2022 R22-187

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Chapter Heading: Department of Environmental Quality - Water Pollution Control

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R22-187

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AGENCY RECEIPT

NOTICE OF PROPOSED RULEMAKING

1. **Agency name:** Arizona Department of Environmental Quality

2. **The Subchapters, if applicable; the Articles; the Parts, if applicable; and the Sections involved in the rulemaking, listed in alphabetical and numerical order:**

Chapter: 9, Department of Environmental Quality – Water Pollution Control

Articles:
1. Aquifer Protection Permits – General Provisions
3. Aquifer Protection Permits – General Permits
   Part A. General Provisions
   Part E. Type 4 General Permits

Article, Part, or Section Affected (as applicable)	Rulemaking Action
R18-9-101	Amend
R18-9-110	Amend
R18-9-A303	Amend
R18-9-A308	Repeal
R18-9-A309	Amend
R18-9-A310	Amend
R18-9-A311	Amend
R18-9-A312	Amend
R18-9-A314	Amend
R18-9-A315	Amend
R18-9-E303	Amend
R18-9-E304	Amend
R18-9-E314	Amend
R18-9-E320	Amend
R18-9-E323	Amend
Table 1	Amend

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AGENCY CERTIFICATE

NOTICE OF PROPOSED RULEMAKING

1. **Agency Name:** Arizona Department of Environmental Quality

2. **Chapter heading:** Department of Environmental Quality – Water Pollution Control

3. ***Code* citation for the Chapter:** 18 A.A.C. 9

4. **The applicable Subchapter(s), Article(s), Part(s), and Section(s) involved in the rulemaking, listed in alphabetical and numerical order:**

Chapter: 9, Department of Environmental Quality – Water Pollution Control
Articles: 1. Aquifer Protection Permits – General Provisions
3. Aquifer Protection Permits – General Permits
Part A. General Provisions
Part E. Type 4 General Permits

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R18-9-A314	Amend
R18-9-A315	Amend
R18-9-E303	Amend
R18-9-E304	Amend
R18-9-E314	Amend
R18-9-E320	Amend
R18-9-E323	Amend
Table 1	Amend

5. **The rules contained in this package are true and correct as proposed.**

6. 

Signature of Agency Chief Executive Officer in ink

Aug 5, 2022

Date signed

Misael Cabrera, P.E.

Printed or typed name of signer

Director

Title of signer

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Gmail

Heidi Haggerty (Contractor) <haggerty.heidi@azdeq.gov>

Fwd: Rulemaking moratorium exemption approval - ADEQ rulemaking for Onsite Wastewater Systems

1 message

Trevor Baggiore <baggiore.trevor@azdeq.gov> Wed, Dec 16, 2020 at 4:32 PM
To: Theresa Gunn <gunn.theresa@azdeq.gov>, "Naveen D. Savarirayan" <savarirayan.naveen@azdeq.gov>, "Heidi Haggerty (Contractor)" <haggerty.heidi@azdeq.gov>

Approved!!!!

Thanks,

Trevor Baggiore
Water Quality Division Director
Ph: 602-771-2321

azdeq.gov

Your feedback matters to ADEQ. Visit azdeq.gov/feedback

---------- Forwarded message ---------
From: **Chuck Podolak** <cpodolak@az.gov>
Date: Wed, Dec 16, 2020 at 4:18 PM
Subject: Rulemaking moratorium exemption approval - ADEQ rulemaking for Onsite Wastewater Systems
To: Misael Cabrera <Cabrera.Misael@azdeq.gov>
Cc: Michael Keyack <keyack.michael@azdeq.gov>, Trevor Baggiore <baggiore.trevor@azdeq.gov>, Edwin Slade <slade.edwin@azdeq.gov>, Tara Ousley <ousley.tara@azdeq.gov>, Amanda Stone <stone.amanda@azdeq.gov>

Director Cabrera,

I am sending this message after having reviewed the attached request by the Arizona Department of Environmental Quality (Department), to initiate rulemaking in order to amend onsite wastewater systems rules in 18 A.A.C. Chapter 9 without adding any additional rules. I understand the Department is committed to only pursuing high consensus clarifications and technical fixes within this rulemaking.

I understand this request has been submitted to make updates that are requested from numerous stakeholders including many counties that serve as the primary inspecting entity for the rule. The rulemaking is necessary to reflect changes in technology since the last update in 2005 and to improve clarity in order to reduce permitting times for these systems that provide crucial wastewater services in many parts of the state. I believe that this request meets the criteria for an exemption to the rulemaking moratorium set forth in Executive Order 2020-02 under criteria (1)(a), (1)(b), and (1)(c).

Furthermore, because the proposed rulemaking will not add additional rules, the requirement in criteria (2) of Executive Order 2020-02 for submission of rules recommended for elimination does not apply. If in the course of the stakeholder process to develop the rule, it becomes apparent that additional rules will be created I expect the Department to submit to me the appropriate number of rules recommended for elimination.

Based on the authority provided from Gretchen Conger, I am hereby approving the rulemaking exemption so the Department can proceed.

I am available for any questions you may have.

Chuck Podolak
Natural Resources Policy Advisor
Office of Governor Doug Ducey
1700 W Washington St, Suite 800
Phoenix, AZ 85007
O: 602.542.1782
C: 602.769.7566
E: cpodolak@az.gov

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NOTICE OF PROPOSED RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 9. DEPARTMENT OF ENVIRONMENTAL QUALITY

WATER POLLUTION CONTROL

PREAMBLE

1. Article, Part, or Section Affected (as applicable)	Rulemaking Action
R18-9-101	Amend
R18-9-110	Amend
R18-9-A303	Amend
R18-9-A308	Repeal
R18-9-A309	Amend
R18-9-A310	Amend
R18-9-A311	Amend
R18-9-A312	Amend
R18-9-A314	Amend
R18-9-A315	Amend
R18-9-E303	Amend
R18-9-E304	Amend
R18-9-E314	Amend
R18-9-E320	Amend
R18-9-E323	Amend
Table 1	Amend

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

Authorizing statutes: A.R.S. §§ 49-104(A)(10), (B)(10), (B)(13); 49-203(A)(4), (A)(7), (A)(10), (A)(11)

Implementing statutes: A.R.S. §§ 49-241 through 49-252 (Aquifer Protection Permits program).

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

Notice of Rulemaking Docket Opening: 27 A.A.R. 1543 (Sept. 24, 2021)

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

Name: Matthew Ivers

Address: Arizona Department of Environmental Quality

1110 W. Washington St.

Phoenix, AZ 85007
Telephone: (480) 612-5686
E-mail: onsitewastewater@azdeq.gov
Website: https://www.azdeq.gov/node/8567

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

General Explanation of this Rulemaking:

The Arizona Department of Environmental Quality (ADEQ) proposes to amend Title 18, Chapter 9, Articles 1 and 3 of the Arizona Administrative Code (A.A.C.) provide additional clarity and notice, correct previous errors, collect additional necessary information, and make minimal technical updates to the On-site Wastewater Treatment Facility (OWTF) general permit program or "on-site program." These changes are expected to increase efficiencies in program implementation for both customers and regulators. The last rulemakings related to OWTFs were in 2001 and 2005. *See generally* 7 A.A.R. 237 (Jan. 12, 2001) and 11 A.A.R. 4544 (Nov. 14, 2005), respectively.

Since the last rulemaking in 2005, stakeholders have grown more vocal in their desires for change in the on-site program. In response to stakeholder feedback, ADEQ is in the process of holistically reviewing its on-site program. As a part of this process, ADEQ established a temporary advisory group, the Wastewater Disposal Advisory Group (WDAG), to help guide ADEQ in determining the path for the next five years, and to help ADEQ determine whether a rulemaking was immediately necessary to ameliorate issues in the on-site program. Based on input from the WDAG, ADEQ published the *On-site Wastewater Treatment Regulatory Program 5-Year Plan: 2021-2025, Version 1: January 2021* (Publication Number: EQR 21-01) (hereafter the "*On-site 5-Year Plan*"). This rulemaking is an action taken to follow the *On-site 5-Year Plan*, a first phase in a series of several anticipated actions outlined in the plan.

As described in the *On-site 5-Year Plan*, ADEQ intends to work with stakeholders and local regulators into the future to improve the on-site program according to several guiding principles, including encouraging the use of recycled water. In moving forward, more research and discussion are needed. For example, rules that govern the relationship between larger centralized wastewater collection and treatment systems and smaller on-site systems may warrant further evaluation with a broader set of stakeholders.

This rulemaking preamble describes the on-site program as it currently operates under the law, and explains the changes reflected in this rulemaking. This rulemaking and preamble do not reflect decisions about future changes or future direction.

What are On-site Wastewater Treatment Facilities?

An OWTF is defined in the Arizona Revised Statutes as "a conventional septic tank system or alternative system that is installed at a site to treat and dispose of wastewater of predominantly human origin that is generated at that site." A.R.S. § 49-201(29). The on-site general permit program allows homes and businesses

that are not connected to a centralized sewage collection system to dispose of their treated wastewater through a conventional or alternative OWTF facility consisting of both:

(i) A treatment technology (or combination of technologies), such as aseptic tank and/or a aerobic treatment unit, and

(ii) Disposal technology, such as a trench or seepage pit.

The most common example of a OWTF is a septic tank with a drainfield. Some examples of businesses or commercial properties that may have an OWTF include apartment complexes, R.V. parks, gas stations, hotels, and office buildings.

The rules pertaining to regulation of OWTFs serve two overarching purposes:

(1) To prevent "environmental nuisances," such as unsanitary conditions caused by surfacing sewage, and the "transmission of sewage or insect borne diseases," pursuant to A.R.S. § 49-141 *et seq.* and A.R.S. § 49-104(B)(13), respectively; and

(2) To control discharges of pollutants that may reasonably reach an aquifer, pursuant to A.R.S. §§ 49-241 through 49-252 and A.R.S. § 49-201(12).

Typical pollutants of concern discharged from improperly installed or maintained on-site systems include (1) nutrients (nitrogen and phosphorus) and (2) pathogens. Excessive nitrate-nitrogen, in drinking water can deprive blood cells of oxygen if ingested (i.e., methemoglobinemia), and primarily affects infants. In Arizona all groundwater is considered to be drinking water. Pathogens include parasites, viruses and bacterium, such as E. coli. *See generally* U.S. Department of Human Health Services, *Toxicological Profile for Nitrate and Nitrite* (2017) (for nitrates); and *see* EPA Office of Water, *Onsite Wastewater Treatment Systems Manual* 1-2, Table 1-1 (2002) (for pathogens). If installed and maintained properly, however, OWTFs adequately protect groundwater and prevent nuisances caused by disposal of sewage. Adequately treated discharge provides the environmental benefit of aquifer recharge. In this way, OWTF may provide unique long-term solutions to water scarcity throughout Arizona.

How Many On-site Systems Are Estimated to Exist in Arizona?

ADEQ estimates there were more than 640,000 properties with on-site systems throughout the state at the end of 2022. As of 2001, the Department estimated 400,000 properties in Arizona had an on-site system. *See* 7 A.A.R. 237, 248 (Jan. 12, 2001). Based on information presented in the 2005 rulemaking and information gathered from informal county surveys, it is currently still estimated that on average of just over 11,000 new systems are permitted statewide each year, after accounting for economic fluctuations between 2001 and 2022. *E.g.*, 11 A.A.R. 4544, 4547, 4589 (Nov. 14, 2005). Therefore, it is estimated that at the end of 2022, over 240,000 new systems have been permitted and installed since the 2001 rulemaking.

Regulatory Structure of the OWTF General Permit Program

OWTFs are generally regulated under broader Aquifer Protection Permit (APP) program statutes in A.R.S. Title 49, Chapter 2, Article 3, sewage treatment collection, treatment, and disposal authorities in A.R.S. § 49-104(B),

and the Environmental Nuisance statutes in A.R.S. Title 49, Chapter 1, Article 3. ADEQ's general authorizing statutes in A.R.S. Title 49, the Arizona Administrative Procedures Act in Title 41, Chapter 6, and enforcement statutes in A.R.S. Title 49, Chapter 2, Article 4 also apply to this program.

This program consists of general permits. A general permit is a "regulatory permit, license or authorization that is for facilities, activities or practices in a class that are substantially similar in nature and that is issued or granted....if the applicant meets the applicable requirements of the general permit, that requires less information than an individual or traditional permit, license or authorization...." A.R.S. § 41-1001. For a general program to operate as intended, then, each general permit should be for facilities that are similar in nature, require less information than an individual permit, and be relatively simple to process. Hence, discharge applications that require excessive review times and specialized expertise may be more appropriately processed as individual permits. Those facilities that fall outside the scope of the general permit rules may be able to apply for and obtain an individual Aquifer Protection Permit under Chapter 9, Article 2.

An OWTF will either be authorized to discharge under a Type 1 or Type 4 general permit. *See generally* A.A.C. R18-9-A301, -A301(A)(1) & (A)(4), -B301(I), and Part E. Type 1 and 4 authorizations are issued under the general permits to facilities for their operational life. *See* A.A.C. R18-9-A303(B). Operational life is "the designed or planned period during which a facility remains operational while being subject to permit conditions...." A.A.C. R18-9-A101(32). Under current rules, a facility must be designed to have an operational life of at least 20 years. *See* A.A.C. R18-A312(B)(1). Only the 1.09 general permit authorizes the continued discharge by grandfathered on-site wastewater treatment facilities. *See* A.A.C. R18-9-B301(I).

In terms of rules regulating general permits for OWTFs, which are the focus of this rulemaking, Arizona Administrative Code, Title 18, Chapter 9, Article 1 and Article 3 apply.

In Article 1, the most currently relevant provisions for purposes of regulation of OWTFs under general permits are the following:

- A.A.C. R18-9-101 (Definitions), which contains the definitions applicable to the APP program as a whole, a subset of which are those definitions applicable to only OWTFs;
- A.A.C. R18-9-106 (Determination of Applicability), prescribing a process by which a person to request a formal determination of whether the Aquifer Protection Permit program applies to the person and their activity,
- A.A.C. R18-9-107 (Consolidation of Aquifer Protection Permits), which essentially allows the Director to consolidate regulation of any number of facilities permitted under individual or general permits into a single individual permit if part of the same project if certain prerequisites are met; and
- A.A.C. R18-9-110 (Inspections, Violations, and Enforcement), a rule providing additional notice of inspection and enforcement statutes, which ADEQ's and the Attorney General's respective statutory authorities and duties would supersede if the rule's language is legally too limited in scope for necessary and appropriate legal enforcement of the program. (*Note: A.A.C. R18-9-A308 is also rule*

prescribing the scope of enforcement for OWTFs, but ADEQ is repealing it in this rulemaking because the enforcement statutes supersede it.)

In Article 3, the relevant provisions for purposes of regulation of OWTFs under general permits are the following:

- All of Part A – General provisions for all general permits *generally (A.A.C. R18-9-A301 through -A308, and R18-9-A317)*, and OWTF-specific rules *(A.A.C. R18-9-A309 through -A316)*. At a high level as applicable to OWTFs, these provisions prescribe:
  - Application process requirements, including that new Type 4 or sufficiently modified Type 1 or Type 4 facilities (*see A.A.C. R18-9-A301(A)(4), R18-9-A309(A)(9), and R18-9-B301(I)(2)*) must:
    - Submit a Notice of Intent (NOI) to Discharge according to requirements *(A.A.C. R18-9-A301(B), R18-9-A309(B), and Part E permit-specific requirements, such as the additional requirements for a 4.08 Wisconsin Mound general permit in R18-9-E308(C))*,
    - Receive a Construction Authorization (CA) from the Department or delegated agency *(A.A.C. R18-9-A301(D)(1))*, then
    - Submit a Request for Discharge Authorization (RFDA) according to requirements *(A.A.C. R18-9-A301(D)(1)(f), R18-9-A309(C), and specific Part E permit requirements)*, and
    - Receive a Discharge Authorization (DA) from the Department or delegated agency in order to operate the facility *(A.A.C. R18-9-A301(D)(2) and R18-9-A309(C))*;
  - Site investigation requirements to be completed by an applicant to characterize the type and quality of the soil at the site, and identification of site limiting conditions that would impact the efficacy of facility treatment *(A.A.C. R18-9-A310 and R18-9-A312(D) & (E))*;
  - Design and operation requirements, including:
    - Design flow determination criteria *(A.A.C. R18-9-A309(B)(3); R18-9-A314(4), and Table 1 of the rule)*,
    - What permit(s) would apply to the new facility or new multiple facilities at the site based on the cumulative design flows at the site *(A.A.C. R18-A309(A)(10))*,
    - General provisions and generally applicable facility design requirements, including setback requirements, appropriate materials and manufactured components, and septic tank manufacturing requirements *(A.A.C. R18-9-A309, R18-9-A312(C), R18-9-A312(F), and R18-9-A314)*,
    - Generally applicable facility type selection requirements based on site conditions, technological limitations, and other requirements and appropriate system components *(A.A.C. R18-9-A311)*;
    - Required vertical separation distances depending on the type of facility and site investigation results *(A.A.C. R18-9-A312(E))*,

        - Operational limitations that a design must account for *(A.A.C. R18-9-A309(A)(7))*,
        - Process for requesting approval for alternative design, setback, installation, or operational features *(A.A.C. R18-9-A312(G))*, and
        - Installation requirements *(A.A.C. R18-9-A313(A))*; and
    - Maintenance requirements *(A.A.C. R18-9-A313(B))*;
    - Recordkeeping requirements *(A.A.C. R18-9-A309(F))*;
    - Changes at the facility that require a new Notice of Intent to Discharge, including expansions *(A.A.C. R18-9-A309(A)(9) and R18-9-A305(B))*;
    - Transfer of facility ownership requirements *(A.A.C. R18-9-A316)*;
    - Proprietary products listing for those products that may be more conveniently be used in appropriate OWTF designs *(A.A.C. R18-9-A309(E))*;
    - Revocation of coverage provisions *(A.A.C. R18-9-A307)*; and
    - Closure requirements *(A.A.C. R18-9-A306 and R18-9-A309(D))*;
- A.A.C. R18-9-B301(I) in Part B, which is the 1.09 general permit and the only Type 1 OWTF permit, and allows existing facilities installed before 2001 with 20,000 gal/day or less design flows to continue to discharge as long as the conditions in the rule are met (Note: This permit also covers similarly grandfathered "sewage treatment facilities" as defined in A.A.C. R19-9-101.);
- A.A.C. R18-9-E302 in Part E, which, in tandem with provisions in Part A, is the 4.02 general permit consisting of design requirements for conventional septic tank wastewater treatment and gravity disposal system technologies for design flows less than 3000 gal/day;
- A.A.C. R18-9-E303 through -E322 in Part E, which, in tandem with provisions in Part A, are the 4.03 through 4.22 general permits consisting of design requirements for alternative system technologies for design flows of less than 3000 gal/day;
- A.A.C. R18-9-E323 in Part E, which is a consolidating permit for new facilities at a site that has the design flow of 3000 to less than 24,000 gal/day; and
- A.A.C. Title 18, Chapter 9, Article 3, Table 1 of the rule, which is the main table for determining design flow for flows other than single family dwellings, whereas a designer of a single-family dwelling would refer to R18-9-A314(4), regardless of the type of system. Note that Table 1 currently applies to OWTF general permits, OWTF individual permits, and sewage collection and conveyance systems.

What Is Not Currently Regulated under, But Impacts the APP On-site Program?

Sewage Collection or Wastewater Conveyance Systems

OWTFs do not include sewage collection or conveyance systems. Although they are somewhat related to each other, the first is treatment, and the latter two are transport. Sewage collection or conveyance systems are

regulated under rules specific to them. A.A.C. R18-9-B301(J), (K), and R18-9-E301 regulate the 1.10, 1.11, and 4.01 general permits, respectively, according to the following paraphrased applicability constraints, but see the actual language for other coverage qualifications:

- A.A.C. R18-9-B301(J) (1.10 General Permit) governs a sewage collection system installed *before January 1, 2001* that either:

  (1) serves flows greater than 3000 gallons per day or,

  (2) regardless of flow, serves multiple dwellings in a system that includes as manhole, force main, or lift station.

- A.A.C. R18-9-B301(K) (1.11 General Permit) governs, *regardless of the installation date*, either:

  (1) a sewage collection system that serves flows of 3000 gallons per day or less, regardless of the number of service connections, and as long as the system does not include a manhole, force main, or lift station serving more than one dwelling. This means that the system could use clean outs or gravity lines, if allowed by applicable local building and construction codes, and still serve multiple buildings, or it governs,

  (2) regardless of daily design flow or building type, an individual gravity sewer line from a single building, including from a single-family dwelling, directly to an interceptor, lateral, or manhole. *See* 11 A.A.R. 4544, 4576-4578, 4646-4647 (Nov. 14, 2005).

- A.A.C. R18-9-E301 (4.01 General Permits) governs a sewage collection system installed after 2001 that serves flows greater than 3000 gallons per day, and does not govern a gravity sewer line conveying sewage from a single building drain, which is governed under a 1.11 general permit.

"Sewage collection system" is a defined term under the rules and means, "a system of pipelines, conduits, manholes, pumping stations, force mains, and all other structures, devices, and appurtenances that collect, contain, and convey sewage *from its sources to the entry of a* sewage treatment facility or *on-site wastewater treatment facility* serving sources other than a single-family dwelling." A.A.C. R18-9-101(41) (emphasis added). The definition itself indicates that a sewage collection system impacts an OWTF, but definitionally sets the OWTF apart from being part of the definition of sewage collection system itself. According to the definition, the limit of the extent of sewage collection system is the entry of either a sewage treatment facility or an OWTF. Sewage conveyances, were they defined, would be defined similarly as they serve the same purpose as a sewage collection system, just for different flows and system sizes. Likewise, the definition of OWTF does not include a sewage collection system as a part of its definition. Therefore, while sewage collection systems impact OWTF, they are not in the same definitional category of regulation.

Direct Reuse of Recycled Water

Also, except for allowing beneficial reuse of gray water, the Recycled Water program, which consists of A.A.C. Title 18, Chapter 9, Article 7, and under A.A.C. Title 18, Chapter 11, Article 3, does not currently allow

OWTFs to reuse wastewater for beneficial use. Currently, the only a regulatory structure for OWTFs is for the disposal of wastewater. The regulation of gray water use is referenced in the OWTF rules, but is generally regulated under Article 7 of this Chapter. This has contributed to confusion in interpreting how to account for gray water when designing an on-site system. *See* "Table 7 of Explanation of Changes: General Design Requirements" later in this preamble for more information on this specific topic.

Under APP program statutory law, OWTFs are categorically assumed to be discharging facilities, and therefore must be operated under an individual or general permit, unless exempted from APP by rule in accordance with A.R.S. § 49-250(A). *See* A.R.S. §§ 49-241(B) and 49-250(A). Categorically discharging facilities are assumed to add a pollutant(s) "either directly to an aquifer or to the land surface or the vadose zone in such a manner that there is a reasonable probability that the pollution will reach an aquifer." Indeed, the statutory definition OWTF states that it is a system installed to "treat and dispose of wastewater" and in 2005, ADEQ specifically modified "the definition of "disposal works" to clarify that the term does not include activities relating to the reuse of reclaimed water covered under 18 A.A.C. 9, Article 7." 11 A.A.R. 4544, 4550 (Nov. 14, 2005). Therefore, the current legal framework does not support OWTFs for beneficial reuse, except potentially by individual recycled water permit as determined appropriate on a case-by-case basis.

