levels for the surrogate(s) and/or operational parameter(s) that indicate whether the minimum 0.5 log 1,4-dioxane reduction design criterion is being met,

iv. At least one surrogate and/or operational parameter shall be capable of being monitored and recorded continuously and have associated alarms that indicate when the AOP is not operating as designed.

e. Failure Response Time (FRT). An AWPRA applicant must provide detailed design calculations identifying FRT and specific means used to address FRT.
i. Factors include, but are not limited to:
(1) Level and redundancy of online instrumentation,
(2) Sophistication and speed of automated alarm responses, and
(3) Availability of operators and their response time.

ii. Mitigation measures include, but are not limited to:

(1) Engineered storage buffers (ESBs), when used, must be sized adequately to hold off-spec water for a time period no shorter than the failure response time.

iii. If an AWPRA Applicant proposes a treatment train configuration that is not followed by an ESB, the following is required:

(1) Appropriate process control for water quality assurance,

(2) Managerial control for demand is present,

(3) An operational barrier for pathogen control and chemical peaks attenuation.

iv. If an ESB is proposed, an AWPRA Applicant shall justify the volume selected and account for short circuiting.

f. A treatment process configuration shall be designed to meet the Tier 1 limits utilizing as a source either:

i. The Tier 1 chemicals and concentrations pursuant to subsection (C)(2)(c)(i) of R18-9-C814 ,or

ii. The treated wastewater.

g. Cross-Connection. An AWPRA Applicant shall develop, and the AWPRA Permittee shall implement, cross-connection control measures which include, but are not limited to:

i. Cross-connection evaluations during design, construction, and operation of the AWTF,

ii. Cross-connection control surveys, initially within one year of commencing full-scale operation, and ongoing annually thereafter,

iii. Reporting of any cross-connection incidents identified during the cross-connection control surveys conducted pursuant to subsection (A)(3)(g)(ii) to the Department in the manner prescribed by the AWP Permit, along with a detailed summary of the nature and cause of the problem and the resulting corrective actions taken,

iv. A plan describing how the SCADA system communicates and interoperates with the SCADA systems of all AWPRA facilities included in the AWP project;

B. An AWPRA shall meet the following minimum design criteria in designing and operating a full scale Water Reclamation Facility (WRF) that delivers treated wastewater to an AWTF:

1. An AWPRA WRF shall have:

a. Secondary treatment that utilizes oxidation processes that remove biodegradable organic matter and suspended solids,

2. An AWPRA WRF shall meet:

a. The discharge limit requirements for:

i. Biological Oxygen Demand (BOD),

ii. Total Suspended Solids (TSS), and

iii. pH pursuant to subsection (B)(1) of R18-9-B204.

b. The Solids retention time (SRT) criteria contained in the (TBD Guidance Document - incorporated by reference).

c. The requirements for Total Nitrogen (TN) in the APP program.

i. The TN requirements in R18-9-B204 shall be followed in order to discharge any treated wastewater or off-spec treated wastewater which cannot be supplied to the AWTF.

3. An AWPRA WRF shall be operated to produce treated wastewater of consistent quality in accordance with approved engineering design reports and the WRF operations plan.

a. The AWPRA shall provide to the WRF a list of operational parameters, such pH, SRT, HRT, DO, BOD, cBOD and others for the WRF.

C. In addition to the requirements of this section, the treatment process configurations shall be designed using good engineering practices. A treatment process configuration designed in a manner consistent with the criteria contained in (TBD Guidance Document - incorporated by reference) shall be considered to have been conducted using good engineering practices.

1. Other treatment process configurations shall be approved if the AWPRA applicant can demonstrate that the treatment process configuration meets or exceeds the minimum design criteria listed above.

