
**TITLE 18. ENVIRONMENTAL QUALITY
CHAPTER 9. DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER POLLUTION CONTROL**

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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 3/4 inch and 2 1/2 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. "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.
12. "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.
13. "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.
14. "Direct reuse site" means an area where reclaimed water is applied or impounded.
15. "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.
16. "*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)
17. "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.
18. "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.
19. "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.

20. "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.
21. "Injection well" means a well that receives a discharge through pressure injection or gravity flow.
22. "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.
23. "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.
24. "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.
25. "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.
26. "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.
27. "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. 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.
28. "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.
29. "*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). For the purposes of permitting a sewage treatment facility under Article 2 of this Chapter, person does not include a homeowner's association.
30. "Pilot project" means a short-term, limited-scale test designed to gain information regarding site conditions, project feasibility, or application of a new technology.
31. "Process solution" means a pregnant leach solution, barren solution, raffinate, or other solution uniquely associated with the mining or metals recovery process.
32. "Residential soil remediation level" means the applicable predetermined standard established in 18 A.A.C. 7, Article 2, Appendix A.
33. "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.
34. "Setback" means a minimum horizontal distance maintained between a feature of a discharging facility and a potential point of impact.
35. "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), if the gray water is reused according to 18 A.A.C. 9, Article 7.
36. "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.
37. "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.
38. "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.
39. "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.
40. "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.
41. "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.
42. "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 (BOD₅) 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.
43. “Underground storage facility” means a constructed underground storage facility or a managed underground storage facility. A.R.S. § 45-802.01(21)
44. “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).

R18-9-102. Facilities to which Articles 1, 2, and 3 Do Not Apply

Articles 1, 2, and 3 do not apply to:

1. A drywell used solely to receive storm runoff and located so that no use, storage, loading, or treating of hazardous substances occurs in the drainage area;
2. A direct pesticide application in the commercial production of plants and animals subject to the Federal Insecticide, Fungicide and Rodenticide Act (P.L. 92-516; 86 Stat. 975; 7 United States Code 135 et seq., as amended), or A.R.S. §§ 49-301 through 49-309 and applicable rules, or A.R.S. Title 3, Chapter 2, Article 6 and applicable rules.

R18-9-103. Class Exemptions

Class exemptions. In addition to the classes or categories of facilities listed in A.R.S. § 49-250(B), the following classes or categories of facilities are exempt from the Aquifer Protection Permit requirements in Articles 1, 2, and 3 of this Chapter:

1. Facilities that treat, store, or dispose of hazardous waste and have been issued a permit or have interim status, under the Resource Conservation and Recovery Act (P.L. 94-580; 90 Stat. 2796; 42 U.S.C. 6901 et. seq., as amended), or have been issued a permit according to the hazardous waste management rules adopted under 18 A.A.C. 8, Article 2;
2. Underground storage tanks that contain a regulated substance as defined in A.R.S. § 49-1001;
3. Facilities for the disposal of solid waste, as defined in A.R.S. § 49-701.01, that are located in unincorporated areas and receive solid waste from four or fewer households; and
4. Land application of biosolids in compliance with 18 A.A.C. 9, Articles 9 and 10.

R18-9-104. Transition from Notices of Disposal and Groundwater Quality Protection Permitted Facilities

A person who owns, operates, or operated a facility on or after January 1, 1986 for which a Notice of Disposal was filed or a Groundwater Quality Protection Permit was issued shall, within 90 days from the date on the Director’s notification, submit an application for an Aquifer Protection Permit or a closure plan as specified under A.R.S. § 49-252. The person shall obtain a permit for continued operation, closure of the facility, or clean closure approval. Failure to submit an application or closure plan as required terminates continuance of the Notice of Disposal or Groundwater Quality Protection Permit.

R18-9-105. Permit Continuance

A. Continuance.

1. Groundwater Quality Protection Permits.
 - a. Subject to R18-9-104 and other provisions of this Section, a Groundwater Quality Protection Permit issued before September 27, 1989 is valid according to the terms of the permit until replaced by an Aquifer Protection Permit issued by the Department.
 - b. A person who owns or operates a facility to which a Groundwater Quality Protection Permit was issued is in compliance with Articles 1, 2, and 3 of this Chapter and A.R.S. Title 49, Chapter 2, Article 3, if the facility:
 - i. Meets the conditions of the Groundwater Quality Protection Permit; and
 - ii. Is not causing or contributing to the violation of any Aquifer Water Quality Standard at a point of compliance, determined by the criteria in A.R.S. § 49-244.
2. Notice of Disposal. A person who owns or operates a facility for which a Notice of Disposal was filed before September 27, 1989 complies with Articles 1, 2, and 3 of this Chapter and A.R.S. Title 49, Chapter 2, Article 3 if the facility is not causing or contributing to the violation of an Aquifer Water Quality Standard at a point of compliance, determined by the criteria in A.R.S. § 49-244.

3. Aquifer Protection Permit application submittal. A person who did not file a Notice of Disposal and does not possess a Groundwater Quality Protection Permit or an Aquifer Protection Permit for an existing facility, but submitted the information required in applicable rules before December 27, 1989, is in compliance with Articles 1, 2, and 3 of this Chapter only if the person submitted an Aquifer Protection Permit application to the Department before January 1, 2001.
- B. Applicability. Subsection (A) applies until the Director:
1. Issues an Aquifer Protection Permit for the facility,
 2. Denies an Aquifer Protection Permit for the facility,
 3. Issues a letter of clean closure approval for the facility under A.R.S. § 49-252, or
 4. Determines that the person failed to submit an application under R18-9-104.

R18-9-106. Determination of Applicability

- A. A person who engages or who intends to engage in an operation or an activity that may result in a discharge regulated under Articles 1, 2, and 3 of this Chapter may submit a request, on a form provided by the Department, that the Department determine the applicability of A.R.S. §§ 49-241 through 49-252 and Articles 1, 2, and 3 of this Chapter to the operation or activity.
- B. A person requesting a determination of applicability shall provide the following information and the applicable fee under 18 A.A.C. 14:
1. The name and location of the operation or activity;
 2. The name of any person who is engaging or who proposes to engage in the operation or activity;
 3. A description of the operation or activity;
 4. A description of the volume, chemical composition, and characteristics of materials stored, handled, used, or disposed of in the operation or activity; and
 5. Any other information required by the Director to make the determination of applicability.
- C. Within 45 days after receipt of a request for a determination of applicability, the Director shall notify in writing the person making the request that the operation or activity:
1. Is not subject to the requirements of A.R.S. §§ 49-241 through 49-252 and Articles 1, 2, and 3 of this Chapter because the operation or facility does not discharge as described under A.R.S. § 49-241;
 2. Is not subject to the requirements of A.R.S. §§ 49-241 through 49-252 and Articles 1, 2, and 3 of this Chapter because the operation or activity is exempted by A.R.S. § 49-250 or R18-9-103;
 3. Is eligible for a general permit under A.R.S. §§ 49-245.01, 49-245.02 or 49-247 or Article 3 of this Chapter, specifying the particular general permit that would apply if the person meets the conditions of the permit; or
 4. Is subject to the permit requirements of A.R.S. §§ 49-241 through 49-252 and Articles 1, 2, and 3 of this Chapter.
- D. If, after issuing a determination of applicability under this Section, the Director concludes that the determination or the information relied upon for a determination is inaccurate, the Director may modify or withdraw its determination upon written notice to the person who requested the determination of applicability.
- E. If the Director determines that an operation or activity is subject to the requirements of A.R.S. §§ 49-241 through 49-252, the person who owns or operates the discharging facility shall, within 90 days from receiving the Director's written notification, submit an application for an Aquifer Protection Permit or a closure plan.

R18-9-107. Consolidation of Aquifer Protection Permits

- A. The Director may consolidate any number of individual permits or the coverage for any facility authorized to discharge under a general permit into a single individual permit, if:
1. The facilities are part of the same project or operation and are located in a contiguous geographic area, or
 2. The facilities are part of an area under the jurisdiction of a single political subdivision.
- B. All applicable individual permit requirements established in Articles 1 and 2 of this Chapter apply to the consolidation of Aquifer Protection Permits.

R18-9-108. Public Notice

- A. Individual permits.
1. The Department shall provide the entities specified in subsection (A)(2), with monthly written notification, by regular mail or electronically, of the following:
 - a. Individual permit applications,
 - b. Temporary permit applications,
 - c. Preliminary and final decisions by the Director whether to issue or deny an individual or temporary permit,
 - d. Closure plans received under R18-9-A209(B),
 - e. Significant permit amendments and "other" permit amendments,
 - f. Permit revocations, and
 - g. Clean closure approvals.
 2. Entities.
 - a. Each county department of health, environmental services department, or comparable department;

- b. A federal, state, local agency, or council of government, that may be affected by the permit action; and
 - c. A person who requested, in writing, notification of the activities described in subsection (A).
 - 3 The Department may post the information referenced in subsections (A)(1) and (2) on the Department web site: www.azdeq.gov.
- B. General permits. Public notice requirements do not apply.

R18-9-109. Public Participation

- A. Notice of Preliminary Decision.
 - 1. The Department shall publish a Notice of Preliminary Decision regarding the issuance or denial of a significant permit amendment or a final permit determination in one or more newspapers of general circulation where the facility is located.
 - 2. The Department shall accept written comments from the public before a significant permit amendment or a final permit determination is made.
 - 3. The written public comment period begins on the publication date of the Notice of Preliminary Decision and extends for 30 calendar days.
- B. Public hearing.
 - 1. The Department shall provide notice and conduct a public hearing to address a Notice of Preliminary Decision regarding a significant permit amendment or final permit determination if:
 - a. Significant public interest in a public hearing exists, or
 - b. Significant issues or information has been brought to the attention of the Department that has not been considered previously in the permitting process.
 - 2. If, after publication of the Notice of Preliminary Decision, the Department determines that a public hearing is necessary, the Department shall schedule a public hearing and publish the Notice of Preliminary Decision at least once, in one or more newspapers of general circulation where the facility is located.
 - 3. The Department shall accept written public comment until the close of the hearing record as specified by the person presiding at the public hearing.
- C. The Department shall respond in writing to all comments submitted during the formal public comment period.
- D. At the same time the Department notifies a permittee of a significant permit amendment or an applicant of the final permit determination, the Department shall send, through regular mail or electronically, a notice of the amendment or determination and the summary of response to comments to any person who submitted comments or attended a public hearing on the significant permit amendment or final permit determination.
- E. General permits. Public participation requirements do not apply.