However, the statutory definition of "reclaimed water" is "water that has been treated or processed by a wastewater treatment plant *or an on-site wastewater treatment facility*" (emphasis added). Therefore, OWTFs may in the future be regulated for beneficial reuse under the Recycled Water program as well as for discharge under the Aquifer Protection Permit program (APP) (similar to regulation of larger wastewater treatment plants that also produce reclaimed water for beneficial reuse). Many facets need to be explored before this occurs, including appropriate beneficial uses for recycled water from OWTFs, as well as the type of oversight needed to manage such a program and ensure protection of human health and the environment. Some studies indicate there may be a net environmental benefit to reusing treated water from OWTF, as long as the regulatory program is appropriate and managed correctly. *See generally, e.g.,* Massoud, May A., et al., "Decentralized Approaches to Wastewater Treatment and Management: Applicability in Developing Countries," 90 J. OF ENVTL. MNGMT. 652-659 (2009). For this reason, ADEQ is working with workgroups to explore the potential of regulating OWTFs to allow reuse of recycled water for appropriate beneficial uses.

Section by Section Explanation of Changes in this Rulemaking

Rule modifications are organized into several tables in terms of the following topics rather than by section number:

- Table 1 of Explanation of Changes: Definitions
- Table 2 of Explanation of Changes: Programmatic Implementation
- Table 3 of Explanation of Changes: Notice of Intent to Discharge
- Table 4 of Explanation of Changes: Request for Discharge Authorization
- Table 5 of Explanation of Changes: Site Investigation for Design Preparation
- Table 6 of Explanation of Changes: Design Flow – Table 1
- Table 7 of Explanation of Changes: General Design Requirements

- Table 8 of Explanation of Changes: Conventional System Designs
- Table 9 of Explanation of Changes: Alternative System Designs
- Table 10 of Explanation of Changes: Alternative Design Features Process per A312(G)
- Table 11 of Explanation of Changes: 4.23 Larger Flow Permits

Table 1 of Explanation of Changes: Definitions

Rule Content Summary	Rule(s) affected (R18-9-xxx)	Type of Change	Explanation of Changes to: Definitions
Cesspool definition – add	101	Clarification	For clarity, this rulemaking change adds a definition for "cesspool." Cesspools are prohibited under A.A.C. R18-9-A309(A)(4), but there is currently no definition of "cesspool." This change clarifies the definition and provides the public with additional notice.
Gray water definition – add	101	Clarification	Stakeholders have conveyed that there is confusion among the public regarding the definition of "gray water." Therefore, ADEQ is adding the governing statutory definition in A.R.S. § 49-201 into these rules to provide additional notice to the public. *See* "Table 7 of Explanation of Changes: General Design Requirements" for more information on this specific topic.
OWTF definition correction	101	Correction	ADEQ is correcting the definition of "on-site wastewater treatment facility" with minimal changes, to conform to the statutory definition in A.R.S. § 49-201.

Table 2 of Explanation of Changes: Programmatic Implementation

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Programmatic Implementation
Renewal – Typo	A303(D)	Correction	A.A.C. R18-9-A303(D) contains an incorrect reference and is therefore confusing. Type 1 and Type 4 facilities are authorized for the operational life of the facility pursuant to A303(D). Therefore, the reference in A303(D) should be to A303(C) instead of (B).
Enforcement	110; A308	Correction (in the form of Repealing A308 and modifying 110)	A.A.C. R18-9-110 and R18-9-A308 invalidly limit statutory enforcement discretion for an entire class of facilities, namely OWTFs. Rather, OWTFs are subject to enforcement under all applicable provisions of A.R.S. Title 49, Chapter 2, Article 4. Therefore, ADEQ is repealing A.A.C. R18-9-A308 and modifying A.A.C. R18-9-110 to reflect proper application of environmental enforcement statutes. Note that other statutory provisions are also applicable to facilities, including those for environmental nuisances under A.R.S. Title 49, Chapter 1, Article 3.
Application	A309(A)("12")	Clarification	To clarify and summarize, in rule, the overall required application process

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Programmatic Implementation
process clarification	& A309(C)		to obtain coverage under a Type 4 general permit, ADEQ intends to add the following language in the General Provisions section in A.A.C. R18-9-A312(A)(12) (a new subsection): "To obtain coverage under a Type 4 General Permit, and applicant must, in the following order: a. Submit a Notice of Intent to Discharge according to requirements in R18-9-A301(B), R18-9-A309(B), and according to permit-specific requirements in Part E of Article 3, b. Receive a Construction Authorization from the Director pursuant to R18-9-A301(D)(1)), c. Submit a Request for Discharge Authorization according to requirements in R18-9-A301(D)(1)(f), R18-9-A309(C), and according to permit-specific requirements in Part E of Article 3, and d. Receive a Discharge Authorization from the Director pursuant to R18-9-A301(D)(2) and R18-9-A309(C)." Also, language is slightly modified in R18-9-A309(C) to clarify that the scope of the additional requirements in that subsection is for both the Request for Discharge Authorization and the Discharge Authorization issuance.

Table 3 of Explanation of Changes: Notice of Intent to Discharge

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Notice of Intent to Discharge
Addition of editorial introductory language before lists	A309(A)(5)	Clarification	Stakeholders have expressed confusion when interpreting the list in A.A.C. R18-9-A309(A)(5) because the introductory language precedes two subsequent lists. ADEQ agrees that while the language as it exists is technically accurate, adding limited introductory language would provide a clearer signal of the subsequent lists. This change is simply editorial in nature.
Repairs (and Routine Work) (both)	A309(A)(9)	Clarification	The actions described in A309(A)(9)(b) are those actions that ***do*** require a new Notice of Intent to Discharge (NOI) for the facility because the actions ***do not*** qualify as repairs or routine work to a facility. Modifications here add "routine work" along with "repairs" throughout this section as actions that ***do not*** **require a new NOI.** These rule changes remove any appearance of substantive difference between "repair" or "routine work" for purposes of determining

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Notice of Intent to Discharge
			whether a permit is required. Rather, it is assumed that both repairs and routine work or maintenance are expected as a part of a facility's operation of a facility.
Simplification and Correction of Repairs and Routine Work Rule	A309(A)(9)	Clarification /Correction	Under A.A.C. R18-9-A310(A)(9), a new NOI is not required for routine work. This rule also lists several actions that ***do*** require an NOI because those actions ***are not*** routine work under the rule. This rule has been extremely difficult to understand and follow over the years for both regulators and permittees. ADEQ's rule changes here are influenced by stakeholder recommendations and are attempts to simplify the rule. ADEQ is therefore simplifying the rule so that an NOI is required if a facility owner intends to: • Convert a facility under operation of gravity at some point in the system to operation of a pump or some other mechanical device that is not necessarily electrically powered (e.g., a siphon); • Modify or replace the treatment or disposal works of the facility, which does not necessarily encompass minor replacement of functionally equivalent components as a matter of routine maintenance or repair; or • Modify the facility in any way that is inconsistent from the originally approved design and installation of the facility (e.g., increasing the design flow above the originally approved level). This also means that as-built changes approved during the installation and discharge authorization phase are considered consistent with the originally approved design and installation of the facility. It appears the original intent of this rule was to attempt to capture several specific actions that do not qualify as routine work. However, ADEQ has realized that the attempted specificity has overcomplicated the rule and made it difficult to comprehend. In fact, the rule appears to contradict other rules and repeats some, but not all, actions already prohibited or required by rule in the permitting process. For a detailed example, consider the following: Under R18-9-A305(B), a permittee may expand a facility covered under a Type 4 ***if*** the permittee submits a new NOI and the Department issues a new DA. OWTFs are either Type 1 or Type 4

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Notice of Intent to Discharge
			generally permitted facilities, and all newly permitted facilities will be Type 4. Subsection A.A.C. R18-9-A309(A)(9)(b)(vi) requires a new NOI if a facility's disposal works are extended "more than 10 feet beyond the footprint of the original disposal works." This subsection implies that a certain level of expansion of a facility's original footprint, up to 10 feet, is allowed without an NOI. (The Department interprets "original" in the sense of the word "origin," meaning when the OWTF very first came into being and was first installed.) This subsection's apparent allowance for expansion of the facility's original footprint up to 10 feet without an NOI directly conflicts with the clear requirement in A.A.C. R18-9-A305(B) to submit a new NOI if a Type 4 facility is expanded at all. Further, the Department cannot offer a valid technical reason to allow expansion of the disposal works beyond its original footprint without a new NOI. Several of the other subsections are simply restatements of permitting requirements or prohibitions to ensure that the facility or its treatment works and disposal works are not modified in conflict with the original facility's approval so as to negatively impact human health or the environment. However, it is unclear why some requirements were specified, and others were not. These rule changes clarify what is already required in rule, remove confusing contradictions, and do not increase burdens on the regulated community.
NOI requirements – pretreatment report	A309(B)(6)	Information collection addition	ADEQ is adding language in A.A.C. R18-9-A309(B) (proposed as (B)(6)) requiring submittal of a design report for pretreatment equipment for a request for authorization to be administratively complete. ADEQ believes this additional information is minimally burdensome and necessary to verify that the proposed pretreatment will produce typical sewage, is appropriate for use with the chosen OWTF technology, and that the ultimate treated water will meet applicable performance standards.
NOI requirements – drainage and erosion	A309(B)(2)(b)(iv) & A309(B)(6)(a)(v)	Information collection addition	ADEQ is adding language in A.A.C. R18-9-A309(B)(2)(b)(iv) requiring submittal of drainage patterns, and as applicable, drainage controls and erosion protection for the proposed OWTF. Similar information is already required for alternative systems in A309(B)(6),

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Notice of Intent to Discharge
information			so this addition makes the requirement applicable to all OWTFs, including conventional OWTFs, too. ADEQ anticipates that most designers are already reviewing this information and that a designer should be able to comply with this requirement easily. It is an important provision, however, because erosion or saturated soil can adversely affect OWTF treatment effectiveness. This is an aspect of the system that permit reviewers consider to evaluate the appropriateness of the system at the site, so providing this information at the start of the process will help to save the permittee time in receiving a Construction Authorization. ADEQ also removed the language in A309(B)(6)(a)(v) since drainage information will be a generally applicable requirement rather than an alternative-specific requirement.

Table 4 of Explanation of Changes: Request for Discharge Authorization

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Request for Discharge Authorization
RFDA/COC clarifications	A309(C)(1) & A309(C)(2)	Clarification	ADEQ is making editorial changes to the current rules in A.A.C. R18-9-A309(C)(1) & (C)(2) to clarify that components of the Request for Discharge Authorization (RFDA) for either a conventional or alternative system must be completed and submitted by the applicant or the agent of the applicant, or by the engineer or designer of record, as appropriate. An agent is the person legally authorized by the owner-applicant to act on their behalf under agency and contract law. A representative from an entity regulating the applicant, such as a delegated county's inspector, may not act as an agent on behalf of the applicant as this would disrupt the regulatory thread back to the applicant. Further, a regulatory representative may not authorize backfill of an alternative system until the designer or engineer of record has had an opportunity to verify that the system was properly installed according to the approved design. The Certificate of Completion (COC), which is a component of the RFDA for alternative systems, is submitted so that the applicant may make use of their OWTF and obtain a discharge authorization from the regulatory entity. Therefore, the COC must be signed by the designer or engineer of record, as appropriate. This ensures that the person who signs the COC has the requisite knowledge to be able to verify that a facility is installed according

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Request for Discharge Authorization
			to the approved design. However, the engineer or designer signing the COC does not have to be the original designer or engineer of record. Rather the person signing the COC should be the current implicit or express authorized agent of the applicant as a separate matter of contract and agency law. ADEQ would assume that the current engineer or designer of record is the applicant's agent. In some cases, however, the designer or engineer may be the applicant themselves (i.e, an owner of the facility that has the requisite knowledge and expertise to design a system). "Applicant" typically refers to either the applicant or the applicant's agent. The qualification of "applicant" in A.A.C. R18-9-A309(C)(1) here is not intended to change the meaning of the word "applicant" elsewhere in the rules. There has simply been confusion about this topic in this particular area of the rules, which has led to these clarifying changes.

Table 5 of Explanation of Changes: Site Investigation for Design Preparation

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Site Investigation for Design
Surface limiting condition – 100-Year zone qualification	A310(C)(2)(d)	Technical Update	Right now, if any portion of a 100-year flood hazard zone is located on the property on which an OWTF is placed then a surface limiting condition exists. A property could be quite large. Therefore, a site investigator should further be able to inspect whether the flood zone is near the OWTF and may adversely affect the ability of the facility to function properly before it's designated a surface limiting condition. ADEQ is making changes to reflect this.
Remove ASTM auger boring standard	A310(D)(1)(a) & (D)(3)(b)	Technical Update	ADEQ is removing the ASTM auger boring standard, "Standard Practice for Soil Investigation and Sampling by Auger Borings, D1452-80" (2000), because it is rarely, if ever, used and is overall an un-useful tool when conducting site investigations.
Typo – seepage pit percolation rate test methodology reference	A310(G)(3)(d)(iii)	Correction	The formula description for the seepage pit percolation test in subsection A312(G)(3)(d)(iii) inappropriately cites the general percolation test in subsection (F) to determining the stabilized infiltration rate, but (G) is the correct reference. This rulemaking corrects this typographical error.
Typo – "consistency" to	A312(D)(2)(b) – soil characterization	Correction	The term "consistency" in the soil characterization table in A.A.C. R18-9-A312(D)(2)(b) should be changed to "consistence," because "consistence" is the correct technical soil classification term in the

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Site Investigation for Design
"consistence" per ASTM & USDA	table, line item "D."		context of the soil characterization table. The rule's subsurface characterization method for classifying soil by field observable characteristics is the American Society for Testing and Materials (ASTM) D5921-96 *Standard Practice of Subsurface Site Characterization of Test Pits for On-Site Septic Systems* (1996, Reapproved 2003). This ASTM method is based upon the U.S. Department of Agriculture's (USDA) Soil Conservation Service classification system as of 1996, as stated in the ASTM method itself in the introduction and in section 1.2 of the standard. Several documents cited in ASTM 5921-96 also reflect this fact, including the citation underlying "Table 7 Rupture Resistance Classes," namely Reference 4, Soil Survey Staff, "Soil Survey Manual," *USDA Agricultural Handbook No. 18* (1993). The 1993 Soil Survey Manual states, "Soil consistence in the general sense refers to 'attributes of soil material as expressed in degree of cohesion and adhesion or in resistance to deformation on rupture.'" USDA Soil Survey Staff, *Soil Survey Manual* at 91 (1993) (obsolete), *available at* https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054261 (last visited Sept. 14, 2021). The 1993 Soil Survey Manual also explains there is a difference between "consistence" and "consistency" and explains the difference. *Id.* at 92. A later version of the Soil Survey Manual explicitly states, "Consistence is *not* synonymous with consistency." USDA Soil Science Division Staff, *Soil Survey Manual* at 180 (2017), *available at* https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054261 (last visited Sept. 14, 2021). Therefore, under the ASTM D5921-96 standard, the USDA soil survey manual, and related documentation and literature, "consistency" is the incorrect term to use in the soil characterization table in A.A.C. R18-9-A312(D)(2)(b). This was apparently a typo in a previous rulemaking. Hence, ADEQ is exchanging the term "consistency" for "consistence." ADEQ notes that although this method, ASTM 5921-96 (2003) has been withdrawn by ASTM, it is still a valid soil characterization method for ADEQ's purposes at this time. Technical workgroups are currently evaluating whether another soil characterization method would be more appropriate into the future.
Typo – "silty" loam to "silt"	A312(D)(2)(b) – soil	Correction	Tables 3 and 12 of ASTM D5921-96 indicate that the correct technical term is "silt" loam as opposed to "silty loam." "Silt" loam is used

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Site Investigation for Design
loam per ASTM 5921	characterization table, line item "K."		elsewhere in this table, as well. ADEQ is simply correcting this typographical error. Note that the term "silty" is still used in ASTM 5921 as an adjective in the phrase "silty clay loam." See the phrase as used in ASTM 5921 (2003), specifically in "Table 3 Abbreviations and Designations for USDA Soil Texture Classes (1), (3), and (7)".

Table 6 of Explanation of Changes: "Design Flow – Table 1 of the Rule"

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Design Flow – Table 1 of the Rule
Table 1 - General minor editorial clarifications	Table 1	Clarification	The section for "Restaurant/Cafeteria" is confusing in that it is one of only two sections that has a line item directly across the title of the section ("Restaurant/Cafeteria --- Employee --- 20"). For this reason, ADEQ is simply moving the Employee line item to below the title of the section. ADEQ is making this change for other Wastewater Sources that have multiple Applicable Units in the table, including "Airport" and "Store." Also, Table 1 of the rule is generally confusing in that there are no introductory instructions. ADEQ is adding minimal instructions to add each line item applicable to a facility. For example, for a restaurant that normally has 10 employees on the floor and in the kitchen, has a toilet and 100 customers a day, is full service and serves 110 meals in a day, and has a garbage disposal, then the design flow would be 1,660 gal/day ((20×10) + (7×100) + (6×110) + (1×100) = 1,660). A similar approach would apply for calculating the design flow of an apartment building, as it is likely that apartment buildings have various floor plans, some with 1 bedroom, and some with 2 bedrooms, for example.
Table 1 - Dwelling design flow reference	Table 1	Correction	Currently, A.A.C. R18-9-A309(B)(3) refers applicant to Table 1 to calculate design flow. For single family dwellings, Table 1 refers an applicant to A.A.C. R18-9-A314(D)(1). This reference does not exist. The correct reference is A.A.C. R18-9-A314(4)(a). Also, this reference is slightly confusing because A.A.C. R18-9-A314 applies to septic tank design and size, but the method for calculating design flow for all single-family dwellings, whether alternative or conventional systems are used, is in A.A.C. R18-9-A314. Therefore, ADEQ is adding language to clarify that this method of calculation would apply for both conventional and alternative systems if used at a single-family dwelling.
Table 1 – Hotel/motel linens	Table 1	Clarification	When calculating the flow for a hotel, the figure currently in Table 1 of the rule does not account for a hotel laundering its own linens. If a hotel is

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Design Flow – Table 1 of the Rule
			washing linens, this is a major impact and would need to be accounted for in the flow. The flow for "commercial laundry" would likely be an appropriate substitute if a hotel is doing their own linens. Therefore, ADEQ is clarifying that the flow figure for hotels in Table 1 does not account for linen laundry.
Table 1 – Restaurant/cafeteria disposable service v. full service	Table 1	Clarification	The section for restaurants is confusing as to which flow would apply for different types of restaurants. A restaurant with disposable service where food items are served in disposable dinnerware such as Chipotle, would have a lower sewage flow than a restaurant that has full plated table service and dishes to wash, such as Olive Garden. In this rulemaking, ADEQ is slightly modifying the language in Table 1 of the rule to clarify the difference between these two types of restaurant flows to ensure that a system is adequately sized for the volume of flow.

Table 7 of Explanation of Changes: General Design Requirements

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: General Design Requirements
"Design and" Operational Requirements	A309(A)(7)	Clarification	ADEQ is adding clarification to the operational requirements in R18-9-A309(A)(7). In order to satisfy the operational requirements, a designer must have taken this section into account to ensure that a system would comply with these rules during its operational life. Therefore, to provide additional notice, ADEQ is adding the word "design."
Gray Water Accounting in Design Flow	A309(A)("11") & A309(B)(3) & A312(B)(3) (citing to A309(B)(3) and other provisions) & E303(F)(2)(b)	Clarification	Over the years, there has been confusion as to (1) what qualifies as gray water, and (2) whether an on-site facility must be sized to process both black and gray water flows. First, the definition of gray water is a statutory definition, and is being proposed for addition into Article 1 of Chapter 9. "Gray water" means wastewater that has been collected separately from a sewage flow and that originates from a clothes washer or a bathroom tub, shower or sink but that does not include wastewater from a kitchen sink, dishwasher or toilet. A.R.S. § 49-201(20). Gray water that is not separated from black water is black water, i.e., wastewater, and must be disposed of in the sewer or pursuant to the on-site rules. Gray water that is not used in accordance with gray water rules must be disposed of in the sewer or pursuant to the on-site rules. Second, as noted in the statutory definition, gray water does not include

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: General Design Requirements
			wastewater flows from the kitchen sink, even if using an interceptor. Flows including kitchen sink wastewater are considered black water. Some recreational vehicle wastewater holding tanks are labeled as holding gray water, but their definition of gray water is not the same as Arizona's if it includes kitchen sink or other black water. ADEQ is adding language to this effect in A.A.C. R18-9-A309(A)(11), as well. Third, as a rule, "the use of a gray water system does not change the design, capacity, or reserve area requirements for the on-site treatment facility so the facility may handle the combined black water and gray water flow." R A.A.C. 18-9-D702(C)(11) (in the Type 3 gray water permit for residential or commercial gray water flows of 400 to less than 3000 gallons per day); *see also* A.A.C. R18-9-D701(A)(11) (in the Type 1 gray water permit for residential use for gray water flows less than 400 gallons per day). In addition, the 2005 rulemaking preamble stated: *"[I]f gray water is reused under R18-9-711 or R18-9-719, the remaining wastewater from the property—kitchen wastewater—still must pass through an interceptor into the subsurface disposal works. In this situation, the interceptor may be sized smaller but the design flow and, hence, disposal trench or bed size, is the same as if gray water is not being reused."* 11 A.A.R. 4544, 4579 (Nov. 15, 2005) (emphasis added). Therefore, all flows, black and gray, whether residential or commercial, must be accounted for to size an on-site wastewater treatment and disposal system. However, this explicit statement only exists in the gray water rule requirements in Article 7, and the current on-site rules simply cite to and mandate compliance with Article 7 in its entirety. For example, in A.A.C. R18-9-E303(A)(3)(a), a prerequisite to using a composting toilet is "if gray water is separated and reused, the gray water [must comply] with 18 A.A.C. 9, Article 7." For clarity, therefore, ADEQ is adding additional notice in the rules that facilities must account for both gray water and black water flows when sizing systems. This would apply to, for example, the sizing of trenches or beds for 4.03 composting toilet permits since the sizing of trenches or beds are based on the total wastewater design flow as indicated in the design flow column of the table in A.A.C. R18-9-E303(F)(1)(e)(i), without regard to the interceptor size, as required by A.A.C. R18-9-E303(F)(2)(b).