R18-9-F833. Technical, Managerial, and Financial Demonstration Requirements

A. An AWPRA Applicant shall submit the following to the Department as a demonstration of technical, managerial, and financial (TMF) capacity:

1. Technical Capacity. An AWPRA Applicant's technical demonstration shall include, but is not limited to:

a. A demonstration of the availability of an existing water source or contingency plans for an alternative source in the event of AWTF failure;

b. Comprehensive technical and engineering specifications for the AWTF; including,

i. Design and treatment capacity,

ii. Demonstration of sufficient AWP source water quantity and quality,

iii. Demonstration of technical capability to implement an Enhanced Source Control Program,

iv. Information on storage and distribution processes,

v. A cross-connection control plan,

vi. A corrosion control plan,

vi. Manufacturer specifications showing the life span of AWTF components.

c. A monitoring plan for initial source water characterization, including

i. Online compliance monitoring for critical control points,

ii. Performance monitoring and compliance monitoring for ATW;

d. A demonstration of the ability to respond to emergency situations including:

i. Water quality excursions.

e. Documentation that the AWTF will be operated by a certified AWT operator pursuant to R18-9-B804.

f. An operations plan, pursuant to R18-9-F836, including, but not limited to:

i. Maintenance requirements per the manufacturer's specification,

ii. Repair and replacement protocols.

2. Managerial Capacity. An AWPRA Applicant's managerial demonstration shall include, but is not limited to:

a. Documentation of ownership, management, and organization information, including, but not limited to:

i. An organizational chart,

ii. Job descriptions and responsibilities;

b. Information or copies of contractual agreements between AWPRA partners or any other entity associated with an AWP Project, including but not limited to:

i. Sewer collection systems,

ii. Water Reclamation Facilities,

iii. Source water conveyance systems,

iv. Advanced Water Treatment Facilities,

v. Water distribution systems,

vi. Blending Facilities,

vii. Sale prices of source water,

viii. Quality of source water,

ix. Duration of agreement, and

x. Compliance and reporting responsibilities.

c. Documentation of groundwater or surface water discharge permits or recycled water permits addressing potential discharges from an AWTF in contingency situations, including, but not limited to:

i. Off-spec water disposal;

d. Operational information such as:
    i. Certified operator credentials,
    ii. Number of available operators
    iii. Training plan for staff,
    iv. Technical competency,
    v. Technical knowledge and implementation, and
    vi. Operations plan, pursuant to R18-9-F836.
e. An outline of tools and procedures employed in the management of the facility, including, but not limited to:
    i. An asset management and maintenance plan, and
    ii. A computerized maintenance management system.

3. Financial Capacity. An AWPRA Applicant's financial demonstration shall include, but is not limited to:
    a. Projecting the capital cost of the project;
    b. Identifying ongoing cost, including, but not limited to:
        i. Operation and maintenance costs,
        ii. Capital replacement costs,
        iii. Energy costs,
        iv. Personnel costs, and
        v. 20-year lifecycle cost of equipment;
    c. A 5-year financial projection, including, but not limited to:
        i. Planning and management of continuous funding sources to cover the costs of the AWP Project;
    d. Performing financial audits and bond rating; and
    e. Performing rate studies or assessment of impact fees.

B. In addition to the requirements of this section, TMF shall be demonstrated using Best Practices. TMF demonstrations done in a manner consistent with the criteria in (TBD Guidance Document - incorporated by reference) shall be considered to have been demonstrated using Best Practices.

1. Other TMF demonstrations approaches may be approved if the Department determines that the alternate TMF demonstration meets or exceeds the TMF criteria listed above.

R18-9-F834. Total Organic Carbon Management

A. An AWPRA shall select, then achieve and then maintain an up-to-date TOC limit in the advanced treated water using one of the two methods described in subsections (B) and (C) below.

B. Standard Approach.

1. An AWTF shall not exceed 2 mg/L of TOC in the advanced treated water.
2. The AWPRA permittee shall monitor TOC using continuous online analyzers in the advanced treated water.