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 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 2. AQUIFER PROTECTION PERMITS – INDIVIDUAL PERMITS
PART A. APPLICATION AND GENERAL PROVISIONS**

R18-9-A201. Individual Permit Application

- A. An individual permit application covers one or more of the following categories:
 - 1. Drywell,
 - 2. Industrial,
 - 3. Mining,
 - 4. Wastewater,
 - 5. Solid waste disposal, or
 - 6. Land treatment facility.
- B. An applicant for an individual permit shall provide the Department with:
 - 1. The following information on an application form:
 - a. The name and mailing address of the applicant;
 - b. The name and mailing address of the owner of the facility;
 - c. The name and mailing address of the operator of the facility;
 - d. The legal description, including latitude and longitude, of the location of the facility;
 - e. The expected operational life of the facility; and
 - f. The permit number for any other federal or state environmental permit issued to the applicant for that facility or site;
 - 2. A copy of the certificate of disclosure required by A.R.S. § 49-109;

3. Evidence that the facility complies with applicable municipal or county zoning ordinances, codes, and regulations;
 4. Two copies of the technical information required in R18-9-A202(A);
 5. Cost estimates for facility construction, operation, maintenance, closure, and post-closure as follows.
 - a. The applicant shall ensure that the cost estimates are derived by an engineer, controller, or accountant using competitive bids, construction plan take-offs, specifications, operating history for similar facilities, or other appropriate sources, as applicable.
 - b. The following cost estimates that are representative of regional fair market costs:
 - i. The cost of closure estimate under R18-9-A209(B)(2), consistent with the closure plan or strategy submitted under R18-9-A202(A)(10);
 - ii. The estimated cost of post-closure monitoring and maintenance under R18-9-A209(C), consistent with the post-closure plan or strategy submitted under R18-9-A202(A)(10); and
 - iii. For a sewage treatment facility or utility subject to Title 40 of the Arizona Revised Statutes, the operation and maintenance costs of those elements of the facility used to make the demonstration under A.R.S. § 49-243(B);
 6. For a sewage treatment facility:
 - a. Documentation that the sewage treatment facility or expansion conforms with the Certified Areawide Water Quality Management Plan and the Facility Plan, and
 - b. The additional information required in R18-9-B202 and R18-9-B203;
 7. Certification in writing that the information submitted in the application is true and accurate to the best of the applicant's knowledge; and
 8. The applicable fee established in 18 A.A.C. 14.
- C. Special provision for an underground storage facility as defined in A.R.S. § 45-802.01(21). A person applying for an individual permit for an underground storage facility shall submit the information described in R18-9-A201 through R18-9-A203, except for the BADCT information specified in R18-9-A202(A)(5).
1. Upon receipt of the application, the Department shall process the application in coordination with the underground storage facility permit process administered by the Department of Water Resources.
 2. The Department shall advise the Department of Water Resources of each permit application received.
- D. Pre-application conference. Upon request of the applicant, the Department shall schedule and hold a pre-application conference with the applicant to discuss any requirements in Articles 1 and 2 of this Chapter.
- E. Draft permit. The Department shall provide the applicant with a draft of the individual permit before publication of the Notice of Preliminary Decision specified in R18-9-109.
- F. Permit duration. Except for a temporary permit, an individual permit is valid for the operational life of the facility and any period during which the facility is subject to a post-closure plan under R18-9-A209(C).
- G. Permit issuance or denial.
1. The Director shall issue an individual permit, based upon the information obtained by or made available to the Department, if the Director determines that the applicant will comply with A.R.S. §§ 49-241 through 49-252 and Articles 1 and 2 of this Chapter.
 2. The Director shall provide the applicant with written notification of the final decision to issue or deny the permit within the overall licensing time-frame requirements under 18 A.A.C. 1, Article 5, Table 10 and the following:
 - a. The applicant's right to appeal the final permit determination, including the number of days the applicant has to file a protest and the name and telephone number of the Department contact person who can answer questions regarding the appeals process;
 - b. If the permit is denied under R18-9-A213(B), the reason for the denial with reference to the statute or rule on which the denial is based; and
 - c. The applicant's right to request an informal settlement conference under A.R.S. §§ 41-1092.03(A) and 41-1092.06.

R18-9-A202. Technical Requirements

- A. Except as specified in R18-9-A201(C)(1), an applicant shall, as required under R18-9-A201(B)(4), submit the following technical information as attachments to the individual permit application:
1. A topographic map, or other appropriate map approved by the Department, of the facility location and contiguous land area showing the known use of adjacent properties, all known water well locations found within 1/2 mile of the facility, and a description of well construction details and well uses, if available;
 2. A facility site plan showing all known property lines, structures, water wells, injection wells, drywells and their uses, topography, and the location of points of discharge. The facility site plan shall include all known borings. If the Department determines that borings are numerous, the applicant shall satisfy this requirement with a narrative description of the number and location of the borings;
 3. The facility design documents indicating proposed or as-built design details and proposed or as-built configuration of basins, ponds, waste storage areas, drainage diversion features, or other engineered elements of the facility affecting discharge. When formal as-built plan submittals are not available, the applicant shall provide documentation sufficient to allow evaluation of those elements of the facility affecting discharge, following the demonstration requirements of

- A.R.S. § 49-243(B). An applicant seeking an Aquifer Protection Permit for a sewage treatment facility satisfies the requirements of this subsection by submitting the documents required in R18-9-B202 and R18-9-B203;
4. A summary of the known past facility discharge activities and the proposed facility discharge activities indicating all of the following:
 - a. The chemical, biological, and physical characteristics of the discharge;
 - b. The rate, volume, and frequency of the discharge for each facility; and
 - c. The location of the discharge and a map outlining the pollutant management area described in A.R.S. § 49-244(1);
 5. A description of the BADCT employed in the facility, including:
 - a. A statement of the technology, processes, operating methods, or other alternatives proposed to meet the requirements of A.R.S. § 49-243(B), (G), or (P), as applicable. The statement shall describe:
 - i. The alternative discharge control measures considered,
 - ii. The technical and economic advantages and disadvantages of each alternative, and
 - iii. The justification for selection or rejection of each alternative;
 - b. An evaluation of each alternative discharge control technology relative to the amount of discharge reduction achievable, site-specific hydrologic and geologic characteristics, other environmental impacts, and water conservation or augmentation;
 - c. For a new facility, an industry-wide evaluation of the economic impact of implementation of each alternative discharge control technology;
 - d. For an existing facility, a statement reflecting the consideration of factors listed in A.R.S. § 49-243(B)(1)(a) through (h);
 - e. A sewage treatment facility meeting the BADCT requirements under Article 2, Part B of this Chapter satisfies the requirements under subsections (A)(5)(a) through (d).
 6. Proposed points of compliance for the facility based on A.R.S. § 49-244. An applicant shall demonstrate that:
 - a. The facility will not cause or contribute to a violation of an Aquifer Water Quality Standard at the proposed point of compliance; or
 - b. If an Aquifer Water Quality Standard for a pollutant is exceeded in an aquifer at the time of permit issuance, no additional degradation of the aquifer relative to that pollutant and determined at the proposed point of compliance will occur as a result of the discharge from the proposed facility. In this case, the applicant shall submit an Ambient Groundwater Monitoring Report that includes:
 - i. Data from eight or more rounds of ambient groundwater samples collected to represent groundwater quality at the proposed points of compliance, and
 - ii. An AQL proposal for each pollutant that exceeds an Aquifer Water Quality Standard;
 7. A contingency plan that meets the requirements of R18-9-A204;
 8. A hydrogeologic study that defines the discharge impact area for the expected duration of the facility. The Department may allow the applicant to submit an abbreviated hydrogeologic study or, if warranted, no hydrogeologic study, based upon the quantity and characteristics of the pollutants discharged, the methods of disposal, and the site conditions. The applicant may include information from a previous study of the affected area to meet a requirement of the hydrogeologic study, if the previous study accurately represents current hydrogeologic conditions.
 - a. The hydrogeologic study shall demonstrate:
 - i. That the facility will not cause or contribute to a violation of an Aquifer Water Quality Standard at the applicable point of compliance; or
 - ii. If an Aquifer Water Quality Standard for a pollutant is exceeded in an aquifer at the time of permit issuance, that no additional degradation of the aquifer relative to that pollutant and determined at the applicable point of compliance will occur as a result of the discharge from the proposed facility;
 - b. Based on the quantity and characteristics of pollutants discharged, methods of disposal, and site conditions, the Department may require the applicant to provide:
 - i. A description of the surface and subsurface geology, including a description of all borings;
 - ii. The location of any perennial, intermittent, or ephemeral surface water bodies;
 - iii. The characteristics of the aquifer and geologic units with limited permeability, including depth, hydraulic conductivity, and transmissivity;
 - iv. The rate, volume, and direction of surface water and groundwater flow, including hydrographs, if available, and equipotential maps;
 - v. The precise location or estimate of the location of the 100-year flood plain and an assessment of the 100-year flood surface flow and potential impacts on the facility;
 - vi. Documentation of the existing quality of the water in the aquifers underlying the site, including, where available, the method of analysis, quality assurance, and quality control procedures associated with the documentation;
 - vii. Documentation of the extent and degree of any known soil contamination at the site;
 - viii. An assessment of the potential of the discharge to cause the leaching of pollutants from surface soils or vadose materials;

- ix. For an underground water storage facility, an assessment of the potential of the discharge to cause the leaching of pollutants from surface soils or vadose materials or cause the migration of contaminated groundwater;
 - x. Any changes in the water quality expected because of the discharge;
 - xi. A description of any expected changes in the elevation or flow directions of the groundwater expected to be caused by the facility;
 - xii. A map of the facility's discharge impact area; or
 - xiii. The criteria and methodologies used to determine the discharge impact area.
- 9. A detailed proposal indicating the alert levels, discharge limitations, monitoring requirements, compliance schedules, and temporary cessation or plans that the applicant will use to satisfy the requirements of A.R.S. Title 49, Chapter 2, Article 3, and Articles 1 and 2 of this Chapter;
 - 10. Closure and post-closure strategies or plans; and
 - 11. Any other relevant information required by the Department to determine whether to issue a permit.
- B. An applicant shall demonstrate the ability to maintain the technical capability necessary to carry out the terms of the individual permit, including a demonstration that a certified operator will operate the facility if a certified operator is required under 18 A.A.C. 5. The applicant shall make the demonstration by submitting the following information for each person principally responsible for designing, constructing, or operating the facility:
- 1. Pertinent licenses or certifications held by the person;
 - 2. Professional training relevant to the design, construction, or operation of the facility; and
 - 3. Work experience relevant to the design, construction, or operation of the facility.