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: General Design Requirements
			To further ensure clarity, ADEQ is adding references in other locations of the rule to highlight instances where the consideration of wastewater characteristics of a combined gray and black water flow is also necessary.
Conventional Technologies Used with Alternative Technologies	A311(A)("4")	Clarification	Often, alternative technologies are used in tandem with conventional septic tank system and/or gravity disposal technologies. The only location where septic and/or gravity disposal technologies are fully described and prescribed is in R18-9-E302. Therefore, ADEQ is adding language to ensure that as a general rule, septic tanks and disposal works are designed according to A.A.C. R18-9-E302, which includes references to R18-9-A314 for the septic tank design. However, if the specific rules applicable to technologies for A.A.C. R18-9-E303 through -E322 conflict with requirements in -E302, those requirements would apply. For example, 4.02 permit requires the treatment train to be a septic tank followed by disposal via gravity using a trench, bed etc. Other permits such as the 4.12 permit requires a deviation from this treatment train by inserting another technology, a textile filter, in between the septic tank and dispersal field treatment train.
Modified version of 4.02 facility as sole treatment	A311(C)	Clarification	ADEQ added language here to clarify that this subsection is only referring to modifying a septic tank and disposal system if it is the sole method of wastewater treatment and disposal at the facility. Only modifications to a conventional system as the sole treatment and disposal would require an A.A.C. R18-9-A312(G) analysis and approval.
Typographical Error – citation to vertical separation	A311(C)(2)(b)	Correction	The citation in A.A.C. R18-9-A311(C)(2)(b) refers to vertical separation, and as such, the citation to A310(D)(2)(c) should be corrected to A310(D)(2)(b).
Setback (1) building "decks" includes "pool deck"	A312(C) setback table	Clarification	County partners have indicated that they receive several questions about how and to what setbacks should be applied. In this rulemaking, ADEQ is clarifying the application of three types of setbacks: from buildings or decks (including pool decks), canals, and holding tanks. In line item "1. Building," ADEQ's interpretation has been that pool decks are already covered under that setback as "decks." However, because there has been stakeholder confusion, ADEQ is adding clarifying language that the setback for "decks" applies to pool decks.

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: General Design Requirements
			This interpretation is appropriate given the likelihood of accumulation of water near a pool. Pool decks are sloped to direct flow from a precipitation event or when persons are utilizing the pool for water sports or otherwise entering and exiting the pool. Additional water accumulation can contribute to ponding, which may impact the pool structure, and may also adversely impact the ability of an OWTF to function properly, possibly leading to unsanitary conditions near a swimming pool.
Setback (6) – canals – measured from edge	A312(C) setback table	Clarification	In line item "6. Lake, reservoir, or canal," canals are mentioned in the title but how to treat the canal water line is not prescribed. This rulemaking corrects this absence of description by prescribing that the setback is measured horizontally from the edge of a canal, a manmade artificial waterway.
Setback (10) – domestic water line includes domestic water holding tanks	A312(C) setback table	Clarification	In line item "10. Domestic service water line," ADEQ's interpretation has been that water holding tanks would be a part of the water line system. However, the rule could be clearer to demonstrate this intention. Therefore, ADEQ is adding language to clarify that the setback in this line item applies to domestic water holding tanks.
Typographic error in SAR conversion table introductory language	A312(D)(2)(a) (introductory language to the table)	Correction	The introduction language to the percolation rate to SAR conversion table in A.A.C. R18-9-A312(D)(2)(a) only cites subsection A.A.C. R18-9-A310(F). However, an applicant that conducts percolation testing for seepage pits according to R18-9-A310(G) would also input their results into the table. Therefore, ADEQ is adding this reference to correct this omission.
Clarify why "pit" is in soil characteristics table	A312(D)(2)(b) (introductory language to the table)	Clarification	Over the years, the word "pit" has been in the soil characteristics table in A.A.C. R18-9-A312(D)(2)(b). This table should never be used as the primary table for identifying an SAR in a pit. However, staff believes that under certain circumstances it may be appropriate for an applicant to augment and inform seepage pit percolation rate determinations with a soil characteristics analysis, in addition as the required procedure described in A.A.C. R18-9-A310(G). Therefore, ADEQ is adding clarifying language to this effect.
Require an applicant to use the most conservative	R18-9-A312(D)(2)("c")	Clarification /Technical Update	At this time, the rule does not specify how to apply the table in A.A.C. R18-9-A312(D)(2)(a) when an applicant's percolation rate determined under A.A.C. R18-9-A310(F) or (G), whichever is applicable, is a value that lies between two consecutive percolation rate values listed in

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: General Design Requirements
SAR			the table. ADEQ has evaluated the silence in the rule and at this time has concluded that if the percolation rate determined under A.A.C. R18-9-A310(F) or (G), whichever is applicable, is a value that lies between two consecutive percolation rate values listed in subsection (2)(a) above, the applicant must use the higher of the two listed percolation rates to correlate to the most conservative SAR. The ADEQ has considered various other means of clarifying the silence in the rule, including allowing linear interpolation between two consecutively listed values to a correlated SAR. However, at this time, the Department and delegated agencies do not have enforceable means to allow an applicant to apply linear interpolation principles to obtain an intermediate value. The percolation rate is based on rule-specified measurements, and in some cases, also calculations. *See* A.A.C. R18-9-A310(F) and (G). The percolation rate is then converted into an SAR via the table in A.A.C. R18-9-A312(D)(2)(a). Since "SAR" is a variable in calculating the soil absorption area, allowing interpolation for the value of "SAR" would introduce even more opportunities for error. *See* A.A.C. R18-9-A312(D)(1); *see also, e.g.*, A.A.C. R18-9-E302(A)(4)(a) (for chambers) and A.A.C. R18-9-E302(5)(k) (for seepage pits). However, given the nature of percolation rate testing, there are limited practical or economical ways to ensure that measured and calculated values are precise and accurate enough to allow for an interpolated SAR at this time. ADEQ's main concern is that an inappropriately low SAR would pose a threat to human health and the environment because the soil absorption area would not be adequate to accept OWTF disposal outflows. ADEQ will consider additional future input from stakeholders and workgroups, but at this time the Department will require the most conservative value for purposes of converting the percolation rate to an SAR. This approach is the most reasonable interpretation at this time to protect human health and the environment, and it should improve permit review times, as well as resolve current and future conflicts in interpreting appropriate application of the table in R18-9-A312(D)(2)(a).
Minimum vertical separation	A312(E)(1), (E)(2), (changes also impact	Clarification	After review of some stakeholder comments, ADEQ determined that the minimum coliform concentration requirements based on vertical separation distance are somewhat ambiguous in their applicability and

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: General Design Requirements
clarifications, conventional v. alternative treatment	(E)(2)(a), (E)(3)(c)(i), & (E)(4)(b))		could be slightly modified for clarity. The two subsections, A.A.C. R18-9-A312(E)(1) and (2), establish the maximum allowable coliform concentrations of the disposal works' outflow to the native soil based on the vertical distance from the bottom of the disposal works to the seasonal high-water table at the facility's location. A.A.C. R18-9-A312(E)(1) applies to conventional systems, and A.A.C. R18-9-A312(E)(2) applies to alternative systems. The table in A.A.C. R18-9-A312(E)(2) is very clear that if the effluent is nominally free of total coliform, the separation distance between the discharge point and the seasonal high-water table is 0'. However, alternative systems are often combined with conventional system technologies to improve wastewater treatment or facilitate disposal, and currently the rule is unclear as to which rule table applies when conventional system technologies are combined with alternative system technologies to treat and dispose of wastewater This rule change clarifies that A.A.C. R18-9-A312(E)(1) only applies to the situation where a septic tank and gravity disposal conventional system described in A.A.C. R18-9-E302 is the facility's sole method of treatment and disposal of wastewater. This clarification reflects the fact that conventional septic systems that are used as the sole method of treatment produce higher concentrations of coliform in treated water than alternative systems. Therefore, conventional systems' disposal works outflows pose more risk to the environment and health and safety the closer the disposal works are vertically located in relation to the water table. For this reason, the maximum allowable total coliform concentrations given available vertical separation requirements in the table in A.A.C. R18-9-A312(E)(1) are more stringent than the requirements for alternative systems. In fact, at some SAR levels, conventional system disposal works are not allowed at all at any vertical distance without alternative treatment, according to the table. However, if one of the alternative technologies from A.A.C. R18-9-E303 through -E322 is utilized, then the coliform concentrations are decreased, as are the vertical separation requirements in A.A.C. R18-9-A312(E)(2). Even if conventional technologies such as a septic tank and/or gravity disposal described in A.A.C. R18-9-E302 are appropriately utilized as a part of alternative systems, A.A.C. R18-9-A312(E)(2) will govern the minimum vertical

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: General Design Requirements
			separation requirements. This concept is also true for A.A.C. R18-9-A312(E)(3)(c), which governs the maximum allowable coliform concentrations at particular vertical depth to a subsurface limiting condition as applicable to alternative systems. A.A.C. R18-9-A312(E)(3)(c) will never apply a conventional system disposal works where the septic tank is the sole method of treatment because under that rule, unless an adequate alternative disinfection system is used, the *minimum* required depth to a subsurface limiting condition is four feet. *See* A.A.C. R18-9-A312(E)(3)(a)(i); *see also* 11 A.A.R. 4544, 4639 (Nov. 14, 2005) (listing of the reasons for nominally free wastewater at 1.5 feet and lower even though it does not follow the same logarithmic progression). Note that the 4.23 permit is not cited in this change. That is because the vertical separation requirements are specific to the technology used. The 4.23 permit described in A.A.C. R18-9-E323 is a consolidating umbrella permit for larger flow facilities or sites and does not introduce new technology. Therefore, unless otherwise specified in the A.A.C. R18-9-E323, requirements that apply to technologies described in A.A.C. R18-9-E302 through -E322 will also apply under the permit issued pursuant to A.A.C. R18-9-E323.
Hydraulic analysis	A312(E)(3)(c)(ii)	Information collection addition	A hydraulic analysis is conducted to demonstrate that the soil in the proposed OWTF location of the disposal works is sufficiently permeable to conduct wastewater vertically downward and laterally without surfacing. *See, e.g.*, Tyler, E.J., *Hydraulic Wastewater Loading Rates to Soil*, Abstract for 9th International Symposium on Individual and Small Community Sewage Systems (2001) available at https://www.soils.wisc.edu/sswmp/SSWMP_4.43.pdf. ADEQ is revising A.A.C. R18-9-A312(E)(3)(c)(ii) to require a hydraulic analysis in all designs where the depth of soil to a subsurface limiting condition is less than 4 feet. At the present time, a hydraulic analysis is not required if the SAR value is greater than 0.63 gal/day/sf. This exclusion is based upon the assumption that the soil is adequate for conveying the effluent away from the disposal site and preventing surfacing for any given SAR value greater than 0.63 gal/day/sf for any given soil depth less than four feet. This assumption is very questionable in some cases. Therefore, a hydraulic analysis is needed to confirm that the effluent will indeed not surface during the disposal process. A hydraulic analysis is a relatively simple analysis and should be a minimal burden.

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: General Design Requirements
Pipe materials	A312(F)(2)(c)	Technical Update	Currently, pipe material use is limited to HDPE, PVC, ABS, and clay. ADEQ intends to add language to allow other appropriate pipe materials and eliminate reference to piping material that is not used. Suitability of the pipe includes adequate durability.
Electrical code	A312(F)(3)("a")	Technical update	Because there is a risk of electrocution or fire from installation of electrical components, ADEQ agrees with stakeholders that electrical components should meet some sort of electrical standard when installed. Delegated partners will likely be more familiar with the electrical code incorporated in the local building code in the county where the facility is located. For these reasons, ADEQ is adding language to the requirements for electronic components in OWTFs in A.A.C. R18-9-A312(F)(3)(a) requiring the installation of components to comply with the local building electrical code applicable in the county in which the OWTF is installed. This does not apply to components themselves that are supplied by proprietary product manufacturers. Rather, this requirement applies to the connections between electrical components, such as to the wiring connecting the control panel to the pumps and aerators and the wiring between the service entrance and the control panel.
Interceptor formula	A315(B)(1) & (B)(3) – (interceptor design, generally) E303(F)(1)("a") – (interceptor design when using a composting toilet permit)	Clarification	ADEQ is adding language to the interceptor design requirements to clarify the types of flows that an interceptor may not receive, namely human excreta or toilet wastewater. Stakeholders have expressed confusion regarding the formula for sizing interceptors for restaurants based on requirements in A.A.C. R18-9-A315. Specifically, it was expressed that the rule is unclear regarding the fact that an interceptor is not intended to accept human excreta or toilet wastewater. An interceptor should be placed immediately after a kitchen disposal conveyance, and before joining with any disposal conveyance from any toilet wastewater source so that no toilet wastewater is directed into an interceptor. For this reason, ADEQ is adding some minimal language to clarify this fact as a matter of good design judgment. For example, ADEQ added the word "applicable" in the equation variable definitions in A.A.C. R18-9-E315(B)(3)(b) to highlight that not all sources from a restaurant should be included in a restaurant flow, especially toilet flow. Likewise, interceptors used in the disposal works at a facility using a composting toilet are intended for use for the non-toilet wastewater and should not accept human excreta or toilet wastewater. Although the

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: General Design Requirements
			table in A.A.C. R18-9-E303(F)(1) indicates that the sizing for the interceptor is for non-toilet wastewater, there is no explicit statement in the rule that an interceptor may not accept human excreta or toilet wastewater. Therefore, ADEQ is adding clarifying language to that effect in E303(F)(1) to provide better notice to the public of this prohibition.

Table 8 of Explanation of Changes: A312(G) Alternative Design Features Process

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Alternative Design Features Process per A312(G)
Specified PPL approved deviations from GP do not also need an A312(G) analysis	A312(G)	Clarification	ADEQ is adding language to clarify that if aspects of a technology that vary from specific general permit requirements and are already approved for listing on the proprietary products list maintained under A.A.C. R18-9-A309(E), then an applicant may use the listed proprietary product in a permit without requesting review under A.A.C. R18-9-A312(G). Currently, it is not clear that using a listed product allows an applicant to bypass the A.A.C. R18-9-A312(G) for the alternative features specifically approved via the proprietary product listing. However, only those features specifically approved in the proprietary product listing are approved for use without an A312(G) analysis. If use of a listed product requires additional variances from a specific general permit, then the applicant must make a request for the Department to authorize use of those alternative features in the submitted design. Likewise, a project proponent may not modify a design feature of a listed product unless either an A.A.C. R18-9-A312(G) analysis is sought and approved, or a new proprietary product listing is requested and listed. Some current proprietary product listings already anticipate the need for an additional approval for some features under A.A.C. R18-9-A312(G). For example, the Eljen Geotextile Sand Filter indicates that if a pump or siphon is used to convey wastewater to the distribution box, then an A312(G) approval is needed because this is an additional alternative feature to the 4.09 general permit. See page 4 of the proprietary product listing for the Eljen product, which is available at: https://static.azdeq.gov/er/prop/eljen_cert.pdf.
Alternative setbacks for conventional systems and 4.23	A312(G)(7)	Clarification	The criteria in A.A.C. R18-9-A312(G)(7) applies for obtaining a reduced setback for an alternative system. It is also ADEQ's position that the current rule already allows for reduced setbacks for conventional systems, if appropriately justified under the criteria in

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Alternative Design Features Process per A312(G)
permitted facilities			A.A.C. R18-9-A312(G)(1) through (G)(6). However, the current language is confusing and over complicates how the requirements apply for each system type. This rulemaking attempts to clarify (G)(7) so that the criteria in (G)(7) simply applies for all facilities, conventional and alternative alike. Setbacks that would apply for other facilities would also apply under 4.23 permits, ADEQ is also adding language to clarify that OWTFs may obtain reduced setbacks for facilities authorized to operate under 4.23 permits, if appropriately justified under A.A.C. R18-9-A312(G).

Table 9 of Explanation of Changes: Conventional System Designs

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Conventional System Designs
Julian dating – septic tank	A314(1)(l)	Technical update	Currently the rule requires septic tanks to be permanently and clearly marked with, among other information, the month and year that a septic tank was manufactured. Based on comments, it appears that some current tank manufactures mark septic tanks with a Julian date, instead of using a date from the conventional day-to-day Gregorian calendar (e.g. February 18, 2022). A Julian "date" is the number of days since January 1, 4713 B.C.E., which is the conventional calendar used on a day-to-day basis (e.g., 22049 is the equivalent of February 18, 2022). *See Britannica.com*, "Julian period," available at https://www.britannica.com/science/Julian-period (last visited Jan. 28, 2022). An example of common use of Julian dating is in dating food, and several converter calculators are easily available online. Therefore, ADEQ is adding the option for marking septic tanks with a Julian date, as well.
Septic tank standard updates	A314(2)(c) & (2)(d)	Technical update	Stakeholders have noted that the standards for fiberglass or plastic septic tanks are out of date and have recommended ADEQ adopt the more updated standards. ADEQ is therefore proposing updating these standards. The updated 2019 thermoplastic standard will broaden the types of plastics that may be used for septic tanks, and it is more current with the types of tanks manufactured today. The prefabricated concrete septic tank standard is also simply being updated, with minimal changes, to the 2020 standard.

Table 10 of Explanation of Changes: Alternative System Designs

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Alternative System Designs
Pressurization	E304(D)(2)(c)(i)	Technical	Currently, pressurization panels are required to be mounted in an

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: Alternative System Designs
panel location		Update	exterior location visible from a dwelling. However, owners of an OWTF with a pressurization control panel often do not want the panel plainly visible in the middle of a landscaped yard. The change in this rulemaking simply acknowledges and also allows conspicuous placement of the panel on the side of or adjacent to the building served.
Pressure Distribution alarm – electrical connection	E304(D)(2)(d)(iii)	Technical Update	The requirement that alarms, test feature, and controls be on a non-dedicated electrical circuit associated with a frequently used household lighting fixture is impractical and can conflict with electrical codes. The intent is to ensure that somehow those persons in the structure served are (1) aware there is constant power to the system, and (2) would be adequately alerted if there is an issue with the pressure distribution system, even if the power to the distribution system is disrupted. ADEQ is modifying the language so that alarms or controls do not have to be associated with or on the same circuit as a frequently used household lighting fixture. However, there must be some constant visual display on the control board indicating the circuit to the system is electrically active (e.g., continuous light). Also, alarms must be audible and visible from inside the structure served. The requirements in this rule have conflated the control board and alarms and these clarifications attempt to clarify the difference in requirements between them.
Vault & Haul add "or" for prerequisites	E314(A)(1)	Correction/ Clarification	Currently, there are two situations under which a vault and haul system is allowed to be installed pursuant to A.A.C. R18-9-E314(A)(1). While the prerequisites are implicitly disjunctive, the rule does not currently contain an explicit "or" between the two subsections. This rule adds an "or" to clarify when a vault and haul system may be installed.
Vault and Haul – non-soil related operational constraints	E314(C)	Clarification/ Technical update	ADEQ has become aware that there may be operational constraints at a facility that affect treatment at a site, but have nothing to do with the soil site investigation. For example, national parks have limited ability to control what patrons insert into an OWTF, and many objects, such as diapers, can adversely impact treatment. Therefore, such facilities should not be required to do a site investigation to install a vault and haul system.

Table 11 of Explanation of Changes: 4.23 Larger Flow Permits

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: 4.23 Larger Flow Permits
4.23 – administrative permit clarifications	E323(A) & (H)	Clarification	ADEQ is adding minor editorial language to further clarify that the 4.23 permit is an all-encompassing permit that applies to the construction and use of one or more new facilities at a site if the site either currently has or will have a design flow of 3,000 gallons per day up to 24,000 gallons per day given the proposed facility/facilities. If multiple facilities are located or proposed to be located at the site, the cumulative flow of the facilities is determined pursuant to A.A.C. R18-9-A309(A)(10). The 4.23 permit supersedes the necessity for an applicant to apply for several new authorizations under specific general permits in A.A.C. R18-9-E302 through -E322. Rather, the 4.23 permit authorization allows design, construction, and operation of various facilities under one permit, as long as the design requirements for each specific general permit are followed as if permitted separately, and other limitations as otherwise specified in A.A.C. R18-9-E323 are followed (e.g., limitations on disinfection devices other than ultraviolet treatment technologies).
4.23 – disinfection device and aerobic treatment clarifications	E323(A)(3)(a) & (A)(3)(b) & E320(A)(1)	Technical Update, Clarification, & Conforming Change	The rule is currently not as clear as it could be with regards to when aerobic systems are allowed at a site with larger flows under a 4.23 permit. ADEQ is modifying the language to clarify that aerobic systems are not allowed under a 4.23 permit at all, regardless of the type of disposal (surface or subsurface). The rule currently includes disposal type qualifications that are superfluous and confusing in that they seem to refer the reader to surface or subsurface drip systems under A.A.C. R18-9-E321 and -E322. Little is written about the exclusion of aerobic systems from 4.23 permits, but the 2005 rulemaking final redline indicates that the purpose of including both terms "surface" and "subsurface" was to pay homage to the combination of two aerobic general permit types that were previously A.A.C. R18-9-E315 (aerobic for surface disposal) and R18-9-E316 (aerobic for subsurface disposal). The most recent comprehensive study regarding compliance of aerobic systems in Arizona is an ADEQ-commissioned survey from the Yavapai County Office of Environmental Services Division, *ADEQ-YCES Aerobic Systems Survey 1996-1997*. That study, done for randomly chosen aerobic systems in Yavapai County over the years 1996-1997, found that most aerobic systems were out of compliance based on sampling, surveys, and inspection. Therefore, given that data, aerobic systems should still not be allowed under the 4.23 permit today. The question of whether to allow aerobic systems under a 4.23 permit in the future is a substantive matter that needs more discussion and research in

Rule Content Summary	Rule(s) affected (R18-9-xxxx)	Type of Change	Explanation of Changes to: 4.23 Larger Flow Permits
			the technical workgroup process. Also, as a technical update, ADEQ is allowing radiation disinfection devices (i.e., ultraviolet light disinfection devices) to be used under a 4.23 permit. Ultraviolet light disinfection devices require minimal maintenance, such as lamp replacement and ensuring the lamp sleeves remains clean. Other disinfection devices remain prohibited under a 4.23 permit because of the high level of maintenance and operational steps required for those devices in the context of the risk that a larger flow inherently poses to groundwater. The change to A.A.C. R18-9-E320(A)(1) is just a conforming language change, to clarify that current technology used in onsite disinfection is "ultraviolet" radiation.

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

ADEQ relies on no new studies to make these rule changes. ADEQ did review a study that was previously evaluated in 2005 evidenced by stakeholder references to the study in the 2005 rulemaking. *See* 11 A.A.R. 4544, 4649-50 (Nov. 14, 2005). The study is mentioned here in "Table 11 of Explanation of Changes" above and is an ADEQ-commissioned survey from the Yavapai County Office of Environmental Services Division, *ADEQ-YCES Aerobic Systems Survey 1996-1997*. That study, done for randomly chosen aerobic systems in Yavapai County over the years 1996-1997, found that most aerobic systems were out of compliance based on sampling, surveys, and inspection. This study is on file with the Department.

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

Not applicable. The proposed amendments do not diminish a previous grant of authority of a political subdivision of this state.

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

The overall impact of the proposed changes should be minor. The changes are intended to improve clarity, correct errors, and to better align with current industry standards. The clarifications and correction of errors should benefit everyone, but particularly OWTF permittees, who read and interpret the rules. Persons most affected by this rulemaking are current and future permittees under the OWTF permitting program. Overall, the changes are clarifications of the current state of the program. ADEQ anticipates that a few of the rule changes may have a very limited impact, likely at low-cost relative to benefit.