C. Site-Specific Approach.

1. Site-Specific TOC Limit Establishment. An AWPRA shall conduct the two procedures described below in subsections (C)(1)(a) and (b). The lower of the two TOC values derived from the two procedures constitutes the AWPRA's Site-Specific TOC Approach.
    a. Trace Organics Removal Procedure. The AWPRA permittee shall submit a plan to characterize the TOC of all original drinking water sources that feed the collection system(s) that are used by the AWTF as a treated wastewater source.
        i. Original Drinking Water TOC Characterization includes, but is not limited to, the following:
            (1) Departmentally approved TOC sampling locations;
            (2) Sampling for a period of at least one year;
            (3) Sampling at weekly intervals;
            (4) The calculation of a TOC 50th percentile (Median), 75th percentile, and 95th percentile;
            (5) The calculation of a TOC Action level at 1.5 × 95th percentile;
            (6) The calculation of a TOC Alert level at the 75th percentile.
        ii. Upon the characterization of the original drinking water, an AWPRA shall monitor for TOC in the ATW using continuous online analyzers.
        iii. The TOC Alert level and Action level established in subsections (C)(1)(a)(i)(5) and (6) shall apply to the ATW.
    b. Disinfection Byproducts Precursor Reduction Procedure.
        i. The AWPRA shall conduct the Disinfection Byproducts Precursor Reduction Procedure for a period of one year in the manner described in subsections (C)(1)(b)(iii) through (v) below;
        ii. If the procedure results in a lower TOC value of the two procedures, a TOC Action level and Alert level must be reestablished annually by repeating the study's requirements (subsections (C)(1)(b)(iii) through (v)) below.

iii. The AWPRA shall apply the 5710 C, simulated distribution system (SDS) - THM testing method, found in the Standard Methods for the Examination of Water and Wastewater, 24th Edition, to the ATW.

iv. The AWPRA shall submit the following information on the testing conditions at the time the test described in (C)(1)(b)(iii) was conducted:

(1) Temperature,

(2) pH,

(3) Disinfectant dose;

(4) Residual and reaction time (i.e., reaction time means time that corresponds to actual distribution system residence times) within the distribution system; and

(5) Standard conditions as described in 5710 B, Trihalomethane Formation Potential (THMFP), from the Standard Methods for the Examination of Water and Wastewater, 24th Edition to ATW,

v. The AWPRA shall sample for all Tier II chemical DBPs in Contaminant Candidate List 5, CCL5 in the ATW.

vi. The AWPRA shall demonstrate compliance with two CCL5 DBPs that have health advisories listed in the 2018 Edition of the Drinking Water Standards and Health Advisories Tables.

vii. ATW sampling conducted in subsections (iii) or (vi) shall be conducted monthly.

viii. The lower of the two resultant TOC values derived from subsections (iii) and (vi) constitute the TOC value for Disinfection Byproducts Precursor Reduction Procedure.

c. Once a Site-Specific TOC approach is ascertained, an AWPRA shall establish a TOC Action level and Alert level based on the lower of the two values derived from subsections (C)(1)(a) and (b).

i. Upon the exceedance of a TOC Action level, the AWPRA permittee shall conduct one of the following two actions within 72 hours of becoming aware of the exceedance:

(1) Stop distributing ATW, investigate, identify, and correct the issue, or

(2) Correct the issue with confirmation that ATW TOC does not exceed the Action level, and identify the issue.

ii. AWPRAs selecting the Site-Specific TOC approach shall repeat the two procedures in subsections (C)(1)(a) and (b) annually in order to reestablish an up-to-date TOC Action level and TOC Alert level.

R18-9-F835. Full Scale Verification

A. An AWPRA Applicant shall develop a Full-Scale Verification Plan for submission to the Department as a technical component of the AWP permit application. After permitting and construction, the AWPRA Permittee shall perform full-scale verification testing of the AWTF in compliance with the plan.
   1. Pursuant to R18-9-C815(A)(1), an AWPRA Applicant shall develop a Full-Scale Verification Plan and conduct full-scale verification testing prior to application for an AWP permit if the AWPRA Applicant is constructing their pilot facility at full-scale.

B. Full-Scale Verification Plan. A Full-Scale Verification Testing Plan shall be developed and shall include, but is not limited to, the following requirements:
   1. Detailed Testing Plan. The AWPRA Applicant shall outline the verification testing procedure for each process within the AWTF, including, but not limited to:
      a. Treatment technologies and processes,
      b. Continuous online analyzers,
      c. CCPs,
      d. Alarm systems, and
      e. Data recording instruments.
   2. Monitoring Plan. The AWPRA Applicant shall develop a Monitoring Plan pursuant to the requirements of R18-9-E829.
   3. Alarm System and Shutdown Testing Plan. The AWPRA Applicant shall develop a plan to test and verify the functionality of all alarms, shutdown mechanisms and processes proposed to be utilized in the Operations Plan developed pursuant to R18-9-F836.
   4. Advanced Treated Water Diversion Plan. The AWPRA Applicant shall develop a plan to obtain all necessary permits and approvals from the Department or other authorities for the purpose of diverting ATW during the full-scale verification testing period.