R18-9-A203. Financial Requirements

- A. Definitions.
- 1. "Book net worth" means the net difference between total assets and total liabilities.
 - 2. "Face amount" means the total amount the insurer is obligated to pay under the policy.
 - 3. "Net working capital" means current assets minus current liabilities.
 - 4. "Substantial business relationship" means a pattern of recent or ongoing business transactions to the extent that a guaranty contract issued incident to that relationship is valid and enforceable.
 - 5. "Tangible net worth" means an owner or operator's book net worth, plus subordinated debts, less goodwill, patent rights, royalties, and assets and receivables due from affiliates or shareholders.
- B. Financial demonstration. A person applying for an individual permit shall demonstrate financial capability to construct, operate, close, and ensure proper post-closure care of the facility in compliance with A.R.S. Title 49, Chapter 2, Article 3; Articles 1 and 2 of this Chapter; and the conditions of the individual permit. The applicant shall:
- 1. Submit a letter signed by the chief financial officer stating that the applicant is financially capable of meeting the costs described in R18-9-A201(B)(5);
 - 2. For a state or federal agency, county, city, town, or other local governmental entity, submit a statement specifying the details of the financial arrangements used to meet the estimated closure and post-closure costs submitted under R18-9-A201(B)(5), including any other details that demonstrate how the applicant is financially capable of meeting the costs described in R18-9-A201(B)(5);
 - 3. For other than a state or federal agency, county, city, town, or other local governmental entity, submit the information required for at least one of the financial assurance mechanisms listed in subsection (C) that covers the closure and post-closure costs submitted under R18-9-A201(B)(5), including:
 - a. The selected financial mechanism or mechanisms;
 - b. The amount covered by each financial mechanism;
 - c. The institution or company that is responsible for each financial mechanism used in the demonstration; and
 - d. Any other details that demonstrate how the applicant is financially capable of meeting the costs described in R18-9-A201(B)(5); and
 - 4. For a facility subject to R18-9-A201(B)(5)(b)(iii) and not owned by a state or federal agency, county, city, town, or other local governmental entity, submit evidence of financial arrangements to cover the operation and maintenance costs described in R18-9-A201(B)(5).
- C. Financial assurance mechanisms. The applicant may use any of the following mechanisms to cover the financial assurance obligation under R18-9-A201(B)(5):
- 1. Financial test for self-assurance. If an applicant uses a financial test for self-assurance, the applicant shall not consolidate the financial statement with a parent or sibling company. The applicant shall make the demonstration in either subsection (C)(1)(a) or (b) and submit the information required in subsection (C)(1)(c):
 - a. The applicant may demonstrate:
 - i. One of the following:
 - (1) A ratio of total liabilities to net worth less than 2.0 and a ratio of current assets to current liabilities greater than 1.5;
 - (2) A ratio of total liabilities to net worth less than 2.0 and a ratio of the sum of net annual income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; or

- c. The financial institution names the Arizona Department of Environmental Quality as beneficiary for the letter of credit; and
 - d. The letter is prepared by the financial institution and identifies the letter of credit issue date, expiration date, dollar sum of the credit, the name and address of the Department as the beneficiary, and the name and address of the applicant as the permittee.
6. Insurance policy. The applicant may use an insurance policy if the following conditions are met:
- a. The insurance is effective before signature of the permit or substitution of insurance for other extant financial assurance instruments posted with the Director;
 - b. The insurer is authorized to transact the business of insurance in the state and has an AM BEST Rating of at least a B+ or the equivalent;
 - c. The permittee submits a copy of the insurance policy to the Department;
 - d. The insurance policy guarantees that funds are available to pay costs as submitted under R18-9-A201(B)(5) without a deductible. The policy also guarantees that once cleanup steps begin that the insurer will pay out funds to the Director or other entity designated by the Director up to an amount equal to the face amount of the policy;
 - e. The policy guarantees that while closure and post-closure activities are conducted the insurer will pay out funds to the Director or other entity designated by the Director up to an amount equal to the face amount of the policy;
 - f. The insurance policy is issued for a face amount at least equal to the current cost estimate submitted to the Director for performance of all items listed in R18-9-A201(B)(5) or a pro-rata amount if used with another financial assurance mechanism. Actual payments by the insurer will not change the face amount, although the insurer's future liability is reduced by the amount of the payments, during the policy period;
 - g. The insurance policy names the Arizona Department of Environmental Quality as additional insured;
 - h. The policy contains a provision allowing assignment of the policy to a successor permittee. The transfer of the policy is conditional upon consent of the insurer and the Department; and
 - i. The insurance policy provides that the insurer does not cancel, terminate, or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy, at a minimum, provides the insured with a renewal option at the face amount of the expiring policy. If the permittee fails to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the permittee and to the Director 90 days in advance of the cancellation. If the insurer cancels the policy, the permittee shall provide alternate financial assurance within 60 days of receiving the notice of cancellation.
7. Cash deposit. The applicant may use a cash deposit if the cash is deposited with the Department to cover the financial assurance obligation under R18-9-A201(B)(5).
8. Guarantees.
- a. The applicant may use guarantees to cover the financial assurance obligation under R18-9-A201(B)(5) if the following conditions are met:
 - i. The applicant submits to the Department an affidavit certifying that the guarantee arrangement is valid under all applicable federal and state laws. If the applicant is a corporation, the applicant shall include a certified copy of the corporate resolution authorizing the corporation to enter into an agreement to guarantee the permittee's financial assurance obligation;
 - ii. The applicant submits to the Department documentation that explains the substantial business relationship between the guarantor and the permittee;
 - iii. The applicant demonstrates that the guarantor meets conditions of the financial mechanism listed in subsection (C)(1). For purposes of applying the criteria in subsection (C)(1) to a guarantor, substitute "guarantor" for the term "applicant" as used in subsection (C)(1);
 - iv. The guarantee is governed by and complies with state law;
 - v. The guarantee continues in full force until released by the Director or replaced by another financial assurance mechanism listed under subsection (C);
 - vi. The guarantee provides that, if the permittee fails to perform closure or post-closure care of a facility covered by the guarantee, the guarantor shall perform or pay a third party to perform closure or post-closure care, as required by the permit, or establish a fully funded trust fund as specified under subsection (C)(4) in the name of the owner or operator; and
 - vii. The guarantor names the Arizona Department of Environmental Quality as beneficiary of the guarantee.
 - b. Guarantee reporting. The guarantor shall notify or submit a report to the Department within 30 days of:
 - i. An increase in financial responsibility during the fiscal year that affects the guarantor's ability to meet the financial demonstration;
 - ii. Receiving an adverse auditor's notice, opinion, or qualification; or
 - iii. Receiving a Department notification requesting an update of the guarantor's financial condition.
9. An applicant may use a financial assurance mechanism not listed in subsection (C)(1) through (8) if approved by the Director.

- D. Loss of coverage. If the Director believes that a permittee will lose financial capability under subsection (C), the permittee shall, within 30 days from the date of receipt of the Director's request, submit evidence that the financial demonstration under subsection (B) is being met or provide an alternative financial assurance mechanism.
- E. Financial assurance mechanism substitution. A permittee may substitute one financial assurance mechanism for another if the substitution is approved by the Director through an amendment under subsection (F).
- F. Permit amendment. The permittee shall apply for an amendment to the individual permit if the permittee changes a financial assurance mechanism or if the permittee's revision of the closure strategy results in an increase in the estimated cost under R18-9-A201(B)(5). If a permittee seeks to amend a permit under R18-9-A211(B), the permittee shall submit a financial capability demonstration for all facilities covered by the amended individual permit with the permit amendment request.
- G. Previous financial demonstration. If an applicant shows that the financial assurance demonstration required under this Section is covered within a financial demonstration already made to a governmental agency and the Department has access to that information, the applicant is not required to resubmit the information. The applicant shall certify that the current financial condition is equal to or better than the condition reflected in the financial demonstration provided to the other governmental agency. This provision does not apply to a demonstration required under subsection (F).
- H. Recordkeeping. A permittee shall maintain the financial capability for the duration of the permit and report as specified in the permit.