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

Name: Matthew Ivers

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

Telephone: (480) 612-5686

E-mail: onsitewastewater@azdeq.gov

Website: https://www.azdeq.gov/node/8567

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

ADEQ has scheduled a hybrid (virtual and in-person) oral proceeding to receive oral comments on the rules, in accordance with A.R.S. § 41-1023; the time, place, and location of the hearing are listed below:

Date of Hearing: October 13, 2022

Time: 1:00 p.m.

Location: This is a hybrid meeting, both in-person and virtual meeting details are below.

IN-PERSON:
Arizona Department of Environmental Quality
1110 W. Washington, Room 3175
Phoenix, AZ 85007
Ability to comment.

ONLINE (via GoToWebinar):
To join virtually, you will first need register using the following link:
https://attendee.gotowebinar.com/register/5088679876300558095
After you register, you will receive a confirmation email with information on how to join the oral proceeding at the scheduled time.
Ability to comment.

PHONE:
United States: (562) 247-8422
Access Code: 960-310-285
Listen only; no ability to comment.

Nature: Oral Proceeding on the proposed rules, with opportunity for formal comments on the record

Written or emailed comments related to this rulemaking may be submitted at any time during the public comment period to the person referenced in Item 9 above. Close of comment period will occur on Date of Hearing (listed above) at 5:00 p.m.

ADEQ will take reasonable measures to provide access to department services to individuals with limited ability to speak, write or understand English and/or to those with disabilities. Requests for language interpretation, ASL interpretation, CART captioning services or disability accommodations must be made at least 48 hours in advance by contacting the Title VI Nondiscrimination Coordinator, Leonard Drago, at 602-771-2288 or Drago.Leonard@azdeq.gov. For a TTY or other device, Telecommunications Relay Services are available by calling 711.

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

There are no other matters prescribed by statute applicable specifically to ADEQ or this specific rulemaking.

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

Not applicable. No new permits are being established. This is a general permit program. Therefore, there are no reasons to justify a non-general permit for this rulemaking.

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

Not applicable.

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

No such analysis was submitted.

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

"Standard Specification for Precast Concrete Septic Tanks, C1227-03C1227-20," published by the American Society for Testing and Materials.	R18-9-A314(2)(c)
"Prefabricated Septic Tanks – IAPMO/ANSI Z1000-2019," published by the International Association of Plumbing and Mechanical Officials.	R18-9-A314(2)(d)

13. The full text of the rules follows:

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 9. DEPARTMENT OF ENVIRONMENTAL QUALITY

WATER POLLUTION CONTROL

ARTICLE 1. AQUIFER PROTECTION PERMITS – GENERAL PROVISIONS

Section

R18-9-101. Definitions

R18-9-110. Inspections, Violations, and Enforcement

ARTICLE 3. AQUIFER PROTECTION PERMITS – GENERAL PERMITS

PART A. GENERAL PROVISIONS

Section

R18-9-A303. Renewal of a Discharge Authorization

R18-9-A308. ~~Violations and Enforcement For On-site Wastewater Treatment Facilities~~ Repealed

R18-9-A309. General Provisions for On-site Wastewater Treatment Facilities

R18-9-A310. Site Investigation for Type 4 On-site Wastewater Treatment Facilities

R18-9-A311. Facility Selection for Type 4 On-site Wastewater Treatment Facilities

R18-9-A312. Facility Design for Type 4 On-site Wastewater Treatment Facilities

R18-9-A314. Septic Tank Design, Manufacturing, and Installation for On-site Wastewater Treatment Facilities

R18-9-A315. Interceptor Design, Manufacturing, and Installation for On-site Wastewater Treatment Facilities

PART E. TYPE 4 GENERAL PERMITS

Section

R18-9-E303. 4.03 General Permit: Composting Toilet, Less Than 3000 Gallons Per Day Design Flow

R18-9-E304. 4.04 General Permit: Pressure Distribution System, Less Than 3000 Gallons Per Day Design Flow

R18-9-E314. 4.14 General Permit: Sewage Vault, Less Than 3000 Gallons Per Day Design Flow

R19-9-E320. 4.20 General Permit: Disinfection Devices, Less Than 3000 Gallons Per Day Design Flow

R18-9-E323. 4.23 General Permit: 3000 to less than 24,000 Gallons Per Day Design Flow

Table 1. Unit Design Flows

ARTICLE 1. AQUIFER PROTECTION PERMITS – GENERAL PROVISIONS

R18-9-101. Definitions

In addition to the definitions established in A.R.S. § 49-201, the following terms apply to Articles 1, 2, 3, and 4 of this Chapter:

1. "Aggregate" means a clean graded hard rock, volcanic rock, or gravel of uniform size, between ¾ inch and 2 ½ inches in diameter, offering 30 percent or more void space, washed or prepared to be free of fine materials that will impair absorption surface performance, and has a hardness value of three or greater on the Moh's Scale of Hardness (can scratch a copper penny).
2. "Alert level" means a value or criterion established in an individual permit that serves as an early warning indicating a potential violation of a permit condition related to BADCT or the discharge of a pollutant to groundwater.
3. "AQL" means an aquifer quality limit and is a permit limitation set for aquifer water quality measured at the point of compliance that either represents an Aquifer Water Quality Standard or, if an Aquifer Water Quality Standard for a pollutant is exceeded in an aquifer at the time of permit issuance, represents the ambient water quality for that pollutant.
4. "Aquifer Protection Permit" means an individual permit or a general permit issued under A.R.S. §§ 49-203, 49-241 through 49-252, and Articles 1, 2, and 3 of this Chapter.
5. "Aquifer Water Quality Standard" means a standard established under A.R.S. §§ 49-221 and 49-223.
6. "AZPDES" means the Arizona Pollutant Discharge Elimination System, which is the state program for issuing, modifying, revoking, reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment and biosolids requirements under A.R.S. Title 49, Chapter 2, Article 3.1 and 18 A.A.C. 9, Articles 9 and 10.
7. "BADCT" means the best available demonstrated control technology, process, operating method, or other alternative to achieve the greatest degree of discharge reduction determined for a facility by the Director under A.R.S. § 49-243.
8. "Bedroom" means, for the purpose of determining design flow for an on-site wastewater treatment facility for a dwelling, any room that has:
    a. A floor space of at least 70 square feet in area, excluding closets;
    b A ceiling height of at least 7 feet;
    c. Electrical service and ventilation;
    d. A closet or an area where a closet could be constructed;
    e. At least one window capable of being opened and used for emergency egress; and
    f. A method of entry and exit to the room that allows the room to be considered distinct from other rooms in the dwelling and to afford a level of privacy customarily expected for such a room.
9. "Book net worth" means the net difference between total assets and total liabilities.

~~10. "Chamber technology" means a method for dispersing treated wastewater into soil from an on-site wastewater treatment facility by one or more manufactured leaching chambers with an open bottom and louvered, load-bearing sidewalls that substitute for an aggregate-filled trench described in R18-9-E302.~~

~~11.~~10. "CCR" means coal combustion residuals which include fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.

~~12.~~11. "CCR landfill" means an area of land or an excavation that receives CCR and which is not a municipal solid waste landfill, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface coal mine, or a cave. A CCR landfill also includes sand and gravel pits and quarries that receive CCR, CCR piles, and any practice that does not meet the definition of beneficial use of CCR.

~~13.~~12. "CCR surface impoundment" means a natural topographic depression, man-made excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.

~~14.~~13. "CCR unit" means any CCR landfill which receives CCR, any CCR surface impoundment designed to hold an accumulation of CCR and liquids, and the unit treats, stores or disposes of CCR. CCR unit includes a lateral expansion of a CCR unit, or a combination of more than one of these units that receives CCR.

14. "Cesspool" means a pit, collection structure, or subsurface fluid distribution system, which may or may not be partially lined, that receives discharged sewage. A cesspool is not an on-site wastewater treatment facility, such as a septic tank, vault, or other structure permitted under Article 3 of this Chapter.

15. "Chamber technology" means a method for dispersing treated wastewater into soil from an on-site wastewater treatment facility by one or more manufactured leaching chambers with an open bottom and louvered, load-bearing sidewalls that substitute for an aggregate-filled trench described in R18-9-E302.

~~15.~~16. "CMOM Plan" means a Capacity, Management, Operations, and Maintenance Plan, which is a written plan that describes the activities a permittee will engage in and actions a permittee will take to ensure that the capacity of the sewage collection system, when unobstructed, is sufficient to convey the peak wet weather flow through each reach of sewer, and provides for the management, operation, and maintenance of the permittee's sewage collection system.

~~16.~~17. "Design capacity" means the volume of a containment feature at a discharging facility that accommodates all permitted flows and meets all Aquifer Protection Permit conditions, including allowances for appropriate peaking and safety factors to ensure sustained, reliable operation.

~~17.~~18. "Design flow" means the daily flow rate a facility is designed to accommodate on a sustained basis while satisfying all Aquifer Protection Permit discharge limitations and treatment and operational requirements. The design flow either incorporates or is used with appropriate peaking and safety factors to ensure sustained, reliable operation.

~~18.~~19. "Direct reuse site" means an area where reclaimed water is applied or impounded.

~~19.~~20. "Disposal works" means the system for disposing treated wastewater generated by the treatment works of a sewage treatment facility or on-site wastewater treatment facility, by surface or subsurface methods. Disposal works do not include systems for activities regulated under 18 A.A.C. 9, Article 7.

~~20.~~21. *"Drywell" means a well which is a bored, drilled or driven shaft or hole whose depth is greater than its width and is designed and constructed specifically for the disposal of storm water. Drywells do not include class 1, class 2, class 3 or class 4 injection wells as defined by the Federal Underground Injection Control Program (P.L. 93-523, part C), as amended.* A.R.S. § 49-331(3)

~~21.~~22. "Dwelling" means any building, structure, or improvement intended for residential use or related activity, including a house, an apartment unit, a condominium unit, a townhouse, or a mobile or manufactured home that has been constructed or will be constructed on real property.

~~22.~~23. "Final permit determination" means a written notification to the applicant of the Director's final decision whether to issue or deny an Individual Aquifer Protection Permit.

24. *"Gray water" means wastewater that has been collected separately from a sewage flow and that originates from a clothes washer or a bathroom tub, shower or sink but that does not include wastewater from a kitchen sink, dishwasher or toilet.* A.R.S. § 49-201(20).

~~23.~~25. "Groundwater Quality Protection Permit" means a permit issued by the Arizona Department of Health Services or the Department before September 27, 1989 that regulates the discharge of pollutants that may affect groundwater.

~~24.~~26. "Homeowner's association" means a nonprofit corporation or unincorporated association of owners created pursuant to a declaration to own and operate portions of a planned community and which has the power under the declaration to assess association members to pay the costs and expenses incurred in the performance of the association's obligations under the declaration.

~~25.~~27. "Injection well" means a well that receives a discharge through pressure injection or gravity flow.

~~26.~~28. "Intermediate stockpile" means in-process material not intended for long-term storage that is in transit from one process to another at a mining site. Intermediate stockpile does not include metallic ore concentrate stockpiles or feedstocks not originating at the mining site.

~~27.~~29. "Land treatment facility" means an operation designed to treat and improve the quality of waste, wastewater, or both, by placement wholly or in part on the land surface to perform part or all of the treatment. A land treatment facility includes a facility that performs biosolids drying, processing, or composting, but not land application performed in compliance with 18 A.A.C. 9, Article 10.

~~28.~~30. "Mining site" means a site assigned one or more of the following primary Standard Industrial Classification Codes: 10, 12, 14, 32, and 33, and includes noncontiguous properties owned or operated by the same person and connected by a right-of-way controlled by that person to which the public is not allowed access.

~~29.~~31. "Nitrogen Management Area" means an area designated by the Director for which the Director prescribes measures on an area-wide basis to control sources of nitrogen, including cumulative discharges from on-site

wastewater treatment facilities, that threaten to cause or have caused an exceedance of the Aquifer Water Quality Standard for nitrate.

~~30.~~32. "Notice of Disposal" means a document submitted to the Arizona Department of Health Services or the Department before September 27, 1989, giving notification of a pollutant discharge that may affect groundwater.

~~31.~~33. ~~"On-site wastewater treatment facility" means a conventional septic tank system or alternative system installed at a site to treat and dispose of wastewater, predominantly of human origin, generated at that site.~~ *"On-site wastewater treatment facility" means a conventional septic tank system or alternative system that is installed at a site to treat and dispose of wastewater of predominantly human origin that is generated at that site.* A.R.S. § 49-201(29). An on-site wastewater treatment facility does not include a pre-fabricated, manufactured treatment works that typically uses an activated sludge unit process and has a design flow of 3000 gallons per day or more.

~~32.~~34. "Operational life" means the designed or planned period during which a facility remains operational while being subject to permit conditions, including closure requirements. Operational life does not include post-closure activities.

~~33.~~35. *"Person" means an individual, employee, officer, managing body, trust, firm, joint stock company, consortium, public or private corporation, including a government corporation, partnership, association or state, a political subdivision of this state, a commission, the United States government or any federal facility, interstate body or other entity.* A.R.S. § ~~49-201(26)~~ 49-201(33). For the purposes of permitting a sewage treatment facility under Article 2 of this Chapter, person does not include a homeowner's association.

~~34.~~36. "Pilot project" means a short-term, limited-scale test designed to gain information regarding site conditions, project feasibility, or application of a new technology.

~~35.~~37. "Process solution" means a pregnant leach solution, barren solution, raffinate, or other solution uniquely associated with the mining or metals recovery process.

~~36.~~38. "Residential soil remediation level" means the applicable predetermined standard established in 18 A.A.C. 7, Article 2, Appendix A.

~~37.~~39. "Seasonal high water table" means the free surface representing the highest point of groundwater rise within an aquifer due to seasonal water table changes over the course of a year.

~~38.~~40. "Setback" means a minimum horizontal distance maintained between a feature of a discharging facility and a potential point of impact.

~~39.~~41. "Sewage" means untreated wastes from toilets, baths, sinks, lavatories, laundries, other plumbing fixtures, and waste pumped from septic tanks in places of human habitation, employment, or recreation. Sewage does not include gray water as defined in ~~R18-9-701(4)~~ A.R.S. § 49-201(20), if the gray water is reused according to 18 A.A.C. 9, Article 7.

~~40.~~42. "Sewage collection system" means a system of pipelines, conduits, manholes, pumping stations, force mains, and all other structures, devices, and appurtenances that collect, contain, and convey sewage from its

sources to the entry of a sewage treatment facility or on-site wastewater treatment facility serving sources other than a single-family dwelling.

~~41.~~43. "Sewage treatment facility" means a plant or system for sewage treatment and disposal, except for an on-site wastewater treatment facility, that consists of treatment works, disposal works and appurtenant pipelines, conduits, pumping stations, and related subsystems and devices. A sewage treatment facility does not include components of the sewage collection system or the reclaimed water distribution system.

~~42.~~44. "Surface impoundment" means a pit, pond, or lagoon with a surface dimension equal to or greater than its depth, and used for the storage, holding, settling, treatment, or discharge of liquid pollutants or pollutants containing free liquids.

~~43.~~45. "Tracer" means a substance, such as a dye or other chemical, used to change the characteristic of water or some other fluid to detect movement.

~~44.~~46. "Tracer study" means a test conducted using a tracer to measure the flow velocity, hydraulic conductivity, flow direction, hydrodynamic dispersion, partitioning coefficient, or other property of a hydrologic system.

~~45.~~47. "Treatment works" means a plant, device, unit process, or other works, regardless of ownership, used for treating, stabilizing, or holding municipal or domestic sewage in a sewage treatment facility or on-site wastewater treatment facility.

~~46.~~48. "Typical sewage" means sewage conveyed to an on-site wastewater treatment facility in which the total suspended solids (TSS) content does not exceed 430 mg/l, the five-day biochemical oxygen demand (BOD_5) does not exceed 380 mg/l, the total nitrogen does not exceed 53 mg/l, and the content of oil and grease does not exceed 75 mg/l.

~~47.~~49. *"Underground storage facility" means a constructed underground storage facility or a managed underground storage facility.* A.R.S. § 45-802.01(21).

~~48.~~50. "Waters of the United States" means:

a. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;

b. All interstate waters, including interstate wetlands;

c. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any waters:

   i. That are or could be used by interstate or foreign travelers for recreational or other purposes;

   ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

   iii. That are used or could be used for industrial purposes by industries in interstate commerce;

d. All impoundments of waters defined as waters of the United States under this definition;

e. Tributaries of waters identified in subsections (a) through (d);

f. The territorial sea; and

g. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in subsections (a) through (f).

R18-9-110. Inspections, Violations, and Enforcement

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

B. ~~Except as provided in R18-9-A308, a~~ A person who owns or operates a facility contrary to a provision of Articles 1, 2, and 3 of this Chapter, violates a condition of an Aquifer Protection Permit, or violates a condition of a Groundwater Quality Protection Permit continued under R18-9-105(A)(1) is subject to the enforcement actions established under A.R.S. Title 49, Chapter 2, Article 4.

ARTICLE 3. AQUIFER PROTECTION PERMITS – GENERAL PERMITS

PART A. GENERAL PROVISIONS

R18-9-A303.Renewal of a Discharge Authorization

A. Unless a Discharge Authorization under a general permit is transferred, revoked, or expired, a person may discharge under the general permit for the authorization period as specified by the permit type, including any closure activities required by a specific general permit.

B. An authorization to discharge under a Type 1 or Type 4 General Permit is valid for the operational life of the facility.

C. A permittee authorized under a Type 2 or Type 3 General Permit shall submit an application for renewal on a form provided by the Department with the applicable fee established in 18 A.A.C. 14 at least 30 days before the end of the renewal period.

1. The following are the renewal periods for Type 2 and Type 3 General Permit Discharge Authorizations:
   a. 2.01 General Permit, five years;
   b. 2.02 General Permit, seven years;
   c. 2.03 General Permit, two years;
   d. 2.04 General Permit, five years;
   e. 2.05 General Permit, five years;
   f. 2.06 General Permit, five years; and
   g. Type 3 General Permits, five years.
2. The renewal period for coverage under a Type 2 General Permit begins on the date the Department receives the Notice of Intent to Discharge.
3. The renewal period for coverage under a Type 3 General Permit begins on the date the Director issues the written Discharge Authorization.

D. If the Discharge Authorization is not renewed within the renewal period specified in subsection ~~(B)(1)~~ (C)(1), the Discharge Authorization expires.

R18-9-A308.~~Violations and Enforcement For On-site Wastewater Treatment Facilities~~ Repealed

~~A. A person who owns or operates an on-site wastewater treatment facility contrary to the provisions of a Type 4 General Permit is subject to the enforcement actions under A.R.S. § 49-261;~~

~~B. A person who violates this Article or a specific term of a general permit for an on-site wastewater treatment facility is subject to enforcement actions under A.R.S. § 49-261.~~

R18-9-A309.General Provisions for On-site Wastewater Treatment Facilities

A. General requirements and prohibitions.

1. No person shall discharge sewage or wastewater that contains sewage from an on-site wastewater treatment facility except under an Aquifer Protection Permit issued by the Director.
2. A person shall not install, allow to be installed, or maintain a connection between any part of an on-site wastewater treatment facility and a drinking water system or supply so that sewage or wastewater contaminates the drinking water.
3. A person shall not bypass or release sewage or partially treated sewage that has not completed the treatment process from an on-site wastewater treatment facility.
4. A person shall not use a cesspool for sewage disposal.
5. A person constructing a new on-site wastewater treatment facility or replacing the treatment works or disposal works of an existing on-site wastewater treatment facility shall connect to a sewage collection system if either (a) or (b) below apply:
   a. One of the following applies:
      i. A provision of a Nitrogen Management Area designation under R18-9-A317(C) requires connection;
      ii. A county, municipal, or sanitary district ordinance requires connection; or
      iii. The on-site wastewater treatment facility is located within an area identified for connection to a sewage collection system by a Certified Area-wide Water Quality Management Plan adopted under 18 A.A.C. 5 or a master plan adopted by a majority of the elected officials of a board or council for a county, municipality, or sanitary district; or
   b. A sewer service line extension is available at the property boundary and both of the following apply:
      i. The service connection fee is not more than $6000 for a dwelling or $10 times the daily design flow in gallons for a source other than a dwelling, and
      ii. The cost of constructing the building sewer from the wastewater source to the service connection is not more than $3000 for a dwelling or $5 times the daily design flow in gallons for a source other than a dwelling.
6. The Department shall prohibit installation of an on-site wastewater treatment facility if the installation will create an unsanitary condition or environmental nuisance or cause or contribute to a violation of an Aquifer Water Quality Standard.
7. A person shall design and operate the permitted on-site wastewater treatment facility so that:
   a. Flows to the facility consist of typical sewage and do not include any motor oil, gasoline, paint, varnish, solvent, pesticide, fertilizer, or other material not generally associated with toilet flushing, food preparation, laundry, or personal hygiene;

b. Flows to the facility from commercial operations do not contain hazardous wastes as defined under A.R.S. § 49-921(5) or hazardous substances;

c. If the sewage contains a component of nonresidential flow such as food preparation, laundry service, or other source, the sewage is adequately pretreated by an interceptor that complies with R18-9-A315 or another device authorized by a general permit or approved by the Department under R18-9-A312(G);

d. Except as provided in subsection (A)(7)(c), a sewage flow that does not meet the numerical levels for typical sewage is adequately pretreated to meet the numerical levels before entry into an on-site wastewater treatment facility authorized by this Article;

e. Flow to the facility does not exceed the design flow specified in the Discharge Authorization;

f. The facility does not create an unsanitary condition or environmental nuisance, or cause or contribute to a violation of either a Aquifer Water Quality Standard or a Surface Water Quality Standard; and

g. Activities at the site do not adversely affect the operation of the facility.

8. A person shall control the discharge of total nitrogen from an on-site wastewater treatment facility as follows:

a. For an on-site wastewater treatment facility operating under the 1.09 General Permit or proposed for construction in a Notice of Intent to Discharge under a Type 4 General Permit and the facility is located within a Nitrogen Management Area, the provisions of R18-9-A317(D) apply;

b. For an on-site wastewater treatment facility proposed for construction in a Notice of Intent to Discharge under R18-9-E323, the provisions of R18-9-E323(A)(4) apply;

c. For a subdivision proposed under 18 A.A.C. 5, Article 4, for which on-site wastewater treatment facilities are used for sewage disposal, the permittee shall demonstrate in the geological report required in R18-5-408(E)(1) that total nitrogen loading from the on-site wastewater treatment facilities to groundwater is controlled by providing one of the following:

i. For a subdivision platted for a single family dwelling on each lot, calculations that demonstrate that the number of lots within the subdivision does not exceed the number of acres contained within the boundaries of the subdivision;

ii. For a subdivision platted for dwellings that do not meet the criteria specified in subsection (A)(8)(c)(i), calculations that demonstrate that the nitrogen loading over the total area of the subdivision is not more than 0.088 pounds (39.9 grams) of total nitrogen per day per acre calculated at a horizontal plane immediately beneath the active treatment of the disposal fields, based on a total nitrogen contribution to raw sewage of 0.0333 pounds (15.0 grams) of total nitrogen per day per person; or

iii. An analysis by another means of demonstration showing that the nitrogen loading to the aquifer due to on-site wastewater treatment facilities within the subdivision does not cause or contribute to a violation of the Aquifer Water Quality Standard for nitrate at the applicable point of compliance.