C. Testing. Full-scale verification testing shall be conducted in accordance with the Plan established in subsection (B) as well as the requirements in this subsection.
   1. The minimum testing period for AWPRA Permittees conducting full-scale verification shall be one year,
   2. An AWPRA shall, throughout the testing period, divert all ATW in a manner approved by the Department pursuant to the AWP Permit,
   3. Before testing occurs, an AWPRA Applicant shall confirm with the Department that any WRF providing treated wastewater to the AWTF has been issued an amendment to their Aquifer Protection Permit(s) for provision of treated wastewater to an AWTF.

a. The AWPRA Applicant shall additionally confirm that copies of the amended permit(s) are recorded in the AWPRA's Joint Plan pursuant to R18-9-B805.

D. Report. At the conclusion of the full-scale verification testing period, the AWPRA Permittee shall prepare and submit, in accordance with the compliance schedule established in the AWP Permit, a final Full-Scale Verification Report to the Department for approval. The Report shall, at a minimum, include all information related to full-scale verification testing performed pursuant to this section, such as, but not limited to, the following components:
   1. The date, time, frequency and exact place of sampling;
   2. The name of each individual who performed the sampling;
   3. The procedures used to collect the samples;
   4. The dates the sample analyses were completed;
   5. The name of each individual or laboratory performing sample analysis;
   6. The analytical techniques or methods used to perform the sampling and analysis;
   7. The chain of custody records;
   8. Any field notes relating to the information described under this subsection;
   9. The sampling results; and
   10. Corresponding laboratory data for all samples.

E. An AWPRA shall not distribute ATW to consumers until Departmental authorization is obtained.

R18-9-F836. Operations Plan

A. An AWPRA Permittee shall develop an Operations Plan in accordance with the compliance schedule established in the AWP permit which shall be followed throughout operation of the AWTF.

B. The Operations Plan shall include, but is not limited to, the following criteria:
   1. A description of the operation of each treatment process and standard operating procedure;
   2. Process schematics showing pathogen and chemical removal CCPs, alarms, and online analyzers;
      a. This criterion includes all of the listed items in R18-9-E828(D)(3),
   3. A list of established alert levels and action levels at each CCP,
   4. A description of all inspection and maintenance protocols, schedules and other requirements for treatment process equipment;
   5. A description of the ongoing monitoring requirements pursuant to R18-9-E829 and the reporting requirements pursuant to R18-9-E830;

6. The development of an emergency operations and response plan to identify and address upsets, failures or emergency situations arising in the treatment train in an AWPRA facility that is responsible for producing ATW. The emergency operations and response plan shall include, but is not limited to, the following requirements:
    a. Identification of upset conditions or emergency situations triggering a response under this subsection, including, but not limited to:
        i. Failure of critical control points,
        ii. Diversion of off-spec water,
        iii. Loss of source water to the AWTF,
        iv. Any exceedances of the alert levels and action levels, and
        v. Failures which constitute an acute exposure threat, including:
            (1) Failure to meet pathogen LRVs pursuant to R18-9-E828,
            (2) Failure to meet nitrate and nitrite, as nitrogen, MCLs pursuant to R18-9-E829, and
            (3) Failure to meet the requisite TOC limit prescribed in the selected TOC approach pursuant to R18-9-F834.
    b. A decision-making procedure and the development of an off-spec water response to divert AWP process water or advanced treated water as a result of any treatment process failure or water quality deviation,
    c. Any failure to achieve the minimum target log reduction must be documented and a summary of the causes and corrective action must be reported to the Department.
        i. The AWPRA shall take immediate action to discontinue the delivery of ATW to the distribution system.
        ii. The AWPRA shall notify the Department and any PWS that is receiving the AWP project water within 60 minutes.
    d. Development of a timely response procedure in the event that ATW violates a requirement of this Article, including, but not limited to:
        i. Identification and investigation of the points of failure within the treatment train and at the AWTF,
        ii. A procedure to resolve identified failures,
        iii. Clear specifications regarding the time required for response to failures or exceedances, and
        iv. A procedure for the utilization of automated systems equipped with triggers and alarms, as necessary;