R18-9-A204. Contingency Plan

- A. An individual permit shall specify a contingency plan that defines the actions to be taken if a discharge results in any of the following:
 - 1. A violation of an Aquifer Water Quality Standard or an AQL,
 - 2. A violation of a discharge limitation,
 - 3. A violation of any other permit condition,
 - 4. An alert level is exceeded, or
 - 5. An imminent and substantial endangerment to the public health or the environment.
- B. The contingency plan may include one or more of the following actions if a discharge results in any of the conditions described in subsection (A):
 - 1. Verification sampling;
 - 2. Notification to downstream or downgradient users who may be directly affected by the discharge;
 - 3. Further monitoring that may include increased frequency, additional constituents, or additional monitoring locations;
 - 4. Inspection, testing, operation, or maintenance of discharge control features at the facility;
 - 5. Evaluation of the effectiveness of discharge control technology at the facility that may include technology upgrades;
 - 6. Evaluation of pretreatment for sewage treatment facilities;
 - 7. Preparation of a hydrogeologic study to assess the extent of soil, surface water, or aquifer impact;
 - 8. Corrective action that includes any of the following measures:
 - a. Control of the source of an unauthorized discharge,
 - b. Soil cleanup,
 - c. Cleanup of affected surface waters,
 - d. Cleanup of affected parts of the aquifer, or
 - e. Mitigation measures to limit the impact of pollutants on existing uses of the aquifer.
- C. A permittee shall not take a corrective action proposed under subsection (B)(8) unless the action is approved by the Department.
 - 1. Emergency response provisions and corrective actions specifically identified in the contingency plan submitted with a permit application are subject to approval by the Department during the application review process.
 - 2. The permittee may propose to the Department a corrective action other than those already identified in the contingency plan if a discharge results in any of the conditions identified in subsection (A).
 - 3. The Department shall approve the proposed corrective action if the corrective action provides a plan and expedient time-frame to return the facility to compliance with the facility's permit conditions, A.R.S. Title 49, Chapter 2, and Articles 1 and 2 of this Chapter.
 - 4. The Director may incorporate corrective actions into an Aquifer Protection Permit.
- D. A contingency plan shall contain emergency response provisions to address an imminent and substantial endangerment to public health or the environment including:
 - 1. Twenty-four hour emergency response measures;
 - 2. The name of an emergency response coordinator responsible for implementing the contingency plan;
 - 3. Immediate notification to the Department regarding any emergency response measure taken;
 - 4. A list of people to contact, including names, addresses, and telephone numbers if an imminent and substantial endangerment to public health or the environment arises; and
 - 5. A general description of the procedures, personnel, and equipment proposed to mitigate unauthorized discharges.
- E. A permittee may amend a contingency plan required by the Federal Water Pollution Control Act (P.L. 92-500; 86 Stat. 816; 33 U.S.C. 1251, et seq., as amended), or the Resource Conservation and Recovery Act of 1976 (P.L. 94-580; 90 Stat. 2796; 42 U.S.C. 6901 et seq., as amended), to meet the requirements of this Section and submit it to the Department for approval instead

- of a separate aquifer protection contingency plan.
- F. A permittee shall maintain at least one copy of the contingency plan required by the individual permit at the location where day-to-day decisions regarding the operation of the facility are made. A permittee shall advise all employees responsible for the operation of the facility of the location of the contingency plan.
- G. A permittee shall promptly revise the contingency plan upon any change to the information contained in the plan.

R18-9-A205. Alert Levels, Discharge Limitations, and AQLs

- A. Alert levels.
1. If the Department prescribes an alert level in an individual permit, the Department shall base the alert level on the site-specific conditions described by the applicant in the application submitted under R18-9-A201(A)(2) or other information available to the Department.
 2. The Department may specify an alert level based on a pollutant that indicates the potential appearance of another pollutant.
 3. The Department may specify the measurement of an alert level at a location appropriate for the discharge activity, considering the physical, chemical, and biological characteristics of the discharge, the particular treatment process, and the site-specific conditions.
- B. Discharge limitations. If the Department prescribes discharge limitations in an individual permit, the Department shall base the discharge limitations on the considerations described in A.R.S. § 49-243.
- C. AQLs. The Department may prescribe an AQL in an individual permit to ensure that the facility continues to meet the criteria under A.R.S. § 49-243(B)(2) or (3).
1. If the concentration of a pollutant in the aquifer does not exceed the Aquifer Water Quality Standard, the Department shall set the AQL at the Aquifer Water Quality Standard.
 2. If the concentration of a pollutant in the aquifer exceeds the Aquifer Water Quality Standard, the Department shall set the AQL higher than the Aquifer Water Quality Standard.

R18-9-A206. Monitoring Requirements

- A. Monitoring.
1. The Department shall determine whether monitoring is required to assure compliance with Aquifer Protection Permit conditions and with the applicable Aquifer Water Quality Standards established under A.R.S. §§ 49-221, 49-223, 49-241 through 49-244, and 49-250 through 49-252.
 2. If monitoring is required, the Director shall specify to the permittee:
 - a. The type and method of monitoring;
 - b. The frequency of monitoring;
 - c. Any requirements for the installation, use, or maintenance of monitoring equipment; and
 - d. The intervals at which the permittee reports the monitoring results to the Department.
- B. Recordkeeping.
1. A permittee shall make a monitoring record for each sample taken, as required by the individual permit, consisting of all of the following:
 - a. The date, time, and exact place of a sampling and the name of each individual who performed the sampling;
 - b. The procedures used to collect the sample;
 - c. The date sample analysis was completed;
 - d. The name of each individual or laboratory performing the analysis;
 - e. The analytical techniques or methods used to perform the sampling and analysis;
 - f. The chain of custody records; and
 - g. Any field notes relating to the information described in subsections (B)(1)(a) through (f).
 2. A permittee shall make a monitoring record for each measurement made, as required by the individual permit, consisting of all of the following:
 - a. The date, time, and exact place of the measurement and the name of each individual who performed the measurement;
 - b. The procedures used to make the measurement; and
 - c. Any field notes relating to the information described in subsections (B)(2)(a) and (b).
 3. A permittee shall maintain monitoring records for at least 10 years after the date of the sample or measurement, unless the Department specifies a shorter time period in the permit.

R18-9-A207. Reporting Requirements

- A. A permittee shall notify the Department within five days after becoming aware of a violation of a permit condition or that an alert level was exceeded. The permittee shall inform the Department whether the contingency plan described in R18-9-A204 was implemented.
- B. In addition to the requirements in subsection (A), a permittee shall submit a written report to the Department within 30 days after the permittee becomes aware of a violation of a permit condition. The report shall contain:
1. A description of the violation and its cause;

2. The period of violation, including exact date and time, if known, and the anticipated time period the violation is expected to continue;
 3. Any action taken or planned to mitigate the effects of the violation or to eliminate or prevent recurrence of the violation;
 4. Any monitoring activity or other information that indicates that a pollutant is expected to cause a violation of an Aquifer Water Quality Standard; and
 5. Any malfunction or failure of a pollution control device or other equipment or process.
- C. A permittee shall notify the Department within five days after the occurrence of any of the following:
1. The permittee's filing of bankruptcy, or
 2. The entry of any order or judgment not issued by the Director against the permittee for the enforcement of any federal or state environmental protection statute or rule.
- D. The Director shall specify the format for submitting results from monitoring conducted under R18-9-A206.

R18-9-A208. Compliance Schedule

- A. A permittee shall follow the compliance schedule established in the individual permit.
1. If a compliance schedule provides that an action is required more than one year after the date of permit issuance, the schedule shall establish interim requirements and dates for their achievement.
 2. If the time necessary for completion of an interim requirement is more than one year and is not readily divisible into stages for completion, the permit shall contain interim dates for submission of reports on progress toward completion of the interim requirements and shall indicate a projected completion date.
 3. Unless otherwise specified in the permit, within 30 days after the applicable date specified in a compliance schedule, a permittee shall submit to the Department a report documenting that the required action was taken within the time specified.
 4. After reviewing the compliance schedule activity the Director may amend the Aquifer Protection Permit, based on changed circumstances relating to the required action.
- B. The Department shall consider all of the following factors when setting the compliance schedule requirements:
1. The character and impact of the discharge,
 2. The nature of construction or activity required by the permit,
 3. The number of persons affected or potentially affected by the discharge,
 4. The current state of treatment technology, and
 5. The age of the facility.
- C. For a new facility, the Department shall not defer to a compliance schedule any requirement necessary to satisfy the criteria under A.R.S. § 49-243(B).

R18-9-A209. Temporary Cessation, Closure, and Post-closure

- A. Temporary cessation.
1. A permittee shall notify the Department before a cessation of operations at the facility of at least 60 days duration.
 2. The permittee shall implement any condition specified in the individual permit for the temporary cessation.
 3. If the permit does not specify any temporary cessation condition, the permittee shall, prior to implementation, submit the proposed temporary cessation plan for Department approval.
- B. Closure.
1. Before providing notice under subsection (B)(2), a person may request that the Director review a site investigation plan for a facility under subsection (B)(3)(a) or the results of a site investigation at a facility to determine compliance with this subsection and A.R.S. § 49-252.
 2. A person shall notify the Department of the person's intent to cease operations without resuming an activity for which the facility was designed or operated.
 3. The person shall submit a closure plan for Director approval within 90 days following the notification of intent to cease operations with the applicable fee established in 18 A.A.C. 14. A complete closure plan shall include:
 - a. A site investigation plan that includes a summary of relevant site studies already conducted and a proposed scope of work for any additional site investigation necessary to identify:
 - i. The lateral and vertical extent of contamination in soils and groundwater, using applicable standards;
 - ii. The approximate quantity and chemical, biological, and physical characteristics of each waste, contaminated water, or contaminated soil proposed for removal from the facility;
 - iii. The approximate quantity and chemical, biological, and physical characteristics of each waste, contaminated water, or contaminated soil that will remain at the facility; and
 - iv. Information regarding site conditions related to pollutant fate and transport that may influence the scope of sampling necessary to characterize the site for closure;
 - b. A summary describing the results of a site investigation and any other information used to identify:
 - i. The lateral and vertical extent of soil and groundwater contamination, using applicable standards, and the analytical results that support the determination;

- applicant notice of any additional information in R18-9-A201(B) that is necessary to complete the application.
- D. Public participation.
1. If the Director issues a temporary individual permit, the Director shall postpone the public participation requirements under R18-9-109.
 2. The Director shall not postpone notification of the opportunity for public participation for more than 30 days from the date on the temporary individual permit.
 3. The Director may amend or revoke the temporary individual permit after consideration of public comments.
 4. The Director shall not issue a public notice or hold a public hearing if a temporary individual permit is renewed without change.
 5. The Director shall follow the public participation requirements under R18-9-109 when making a significant amendment to a temporary individual permit.
- E. A temporary individual permit expires after one year unless it is renewed. The Director may renew a temporary individual permit no more than one time.