9. Repairs and Routine Work.

a. A Notice of Intent to Discharge is not required for repair or routine work that maintains a facility.

b. ~~The following work is not considered routine work and a~~ A Notice of Intent to Discharge is required for the following non-routine work or repairs:

i. Converting a facility from operation ~~only~~ under gravity to one requiring a pump or other ~~powered equipment~~ mechanical device for treatment or disposal;

~~ii. Modifying or replacing a facility operating under the 1.09 General Permit with a different type of treatment or disposal technology;~~

~~iii. Changing the treatment works or disposal works of a facility authorized under one or more Type 4 General Permits to a technology covered by any other Type 4 General Permit;~~

~~iv. Extending the disposal works more than 10 feet beyond the footprint of the original disposal works;~~

~~iv. Reconstructing any part of the disposal works in soil that is inadequate for the treated wastewater flow or strength;~~

~~v. Expanding the footprint of the facility into or within setback buffers established in R18-9-A312(C);~~

~~vi. Reconstructing the disposal works so that it does not meet the vertical separation requirements specified in R18-9-A312(E);~~

~~vii. Modifying a treatment works or disposal works to accommodate a daily design flow or waste load greater than the daily design flow or waste load applicable to the original facility; or~~

~~viii. Replacing the treatment works.~~

ii. Modifying or replacing a treatment works or disposal works, as defined in R18-9-101; or

iii. Modifying a facility in any manner that is inconsistent with the originally approved design and installation of the facility.

~~c. Components used in a repair shall meet the design, installation, and operational requirements of this Article.~~

~~d.~~c. A permittee shall comply with any local ordinance that provides independent permitting requirements for repair or routine work.

~~e.~~d. A person, as defined in R18-9-101, shall not modify the facility so as to create an unsanitary condition or environmental nuisance or cause or contribute to an exceedance of a water quality standard.

10. Cumulative flows. When there is more than one on-site wastewater treatment facility on a property or on a site under common ownership or subject to a larger plan of sale or development, the Director shall determine whether an individual permit is required or whether the applicant qualifies for coverage to discharge under a general permit based on the sum of the design flows from the proposed installation and existing on-site wastewater treatment facilities on the property or site.

a. If the sum of the design flows is less than 3000 gallons per day, the Department will process the application under R18-9-E302 through R18-9-E322, as applicable.

b. If the sum of the design flows is equal to or more than 3000 gallons per day but less than 24,000 gallons per day, the Department will process the application under R18-9-E323.

c. If the sum of the design flows is equal to or more than 24,000 gallons per day, the project does not qualify for coverage under a Type 4 General Permit and the applicant shall submit an application for an individual permit under Article 2 of this Chapter.

11. The use of a gray water system does not change the design, capacity, or reserve area requirements for an on-site wastewater treatment facility regulated under R18-9-E302 through R18-9-E323. The design of an on-site facility shall ensure the on-site facility can treat and dispose of the combined black water and gray water flows generated at the site. Black water includes wastewater flows from a kitchen sink. Kitchen sink wastewater flows are not gray water. Kitchen sink wastewater flows are not gray water even if a holding tank receiving kitchen sink wastewater, such as a recreational vehicle holding tank, is labeled as holding gray water. Gray water, as defined in R18-9-101, may be utilized in accordance with Article 7 of this Chapter.
12. To obtain coverage under a Type 4 General Permit, and applicant must, in the following order:
    a. Submit a Notice of Intent to Discharge according to requirements in R18-9-A301(B), R18-9-A309(B), and according to permit-specific requirements in Part E of Article 3,
    b. Receive a Construction Authorization from the Director pursuant to R18-9-A301(D)(1)),
    c. Submit a Request for Discharge Authorization according to requirements in R18-9-A301(D)(1)(f), R18-9-A309(C), and according to permit-specific requirements in Part E of Article 3, and
    d. Receive a Discharge Authorization from the Director pursuant to R18-9-A301(D)(2) and R18-9-A309(C).

B. Notice of Intent to Discharge under a Type 4 General Permit. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit the following information in a format approved by the Department:

1. A site investigation report that summarizes the results of the site investigation conducted under R18-9-A310(B), including:
    a. Results from any soil evaluation, percolation test, or seepage pit performance test;
    b. Any surface limiting condition identified in R18-9-A310(C)(2); and
    c. Any subsurface limiting condition identified in R18-9-A310(D)(2);
2. A site plan that includes:
    a. The parcel and lot number, if applicable, the property address or other appropriate legal description, the property size in acres, and the boundaries of the property;
    b. A plan of the site drawn to scale, dimensioned, and with a north arrow that shows:
        i. Proposed and existing on-site wastewater treatment facilities; dwellings and other buildings; driveways, swimming pools, tennis courts, wells, ponds, and any other paved, concrete, or water feature; down slopes and cut banks with a slope greater than 15 percent; retaining walls; and any other constructed feature that affects proper location, design, construction, or operation of the facility;

ii. Any feature less than 200 feet from the on-site wastewater treatment facility excavation and reserve area that constrains the location of the on-site wastewater treatment facility because of setback limitations specified in R18-9-A312(C);

iii. Topography, delineated with an appropriate contour interval, showing original and post-installation grades;

iv. Drainage patterns, and as applicable, drainage controls and erosion protection for the facility;

~~iv.~~v. Location and identification of the treatment and disposal works and wastewater pipelines, the reserve disposal area, and location and identification of all sites of percolation testing and soil evaluation performed under R18-9-A310; and

~~v.~~vi. Location of any public sewer if 400 feet or less from the property line;

3. The design flow of the on-site wastewater treatment facility, consisting of gray water and black water flows, expressed in gallons per day based on Table 1, Unit Design Flows, the expected strength of the wastewater if the strength exceeds the levels for typical sewage, and:
   a. For a single family dwelling, a list of the number of bedrooms and plumbing fixtures and corresponding unit flows used to calculate the design flow of the facility; and
   b. For a dwelling other than for a single family, a list of each wastewater source and corresponding unit flows used to calculate the design flow of the facility;
4. A list of materials, components, and equipment for constructing the on-site wastewater treatment facility;
5. Drawings, reports, and other information that are clear, reproducible, and in a size and format specified by the Department; ~~and~~
6. If pretreatment is necessary for a facility to comply with the requirements of this Chapter, including R18-9-A309(A)(7), then a design report approved by the on-site wastewater treatment facility manufacturer or manufacturers that specifies component capacities, control settings, and supplemental installation and operation practices necessary to produce typical sewage numerical levels before entry into an on-site wastewater treatment facility; and

~~6.~~7. For a facility that includes treatment or disposal works permitted under R18-9-E303 through R18-9-E323:
   a. Construction quality drawings that show the following:
      i. Systems, subsystems, and key components, including manufacturer's name, model number, and associated construction notes and inspection milestones, as applicable;
      ii. A title block, including facility owner, revision date, space for addition of the Department's application number, and page numbers;
      iii. A plan and profile with the elevations of wastewater pipelines, and treatment and disposal components, including calculations justifying the absorption area, to allow Department verification of hydraulic and performance characteristics;
      iv. Cross sections showing wastewater pipelines, construction details and elevations of treatment and disposal components, original and finished grades of the land surface, seasonal high water table if less than 10 feet below the bottom of a disposal works or 60 feet below the bottom of a seepage pit,

and a soil elevation evaluation to allow Department verification of installation design and performance; and

~~v. Drainage pattern, drainage controls, and erosion protection, as applicable, for the facility; and~~

b. A draft operation and maintenance manual for the on-site wastewater treatment facility consisting of the tasks and schedules for operating and maintaining performance over a 20-year operational life;

C. Additional requirements for a Request for Discharge Authorization and for the issuance of a Discharge Authorization under a Type 4 General Permit.

1. If the entire on-site wastewater treatment facility, including treatment works and disposal works, will be permitted under R18-9-E302, the Director shall issue the Discharge Authorization if, as a part of the Request for Discharge Authorization:
   a. The site plan accurately reflects the final location and configuration of the components of the treatment and disposal works, and
   b. The applicant or the applicant's agent certifies on the Request for Discharge Authorization form that the septic tank passed the watertightness test required by R18-9-A314(5)(d).
2. If the on-site wastewater treatment facility is proposed under R18-9-E303 through R18-9-E323, either separately or in any combination with each other or with R18-9-E302, the Director shall issue the Discharge Authorization if the following documents are submitted to the Department as part of the Request for Discharge Authorization:
   a. As-built plans showing changes from construction quality drawings submitted under subsection (B)(6)(a);
   b. A final list of equipment and materials showing changes from the list submitted under subsection (B)(4);
   c. A final operation and maintenance manual for the on-site wastewater treatment facility consisting of the tasks and schedules for operating and maintaining performance over a 20-year operational life;
   d. A certification that a service contract for ensuring that the facility is operated and maintained to meet the performance and other requirements of the applicable general permits exists for at least one year following the beginning of the operation of the on-site wastewater treatment facility, including the name of the service provider, if the on-site wastewater treatment facility is permitted under:
      i. R18-9-E304;
      ii. R18-9-E308 through R18-9-E315;
      iii. R18-9-E316, if the facility includes a pump; or
      iv. R18-9-E318 through R18-9-E322;
   e. Other documents, if required by the separate general permits in 18 A.A.C. 9, Article 3, Part E;
   f. A Certificate of Completion signed by the current engineer or designer of record ~~person responsible for~~ assuring that installation of the facility conforms to the design approved under the Construction Authorization under R18-9-A301(D)(1)(c); and a regulatory representative, such as an inspector, may not act as an applicant's agent, nor authorize backfill before the current engineer or designer of record has verified proper installation of the system;

g. The name of the installation contractor and the Registrar of Contractor's license number issued to the installation contractor; and

h. A certification that any septic tank installed as a component of the on-site wastewater treatment facility passed the watertightness test required by R18-9-A314(5)(d).

3. The Director shall specify in the Discharge Authorization:

a. The permitted design flow of the facility,

b. The characteristics of the wastewater sources contributing to the facility, and

c. A list of the documents submitted to and reviewed by the Department satisfying subsection (C)(2).

D. Closure requirements. A person who permanently discontinues use of an on-site wastewater treatment facility or a cesspool, or is ordered by the Director to close an abandoned facility shall:

1. Remove all sewage from the facility and dispose of the sewage in a lawful manner;

2. Disconnect and remove electrical and mechanical components;

3. Remove or collapse the top of any tank or containment structure.

a. Punch a hole in the bottom of the tank or containment structure if the bottom is below the seasonal high groundwater table;

b. Fill the tank or containment structure or any cavity resulting from its removal with earth, sand, gravel, concrete, or other approved material; and

c. Regrade the surface to provide drainage away from the closed area;

4. Cut and plug both ends of the abandoned sewer drain pipe between the building and the on-site wastewater treatment facility not more than 5 feet outside the building foundation if practical, or cut and plug as close to each end as possible; and

5. Notify the Department within 30 days of closure.

E. Proprietary and other reviewed products.

1. The Department shall maintain a list of proprietary and other reviewed products that may be used for on-site wastewater treatment facilities to comply with the requirements of this Article. The list shall include appropriate information on the applicability and limitations of each product.

2. The list of proprietary and other reviewed products may include manufactured systems, subsystems, or components within the treatment works and disposal works if the products significantly contribute to the treatment performance of the system or provide the means to overcome site limitations. The Department will not list septic tanks, effluent filters or components that do not significantly affect treatment performance or provide the means to overcome site limitations.

3. A person may request that the Department add a product to the list of proprietary and other reviewed products. The request may include a proposed reference design for review. The Department shall ensure that performance values in the list reflect the treatment performance for defined wastewater characteristics. The Department shall assess fees under 18 A.A.C. 14 for product review.

F. Recordkeeping. A permittee authorized to discharge under one or more Type 4 General Permits shall maintain the Discharge Authorization and associated documents for the life of the facility.

R18-9-A310.Site Investigation for Type 4 On-site Wastewater Treatment Facilities

A. Definition. For purposes of this Section, "clean water" means water free of colloidal material or additives that could affect chemical or physical properties if the water is used for percolation or seepage pit performance testing.

B. Site investigation. An applicant shall ensure that an investigator qualified under subsection (H) conducts a site investigation consisting of a surface characterization under subsection (C) and a subsurface characterization under subsection (D). The applicant shall submit the results in a format prescribed by the Department. The site investigation shall provide sufficient data to:

1. Select appropriate primary and reserve disposal areas for an on-site wastewater treatment facility considering all surface and subsurface limiting conditions in subsections (C)(2) and (D)(2); and;
2. Effectively design and install the selected facility to serve the anticipated development at the site, whether or not limiting conditions exist.

C. Surface characterization.

1. Surface characterization method. The investigator shall characterize the surface of the site where an on-site wastewater treatment facility is proposed for installation using one of the following methods:
   a. The "Standard Practice for Surface Site Characterization for On-site Septic Systems, D5879-95 (2003)," published by the American Society for Testing and Materials. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959; or
   b. Another method of surface characterization that can, with accuracy and reliability, identify and delineate the surface limiting conditions specified in subsection (C)(2).
2. Surface limiting conditions. The investigator shall determine whether, and if so, where any of the following surface limiting conditions exist:
   a. The surface slope is greater than 15 percent at the intended location of the on-site wastewater treatment facility;
   b. Minimum setback distances are not within the limits specified in R18-9-A312(C);
   c. Surface drainage characteristics at the intended location of the on-site wastewater treatment facility will adversely affect the ability of the facility to function properly;
   d. A 100-year flood hazard zone, as indicated on the applicable flood insurance rate map, is located within the property on which the on-site wastewater treatment facility will be installed, and the flood hazard zone may adversely affect the ability of the facility to function properly;
   e. An outcropping of rock that cannot be excavated exists in the intended location of the on-site wastewater treatment facility or will impair the function of soil receiving the discharge; and
   f. Fill material deposits exist in the intended location of the on-site wastewater treatment facility.

D. Subsurface characterization.

1. Subsurface characterization method. The investigator shall characterize the subsurface of the site where an on-site wastewater treatment facility is proposed for installation using one or more of the following methods:
   a. The following ASTM standard ~~practices~~ practice, which ~~are~~ is incorporated by reference and ~~do~~ does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959:
      ~~i.~~ "Standard Practice for Subsurface Site Characterization of Test Pits for On-site Septic Systems, D5921-96(2003)e1 (2003)," published by the American Society for Testing and Materials; ~~and~~
      ~~ii. "Standard Practice for Soil Investigation and Sampling by Auger Borings, D1452-80 (2000)," published by the American Society for Testing and Materials;~~
   b. Percolation testing as specified in subsection (F);
   c. Seepage pit performance testing as specified in subsection (G); or
   d. Another method of subsurface characterization, approved by the Department, that ensures compliance with water quality standards through proper system location, selection, design, installation, and operation.
2. Subsurface limiting conditions. The investigator shall determine whether any of the following limiting conditions exist in the primary and reserve areas of the on-site wastewater treatment facility within a minimum of 12 feet of the land surface or to an impervious soil or rock layer if encountered at a shallower depth:
   a. The soil absorption rate determined under R18-9-A312(D)(2) is:
      i. More than 1.20 gallons per day per square foot, or
      ii. Less than 0.20 gallons per day per square foot;
   b. The vertical separation distance from the bottom of the lowest point of the disposal works to the seasonal high water table is less than the minimum vertical separation specified in R18-9-A312(E)(1);
   c. Seasonal saturation occurs within surface soils that could affect the performance of the on-site wastewater treatment facility;
   d. One of the following subsurface conditions that may cause or contribute to the surfacing of wastewater:
      i. An impervious soil or rock layer,
      ii. A zone of saturation that substantially limits downward percolation from the disposal works,
      iii. Soil with more than 50 percent rock fragments;
   e. One of the following subsurface conditions that promotes accelerated downward movement of insufficiently treated wastewater:
      i. Fractures or joints in rock that are open, continuous, or interconnected;
      ii. Karst voids or channels; or
      iii. Highly permeable materials such as deposits of cobbles or boulders; or

f. A subsurface condition that may convey wastewater to a water of the state and cause or contribute to an exceedance of a water quality standard established in 18 A.A.C. 11, Articles 1 and 4.

3. Applicability of subsurface characterization methods. The investigator shall:
   a. For a seepage pit constructed under R18-9-E302, test seepage pit performance using the procedure specified in subsection (G);
   b. For an on-site wastewater treatment facility other than a seepage pit, characterize soil by using ~~one or more of~~ the ASTM ~~methods~~ method specified in subsection (D)(1)(a) if any of the following site conditions exists:
      i. The natural surface slope at the intended location of the on-site wastewater treatment facility is greater than 15 percent;
      ii. Bedrock or similar consolidated rock formation that cannot be excavated with a shovel outcrops on the property or occurs less than 12 feet below the land surface;
      iii. The native soil at the surface or encountered in a boring, trench, or hole consists of more than 35 percent rock fragments;
      iv. The seasonal high water table occurs within 12 feet of the natural land surface as encountered in trenches or borings, or evidenced by well records or hydrologic reports;
      v. Seasonal saturation at the natural land surface occurs as indicated by soil mottling, vegetation adapted to near-surface saturated soils, or springs, seeps, or surface water near enough to the intended location of the on-site wastewater treatment facility to have a connection with potential seasonal saturation at the land surface; or
      vi. A percolation test yields results outside the limits specified in subsection (D)(2)(a) and (b).
   c. Percolation testing. The investigator may perform percolation testing as specified in subsection (F):
      i. To augment another method of subsurface characterization if useful to locate or design an on-site wastewater treatment facility, or
      ii. As the sole method of subsurface characterization if a subsurface characterization by an ASTM method is not required under subsection (D)(3)(b).

E. If an ASTM method is used for subsurface characterization, the investigator shall conduct subsurface characterization tests at the site to provide adequate, credible, and representative information to ensure proper location, selection, design, and installation of the on-site wastewater treatment facility. The investigator shall:

1. Select at least two test locations in the primary area and one test location in the reserve area to conduct the tests;
2. Perform the characterization at each test location at appropriate depths to:
   a. Establish the wastewater absorption capacity of the soil under R18-9-A312(D), and
   b. Aid in determining that a sufficient zone of unsaturated flow is provided below the disposal works to achieve necessary wastewater treatment; and
3. Submit with the site investigation report:

a. A log of soil formations for each test location with information on soil type, texture, and classification; percentage of rock; structure; consistence; and mottles;

b. A determination of depth to groundwater below the land surface by test trenches or borings, published groundwater data, subdivision reports, or relevant well data; and

c. A determination of the water absorption characteristics of the soil, under R18-9-A312(D)(2)(b), sufficient to allow location and design of the on-site wastewater treatment facility.

F. Percolation testing method for subsurface characterization.

1. Planning and preparation. The investigator shall:

   a. Select at least two locations in the primary area and at least one location in the reserve area for percolation testing, to provide adequate and credible information to ensure proper location, selection, design, and installation of a properly working on-site wastewater treatment facility;

   b. Perform percolation testing at each location at intervals in the soil profile sufficient to:

      i. Establish the wastewater absorption capability of the soil under R18-9-A312(D), and

      ii. Aid in determining that a sufficient zone of unsaturated flow is provided below the disposal works to achieve necessary wastewater treatment. The investigator shall perform percolation tests at multiple depths if there is an indication of an obvious change in soil characteristics that affect the location, selection, design, installation, or disposal performance of the on-site wastewater treatment facility;

   c. Excavate percolation test holes in undisturbed soil at least 12 inches deep with dimensions of 12 inches by 12 inches, if square, or a diameter of 15 inches, if round. The investigator shall not alter the structure of the soil during the excavation;

   d. Place percolation test holes away from site or soil features that yield unrepresentative or misleading data pertaining to the location, selection, design, installation, or performance of the on-site wastewater treatment facility;

   e. Scarify smeared soil surfaces within the percolation test holes and remove any loosened materials from the bottom of the hole; and

   f. Use buckets with holes in the sides to support the sidewalls of the percolation test hole, if necessary. The investigator shall fill any voids between the walls of the hole and the bucket with pea gravel to reduce the impact of the enlarged hole.

2. Presoaking procedure. The investigator shall:

   a. Fill the percolation test hole with clean water to a depth of 12 inches above the bottom of the hole;

   b. Observe the decline of the water level in the hole and record time in minutes for the water to completely drain away;

   c. Repeat the steps specified in subsection (F)(2)(a) and (b) if the water drains away in less than 60 minutes.

      i. If the water drains away the second time in less than 60 minutes, the investigator shall repeat the steps specified in subsections (F)(2)(a) and (b).

ii. If the water drains away a third time in less than 60 minutes, the investigator shall perform the percolation test by following subsection (F)(3); and

d. Add clean water to the hole after 60 minutes and maintain the water at a minimum depth of 9 inches for at least four more hours if it takes 60 minutes or longer for the water to drain away. The investigator shall protect the hole from precipitation and runoff, and perform the percolation test specified in subsection (F)(3) between 16 and 24 hours after presoaking.

3. Conducting the test. The investigator shall:

a. Conduct the percolation test before soil hydraulic conditions established by the presoaking procedure substantially change. The investigator shall remove loose materials in the percolation test hole to ensure that the specified dimensions of the hole are maintained and the infiltration surfaces are undisturbed native soil;

b. Fill the test hole to a depth of six inches above the bottom with clean water;

c. Observe the decline of the water level in the test hole and record the time in minutes for the water level to fall exactly 1 inch from a fixed reference point. The investigator shall:

i. Immediately refill the hole with clean water to a depth of 6 inches above the bottom, and determine and record the time in minutes for the water level to fall exactly 1 inch,

ii. Refill the hole again with clean water to a depth of 6 inches above the bottom and determine and record the time in minutes for the water to fall exactly 1 inch, and

iii. Ensure that the method for measuring water level depth is accurate and does not significantly affect the percolation rate of the test hole;

d. If the percolation rate stabilizes for three consecutive measurements by varying no more than 10 percent, use the highest percolation rate value of the three measurements. If three consecutive measurements indicate that the percolation rate results are not stabilizing or the percolation rate is between 60 and 120 minutes per inch, the investigator shall use an alternate method based on a graphical solution of the test data to approximate the stabilized percolation rate;

e. Record the percolation rate results in minutes per inch; and

f. Submit the following information with the site investigation report:

i. A log of the soil formations encountered for all percolation tests including information on texture, structure, consistence, percentage of rock fragments, and mottles, if present;

ii. Whether and which test hole was reinforced with a bucket;

iii. The locations, depths, and bottom elevations of the percolation test holes on the site investigation map;

iv. A determination of depth to groundwater below the land surface by test trenches or borings, published groundwater data, subdivision reports, or relevant well data; and

v. A determination of the water absorption characteristics of the soil, under R18-9-A312(D)(2)(a), sufficient to allow location and design of the on-site wastewater treatment facility.