v. Consideration of alternative water sources, as necessary, to ensure delivery of a continuous water supply; and

vi. Compliance with all applicable public notice requirements of the SDWA.

d. Development of a shutdown plan establishing shutdown and post-shutdown protocols, including, but not limited to:

i. A procedure for draining piping and tanks, as necessary, to prevent freezing or the accumulation of stagnant non-compliant water, and

ii. A procedure for managing post-shutdown conditions.

8. A description of staffing requirements at the AWTF including, but not limited to, the following criteria:
   a. The roles and responsibilities of all staff,
   b. The status of, and requirements for, certified operators,
   c. A description of the annual training and continuous education requirements for all staff, and
   d. A description of any provisions for training new personnel.
9. A description of the SCADA system utilized at the AWTF along with, but not limited to, the following additional SCADA requirements:
   a. A description of how the system will assist the AWTF in achieving compliance, when necessary,
   b. A description of how the SCADA system will communicate and interoperate with the SCADA systems of all AWPRA facilities that provide treatment pursuant to this Article ,
   c. Information on how the system acquires and utilizes monitoring data to inform operators, identify failures at CCPs, and respond to failures,
   d. A procedure for testing the system, and
   e. A protocol/procedure to secure and protect the SCADA system from unauthorized access and cyberattack, and
   f. Establishment of a SCADA system testing schedule.
10. A description of the communication procedures between the AWPRA and all relevant treatment plant operators for situations including, but not limited to:
    a. Normal operations, and
    b. Upset conditions and emergency response protocols.

C. In addition to the requirements of this section, an Operations Plan shall be developed using good engineering practices and best management practices. An Operations Plan developed in a manner consistent with the criteria contained in (TBD Guidance Document - incorporated by reference)

shall be considered to have been conducted using good engineering practices and best management practices.

1. Similar Operations Plan criteria shall be approved if the AWPRA applicant can demonstrate that the Operations Plan components meet or exceed the criteria listed above.

D. An AWPRA Permittee shall submit the Operations Plan to the Department for approval as a compliance schedule item under the AWP Permit.

E. An AWPRA Permittee shall update the Operations Plan as necessary following any modifications to the treatment process that affect the operational procedures of the AWTF. The updated Operations Plan shall be submitted to the Department for approval as a component of a permit amendment application.

R18-9-F837. Vulnerability Assessment

A. An AWPRA Permittee shall conduct a vulnerability assessment for the AWP project for the purpose of identifying areas and processes with a potential to be vulnerable to attack, sabotage, or disruption.

B. The AWPRA Permittee shall consider and assess all potential hazards associated with contaminants in the municipal wastewater source.

C. The AWPRA Permittee shall develop an emergency response plan for identified hazards the AWP project may face.

D. The SCADA systems of all AWPRA facilities included in the AWP project that provide treatment pursuant to this Article shall be designed and operated such that they are secured and protected, both physically and electronically, from unauthorized access and cyberattack.

E. The AWPRA Permittee shall periodically review the vulnerability assessment along with the permit renewal pursuant to R18-9-D822, at a minimum, or at the Director's discretion.

1. A vulnerability assessment update shall include the identification of any new hazards and the corresponding risk management controls the AWPRA will establish.

F. In addition to the requirements of this section, a vulnerability assessment shall be conducted using Best Management Practices. A vulnerability assessment that is in alignment with the criteria contained in (TBD Guidance Document - incorporated by reference) shall be considered to have been conducted using Best Management Practices.

1. Other vulnerability assessment methods shall be approved if the AWPRA applicant can demonstrate that the method is sufficiently detailed and robust for the purpose of conducting a protective vulnerability assessment, pursuant to this Article.