R18-9-A211. Permit Amendments

- A. The Director may amend an individual permit based upon a request or upon the Director’s initiative.
1. A permittee shall submit a request for permit amendment in writing on a form provided by the Department with the applicable fee established in 18 A.A.C. 14, explaining the facts and reasons justifying the request.
 2. The Department shall process amendment requests following the licensing time-frames established under 18 A.A.C. 1, Article 5, Table 10.
 3. An amended permit supersedes the previous permit upon the effective date of the amendment.
- B. Significant permit amendment. The Director shall make a significant amendment to an individual permit if:
1. Part or all of an existing facility becomes a new facility under A.R.S. § 49-201;
 2. A physical change in a permitted facility or a change in its method of operation results in:
 - a. An increase of 10 percent or more in the permitted volume of pollutants discharged, except a sewage treatment facility;
 - b. An increase in design flow of a sewage treatment facility as follows:

Permitted Design Flow	Increase in Design Flow
500,000 gallons per day or less	10%
Greater than 500,000 gallons per day but less than or equal to five million gallons per day	6%
Greater than five million gallons per day but less than or equal to 50 million gallons per day	4%
Greater than 50 million gallons per day	2%

- c. Discharge of an additional pollutant not allowed by a facility’s original individual permit. The Director may consider the addition of a pollutant with a chemical composition substantially similar to a pollutant the permit currently allows by making an “other” amendment to the individual permit as prescribed in subsection (D);
 - d. For any pollutant not addressed in a facility’s individual permit, any increase that brings the level of the pollutant to within 80 percent or more of a numeric Aquifer Water Quality Standard at the point of compliance; or
 - e. An increase in the concentration in the discharge of a pollutant listed under A.R.S. § 49-243(I);
3. Based upon available information, the facility can no longer demonstrate that its discharge will comply with A.R.S. § 49-243(B)(2) or (3);
 4. The permittee requests and the Department agrees to less stringent monitoring that reduces the frequency in monitoring or reporting or reduces the number of pollutants monitored, and the permittee demonstrates that the changes will not affect the permittee’s ability to remain in compliance with Articles 1 and 2 of this Chapter;
 5. It is necessary to change the designation of a point of compliance;
 6. It is necessary to update BADCT for a facility that was issued an individual permit and was not constructed within five years of permit issuance;
 7. The permittee requests and the Department agrees to less stringent discharge limitations when the permittee demonstrates that the changes will not affect the permittee’s ability to remain in compliance with Articles 1 and 2 of this Chapter;
 8. It is necessary to make an addition to or a substantial change in closure requirements or to provide for post-closure maintenance and monitoring; or

9. Material and substantial alterations or additions to a permitted facility, including a change in disposal method, justify a change in permit conditions.
- C. Minor permit amendment. The Director shall make a minor amendment to an individual permit to:
1. Correct a typographical error;
 2. Change nontechnical administrative information, excluding a permit transfer;
 3. Correct minor technical errors, such as errors in calculation, locational information, citations of law, and citations of construction specifications;
 4. Increase the frequency of monitoring or reporting, or to revise a laboratory method;
 5. Make a discharge limitation more stringent;
 6. Make a change in a recordkeeping retention requirement; or
 7. Insert calculated alert levels, AQLs, or other permit limits into a permit based on monitoring subsequent to permit issuance, if a requirement to establish the levels or limits and the method for calculation of the levels or limits was established in the original permit.
- D. "Other" permit amendment.
1. The Director may make an "other" amendment to an individual permit if the amendment is not a significant or minor permit amendment prescribed in this Section, based on an evaluation of the information relevant to the amendment.
 2. Examples of an "other" amendment to an individual permit include:
 - a. A change in a construction requirement, treatment method, or operational practice, if the alteration complies with the requirements of Articles 1 and 2 of this Chapter and provides equal or better performance;
 - b. A change in an interim or final compliance date in a compliance schedule, if the Director determines just cause exists for changing the date;
 - c. A change in the permittee's financial assurance mechanism under R18-9-A203(C);
 - d. A permit transfer under R18-9-A212;
 - e. The replacement of monitoring equipment, including a well, if the replacement results in equal or greater monitoring effectiveness;
 - f. Any increase in the volume of pollutants discharged that is less than that described in subsection (B)(2)(a) or (b);
 - g. An adjustment of the permit to conform to rule or statutory provisions;
 - h. A calculation of an alert level, AQL, or other permit limit based on monitoring subsequent to permit issuance;
 - i. An addition of a point of compliance monitor well;
 - j. A combination of two or more permits at the same site as specified under R18-9-107;
 - k. An adjustment or incorporation of monitoring requirements to ensure Reclaimed Water Quality Standards developed under 18 A.A.C. 11, Article 3 are met; or
 - l. A change in a contingency plan resulting in equal or more efficient responsiveness.
- E. The public notice and public participation requirements of R18-9-108 and R18-9-109 apply to a significant amendment. The public notice requirements apply to an "other" amendment. A minor amendment does not require a public notice or public participation.
- F. The Director shall not amend or reissue a permit to allow use of a discharge control technology that provides a lesser degree of pollutant discharge reduction than the BADCT established in the individual Aquifer Protection Permit previously issued for a facility, unless:
1. The industrial classification of the facility has changed so that a new assessment of BADCT is appropriate,
 2. The pollutant load has decreased or the pollutant composition has changed significantly to warrant a new assessment of the BADCT,
 3. The Director approves a corrective or contingency action that necessitates a change in the treatment technology, or
 4. The approved discharge control technology is not operating properly due to circumstances beyond the control of the owner or operator.

R18-9-A212. Permit Transfer

- A. The person subject to the continuance requirements under R18-9-105(A)(1), (2), or (3) shall notify the Department by certified mail within 15 days following a change of ownership. The notice shall include:
1. The name of the person transferring the facility;
 2. The name of the new owner or operator;
 3. The name and location of the facility;
 4. The written agreement between the person transferring the facility and the new owner or operator indicating a specific date for transfer of all permit responsibility, coverage, and liability;
 5. A signed declaration by the new owner or operator that the new owner or operator has reviewed the permit and agrees to the terms of the permit, including fee obligations under A.R.S. § 49-242; and
 6. The applicable fee established in 18 A.A.C. 14.
- B. A permittee may request that the Department transfer an individual permit to a new owner or operator.
1. The new owner or operator shall:
 - a. Notify the Department by certified mail within 15 days after the change of ownership and include a written

- agreement between the previous and new owner indicating a specific date for transfer of all permit responsibility, coverage, and liability;
 - b. Submit the applicable fee established in 18 A.A.C. 14;
 - c. Demonstrate the technical and financial capability necessary to fully carry out the terms of the permit according to R18-9-A202 and R18-9-A203;
 - d. Submit a signed statement that the new owner or operator has reviewed the permit and agrees to the terms of the permit; and
 - e. Provide the Department with a copy of the Certificate of Disclosure if required by A.R.S. § 49-109.
2. If the Director amends the individual permit for the transfer, the new permittee is responsible for all conditions of the permit.
- C. A permittee shall comply with all permit conditions until the Director transfers the permit, regardless of whether the permittee has sold or disposed of the facility.

R18-9-A213. Permit Suspension, Revocation, Denial, or Termination

- A. The Director may, after notice and opportunity for hearing, suspend or revoke an individual permit or a continuance under R18-9-105(A)(1), (2), or (3) for any of the following:
- 1. A permittee failed to comply with any applicable provision of A.R.S. Title 49, Chapter 2, Article 3; Articles 1 and 2 of this Chapter; or any permit condition;
 - 2. A permittee misrepresented or omitted a fact, information, or data related to an Aquifer Protection Permit application or permit condition;
 - 3. The Director determines that a permitted activity is causing or will cause a violation of an Aquifer Water Quality Standard at a point of compliance;
 - 4. A permitted discharge is causing or will cause imminent and substantial endangerment to public health or the environment;
 - 5. A permittee failed to maintain the financial capability under R18-9-A203(B); or
 - 6. A permittee failed to construct a facility within five years of permit issuance and:
 - a. It is necessary to update BADCT for the facility, and
 - b. The Department has not issued an amended permit under R18-9-A211(B)(6).
- B. The Director may deny an individual permit if the Director determines upon completion of the application process that the applicant has:
- 1. Failed or refused to correct a deficiency in the permit application;
 - 2. Failed to demonstrate that the facility and the operation will comply with the requirements of A.R.S. §§ 49-241 through 49-252 and Articles 1 and 2 of this Chapter. The Director shall base this determination on:
 - a. The information submitted in the Aquifer Protection Permit application,
 - b. Any information submitted to the Department following a public hearing, or
 - c. Any relevant information that is developed or acquired by the Department; or
 - 3. Provided false or misleading information.
- C. The Director shall terminate an individual permit if each facility covered under the individual permit:
- 1. Has closed and the Director issued a Permit Release Notice under R18-9-A209(C)(2)(c) or R18-9-A209(B)(3)(a)(ii) for the closed facility, or
 - 2. Is covered under another Aquifer Protection Permit.

R18-9-A214. Requested Coverage Under a General Permit

- A. If a person who applied for or was issued an individual permit qualifies to operate a facility under a general permit established in Article 3 of this Chapter, the person may request that the individual permit be terminated and replaced by the general permit. The person shall submit the Notice of Intent to Discharge under R18-9-A301(B) with the appropriate fee established in 18 A.A.C. 14.
- B. The individual permit is valid and enforceable with respect to a discharge from each facility until the Director determines that the discharge from each facility is covered under a general permit.
- C. The owner or operator operating under a general permit shall comply with all applicable general permit requirements in Article 3 of this Chapter.