G. Seepage pit performance testing method for subsurface characterization. The investigator shall test seepage pits described in R18-9-E302 as follows:

1. Planning and Preparation. The investigator shall:
   a. Identify the disposal areas at the site and drill a test hole at least 18 inches in diameter to the depth of the proposed seepage pit, at least 30 feet deep, and
   b. Scarify soil surfaces within the test hole and remove loosened materials from the bottom of the hole.
2. Presoaking procedure. The investigator shall:
   a. Fill the bottom 6 inches of the test hole with gravel, if necessary, to prevent scouring;
   b. Fill the test hole with clean water up to 3 feet below the land surface;
   c. Observe the decline of the water level in the hole and determine the time in hours and minutes for the water to completely drain away;
   d. Repeat the procedure if the water drains away in less than four hours; If the water drains away the second time in less than four hours, the investigator shall conduct the seepage pit performance test by following subsection (G)(3);
   e. Add water to the hole and maintain the water at a depth that leaves at least the top 3 feet of hole exposed to air for at least four more hours if the water drains away in four or more hours; and
   f. Not remove the water from the hole before the seepage pit performance test if there is standing water in the hole after at least 16 hours of presoaking.
3. Conducting the test. The investigator shall:
   a. Fill the test hole with clean water up to 3 feet below land surface;
   b. Observe the decline of the water level in the hole and determine and record the vertical distance to the water level from a fixed reference point every 10 minutes. The investigator shall ensure that the method for measuring water level depth is accurate and does not significantly affect the rate of fall of the water level in the test hole;
   c. Measure the decline of the water level continually until three consecutive 10-minute measurements indicate that the infiltration rates are within 10 percent. If measurements indicate that infiltration is not approaching a steady rate or if the rate is close to a numerical limit specified in R18-9-A312(E)(1), the investigator shall use, an alternate method based on a graphical solution of the test data to approximate the final stabilized infiltration rate;
   d. Percolation test rate. Calculate the stabilized infiltration rate for a seepage pit determined by the test hole procedure specified in subsection (G)(1)(a) using the formula $P = (15 / DS) \times IS$ to determine an equivalent percolation test rate. Once "P" is determined, the investigator shall use R18-9-A312(D)(2)(a) to establish the design SAR for wastewater treated under R18-9-E302 and to calculate the required minimum sidewall area for the seepage pit using the equation specified in R18-9-E302(C)(5)(k).
      i. "P" is the percolation test rate (minutes per inch) tabulated in the first column of the table in R18-9-A312(D)(2)(a),
      ii. "DS" is the diameter of the seepage pit test hole in inches, and

iii. "IS" is the seepage pit stabilized infiltration rate (minutes per inch) determined by the procedure specified in ~~R18-9-A310(F)(3)(c)~~ R18-9-A310(G)(3)(c);

e. Submit the following information with the site investigation report:

i. The results of the seepage pit performance testing including data, calculations, and findings on a form provided by the Department;

ii. The log of the test hole indicating lithologic characteristics and points of change;

iii. The location of the test hole on the site investigation map;

iv. A determination of depth to groundwater below the land surface by borings, published groundwater data, subdivision reports, or relevant well data.

f. Fill the test hole so that groundwater quality and public safety are not compromised if the seepage pit is drilled elsewhere or if a seepage pit cannot be sited at the location because of unfavorable test results.

H. Qualifications. An investigator shall not perform a site investigation under this Section unless the investigator has knowledge and competence in the subject area and is licensed in good standing or otherwise qualified in one of the following categories:

1. Arizona-registered professional engineer,
2. Arizona-registered geologist,
3. Arizona-registered sanitarian,
4. A certificate of training from a course recognized by the Department as sufficiently covering the information specified in this Section, or
5. Qualifies under another category designated in writing by the Department.

R18-9-A311.Facility Selection for Type 4 On-site Wastewater Treatment Facilities

A. A person shall select, design, and install an on-site wastewater treatment facility that is appropriate for the site's geographic location, setback limitations, slope, topography, drainage and soil characteristics, wastewater infiltration capability, depth to the seasonal high water table, and any surface or subsurface limiting condition.

1. A person may use on-site treatment and disposal technologies covered by a Type 4 General Permit alone or in combination with another Type 4 General Permit to overcome site limitations.
2. An applicant may submit a single Notice of Intent to Discharge for an on-site wastewater treatment facility consisting of components or technologies covered by multiple general permits if the information submittal requirements of all the general permits are met.
3. The Director shall issue a single Construction Authorization under R18-9-A301(D)(1) and a single Discharge Authorization under R18-9-A301(D)(2) for an on-site wastewater treatment facility that consists of components or technologies covered by multiple general permits.
4. If either a septic tank or disposal method, or both, as identified in R18-9-E302, is appropriately used in combination with an alternative technology listed under R18-9-E303 through R18-9-E322, the applicant shall apply the design requirements specified in R18-9-E302, except that the specific requirements for R18-9-E303 through R18-9-E323, as applicable, supersede requirements in R18-9-E302 if the rules conflict. If additional

modifications are necessary and appropriate to ensure adequate treatment, the applicant may request review under R18-9-A312(G) to allow the Department to approve the application.

B. A person may install a septic tank and disposal works system described in R18-9-E302 as the sole method of wastewater treatment and disposal at a site if the site investigation conducted under R18-9-A310 indicates that no limiting condition identified under R18-9-A310(C) or R18-9-A310(D) exists at the site.

1. A person may install a seepage pit only in valley-fill sediments in a basin-and-range alluvial basin and only if the seepage pit performance test results meet the criteria specified in R18-9-A312(E).
2. The person shall specify in the Notice of Intent to Discharge that no limiting conditions described in R18-9-A310(C) and (D) were identified at the site.

C. If any surface or subsurface limiting condition is identified in the site investigation report, an applicant may propose installation of a septic tank and disposal works system described in R18-9-E302 as the sole method of wastewater treatment and disposal at a facility only if:

1. The applicant submits information under R18-9-A312(G) that describes:
   a. How the design of the septic tank and disposal works system specified in R18-9-E302 was modified to overcome limiting conditions;
   b. How the modified design meets the criteria of R18-9 -A312(G)(3); and
   c. A site-specific SAR under R18-9-A312(D)(2)(a) or (b), as applicable; and
2. None of the following surface or subsurface limiting conditions are identified at the site:
   a. An outcropping of rock that cannot be excavated or will impair the function of soil receiving the discharge exists in the intended location of the on-site wastewater treatment facility, as described in R18-9-A310(C)(2)(e);
   b. The vertical separation distance from the bottom of the lowest point of the disposal works to the seasonal high water table is less than the minimum vertical separation distance, as described in ~~R18-9-A310(D)(2)(c)~~ R18-9-A310(D)(2)(b); or
   c. A subsurface condition that promotes accelerated downward movement of insufficiently treated wastewater as described in R18-9-A310(D)(2)(e).

D. If a site can accommodate a septic tank and disposal works system described in R18-9-E302, the applicant shall not install a treatment works or disposal works described in R18-9-E303 through R18-9-E322 unless the applicant submits a statement to the Department with the Notice of Intent to Discharge acknowledging the following:

1. The applicant is aware that although a septic tank and disposal works system described in R18-9-E302 is appropriate for the site, the applicant desires to install a treatment works or disposal works authorized under R18-9-E303 through R18-9-E322; and
2. The applicant is aware that a treatment works or disposal works authorized under R18-9-E303 through R18-9-E322 may result in higher capital, operation, and maintenance costs than a septic tank and disposal works system described in R18-9-E302.

R18-9-A312.Facility Design for Type 4 On-site Wastewater Treatment Facilities

A. General design requirements. An applicant shall ensure that the person designing an on-site wastewater treatment facility:

1. Signs the design documents submitted as part of the Notice of Intent to Discharge to obtain a Construction Authorization, including plans, specifications, drawings, reports, and calculations; and
2. Locates and designs the on-site wastewater treatment facility project using good design judgment and relies on appropriate design methods and calculations.

B. Design considerations and flow determination. An applicant shall ensure that the person designing the on-site wastewater treatment facility shall:

1. Design the facility to satisfy a 20-year operational life;
2. Design the facility based on the provisions of one or more of the general permits in R18-9-E302 through R18-9-E322 for facilities with a design flow of less than 3000 gallons per day, and R18-9-E323 for facilities with a design flow of 3000 gallons per day to less than 24,000 gallons per day;
3. Design the facility based on the facility's design flow and wastewater characteristics as specified in R18-9-A309(A)(7), (10) and (11) and R18-9-A309(B)(3);
4. For on-site wastewater treatment facilities permitted under R18-9-E303 through R18-9-E323, apply the following design requirements, as applicable:
    a. Include the power source and power components in construction drawings if electricity or another type of power is necessary for facility operation;
    b. If a hydraulic analysis is required under subsection (E), perform the analysis based on the location and dimensions of the bottom and sidewall surfaces of the disposal works that are identified in the design documentation;
    c. Design components, piping, ports, seals, and appurtenances to withstand installation loads, internal and external operational loads, and buoyant forces. Design ports for resistance against movement, and cap or cover openings for protection from damage and entry by rodents, mosquitoes, flies, or other organisms capable of transporting a disease-causing organism;
    d. Design tanks, liners, ports, seals, piping to and within the facility, and appurtenances for watertightness under all operational conditions;
    e. Provide adequate storage capacity above high operating level to:
        i. Accommodate a 24-hour power or pump outage, and
        ii. Contain wastewater that is incompletely treated or cannot be released by the disposal works to the native soil;
    f. If a fixed media process is used, provide in the construction drawings the media material, installation specification, media configuration, and wastewater loading rate of the media at the daily design flow;
    g. Provide a fail-safe wastewater control or operational process, if required by the general permit to prevent discharge of inadequately treated wastewater; and
    h. Reference design. If using a reference design on file with the Department, indicate the reference design within the information submitted with the Notice of Intent to Discharge.

C. Setbacks. The following setbacks apply unless the Department:

1. Specifies alternative setbacks under Article 3, Part E of this Chapter;
2. Approves a different setback under the procedure specified in subsection (G); or
3. Establishes a more stringent setback on a site- or area-specific basis to ensure compliance with water quality standards.

Features Requiring Setbacks	**Setback For An On-Site Wastewater Treatment Facility, Including Reserve Area (In Feet)**	**Special Provisions**
1. Building	10	Includes porches, decks (including pool decks), and steps (covered or uncovered), breezeways, roofed patios, carports, covered walks, and similar structures and appurtenances.
2. Property line shared with any adjoining lot or parcel not served by a common drinking water system* or an existing water well	50	A person may reduce the setback to a minimum of 5 feet from the property line if: a. The owners of any affected undeveloped adjacent properties agree, as evidenced by an appropriately recorded document, to limit the location of any new well on their property to at least 100 feet from the proposed treatment works and primary and reserve disposal works; and b. The arrangements and documentation are approved by the Department.
3. All other property lines	5	None
4. Public or private water supply well	100	None
5. Perennial or intermittent stream	100	Measured horizontally from the high water line of the peak streamflow from a 10-year, 24-hour rainfall event.

6. Lake, reservoir, or canal	100	Measured horizontally from the high water line from a 10-year, 24-hour rainfall event at the lake or reservoir and measured horizontally from the edge of the canal.
7. Drinking water intake from a surface water source (includes an open water body, downslope spring or a well tapping streamside saturated alluvium)	200	Measured horizontally from the on-site wastewater treatment facility to the structure or mechanism for withdrawing raw water such as a pipe inlet, grate, pump, intake or diversion box, spring box, well, or similar structure.
8. Wash or drainage easement with a drainage area of more than 20 acres	50	Measured horizontally from the nearest edge of the defined natural channel bank or drainage easement boundary. A person may reduce the setback to 25 feet if natural or constructed erosion protection is approved by the appropriate flood plain administrator.
9. Water main or branch water line	10	None
10. Domestic service water line (including domestic water holding tanks)	5	Measured horizontally between the water line and the wastewater pipe, except that the following are allowed: a. A water line may cross above a wastewater pipe if the crossing angle is between 45 and 90 degrees and the vertical separation distance is 1 foot or more. b. A water line may parallel a wastewater pipe with a horizontal separation distance of 1 foot to 5 feet if the bottom of the water line is 1 foot or more above the top of the wastewater pipe and is in a separate trench or on a bench in the same trench.

11. Downslopes or cut banks greater than 15 percent, culverts, and ditches from:		
a. Treatment works components	10	Measured horizontally from the bottom of the treatment works component to the closest point of daylighting on the surface.
b. Trench, bed, chamber technology, or gravelless trench with:		Measured horizontally from the bottom of the lowest point of the disposal pipe or drip lines, as applicable, to the closest point of daylighting on the surface.
i. No limiting subsurface condition specified in R18-9-A310(D)(2),	20	
ii. A limiting subsurface condition.	50	
c. Subsurface drip lines.	3	Measured horizontally from the bottom of the lowest point of the disposal pipe or drip lines, as applicable, to the closest point of daylighting on the surface.
12. Driveway	5	Measured horizontally to the nearest edge of an on-site wastewater treatment facility excavation. A person may place a properly reinforced and protected wastewater treatment facility, except for disposal works, at any location relative to a driveway if access openings, risers, and covers carry the design load and are protected from inflow.

13. Swimming pool excavation	5	Except if soil loading or stability concerns indicate the need for a greater separation distance.
14. Easement (except drainage easement)	5	None
15. Earth fissures	100	None
* A "common drinking water system" means a system that currently serves or is under legal obligation to serve the property and may include a drinking water utility, a well-sharing agreement, or other viable water supply agreement.		

D. Soil absorption rate (SAR) and disposal works sizing.

1. An applicant shall determine the soil absorption area by dividing the design flow by the applicable soil absorption rate. If soil characterization and percolation test methods yield different SAR values or if multiple applications of the same approach yield different values, the designer of the disposal works shall use the lowest SAR value unless a higher SAR value is proposed and justified to the Department's satisfaction in the Notice of Intent to Discharge.
2. The SAR used to calculate disposal works size for systems described in R18-9-E302 is as follows:
   a. The SAR by percolation testing as described in R18-9-A310(F) or (G), as applicable, is determined as follows:

Percolation Rate from Percolation Test (minutes per inch)	**SAR, Trench, Chamber, and Pit (gal/day/ft^2)**	**SAR, Bed (gal/day/ft^2)**
Less than 1.00	A site-specific SAR is required	A site-specific SAR is required
1.00 to less than 3.00	1.20	0.93
3.00	1.10	0.73
4.00	1.00	0.67
5.00	0.90	0.60
7.00	0.75	0.50
10.0	0.63	0.42
15.0	0.50	0.33

20.0	0.44	0.29
25.0	0.40	0.27
30.0	0.36	0.24
35.0	0.33	0.22
40.0	0.31	0.21
45.0	0.29	0.20
50.0	0.28	0.19
55.0	0.27	0.18
55.0+ to 60.0	0.25	0.17
60.0+ to 120	0.20	0.13
Greater than 120	A site-specific SAR is required	A site-specific SAR is required

b. The SAR using the soil evaluation method described in R18-9-A310(E) is determined by answering the questions in the following table. The questions are read in sequence starting with "A." The first "yes" answer determines the SAR. A seepage pit is required to determine percolation rate under the procedure described in R18-9-A310(G) and would only use this table to augment the percolation test results, if appropriate.

Sequence of Soil Characteristics Questions	**SAR, Trench, Chamber, and Pit gal/day/ft^2**	**SAR, Bed gal/day/ft^2**
A. Is the horizon gravelly coarse sand or coarser?	A site-specific SAR is required	A site-specific SAR is required
B. Is the structure of the horizon moderate or strongly platy?	A site-specific SAR is required	A site-specific SAR is required
C. Is the texture of the horizon sandy clay loam, clay loam, silty clay loam, or finer and the soil structure weak platy?	A site-specific SAR is required	A site-specific SAR is required
D. Is the moist ~~consistency~~ consistence stronger than firm or any cemented class?	A site-specific SAR is required	A site-specific SAR is required

E. Is the texture sandy clay, clay, or silty clay of high clay content and the structure massive or weak?	A site-specific SAR is required	A site-specific SAR is required
F. Is the texture sandy clay loam, clay loam, silty clay loam, or ~~silty~~ silt loam and the structure massive?	A site-specific SAR is required	A site-specific SAR is required
G. Is the texture of the horizon loam or sandy loam and the structure massive?	0.20	0.13
H. Is the texture sandy clay, clay, or silty clay of low clay content and the structure moderate or strong?	0.20	0.13
I. Is the texture sandy clay loam, clay loam, or silty clay loam and the structure weak?	0.20	0.13
J. Is the texture sandy clay loam, clay loam, or silty clay loam and the structure moderate or strong?	0.40	0.27
K. Is the texture sandy loam, loam, or silty loam and the structure weak?	0.40	0.27
L. Is the texture sandy loam, loam, or silt loam and the structure moderate or strong?	0.60	0.40
M. Is the texture fine sand, very fine sand, loamy fine sand, or loamy very fine sand?	0.40	0.27
N. Is the texture loamy sand or sand?	0.80	0.53
O. Is the texture coarse sand?	1.20	A site-specific SAR is required

c. If the percolation rate determined under R18-9-A310(F) or (G), whichever is applicable, is a value that lies between two consecutive percolation rate values listed in subsection (2)(a) above, the applicant must use the higher of the two listed percolation rates to obtain the most conservative SAR.

3. For an on-site wastewater treatment facility described in a general permit other than R18-9-E302, the SAR is dependent on the ability of the facility to reduce the level of TSS and BOD_5 and is calculated using the following formula:

$$SAR_a = \left[\left(\frac{1139}{\sqrt{TSS \times BOD_5}} - 1.87\right) SAR^{1.17} + 1\right] SAR$$

a. "SAR_a" is the adjusted soil absorption rate for disposal works design in gallons per day per square foot,

b. "TSS" is the total suspended solids in wastewater delivered to the disposal works in milligrams per liter,

c. "BOD_5" is the five-day biochemical oxygen demand of wastewater delivered to the disposal works in milligrams per liter, and

d. "SAR" is the soil absorption rate for septic tank effluent determined by the subsurface characterization method described in R18-9-A310.

4. An applicant shall ensure that the facility is designed so that the area of the intended installation is large enough to allow for construction of the facility and for future replacement or repair and is at least as large as the following:

a. For a dwelling, a primary area for the disposal works sized according to subsection (D)(1) and a reserve area of 100 percent of the primary area, excluding the footprint of the treatment works. A reserve area is not required for a lot in a subdivision approved before 1974 if the lot conforms to its original approved configuration;

b. For other than a dwelling, a primary area for the disposal works sized according to subsection (D)(1) and a reserve area of 100 percent of the primary area, excluding the footprint of the treatment works.

5. An applicant shall ensure that the subsurface disposal works is designed to achieve the design flow established in R18-9-A309(B)(3) through proper hydraulic function, including conditions of seasonally cold and wet weather.

E. Vertical separation distances.

1. Minimum vertical separation to the seasonal high water table for a disposal works described in R18-9-E302 receiving septic tank effluent. For a disposal works described in R18-9-E302 receiving septic tank effluent at a facility where the septic tank and disposal system described in R18-9-E302 is the sole method of treatment and disposal of wastewater, the minimum vertical separation distance between the lowest point in the disposal works and the seasonal high water table is dependent on the soil absorption rate and is determined as follows:

Soil Absorption Rate (gallons per day per square foot)			**Minimum Vertical Separation Between The Bottom Of The Disposal Works And The Seasonal High Water Table (feet)**	
Trench and Chamber	Bed	Seepage Pit	Trench, Chamber, and Bed	Seepage Pit
1.20+	0.93+	1.20+	Not allowed for septic tank effluent	Not Allowed
0.63+ to 1.20	0.42 to 0.93	0.63+ to 1.20	10	60
0.20 to 0.63	0.13 to 0.42	0.36 to 0.63	5	60

Less than 0.20	Less than 0.13	Less than 0.36	Not allowed for septic tank effluent	Not Allowed

2. Minimum vertical separation to the seasonal high water table for treatment and disposal works technologies described in R18-9-E303 through R18-9-E322. If the minimum vertical separation distance to the seasonal high water table for a disposal works receiving septic tank effluent specified in subsection (E)(1) is not met, the applicant shall comply with the following:
   a. Employ one or more technologies described in R18-9-E303 through R18-9-E322 to achieve a reduced concentration of harmful microorganisms, expressed as total coliform in colony forming units per 100 milliliters (cfu/100 ml) delivered to native soil at the bottom of the disposal works. The applicant shall use the following table to select works that achieve a reduced total coliform concentration corresponding to the available vertical separation distance between the bottom of the disposal works and the seasonal high water table:

Available Vertical Separation Distance Between the Bottom of The Disposal Works and the Seasonal High Water Table (feet)		**Maximum Allowable Total Coliform Concentration, 95th Percentile, Delivered to Natural Soil by the Disposal Works (Log_{10} of coliform concentration in cfu per 100 milliliters)**
For SAR*, 0.20 to 0.63	**For SAR*, 0.63+ to 1.20**	
5	10	8**
4	8	7
3.5	7	6
3	6	5
2.5	5	4
2	4	3
1.5	3	2
1	2	1
0	0	0***

* Soil absorption rate from percolation testing or soil characterization, in gallons per square foot per day.

** Nominal value for a standard septic tank and disposal field (10^8 colony forming units per 100 ml).

*** Nominally free of coliform bacteria.

b. Include a hydraulic analysis with the Notice of Intent to Discharge, based on the dimensions of the absorption surfaces specified in R18-9-A312(B)(4)(b), showing that the soil is sufficiently permeable to conduct wastewater downward and laterally without surfacing for the site conditions at the disposal works.

3. Vertical separation from a subsurface limiting condition described in R18-9-A310(D)(2)(d) that may cause or contribute to surfacing of wastewater. If a subsurface limiting condition described in R18-9-A310(D)(2)(d) exists at the location of the disposal works, the applicant shall ensure that the design for the on-site wastewater treatment facility meets one of the following:

a. A zone of acceptable native soil with the following characteristics exists between the bottom of the disposal works and the top of the subsurface limiting condition:

i. The zone of soil is at least 4 feet thick, and

ii. The zone of soil is sufficiently permeable to conduct wastewater released from the disposal works vertically downward and laterally without causing surfacing of the wastewater as documented by a hydraulic analysis submitted with the Notice of Intent to Discharge that is based on the dimensions of the absorption surfaces specified in R18-9-A312(B)(4)(b);

b. The subsurface limiting condition is thin enough to allow placement of a disposal works into acceptable native soil beneath the subsurface limiting condition if the following criteria are met:

i. The bottom of the subsurface limiting condition is not deeper than 10 feet below the land surface, and

ii. The vertical separation distance from the bottom of the disposal works to the seasonal high water table complies with subsection (E)(1) or (2), as applicable; or

c. If the disposal works is placed above the subsurface limiting condition and the depth to the subsurface limiting condition is less than 4 feet below the bottom of the disposal works, the design for the on-site wastewater treatment facility shall comply with all of the following:

i. Employ one or more technologies described in R18-9-E303 through R18-9-E322 to achieve a reduced concentration of harmful microorganisms, expressed as total coliform in colony forming units per 100 milliliters (cfu/100 ml), delivered to acceptable native soil at the bottom of the disposal works, as follows:

Available Vertical Separation Distance from the Bottom of the Disposal Works to the	**Maximum Allowable Total Coliform Concentration, 95th Percentile, Delivered to Acceptable**

Subsurface Limiting Condition (feet)	Native Soil by the Disposal Works (Log_{10} of coliform concentration in cfu per 100 milliliters)
3.5	7
3	6
2.5	5
2	4
1.5	0*
1	0*
0.5	0*
0	0*

* Nominally free of coliform bacteria.

ii. ~~If the SAR of the native soil into which the disposal works is placed is not more than 0.63 gallons per day per square foot, include~~ Include a hydraulic analysis with the Notice of Intent to Discharge, based on the location and dimensions of the absorption surfaces specified in R18-9-A312(B)(4)(b), showing that the soil is sufficiently permeable to conduct wastewater vertically downward and laterally without surfacing for the site conditions at the disposal works; and

iii. If a disinfection device under R18-9-E320 is proposed but is not used with surface disposal of wastewater under R18-9-E321 or "Category A" drip irrigation disposal under R18-9-E322, provide a justification with the Notice of Intent to Discharge stating why the selected type of disposal works is favored over disposal under R18-9-E321 or R18-9-E322.