PART B. BADCT FOR SEWAGE TREATMENT FACILITIES

R18-9-B201. General Considerations and Prohibitions

- A. Applicability. The requirements in this Article, apply to all sewage treatment facilities, including expansions of existing sewage treatment facilities, that treat wastewater containing sewage, unless the discharge is authorized by a general permit under Article 3 of this Chapter.
- B. The Director may specify alert levels, discharge limitations, design specifications, and operation and maintenance requirements in the permit that are based upon information provided by the applicant and that meet the requirements under A.R.S. § 49-243(B)(1).

- C. The permittee shall ensure that a sewage treatment facility is operated by a person certified under 18 A.A.C. 5, Article 1, for the grade of the facility.
- D. Operation and maintenance.
 - 1. The owner or operator shall maintain, at the sewage treatment facility, an operation and maintenance manual for the facility and shall update the manual as needed.
 - 2. The owner or operator shall use the operation and maintenance manual to guide facility operations to ensure compliance with the terms of the Aquifer Protection Permit and to prevent any environmental nuisance described under A.R.S. § 49-141(A).
 - 3. The Director may specify adherence to any operation or maintenance requirement as an Aquifer Protection Permit condition to ensure that the terms of the Aquifer Protection Permit are met.
 - 4. The owner or operator shall make the operation and maintenance manual available to the Department upon request.
- E. A person shall not create or maintain a connection between any part of a sewage treatment facility and a potable water supply so that sewage or wastewater contaminates a potable or public water supply.
- F. A person shall not bypass or release sewage or partially treated sewage that has not completed the treatment process from a sewage treatment facility.
- G. Reclaimed water dispensed to a direct reuse site from a sewage treatment facility is regulated under Reclaimed Water Quality Standards in 18 A.A.C. 11, Article 3.
- H. The preparation, transport, or land application of any biosolids generated by a sewage treatment facility is regulated under 18 A.A.C. 9, Article 10.
- I. The owner or operator of a sewage treatment facility that is a new facility or undergoing a major modification shall provide setbacks established in the following table. Setbacks are measured from the treatment and disposal components within the sewage treatment facility to the nearest property line of an adjacent dwelling, workplace, or private property. If an owner or operator cannot meet a setback for a facility undergoing a major modification that incorporates full noise, odor, and aesthetic controls, the owner or operator shall not further encroach into setback distances existing before the major modification except as allowed in subsection (I)(2).

Sewage Treatment Facility Design Flow (gallons per day)	No Noise, Odor, or Aesthetic Controls (feet)	Full Noise, Odor, and Aesthetic Controls (feet)
3000 to less than 24,000	250	25
24,000 to less than 100,000	350	50
100,000 to less than 500,000	500	100
500,000 to less than 1,000,000	750	250
1,000,000 or greater	1000	350

- 1. Full noise, odor, and aesthetic controls means that:
 - a. Noise due to the sewage treatment facility does not exceed 50 decibels at the facility property boundary on the A network of a sound level meter or a level established in a local noise ordinance,
 - b. All odor-producing components of the sewage treatment facility are fully enclosed,
 - c. Odor scrubbers or other odor-control devices are installed on all vents, and
 - d. Fencing is aesthetically matched to the area surrounding the facility.
- 2. The owner or operator of a sewage treatment facility undergoing a major modification may decrease setbacks if:
 - a. Allowed by local ordinance; or
 - b. Setback waivers are obtained from affected property owners in which the property owner acknowledges awareness of the established setbacks, basic design of the sewage treatment facility, and the potential for noise and odor.
- J. The owner or operator of a sewage treatment facility shall not operate the facility so that it emits an offensive odor on a persistent basis beyond the setback distances specified in subsection (I).

R18-9-B202. Design Report

- A. A person applying for an individual permit shall submit a design report signed, dated, and sealed by an Arizona-registered professional engineer. The design report shall include the following information:
 - 1. Wastewater characterization, including quantity, quality, seasonality, and impact of increased flows as the facility reaches design flow;
 - 2. The proposed method of disposal, including solids management;

3. A description of the treatment unit processes and containment structures, including diagrams and calculations that demonstrate that the design meets BADCT requirements and will achieve treatment levels specified in R18-9-B204 through R18-9-B206, as applicable, for all flow conditions indicated in subsection (A)(9). If soil aquifer treatment or other aspects of site conditions are used to meet BADCT requirements, the applicant shall document performance of the site in the design report or the hydrogeologic report;
 4. A description of planned normal operation;
 5. A description of key maintenance activities and a description of contingency and emergency operation for the facility;
 6. A description of construction management controls;
 7. A description of the facility startup plan, including pre-operational testing, expected treated wastewater characteristics and monitoring requirements during startup, expected time-frame for meeting performance requirements specified in R18-9-B204, and any other special startup condition that may merit consideration in the individual permit;
 8. A site diagram depicting compliance with the setback requirements established in R18-9-B201(I) for the facility at design flow, and for each phase if the applicant proposes expansion of the facility in phases;
 9. The following flow information in gallons per day for the proposed sewage treatment facility. If the application proposes expansion of the facility in phases, the following flow information for each phase:
 - a. The design flow of the sewage treatment facility. The design flow is the average daily flow over a calendar year calculated as the sum of all influent flows to the facility based on Table 1, Unit Design Flows, unless a different basis for determining influent flows is approved by the Department;
 - b. The maximum day. The maximum day is the greatest daily total flow that occurs over a 24-hour period within an annual cycle of flow variations;
 - c. The maximum month. The maximum month is the average daily flow of the month with the greatest total flow within the annual cycle of flow variations;
 - d. The peak hour. The peak hour is the greatest total flow during one hour, expressed in gallons per day, within the annual cycle of flow variations;
 - e. The minimum day. The minimum day is the least daily total flow that occurs over a 24-hour period within the annual cycle of flow variations;
 - f. The minimum month. The minimum month is the average daily flow of the month with the least total flow within the annual cycle of flow variations; and
 - g. The minimum hour. The minimum hour is the least total flow during one hour, expressed in gallons per day, within the annual cycle of flow variations; and
 10. Specifications for pipe, standby power source, and water and sewer line separation.
- B. The Department may inspect an applicant's facility without notice to ensure that construction conforms to the design report.

R18-9-B203. Engineering Plans and Specifications

- A. A person applying for an individual permit for a sewage treatment facility with a design flow under one million gallons per day, shall submit engineering plans and specifications to the Department. The Director may waive this requirement if the Director previously approved engineering plans and specifications submitted by the same owner or operator for a sewage treatment facility with a design flow of more than one million gallons per day.
- B. A person applying for an individual permit for a sewage treatment facility with a design flow of one million gallons per day or greater shall submit engineering plans and specifications if, upon review of the design report required in R18-9-B202, the Department finds that:
 1. The design report fails to provide sufficient detail to determine adequacy of the proposed sewage treatment facility design;
 2. The described design is innovative and does not reflect treatment technologies generally accepted within the industry;
 3. The Department's calculations of removal efficiencies based on the design report show that the treatment facility cannot achieve treatment performance requirements;
 4. The design report does not demonstrate:
 - a. Protection from physical damage due to a 100-year flood,
 - b. Ability to continuously operate during a 25-year flood, or
 - c. Provision for a standby power source;
 5. The design report shows inconsistency in sizing or compatibility between two or more unit process components of the sewage treatment facility;
 6. The designer of the facility has:
 - a. Designed a sewage treatment facility of at least a similar size on less than three previous occasions,
 - b. Designed a sewage treatment facility that has been the subject of a Director enforcement action due to the facility design, or
 - c. Been found by the Board of Technical Registration to have violated a provision in A.R.S. Title 32, Chapter 1;
 7. The permittee seeks to expand its sewage treatment facility and the Department believes that the facility will require upgrades to the design not described and evaluated in the design report to meet the treatment performance requirements; or
 8. The construction does not conform to the design report if the sewage treatment facility has already been constructed.

- C. The Department shall review engineering plans and specifications upon request by an applicant seeking a permit for a sewage treatment facility, regardless of its flow.
- D. The Department may inspect an applicant's facility without notice to ensure that construction generally conforms to engineering plans and specifications, as applicable.
- E. Before discharging under a permit, the permittee shall submit an Engineer's Certificate of Completion signed, dated, and sealed by an Arizona-registered professional engineer in a format approved by the Department, that confirms that the facility is constructed according to the Department-approved design report or plans and specifications, as applicable.

R18-9-B204. Treatment Performance Requirements for a New Facility

- A. Definition. "Week" means a seven-day period starting on Sunday and ending on the following Saturday.
- B. An owner or operator of a new sewage treatment facility shall ensure that the facility meets the following performance requirements upon release of the treated wastewater at the outfall:
 - 1. Secondary treatment levels.
 - a. Five-day biochemical oxygen demand (BOD₅) less than 30 mg/l (30-day average) and 45 mg/l (seven-day average), or carbonaceous biochemical oxygen demand (CBOD₅) less than 25 mg/l (30-day average) or 40 mg/l (seven-day average);
 - b. Total suspended solids (TSS) less than 30 mg/l (30-day average) and 45 mg/l (seven-day average);
 - c. pH maintained between 6.0 and 9.0 standard units; and
 - d. A removal efficiency of 85 percent for BOD₅, CBOD₅, and TSS;
 - 2. Secondary treatment by waste stabilization ponds is not considered BADCT unless an applicant demonstrates to the Department that site-specific hydrologic and geologic characteristics and other environmental factors are sufficient to justify secondary treatment by waste stabilization ponds;
 - 3. Total nitrogen in the treated wastewater is less than 10 mg/l (five-month rolling geometric mean). If an applicant demonstrates, using appropriate monitoring, that soil aquifer treatment will produce a total nitrogen concentration less than 10 mg/l in wastewater that percolates to groundwater, the Department may approve soil aquifer treatment for removal of total nitrogen as an alternative to meeting the performance requirement of 10 mg/l at the outfall;
 - 4. Pathogen removal.
 - a. For a sewage treatment facility with a design flow of less than 250,000 gallons per day at a site where the depth to the seasonally high groundwater table is greater than 20 feet and there is no karstic or fractured bedrock at the surface:
 - i. The concentration of fecal coliform organisms in four of the wastewater samples collected during the week is less than 200 cfu/100 ml or the concentration of *E. coli* bacteria in four of the wastewater samples collected during the week is less than 126 cfu/100 ml, based on a sampling frequency of seven daily samples per week;
 - ii. The single sample maximum concentration of fecal coliform organisms in a wastewater sample is not greater than 800 cfu/100 ml or the single sample maximum concentration of *E. coli* bacteria in a wastewater sample is not greater than 504 cfu/100 ml; and
 - iii. An owner or operator of a facility may request a reduction in the monitoring frequency required in subsection (B)(4)(a)(i) if equipment is installed to continuously monitor an alternative indicator parameter and the owner or operator demonstrates that the continuous monitoring will ensure reliable production of wastewater that meets the numeric concentration levels in subsections (B)(4)(a)(i) and (ii) at the discharge point;
 - b. For any other sewage treatment facility:
 - i. No fecal coliform organisms or no *E. coli* bacteria are detected in four of the wastewater samples collected during the week, based on a sampling frequency of seven daily samples per week;
 - ii. The single sample maximum concentration of fecal coliform organisms in a wastewater sample is not greater than 23 cfu/100 ml or the single sample maximum concentration of *E. coli* is not greater than 15 cfu/100 ml;
 - iii. An owner or operator may request a reduction in the monitoring frequency required in subsection (B)(4)(b)(i) if equipment is installed to continuously monitor an alternative indicator parameter and the owner or operator demonstrates that the continuous monitoring will ensure reliable production of wastewater that meets the numeric concentration levels in subsections (B)(4)(b)(i) or (ii) at the discharge point;
 - c. An owner or operator may use unit treatment processes, such as chlorination-dechlorination, ultraviolet, and ozone to achieve the pathogen removal performance requirements specified in subsections (B)(4)(a) and (b);
 - d. The Department may approve soil aquifer treatment for the removal of fecal coliform or *E. coli* bacteria as an alternative to meeting the performance requirement in subsection (B)(4)(a) or (b), if the soil aquifer treatment process will produce a fecal coliform or *E. coli* bacteria concentration less than that required under subsection (B)(4)(a) or (b), in wastewater that percolates to groundwater;
 - 5. Unless governed by A.R.S. § 49-243(I), the performance requirement for each constituent regulated under R18-11-406(B) through (E) is the numeric Aquifer Water Quality Standard;

6. The performance requirement for a constituent regulated under A.R.S. § 49-243(I) is removal to the greatest extent practical regardless of cost.
 - a. An operator shall minimize trihalomethane compounds generated as disinfection byproducts using chlorination, dechlorination, ultraviolet, or ozone as the disinfection system or using a technology demonstrated to have equivalent or better performance for removing or preventing trihalomethane compounds.
 - b. For other pollutants regulated by A.R.S. § 49-243(I), an operator shall use one of the following methods to achieve industrial pretreatment:
 - i. Regulate industrial sources of influent to the sewage treatment facility by setting limits on pollutant concentrations, monitoring for pollutants, and enforcing the limits to reduce, eliminate, or alter the nature of a pollutant before release into a sewage collection system;
 - ii. Meet the pretreatment requirements of A.R.S. § 49-255.02; or
 - iii. For sewage treatment facilities without significant industrial input, conduct periodic monitoring to detect industrial discharge; and
 7. A maximum seepage rate less than 550 gallons per day per acre for all containment structures within the treatment works. A sewage treatment facility that consists solely of containment structures with no other form of discharge complies with Article 2, Part B, by operating below the maximum 550 gallon per day per acre seepage rate.
- C. The Director shall incorporate treated wastewater discharge limitations and associated monitoring specified in this Section into the individual permit to ensure compliance with the BADCT requirements.
- D. An applicant shall formally request in writing and justify an alternative that allows less stringent performance than that established in this Section, based on the criteria specified in A.R.S. § 49-243(B)(1).
- E. If the request specified in subsection (D) involves treatment or disposal works that are a demonstration, experimental, or pilot project, the Director may issue an individual permit that places greater reliance on monitoring to ensure operational capability.

R18-9-B205. Treatment Performance Requirements for an Existing Facility

For a sewage treatment facility that is an existing facility defined in A.R.S. § 49-201(16), the BADCT shall conform with the following:

1. The designer shall identify one or more design improvements that brings the facility closer to or within the treatment performance requirements specified in R18-9-B204, considering the factors listed in A.R.S. § 49-243(B)(1)(a) and (B)(1)(c) through (h);
2. The designer may eliminate from consideration alternatives identified in subsection (1) that are more expensive than the number of gallons of design flow times \$1.00 per gallon; and
3. The designer shall select a design that incorporates one or more of the considered alternatives by giving preference to measures that will provide the greatest improvement toward meeting the treatment performance requirements specified in R18-9-B204.

R18-9-B206. Treatment Performance Requirements for Expansion of a Facility

For an expansion of a sewage treatment facility, the BADCT shall conform with the following:

1. New facility BADCT requirements in R18-9-B204 apply to the following expansions:
 - a. An increase in design flow by an amount equal to or greater than the increases specified in R18-9-A211(B)(2)(b); or
 - b. An addition of a physically separate process or major piece of production equipment, building, or structure that causes a separate discharge to the extent that the treatment performance requirements for the pollutants addressed in R18-9-B204 can practicably be achieved by the addition.
2. BADCT requirements for existing facilities established in R18-9-B205 apply to an expansion not covered under subsection (1).

**ARTICLE 3. AQUIFER PROTECTION PERMITS – GENERAL PERMITS
PART A. GENERAL PROVISIONS**

R18-9-A301. Discharging Under a General Permit

- A. Discharging requirements.
1. Type 1 General Permit. A person may discharge under a Type 1 General Permit without submitting a Notice of Intent to Discharge if the discharge is authorized by and meets:
 - a. The applicable requirements of Article 3, Part A of this Chapter; and
 - b. The specific terms of the Type 1 General Permit established in Article 3, Part B of this Chapter.
 2. Type 2 General Permit. A person may discharge under a Type 2 General Permit if:
 - a. The discharge is authorized by and meets the applicable requirements of Article 3, Part A of this Chapter and the specific terms of the Type 2 General Permit established in Article 3, Part C of this Chapter;
 - b. The person files a Notice of Intent to Discharge under subsection (B); and
 - c. The person submits the applicable fee established in 18 A.A.C. 14.

3. Type 3 General Permit. A person may discharge under a Type 3 General Permit if:
 - a. The discharge is authorized by and meets the applicable requirements of Article 3, Part A of this Chapter and the specific terms of the Type 3 General Permit established in Article 3, Part D of this Chapter;
 - b. The person files a Notice of Intent to Discharge under subsection (B);
 - c. The person satisfies any deficiency requests from the Department regarding the administrative completeness review and substantive review and receives a written Discharge Authorization from the Director; and
 - d. The person submits the applicable fee established in 18 A.A.C. 14.
 4. Type 4 General Permit. A person may discharge under a Type 4 General Permit if:
 - a. The discharge is authorized by and meets the applicable requirements of Article 3, Part A of this Chapter and the specific terms of the Type 4 General Permit established in Article 3, Part E of this Chapter;
 - b. The person files a Notice of Intent to Discharge under subsection (B);
 - c. The person satisfies any deficiency requests from the Department regarding the administrative completeness review and substantive review, including any deficiency relating to the construction of the facility;
 - d. The person receives a written Discharge Authorization from the Director before the facility discharges; and
 - e. The person submits the applicable fee established in 18 A.A.C. 14 or according to A.R.S. §§ 49-107 and 49-112.
- B. Notice of Intent to Discharge.
1. A person seeking a Discharge Authorization under a general permit under subsections (A)(2), (3), or (4) shall submit, by certified mail, in person, or by another method approved by the Department, a Notice of Intent to Discharge on a form provided by the Department.
 2. The Notice of Intent to Discharge shall include:
 - a. The name, address, and telephone number of the applicant;
 - b. The name, address, and telephone number of a contact person familiar with the operation of the facility;
 - c. The name, position, address, and telephone number of the owner or operator of the facility who has overall responsibility for compliance with the permit;
 - d. The legal description of the discharge areas, including the latitude and longitude coordinates;
 - e. A narrative description of the facility or project, including expected dates of operation, rate, and volume of discharge;
 - f. he additional requirements, if any, specified in the general permit for which the authorization is being sought;
 - g. A listing of any other federal or state environmental permits issued for or needed by the facility, including any individual permit, Groundwater Quality Protection Permit, or Notice of Disposal that may have previously authorized the discharge; and
 - h. A signature on the Notice of Intent to Discharge certifying that the applicant agrees to comply with all applicable requirements of this Article, including specific terms of the general permit.
 3. Receipt of a completed Notice of Intent to Discharge by the Department begins the administrative completeness review for a Type 3 or Type 4 General Permit.
- C. Type 3 General Permit authorization review.
1. Inspection. The Department may inspect the facility to determine that the applicable terms of the general permit have been met.
 2. Discharge Authorization issuance.
 - a. If the Department determines, based on its review and an inspection, if conducted, that the facility conforms to the requirements of the general permit and the applicable requirements of this Article, the Director shall issue a Discharge Authorization.
 - b. The Discharge Authorization authorizes the person to discharge under terms of the general permit and applicable requirements of this Article.
 3. Discharge Authorization denial. If the Department determines, based on its review and an inspection, if conducted, that the facility does not conform to the requirements of the general permit or other applicable requirements of this Article, the Director shall notify the person of the decision not to issue the Discharge Authorization and the person shall not discharge under the general permit. The notification shall inform the person of:
 - a. The reason for the denial with reference to the statute or rule on which the denial is based;
 - b. The person's right to appeal the denial, including the number of days the applicant has to file a protest challenging the denial and the name and telephone number of the Department contact person who can answer questions regarding the appeals process; and
 - c. The person's right to request an informal settlement conference under A.R.S. §§ 41-1092.03(A) and 41-1092.06.
- D. Type 4 General Permit review.
1. Pre-construction phase and facility construction. A person shall not begin facility construction until the Director issues a Construction Authorization.
 - a. Inspection. The Department may inspect the facility site before construction to determine that the applicable terms of the general permit will be met.
 - b. Review. If the Department determines, based on an inspection or its review of design plans, specifications, or