4. Vertical separation from a subsurface limiting condition described in R18-9-A310(D)(2)(e) that promotes accelerated downward movement of insufficiently treated wastewater. If a subsurface limiting condition described in R18-9-A310(D)(2)(e) exists at the location of the proposed disposal works, the applicant shall ensure that the design for the on-site wastewater treatment facility meets one of the following:

a. A zone of naturally occurring soil with the following characteristics exists between the bottom of the disposal works and the top of the subsurface limiting condition:

i. The zone of soil is at least 2 feet thick, and

ii. The SAR of the soil is not less than 0.20 gallons per day per square foot nor more than 1.20 gallons per day per square foot; or

b. The on-site wastewater treatment facility employs one or more technologies described in R18-9-E303 through R18-9-E322 that produces treated wastewater that meets a total coliform concentration of 1,000,000 ($Log_{10}6$) colony forming units per 100 milliliters, 95th percentile.

F. Materials and manufactured system components.

1. Materials. An applicant shall use aggregate if no specification for disposal works material is provided in this Article.
2. Manufactured components. If manufactured components are used, an applicant shall design, install, and operate the on-site wastewater treatment facility following the manufacturer's specifications. The applicant shall ensure that:
   a. Treatment and containment components, mechanical equipment, instrumentation, and controls have monitoring, inspection, access and cleanout ports or covers, as appropriate, for monitoring and service;
   b. Treatment and containment components, pipe, fittings, pumps, and related components and controls are durable, watertight, structurally sound, and capable of withstanding stress from installation and operational service; and
   c. Distribution lines for disposal works are constructed of ~~clay tile laid with open joints, perforated clay pipe,~~ perforated high density polyethylene pipe, perforated ABS pipe, ~~or~~ perforated PVC pipe, or other pipe material, if the pipe is suitable for wastewater disposal use and sufficient openings are available for distribution of the wastewater into the trench or bed area.
3. Electronic components. When electronic components are used, the applicant shall ensure that:
   a. The component connections are compliant with the electrical code encompassed in the local building codes applicable in the county in which the facility is installed, except as required for a pressure distribution system under R18-9-E304(D)(2)(e);
   ~~a.~~b. Instructions and a wiring diagram are mounted on the inside of a control panel cover;
   ~~b.~~c. The control panel is equipped with a multimode operation switch, red alarm light, buzzer, and reset button;
   ~~c.~~d. The multimode operation switch operates in the automatic position for normal system operation; and
   ~~d.~~e. An anomalous condition is indicated by a glowing alarm light and sounding buzzer. The continued glowing of the alarm light after pressing the reset button shall signal the need for maintenance or repair of the system at the earliest practical opportunity.
4. If a conflict exists between this Article and the manufacturer's specifications, the requirements of this Article apply. Except for the requirements in subsection (D) and (E), which always apply, if the conflict voids a manufacturer's warranty, the applicant may submit a request under subsection (G) justifying use of the manufacturer's specifications.

G. Alternative design, setback, installation, or operational features. When an applicant submits a Notice of Intent to Discharge, the applicant may request that the Department review and approve a feature of improved or alternative technology, design, setback, installation, or operation that differs from a general permit requirement in this Article. Designs incorporating alternative features already approved in a current listing on the "proprietary and

other reviewed product list" pursuant to R18-9-A309(E) do not need additional approval under this subsection for only those specific alternative features already approved in the proprietary products listing.

1. The applicant shall make the request for an improved or alternative feature of technology, design, setback, installation, or operation on a form provided by the Department and include:
   a. A description of the requested change;
   b. A citation to the applicable feature or technology, design, setback, installation, or operational requirement for which the change is being requested; and
   c. Justification for the requested change, including any necessary supporting documentation.
2. The applicant shall submit the appropriate fee specified under 18 A.A.C. 14 for each requested change. For purposes of calculating the fee, a requested change that is applied multiple times in a similar manner throughout the facility is considered a single request if submitted for concurrent review.
3. The applicant shall provide sufficient information for the Department to determine that the change achieves equal or better performance compared with the general permit requirement, or addresses site or system conditions more satisfactorily than the requirements of this Article.
4. The Department shall review and may approve the request for change.
5. The Department shall deny the request for the change if the change will adversely affect other permittees or cause or contribute to a violation of an Aquifer Water Quality Standard.
6. The Department shall deny the request for the change if the change:
   a. Fails to achieve equal or better performance compared to the general permit requirement;
   b. Fails to address site or system conditions more satisfactorily than the general permit requirement;
   c. Is insufficiently justified based on the information provided in the submittal;
   d. Requires excessive review time, research, or specialized expertise by the Department to act on the request; or
   e. For any other justifiable cause.
7. The Department may approve a reduced setback for a facility authorized to discharge under one or more of the general permits in ~~R18-9-E303 through R18-9-E322~~ R18-9-E302 through R18-9-E323, either separately or in combination ~~with a septic tank system authorized under R18-9-E302~~, if the applicant additionally demonstrates ~~that~~ at least one of the following:
   a. The treatment performance is significantly better than that provided under R18-9-E302(B),
   b. The wastewater loading rate is reduced, or
   c. Surface or subsurface characteristics ensure that reduced setbacks are protective of human health or water quality.

R18-9-A314.Septic Tank Design, Manufacturing, and Installation for On-site Wastewater Treatment Facilities

A person shall not install a septic tank in an on-site wastewater treatment facility unless the tank meets the following requirements:

1. The tank is:
   a. Designed to produce a clarified effluent and provide adequate space for sludge and scum accumulations;

b. Watertight and constructed of solid durable materials not subject to excessive corrosion or decay;

c. Manufactured with at least two compartments unless two separate structures are placed in series. The tank is designed so that:

   i. The inlet compartment of any septic tank not placed in series is nominally 67 percent to 75 percent of the total required capacity of the tank,

   ii. Septic tanks placed in series are considered a unit and meet the same criteria as a single tank,

   iii. The liquid depth of the septic tank is at least 42 inches, and

   iv. A septic tank of 1000 gallon capacity is at least 8 feet long and the tank length of septic tanks of greater capacity is at least 2 times but not more than 3 times the width;

d. Manufactured with at least two access openings to the tank interior, each at least 20 inches in diameter. The tank is designed so that:

   i. One access opening is located over the inlet end of the tank and one access opening is located over the outlet end;

   ii. Whenever a first compartment exceeds 12 feet in length, another access opening is provided over the baffle wall; and

   iii. Access openings and risers are constructed to ensure accessibility within 6 inches below finished grade;

e. Manufactured so that the sewage inlet and wastewater outlet openings are not smaller than the connecting sewer pipe. The tank is designed so that:

   i. The vertical leg of round inlet and outlet fittings is at least 4 inches but not smaller than the connecting sewer pipe, and

   ii. A baffle fitting has the equivalent cross-sectional area of the connecting sewer pipe and not less than a 4 inch horizontal dimension if measured at the inlet and outlet pipe inverts;

f. Manufactured so that the inlet and outlet pipe or baffle extends 4 inches above and at least 12 inches below the water surface when the tank is installed according to the manufacturer's instructions consistent with this Chapter. The invert of the inlet pipe is at least 2 inches above the invert of the outlet pipe;

g. Manufactured so that the inlet and outlet fittings or baffles and compartment partitions have a free vent area equal to the required cross-sectional area of the connected sewer pipe to provide free ventilation above the water surface from the disposal works or seepage pit through the septic tank, house sewer, and stack to the outer air;

h. Manufactured so that the open space extends at least 9 inches above the liquid level and the cover of the septic tank is at least 2 inches above the top of the inlet fitting vent opening;

i. Manufactured so that partitions or baffles between compartments are of solid durable material (wooden baffles are prohibited) and extend at least 4 inches above the liquid level. The open area of the baffle shall be between one and 2 times the open area of the inlet pipe or horizontal slot and located at the midpoint of the liquid level of the baffle. If a horizontal slot is used, the slot shall be no more than 6 inches in height;

j. Structurally designed to withstand all anticipated earth or other loads. The tank is designed so that:
   i. All septic tank covers are capable of supporting an earth load of 300 pounds per square foot; and
   ii. If the top of the tank is greater than 2 feet below finish grade, the septic tank and cover are capable of supporting an additional load of 150 pounds per square foot for each additional foot of cover;

k. Manufactured or installed so that the influent and effluent ends of the tank are clearly and permanently marked on the outside of the tank with the words "INLET" or "IN," and "OUTLET" or "OUT," above or to the right or left of the corresponding openings; and

l. Clearly and permanently marked with the manufacturer's name or registered trademark, or both, the month and year, or Julian date, of manufacture, the maximum recommended depth of earth cover in feet, and the design liquid capacity of the tank. The tank is manufactured to protect the markings from corrosion so that they remain permanent and readable for the operational life of the tank.

2. Materials used to construct or manufacture septic tanks.

a. A septic tank cast-in-place at the site of use shall be protected from corrosion by coating the tank with a bituminous coating, by constructing the tank using a concrete mix that incorporates 15 percent to 18 percent fly ash, or by any other Department-approved means. The tank is designed so that:
   i. The coating extends at least 4 inches below the wastewater line and covers all of the internal area above that point; and
   ii. A septic tank cast-in-place complies with the "Building Code Requirements for Structural Concrete and Commentary ACI 318-02/318R-02 (2002)," and the "Code Requirements for Environmental Engineering Concrete Structures and Commentary, ACI 350/350R-01 (2001)," published by the American Concrete Institute. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington Street, Phoenix, AZ 85007 or may be obtained from American Concrete Institute, P.O. Box 9094, Farmington Hills, MI 48333-9094.

b. A steel septic tank shall have a minimum wall thickness of No. 12 U.S. gauge steel and be protected from corrosion, internally and externally, by a bituminous coating or other Department-approved means.

c. A prefabricated concrete septic tank shall meet the "Standard Specification for Precast Concrete Septic Tanks, ~~C1227-03~~C1227-20," published by the American Society for Testing and Materials. This information is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington Street, Phoenix, AZ 85007 or may be obtained from the American Society for Testing and Materials International West.

d. A septic tank manufactured using fiberglass or ~~polyethylene~~ thermoplastic shall meet the requirements set forth in ~~"Material and Property Standards for Prefabricated Septic Tanks, IAPMO PS 1-2004,"~~ "Prefabricated Septic Tanks – IAPMO/ANSI Z1000-2019," published by the International Association of Plumbing and Mechanical Officials. This information is incorporated by reference, does not include

any later amendments or editions of the incorporated material, and may be viewed at the Arizona Department of Environmental Quality, 1110 W. Washington Street, Phoenix, AZ 85007 or obtained from International Association of Plumbing ~~&~~ and Mechanical Officials, ~~20001 E. Walnut Drive, South Walnut, CA 91789-2825~~ 4755 E. Philadelphia Street, Ontario, CA 917761.

3. Conformance with design, materials, and manufacturing requirements.
   a. If any conflict exists between this Article and the information incorporated by reference in subsection (2), the requirements of this Article apply.
   b. The Department may approve use of alternative construction materials under R18-9-A312(G). Tanks constructed of wood, block, or bare steel are prohibited.
   c. The Department may inspect septic tanks at the site of manufacturing to verify compliance with subsections (1) and (2).
   d. The septic tank sale documentation includes:
      i. A certificate attesting that the septic tank conforms with the design, materials, and manufacturing requirements in subsections (1) and (2); and
      ii. Instructions for handling and installing the septic tank.
4. The septic tank's daily design flow is determined as follows:
   a. For a single family dwelling:
      i. The design liquid capacity of the septic tank and the septic tank's daily design flow are determined based on the number of bedrooms and fixture count as follows:

Criteria for Septic Tank Size and Design Flow			
Number of Bedrooms	**Fixture Count**	**Minimum Design Liquid Capacity (gallons)**	**Design Flow (gal/day)**
1	7 or less	1000	150
	More than 7	1000	300
2	14 or less	1000	300
	More than 14	1000	450
3	21 or less	1000	450
	More than 21	1250	600
4	28 or less	1250	600

	More than 28	1500	750
5	35 or less	1500	750
	More than 35	2000	900
6	42 or less	2000	900
	More than 42	2500	1050
7	49 or less	2500	1050
	More than 49	3000	1200
8	56 or less	3000	1200
	More than 56	3000	1350

ii. Fixture count is determined as follows:

Residential Fixture Type	**Fixture Units**	**Residential Fixture Type**	**Fixture Units**
Bathtub	2	Sink, bar	1
Bidet	2	Sink, kitchen (including dishwasher	2
Clothes washer	2	Sink, service	3
Dishwasher (Separate from kitchen)	2	Utility tub or sink	2
Lavatory, single	1	Water closet, 1.6 gallons per flush (gpf)	3

Lavatory, double in master bedroom	1	Water closet, >1.6 to 3.2 gpf	4
Shower, single stall	2	Water closet, greater than 3.2 gpf	6

b. For other than a single family dwelling, the design liquid capacity of a septic tank in gallons is 2.1 times the daily design flow into the tank as determined from Table 1, Unit Design Flows. If the wastewater strength exceeds that of typical sewage, additional tank volume is required.

c. A person may place two septic tanks in series to meet the septic tank design liquid capacity requirements if the capacity of the first tank is at least 67 percent of the total required tank capacity and the capacity of the second tank is at least 33 percent of the total required tank capacity.

5. The following requirements regarding new or replacement septic tank installation apply:

a. Permanent surface markers for locating the septic tank access openings are provided for maintenance;

b. A septic tank installed under concrete or pavement has the required access openings extended to grade;

c. A septic tank effluent filter is installed on the septic tank. The filter shall:

i. Prevent the passage of solids larger than 1/8 inch in diameter while under two feet of hydrostatic head; and

ii. Be constructed of materials that are resistant to corrosion and erosion, sized to accommodate hydraulic and organic loading, and removable for cleaning and maintenance; and

d. The septic tank is tested for watertightness after installation by the water test described in subsections (5)(d)(i) and (5)(d)(ii) and repaired or replaced, if necessary.

i. The septic tank is filled with clean water, as specified in R18-9-A310(A), to the invert of the outlet and the water left standing in the tank for 24 hours and:

(1) After 24 hours, the tank is refilled to the invert, if necessary;

(2) The initial water level and time is recorded; and

(3) After one hour, water level and time is recorded.

ii. The tank passes the water test if the water level does not drop over the one-hour period. Any visible leak of flowing water is considered a failure. A damp or wet spot that is not flowing is not considered a failure.

R18-9-A315.Interceptor Design, Manufacturing, and Installation for On-site Wastewater Treatment Facilities

A. Interceptor requirement. An applicant shall ensure that an interceptor as required by R18-9-A309(A)(7)(c) or necessary due to excessive amounts of grease, garbage, sand, or other wastes in the sewage is installed between the sewage source and the on-site wastewater treatment facility.

B. Interceptor design. An applicant shall ensure that:

1. An interceptor has not less than two compartments with fittings designed for grease retention and capable of removing excessive amounts of grease, garbage, sand, or other similar wastes. An interceptor may not accept human excreta or toilet wastewater. Applicable structural and materials requirements prescribed in R18-9-A314 apply;
2. Interceptors are located as close to the source as possible and are accessible for servicing. The applicant shall ensure that access openings for servicing are at grade level and gas-tight;
3. The interceptor size for grease and garbage from non-residential kitchens is calculated using by the following equation: Interceptor Size (in gallons) = M × F × T × S.
    a. "M" is the number of meals per peak hour;
    b. "F" is the applicable waste flow rate from Table 1, Unit Design Flows.
    c. "T" is the estimated retention time:
        i. Commercial kitchen waste, dishwasher or disposal: 2.5 hours; or
        ii. Single service kitchen with utensil wash disposal: 1.5 hours;
    d. "S" is the estimated storage factor:
        i. Fully equipped commercial kitchen, 8-hour operation: 1.0;
        ii. Fully equipped commercial kitchen, 16-hour operation: 2.0;
        iii. Fully equipped commercial kitchen, 24-hour operation: 3.0; or
        iv. Single service kitchen, 1.5;
4. The interceptor size for silt and grease from laundries and laundromats is calculated using the following equation: Interceptor Size (in gallons) = M × C × F × T × S.
    a. "M" is the number of machines;
    b. "C" is the machine cycles per hour (assume 2);
    c. "F" is the waste flow rate from Table 1, Unit Design Flows;
    d. "T" is the estimated retention time (assume 2); and
    e. "S" is the estimated storage factor (assume 1.5 that allows for rock filter).

C. The applicant may calculate the size of an interceptor using different factor values than those given in subsections (B)(3) and (4) based on the values justified by the applicant in the Notice of Intent to Discharge submitted to the Department for the on-site wastewater treatment facility.

D. The Department may require installation of a sampling box if the volume or characteristics of the waste will impair the performance of the on-site wastewater treatment facility.

PART E. TYPE 4 GENERAL PERMITS

R18-9-E303.4.03 General Permit: Composting Toilet, Less Than 3000 Gallons Per Day Design Flow

A. A 4.03 General Permit allows for the use of a composting toilet with less than 3000 gallons per day design flow.

1. Definition. For purposes of this Section, "composting toilet" means a manufactured turnkey or kit form treatment technology that receives human waste from a waterless toilet directly into an aerobic composting

chamber where dehydration and biological activity reduce the waste volume and the content of nutrients and harmful microorganisms to an appropriate level for later disposal at the site or by other means.

2. An applicant may use a composting toilet if:
   a. Limited water availability prevents use of other types of on-site wastewater treatment facilities,
   b. Environmental constraints prevent the discharge of wastewater or nutrients to a sensitive area,
   c. Inadequate space prevents use of other systems,
   d. Severe site limitations exist that make other forms of treatment or disposal unacceptable, or
   e. The applicant desires maximum water conservation.
3. A permittee may use a composting toilet only if:
   a. Wastewater is managed as provided in this Section and, if gray water is separated and reused, the gray water reuse complies with18 A.A.C. 9, Article 7; and
   b. Soil conditions support subsurface disposal of all wastewater sources.

B. Restrictions.

1. A permittee shall ensure that no more than 50 persons per day use the composting toilet.
2. A composting toilet shall only receive human excrement unless the manufacturer's specifications allow the deposit of kitchen or other wastes into the toilet.

C. Performance. An applicant shall ensure that:

1. The composting toilet provides containment to prevent the discharge of toilet contents to the native soil except leachate, which may drain to the wastewater disposal works described in subsection (F);
2. The composting toilet limits access by vectors to the contained waste; and
3. Wastewater is disposed into the subsurface to prevent any wastewater from surfacing.

D. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), the applicant shall submit the following information:

1. Composting toilet.
   a. The name and address of the composting toilet system manufacturer;
   b. A copy of the manufacturer's warranty, and the specifications for installation operation, and maintenance;
   c. The product model number;
   d. Composting rate, capacity, and waste accumulation volume calculations;
   e. Documentation of listing by a national listing organization indicating that the composting toilet meets the stated manufacturer's specifications for loading, treatment performance, and operation, unless the composting toilet is listed under R18-9-A309(E) or is a component of a reference design approved by the Department;
   f. The method of vector control;
   g. The planned method and frequency for disposing the composted human excrement residue; and
   h. The planned method for disposing of the drainage from the composting unit; and
2. Wastewater.

a. The number of bedrooms in the dwelling or persons served on a daily basis, as applicable, and the corresponding design flow of the disposal works for the wastewater;

b. The results from soil evaluation or percolation testing that adequately characterize the soils into which the wastewater will be dispersed and the locations of soil evaluation and percolation testing on the site plan; and

c. The design for the disposal works in subsection (F), including the location of the interceptor, the location and configuration of the trench or bed used for wastewater dispersal, the location of connecting wastewater pipelines, and the location of the reserve area.

E. Design requirements for a composting toilet. An applicant shall ensure that:

1. The composting chamber is watertight, constructed of solid durable materials not subject to excessive corrosion or decay, and is constructed to exclude access by vectors;
2. The composting chamber has airtight seals to prevent odor or toxic gas from escaping into the building. The system may be vented to the outside;
3. The capacity of the chamber and rate of composting are calculated based on:
   a. The lowest monthly average chamber temperature; or
   b. The yearly average chamber temperature, if the composting toilet is designed to compost on a yearly cycle or longer; and
4. The composting system provides adequate storage of all waste produced during the months when the average temperature is below 55°F, unless a temperature control device is installed to increase the composting rate and reduce waste volume.

F. Design requirements for the disposal works.

1. Interceptor. An applicant shall ensure that the design complies with the following:
   a. An interceptor may not accept human excreta or toilet wastewater;
   ~~a.~~b. Wastewater passes into an interceptor before it is conducted to the subsurface for dispersal;
   ~~b.~~c. The interceptor is designed to remove grease, oil, fibers, and solids to ensure long-term performance of the trench or bed used for subsurface dispersal;
   ~~c.~~d. The interceptor is covered to restrict access and eliminate habitat for mosquitoes and other vectors; and
   ~~d.~~e. Minimum interceptor size is based on design flow.
      i. For a dwelling, the following apply:

		Minimum Interceptor Size (gallons)

No. of Bedrooms	Design Flow (gallons per day)	Kitchen Wastewater Only (All gray water sources are collected and reused)	Combined Non-Toilet Wastewater (Gray water is not separated and reused)
1 (7 fixture units or less)	90	42	200
1-2 (greater than 7 fixture units)	180	84	400
3	270	125	600
4	330	150	700
5	380	175	800
6	420	200	900
7	460	225	1000

ii. For other than a dwelling, minimum interceptor size in gallons is 2.1 times the design flow from Table 1, Unit Design Flows.

2. Dispersal of wastewater. An applicant shall ensure that the design complies with the following:
   a. A trench or bed is used to disperse the wastewater into the subsurface;
   b. Sizing of the trench or bed is based on the design flow ~~of wastewater~~ as determined in subsection ~~(F)(1)(d)~~ (F)(1)(e), including all black and gray water, and an SAR determined under R18-9-A312(D);
   c. The minimum vertical separation from the bottom of the trench or bed to a limiting subsurface condition is at least 5 feet; and
   d. Other aspects of trench or bed design follow R18-9-E302, as applicable.
3. Setback distances. Setback distances are no less than 1/4 of the setback distances specified in R18-9-A312(C), but not less than 5 feet, except the setback distance from wells is 100 feet.

G. Operation and maintenance requirements. A permittee shall:

1. Composting toilet.
   a. Provide adequate mixing, ventilation, temperature control, moisture, and bulk to reduce fire hazard and prevent anaerobic conditions;
   b. Follow manufacturer's specifications for addition of any organic bulking agent to control liquid drainage, promote aeration, or provide additional carbon;

c. Follow the manufacturer's specifications for operation and maintenance regarding movement of material within the composting chamber;

d. If batch system containers are mounted on a carousel, place a new container in the toilet area if the previous one is full;

e. Ensure that only human waste, paper approved for septic tank use, and the amount of bulking material required for proper maintenance is introduced to the composting chamber. The permittee shall remove all other materials or trash. If allowed by the manufacturer's specifications the permittee may add, other nonliquid compostable food preparation residues to the toilet;

f. Ensure that any liquid end product is:

i. Sprayed back onto the composting waste material;

ii. Removed by a person who licensed a vehicle under 18 A.A.C. 13, Article 11; or

iii. Is drained to the interceptor described in subsection (F);

g. Remove and dispose of composted waste as necessary, using a person who licensed a vehicle under 18 A.A.C. 13, Article 11 if the waste is not placed in a disposal area for burial or used on-site as mulch;

h. Before ending use for an extended period take measures to ensure that moisture is maintained to sustain bacterial activity and free liquids in the chamber do not freeze; and

i. After an extended period of non-use, empty the composting chamber of solid end product and inspect all mechanical components to verify that the mechanical components are operating as designed;

2. Wastewater Disposal Works.

a. Ensure that the interceptor is maintained regularly according to manufacturer's instructions to prevent grease and solid wastes from impairing performance of the trench or bed used for dispersal of wastewater, and

b. Protect the area of the trench or bed from soil compaction or other activity that will impair dispersal performance.

H. Reference design.

1. An applicant may use a composting toilet that achieves the performance requirements in subsection (C) by following a reference design on file with the Department.

2. The applicant shall file a form provided by the Department for supplemental information about the proposed system with the applicant's submittal of the Notice of Intent to Discharge.

R18-9-E304.4.04 General Permit: Pressure Distribution System, Less Than 3000 Gallons Per Day Design Flow

A. A 4.04 General Permit allows for the use of a pressurized distribution of wastewater system with a design flow less than 3000 gallons per day that treats wastewater to a level equal to or better than that specified in R18-9-E302(B).

1. Definition. For purposes of this Section, a "pressure distribution system" means a tank, pump, controls, and piping that conducts wastewater under pressure in controlled amounts and intervals to a bed or trench or other means of distribution authorized by a general permit for an on-site wastewater treatment facility.

2. An applicant may use a pressure distribution system if a gravity flow system is unsuitable, inadequate, unfeasible, or cost prohibitive because of site limitations or other conditions, or if needed to optimally distribute wastewater.

B. Performance. An applicant shall ensure that a pressure distribution system:

1. Disperses wastewater so that:
   a. Loading rates are optimized for the intended purpose, and
   b. The wastewater is delivered under pressure and evenly distributed within the disposal works, and
2. Prevents ponding on the land surface.

C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), the applicant shall submit:

1. A copy of operation, maintenance, and warranty materials for the principal components; and
2. A copy of dosing specifications, including pump curves, dispersing component details, and float control settings.

D. Design requirements.

1. Pumps. An applicant shall ensure that pumps used in the on-site wastewater treatment facility:
   a. Are rated for wastewater service by the manufacturer and certified by Underwriters Laboratories;
   b. Achieve the minimum design flow rate and total dynamic head requirements for the particular site; and
   c. Incorporate a quick disconnect using compression-type unions for pressure connections. The applicant shall ensure that:
      i. Quick-disconnects are accessible in the pressure piping, and
      ii. A pump has adequate lift attachments for removal and replacement of the pump and switch assembly without entering the dosing tank or process chamber.
2. Switches, controls, alarms, timers, and electrical components. An applicant shall ensure that:
   a. Switches and controls accommodate the minimum and maximum dose capacities of the distribution network design. The applicant shall not use pressure diaphragm level control switches;
   b. Fail-safe controls that can be tested in the field are used to prevent discharge of inadequately treated wastewater. The applicant shall include counters or flow meters if critical to control functions, such as timed dosing;
   c. Control panels and alarms:
      i. Are either mounted in an exterior location visible from the ~~dwelling~~ structure served, mounted in a conspicuous location on the side of the structure served, or mounted in a conspicuous location adjacent to the structure served,
      ii. Provide manual pump switch and alarm test features, and
      iii. Include written instructions covering standard operation and alarm events;
   d. Audible and visible alarms are used for all critical control functions, such as pump failures, treatment failures, and excess flows. The applicant shall ensure that:

i. The visual portion of the signal is conspicuous from a distance 50 feet from the system and its appurtenances;

ii. The audible portion of the signal is between 70 and 75 db at 5 feet and is discernible from a distance of 50 feet from the system and its appurtenances; ~~and~~

iii. Alarms, test features, and controls are on a non-dedicated electrical circuit ~~associated with a frequently used household lighting fixture and~~ separate from the dedicated circuit for the pump with constant visual confirmation that the circuit is electrically active; and

iv. The alarm is clearly audible and visible inside the structure served;

e. All electrical wiring complies with the National Electrical Code, 2005 Edition, published by the National Fire Protection Association. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101. The applicant shall ensure that:

i. Connections are made using National Electrical Manufacturers Association (NEMA) 4x junction boxes certified by Underwriters Laboratories; and

ii. All controls are in NEMA 3r, 4, or 4x enclosures for outdoor use.

3. Dosing tanks and wastewater distribution components.

a. An applicant shall:

i. Design dosing tanks to withstand anticipated internal and external loads under full and empty conditions, and design concrete tanks to meet the "Standard Specification for Precast Concrete Water and Wastewater Structures, C913-02 (2002)," published by the American Society for Testing and Materials. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959;

ii. Design dosing tanks to be easily accessible and have secured covers;

iii. Install risers to provide access to the inlet and outlet of the tank and to service internal components;

iv. Ensure that the volume of the dosing tank accommodates bottom depth below maximum drawdown, maximum design dose, including any drainback, volume to high water alarm, and a reserve volume above the high water alarm level that is not less than the daily design flow volume. If the tank is time dosed, the applicant shall ensure that the combined surge capacity and reserve volume above the high water alarm is not less than the daily design flow volume;

v. Ensure that dosing tanks are watertight and anti-buoyant;

vi. Design the wastewater distribution components to withstand system pumping pressures;

vii. Design the wastewater distribution system to allow air to purge from the system;

viii. Design pressure piping to minimize freezing during cold weather;

ix. Ensure that the end of each wastewater distribution line is accessible for maintenance;

x. Ensure that orifices emit the design discharge rate uniformly throughout the wastewater distribution system; and

xi. Design orifices using orifice shields to provide proper distribution of wastewater to the receiving medium.

b. An applicant may use a septic tank second compartment or a second septic tank in series as a dosing tank if all dosing tank requirements of this Section are met and a screened vault is used instead of the septic tank effluent filter.

4. Design SAR. If the site conditions of the property for the on-site wastewater treatment facility do not require pressure distribution, but an applicant chooses to use pressure distribution, the applicant shall use a design SAR for the absorption surfaces in the disposal works that is not more than 1.10 times the adjusted SAR determined in R18-9-A312(D).

E. Additional Discharge Authorization requirements. An applicant shall obtain copies of instructions for the critical controls of the system from the person who installed the pressure distribution system. The applicant shall submit one copy of the instructions with the information required in subsection (C).

F. Operation and maintenance requirements. In addition to the applicable requirements specified in R18-9-A313(B), a permittee shall ensure that:

1. The operation and maintenance manual for the on-site wastewater treatment facility that supplies the wastewater to the pressure distribution system specifies inspection and maintenance needed for the following items:
   a. Sludge level in the bottom of the treatment and dosing tanks,
   b. Watertightness,
   c. Condition of electrical and mechanical components, and
   d. Piping and other components functioning within design limits;
2. All critical control functions are specified in the operation and maintenance manual for testing to demonstrate compliance with design specifications, including:
   a. Alarms, test features, and controls;
   b. Float switch level settings;
   c. Dose rate, volume, and frequency, if applicable;
   d. Distal pressure or squirt height, if applicable; and
   e. Voltage test on pumps, motors, and controls, as applicable;
3. The finished grade is observed and maintained for proper surface drainage. The applicant shall observe the levelness of the tank for differential settling. If there is settling, the applicant shall grade the facility to maintain surface drainage.

R18-9-E314.4.14 General Permit: Sewage Vault, Less Than 3000 Gallons Per Day Design Flow

A. A 4.14 General Permit allows for the use of a sewage vault that receives sewage.

1. An applicant may use a sewage vault if a severe site or operational constraint prevents installation of a conventional septic tank and disposal works or any other on-site wastewater treatment facility allowed under this Article.; or
2. An applicant may install a sewage vault as a temporary measure if connection to a sewer or installation of another on-site wastewater treatment facility occurs within two years of the connection or installation.

B. Performance. An applicant shall:

1. Not allow a discharge from a sewage vault to the native soil or land surface, and
2. Pump and dispose of vault contents at a sewage treatment facility or other sewage disposal mechanism allowed by law.

C. Notice of Intent to Discharge. The applicant shall comply with the Notice of Intent to Discharge requirements in R18-9-A301(B) and R18-9-A309(B), except that a site investigation under R18-9-A309(B)(1) is not required if the reason for using a sewage vault is an operational constraint that exists irrespective of the results of a site investigation conducted under R18-9-A310(B).

D. Design requirements. In addition to the requirements in R18-9-A312, an applicant shall:

1. Install a sewage vault with a capacity that is at least 10 times the daily design flow determined by R18-9-A314(4)(a)(i),
2. Use design elements to prevent the buoyancy of the vault if installed in an area where a high groundwater table may impinge on the vault,
3. Test the sewage vault for leakage using the procedure under R18-9-A314(5)(d). The tank passes the water test if the water level does not drop over a 24-hour period,
4. Install an alarm or signal on the vault to indicate when 85 percent of the vault capacity is reached, and
5. Contract with a person who licensed a vehicle under 18 A.A.C. 13, Article 11 to pump out the vault on a schedule specified within the contract to ensure that the vault is pumped before full.

E. Installation, operation, and maintenance requirements. The applicant shall comply with the applicable installation, operation, and maintenance requirements in R18-9-A313(A) and (B).

F. Reference design.

1. An applicant may use a sewage vault that achieves the performance requirements in subsection (B) by following a reference design on file with the Department.
2. The applicant shall file a form provided by the Department for supplemental information about the proposed storage vault with the applicant's submittal of the Notice of Intent to Discharge.

R18-9-E320.4.20 General Permit: Disinfection Devices, Less Than 3000 Gallons Per Day Design Flow

A. A 4.20 General Permit allows for the use of a disinfection device to reduce the level of harmful organisms in wastewater, provided the wastewater is pretreated to equal or better than the performance criteria in R18-9-E315(B)(1)(a). An applicant may use a disinfection device if:

1. The disinfection device kills the microorganisms by exposing the wastewater to heat, ultraviolet radiation, or a chemical disinfectant.
2. Some means of disinfection is required before discharge.

3. A reduction in harmful microorganisms, as represented by the total coliform level, is needed for surface or near surface disposal of the wastewater or reduction of the minimum vertical separation distance specified in R18-9-A312(E) is desired.

B. Restrictions.

1. Unless the disinfection device is designed to operate without electricity, an applicant shall not install the device if electricity is not permanently available at the site.
2. The 4.20 General Permit does not authorize a disinfection device that releases chemical disinfectants or disinfection byproducts harmful to plants or wildlife in the discharge area or causes a violation of an Aquifer Water Quality Standard.

C. Performance. An applicant shall ensure that:

1. A fail-safe wastewater control or operational process is incorporated to prevent a release of inadequately treated wastewater;
2. The performance of a disinfection device meets the level of disinfection needed for the type of disposal and produces effluent that:
   a. Is nominally free of coliform bacteria;
   b. Is clear and odorless, and
   c. Has a dissolved oxygen content of at least 6 milligrams per liter;

D. Design requirements. An applicant shall ensure that an on-site wastewater treatment facility with a disposal works designed to discharge to the land surface includes disinfection technology that conforms with the following requirements:

1. Chlorine disinfection.
   a. Available chlorine is maintained as indicated in the following table:

pH of Wastewater (s.u.)	**Required Concentration of Available Chlorine in Wastewater (mg/L)**	
	Wastewater to the Disinfection Device Meets a TSS of 30 mg/L and BOD_5 of 30 mg/L	**Wastewater to the Disinfection Device Meets a TSS of 20 mg/L and BOD_5 of 20 mg/L**
6	15 – 30	6 – 10
7	20 – 35	10 – 20
8	30 – 45	20 – 35

b. The minimum chlorine contact time is 15 minutes for wastewater at 70°F and 30 minutes for wastewater at 50°F, based on a flow equal to four times the daily design flow;

2. Contact chambers are watertight and made of plastic, fiberglass, or other durable material and are configured to prevent short-circuiting; and

3. For a device that disinfects by another method other than chlorine disinfection, dose and contact time are determined to reliably produce treated wastewater that is nominally free of coliform bacteria, based on a flow equal to four times the daily design flow.

E. Operation and maintenance. A permittee shall ensure that:

1. If the disinfection device relies on the addition of chemicals for disinfection, the device is operated to minimize the discharge of disinfection chemicals while achieving the required level of disinfection; and

2. The disinfection device is inspected and maintained at least once every three months by a qualified person.

R18-9-E323.4.23 General Permit: 3000 to less than 24,000 Gallons Per Day Design Flow

A. A 4.23 General Permit allows for the construction and use of an on-site wastewater treatment facility with a design flow from 3000 gallons per day to less than 24,000 gallons per day or more than one on-site wastewater treatment facility on a property or on adjacent properties under common ownership with ~~an~~ a combined design flow from 3000 to less than 24,000 gallons per day if all of the following apply:

1. Except as specified in subsection (A)(3), the treatment and disposal works consists of technologies or designs that ~~are~~ would otherwise be covered under other general permits, but are either sized larger to accommodate increased flows or, will be located at a site that cumulatively accommodates flows between 3000 gallons per day to less than 24,000 gallons per day;

2. The on-site wastewater treatment facility complies with all applicable requirements of Articles 1, 2, and 3 of this Chapter;

3. The facility is not a system or a technology that would otherwise be covered by one of the following general permits available for a design flow of less than 3000 gallons per day:

   a. An aerobic system as ~~with subsurface or surface disposal~~ described in R18-9-E315;

   b. A disinfection device described in R18-9-E320, except that an ultraviolet radiation disinfection device is allowed; or

   c. A seepage pit or pits described in R18-9-E302; and

4. The discharge of total nitrogen to groundwater is controlled.

   a. An applicant shall:

      i. Demonstrate that the nitrogen loading calculated over the property served by the on-site wastewater treatment facility, including streets, common areas, and other non-contributing areas, is not more than 0.088 pounds (39.9 grams) of total nitrogen per day per acre calculated at a horizontal plane immediately beneath the zone of active treatment of the on-site wastewater treatment facility including its disposal field; or

      ii. Justify a nitrogen loading that is equally protective of aquifer water quality as the nitrogen loading specified in subsection (A)(4)(a)(i) based on site-specific hydrogeological or other factors.

b. For purposes of the demonstration in subsection (A)(4)(a)(i), the applicant may assume that 0.0333 pounds (15.0 grams) of total nitrogen per day per person is contributed to raw sewage and may determine the nitrogen concentration in the treated wastewater at a horizontal plane immediately beneath the zone of active treatment of the on-site wastewater treatment facility including its disposal field.

B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:

1. A performance assurance plan consisting of tasks, schedules, and estimated annual costs for operating, maintaining, and monitoring performance over a 20-year operational life;
2. Design documents and the performance assurance plan, signed, dated, and sealed by an Arizona-registered professional engineer;
3. Any documentation submitted under the alternative design procedure in R18-9-A312(G) that pertains to achievement of better performance levels than those specified in the general permit for the corresponding facility with a design flow of less than 3000 gallons per day, or for any other alternative design, construction, or operational change proposed by the applicant; and
4. A demonstration of total nitrogen discharge control specified in subsection (A)(4).

C. Design requirements. The applicant shall comply with the applicable requirements in R18-9-A312 and the applicable general permits for the treatment works and disposal works used in the design of the on-site wastewater treatment facility.

D. Installation requirements. The applicant shall comply with the applicable requirements in R18-9-A313(A) and the applicable general permits for the treatment works and disposal works used in the design of the on-site wastewater treatment facility.

E. Operation and maintenance requirements. The applicant shall comply with the applicable requirements in R18-9-A313(B) and the applicable general permits for the treatment works and disposal works used in the design of the on-site wastewater treatment facility.

F. Additional Discharge Authorization requirements. In addition to any other requirements, the applicant shall submit the following information before the Discharge Authorization is issued.

1. A signed, dated, and sealed Engineer's Certificate of Completion in a format approved by the Department affirming that:
   a. The project was completed in compliance with the requirements of this Section and as described in the plans and specifications, or
   b. Any changes are reflected in as-built plans submitted with the Engineer's Certificate of Completion.
2. The name of the service provider or certified operator that is responsible for implementing the performance assurance plan.

G. Reporting requirement. The permittee shall provide the Department with the following information on the anniversary date of the Discharge Authorization:

1. A form signed by the certified operator or service provider that:
   a. Provides any data or documentation required by the performance assurance plan,

b. Certifies compliance with the requirements of the performance assurance plan, and

c. Describes any additions to the facility during the year that increased flows and certifies that the flow did not exceed 24,000 gallons per day during any day; and

2. Any applicable fee required by 18 A.A.C. 14.

H. Facility expansion. If an expansion of an on-site wastewater treatment facility or site operating under this Section involves the installation of a separate on-site wastewater treatment facility on the property with a design flow of less than 3000 gallons per day, the applicant shall submit the applicable Notice of Intent to Discharge and fee required under 18 A.A.C. 14 for the separate on-site wastewater treatment facility in order to add the facility to the existing site operating under this section.

1. The applicant shall indicate in the Notice of Intent to Discharge the Department's file number and the issuance date of the Discharge Authorization previously issued by the Director under this Section for the property.
2. Upon satisfactory review, the Director shall reissue the Discharge Authorization for this Section, with the new issuance date and updated information reflecting the expansion.
3. If the expansion causes the accumulative design flow from on-site wastewater treatment facilities on the property to equal or exceed 24,000 gallons per day, the Director shall not reissue the Discharge Authorization, but shall require the applicant to submit an application for an individual permit addressing all proposed and operating facilities on the property.

Table 1. Unit Design Flows

Wastewater Source (Add together all wastewater source line items applicable to the facility per applicable unit.)	**Applicable Unit**	**Sewage Design Flow per Applicable Unit, Gallons Per Day**
Airport	~~Passenger (average daily number)~~	4
For each passenger (average daily number), add	Passenger (average daily number)	4
	~~Employee~~	~~15~~
For each employee, add	Employee	15
Auto Wash	Facility	Per manufacturer, if consistent with this Chapter
Bar/Lounge	Seat	30
Barber Shop	Chair	35
Beauty Parlor	Chair	100
Bowling Alley (snack bar only)	Lane	75

Camp		
Day camp, no cooking facilities	Camping unit	30
Campground, overnight, flush toilets	Camping unit	75
Campground, overnight, flush toilets and shower	Camping unit	150
Campground, luxury	Person	100-150
Camp, youth, summer, or seasonal	Person	50
Church		
Without kitchen	Person (maximum attendance)	5
With kitchen	Person (maximum attendance)	7
Country Club	Resident Member	100
	Nonresident Member	10
Dance Hall	Patron	5
Dental Office	Chair	500
Dog Kennel	Animal, maximum occupancy	15
Dwelling For determining design flow for sewage treatment facilities under R18-9-B202(A)(9)(a) and sewage collection systems under R18-9-E301(D) and R18-9-B301(K), excluding peaking factor.	Person	80
Dwelling For on-site wastewater treatment facilities per R18-9-E302 through R18-9-E323: Apartment Building		
1 bedroom	Apartment	200
2 bedroom	Apartment	300
3 bedroom	Apartment	400
4 bedroom	Apartment	500
Seasonal or Summer Dwelling (with recorded seasonal occupancy restriction)	Resident	100
Single Family Dwellings (for both conventional and alternative systems)	see ~~R18-9-A314(D)(1)~~ R18-9-A314(4)(a)	see ~~R18-9-A314(D)(1)~~ R18-9-A314(4)(a)

Other than Single Family Dwelling, the greater flow value based on: Bedroom count 1-2 bedrooms Each bedroom over 2 Fixture count	 Bedroom Bedroom Fixture unit	 300 150 25
Fire Station	Employee	45
Hospital All flows Kitchen waste only Laundry waste only	 Bed Bed Bed	 250 25 40
Hotel/motel (assuming outsourced linen laundry service) Without kitchen With kitchen	 Bed (2 person) Bed (2 person)	 50 60
Industrial facility Without showers With showers Cafeteria, add	 Employee Employee Employee	 25 35 5
Institutions Resident Nursing home Rest home	 Person Person Person	 75 125 125
Laundry Self service Commercial	 Wash cycle Washing machine	 50 Per manufacturer, if consistent with this Chapter
Office Building	Employee	20

Park (temporary use)		
Picnic, with showers, flush toilets	Parking space	40
Picnic, with flush toilets only	Parking space	20
Recreational vehicle, no water or sewer connections	Vehicle space	75
Recreational vehicle, with water and sewer connections	Vehicle space	100
Mobile home/Trailer	Space	250
Restaurant/Cafeteria	~~Employee~~	~~20~~
For each employee, add	Employee	20
With toilet, add	Customer	7
Kitchen waste – full plated service, add	Meal	6
Kitchen waste – disposable service, add	Meal	2
Garbage disposal, add	Meal	1
Cocktail lounge, add	Customer	2
~~Kitchen waste disposal service, add~~	~~Meal~~	~~2~~
Restroom, public	Toilet	200
School		
Staff and office	Person	20
Elementary, add	Student	15
Middle and High, add	Student	20
with gym & showers, add	Student	5
with cafeteria, add	Student	3
Boarding, total flow	Person	100
Service Station with toilets	First bay	1000
	Each additional bay	500
Shopping Center, no food or laundry	Square foot of retail space	0.1
Store	~~Employee~~	~~20~~
For each employee, add	Employee	20
Public restroom, add	Square foot of retail space	0.1
Swimming Pool, Public	Person	10
Theater		
Indoor	Seat	5
Drive-in	Car space	10

Note: Unit flow rates published in standard texts, literature sources, or relevant area or regional studies are considered by the Department, if appropriate to the project.