- other required documents that the facility does not conform to the requirements of the general permit or other applicable requirements of this Article, the Department shall make a written request for additional information to determine whether the facility will meet the requirements of the general permit.
- c. Construction Authorization. If the Department determines, based on the review described in subsection (D)(1)(b) and any additional information submitted in response to a written request, that the facility design conforms with the requirements of the general permit and other applicable requirements of this Article, the Director shall issue a Construction Authorization to the person seeking to discharge. A Construction Authorization for an on-site wastewater treatment facility shall contain:
 - i. The design flow of the facility,
 - ii. The characteristics of the wastewater sources contributing to the facility,
 - iii. The general permits that apply, and
 - iv. A list of the documents that are the basis for the authorization.
 - d. Construction Authorization denial. If the Department determines, based on the review described in subsection (D)(1)(b) and any additional information submitted in response to a written request, that the facility design does not conform to the requirements of the general permit or other applicable requirements of this Article, the Director shall notify the person of the decision not to issue a Construction Authorization. The notification shall include the information listed in subsections (D)(2)(d).
 - e. Construction.
 - i. A person shall complete construction within two years of receiving a Construction Authorization.
 - ii. Construction shall conform with the plans and documents approved by the Department in the Construction Authorization. A change in location, configuration, dimension, depth, material, or installation procedure does not require approval by the Department if the change continues to conform with the specific standard in this Article used as the basis for the original design.
 - iii. The person shall record all changes made during construction, including any changes approved under R18-9-A312(G) on the site plan as specified in R18-9-A309(C)(1) or on documents as specified in R18-9-A309(C)(2) or R18-9-E301(E), as applicable.
 - f. Completion of construction.
 - i. After completing construction of the facility, the person seeking to discharge shall submit any applicable documents specified in R18-9-A309(C) with the Request for Discharge Authorization form for an on-site wastewater treatment facility and the Engineer's Certificate of Completion specified in R18-9-E301(E) for a sewage collection system. Receipt of the documents by the Department initiates the post-construction review phase.
 - ii. If the Department does not receive the documentation specified in subsection (D)(1)(f)(i) by the end of the two-year construction period, the Notice of Intent to Discharge expires, and the person shall not continue construction or discharge.
 - iii. If the Notice of Intent to Discharge expires, the person shall submit a new Notice of Intent to Discharge under subsection (B) and the applicable fee under subsection (A)(4)(e) to begin or continue construction.
2. Post-construction phase.
- a. Inspection. The Department may inspect the facility before issuing a Discharge Authorization to determine whether:
 - i. The construction conforms with the design authorized by the Department under subsection (D)(1)(c) and any changes recorded on the site plan as specified in R18-9-A309(C)(1) or other documents as specified in R18-9-A309(C)(2) or R18-9-E301(E), as applicable; and
 - ii. Terms of the general permit and applicable terms of this Article are met.
 - b. Deficiencies. If the Department identifies deficiencies based on an inspection of the constructed facility or during the review of documents submitted with the request for the Discharge Authorization, the Director shall provide a written explanation of the deficiencies to the person.
 - c. Discharge Authorization issuance.
 - i. Upon satisfactory completion of construction and documents required under R18-9-A309(C)(1), R18-9-A309(C)(2), or R18-9-E301(E), as applicable, the Director shall issue a Discharge Authorization.
 - ii. The Discharge Authorization allows a person to discharge under terms of the general permit and applicable requirements of this Article and the stated terms of the Construction Authorization.
 - d. Discharge Authorization denial. If, after receiving evidence of correction submitted by the person seeking to discharge, the Department determines that the deficiencies are not satisfactorily corrected, the Director shall notify the person seeking to discharge of the Director's decision not to issue the Discharge Authorization and the person shall not discharge under the general permit. The notification shall inform the person of:
 - i. The reason for the denial with reference to the statute or rule on which the denial is based;
 - ii. The person's right to appeal the denial, including the number of days the applicant has to file a protest challenging the denial and the name and telephone number of the Department contact person

- iii. who can answer questions regarding the appeals process; and
- iii. The person's right to request an informal settlement conference under A.R.S. §§ 41-1092.03(A) and 41-1092.06.

R18-9-A302. Point of Compliance

The point of compliance is the point at which compliance with Aquifer Water Quality Standards is determined.

1. Except as provided in this Section or as stated in a specific general permit, the applicable point of compliance at a facility operating under a general permit is a vertical plane downgradient of the facility that extends through the uppermost aquifers underlying that facility.
2. The point of compliance is the limit of the pollutant management area.
 - a. The pollutant management area is the horizontal plane of the area on which pollutants are or will be placed.
 - b. If a facility operating under a general permit is located within a larger pollutant management area established under an individual permit issued to the same person, the point of compliance is the applicable point of compliance established in the individual permit.

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), the Discharge Authorization expires.

R18-9-A304. Notice of Transfer

- A. Transfer of authorization under a Type 1 General Permit.
 1. A permittee transferring ownership of a facility covered by a Type 1.01 through 1.08, or 1.10 through 1.12 General Permit is not required to notify the Department of the transfer.
 2. A permittee transferring ownership of an on-site wastewater treatment facility operating under a Type 1.09 General Permit shall follow the requirements under R18-9-A316.
 3. A permittee transferring ownership of a sewage treatment facility operating under a Type 1.09 General Permit shall submit a Notice of Transfer to the Department by certified mail within 15 days after the date that ownership changes.
- B. Transfer of authorization under a Type 2, 3, or 4.01 General Permit.
 1. If a change of ownership occurs for a facility covered by a Type 2, 3, or 4.01 General Permit facility, the permittee shall provide a Notice of Transfer to the Department or to the health or environmental agency delegated by the Director to administer Type 4.01 General Permits, by certified mail within 15 days after the date that ownership changes. The Notice of Transfer, on a form approved by the Department, shall include:
 - a. Any information that has changed from the original Notice of Intent to Discharge,
 - b. Any other transfer requirements specified for the general permit, and
 - c. The applicable fee established in 18 A.A.C. 14.
 2. The Department may require a permittee covered by a Type 2, 3, or 4.01 General Permit to submit a new Notice of Intent to Discharge and to obtain a new authorization under R18-9-A301(A)(2), (3) and (4), as applicable, if the volume or characteristics of the discharge have changed from the original application.
- C. Transfer of a Type 4.02 through 4.23 General Permit. A permittee transferring ownership of an on-site wastewater treatment facility operating under one or more Type 4.02 through 4.23 General Permits shall follow the requirements under R18-9-A316.

R18-9-A305. Facility Expansion

- A. A permittee may expand a facility covered by a Type 2 General Permit if, before the expansion, the permittee provides the

Department with the following information by certified mail:

1. An updated Notice of Intent to Discharge,
 2. A certification signed by the facility owner stating that the expansion continues to meet all the conditions of the applicable general permit, and
 3. The applicable fee established under 18 A.A.C. 14.
- B. A permittee may expand a facility covered by a Type 3 or Type 4 General Permit if the permittee submits a new Notice of Intent to Discharge and the Department issues a new Discharge Authorization.
1. The person submitting the Notice of Intent to Discharge for the expansion may reference the previous Notice of Intent to Discharge if the previous information is identical, but shall provide full and detailed information for any changed items.
 2. The Notice of Intent to Discharge shall include:
 - a. Any applicable fee established under 18 A.A.C. 14, and
 - b. A certification signed by the facility owner stating that the expansion continues to meet all of the requirements relating to the applicable general permit.
 3. Upon receiving the Notice of Intent to Discharge, the Department shall follow the applicable review and authorization procedures described in R18-9-A301(A)(3) or (4).

R18-9-A306. Closure

- A. To satisfy the requirements under A.R.S. § 49-252, a permittee shall close a facility authorized to discharge under a general permit as follows:
1. If the discharge is authorized under a Type 1.01 through 1.08, 1.10, 1.11, 2.05, 2.06, or 4.01 General Permit, closure notification is unnecessary and clean closure is met when:
 - a. The permittee removes material that may contribute to a continued discharge; and
 - b. The permittee eliminates, to the greatest degree practical, any reasonable probability of further discharge from the facility and of exceeding any Aquifer Water Quality Standard at the applicable point of compliance;
 2. For a discharge authorized under a Type 2.02, 3.02, 3.05 through 3.07, or 4.23 General Permit, the facility meets clean closure requirements if the permittee provides notice and submits sufficient information for the Department to determine that:
 - a. Any material that may contribute to a continued discharge is removed;
 - b. The permittee has eliminated to the greatest degree practicable any reasonable probability of further discharge from the facility and of exceeding any Aquifer Water Quality Standard at the applicable point of compliance; and
 - c. Closure requirements, if any, established in the general permit are met;
 3. If the discharge is authorized under a Type 1.12, 2.01, 2.03, 2.04, 3.01, 3.03, or 3.04 General Permit, the permittee shall comply with the closure requirements in the general permit;
 4. If the discharge is from an on-site wastewater treatment facility authorized under a Type 1.09 or 4.02 through 4.22 General Permit, the permittee shall comply with the closure requirements in R18-9-A309(D); and
 5. If the discharge is from a sewage treatment facility authorized under a Type 1.09 General Permit, the permittee shall comply with the closure requirements under subsection (A)(1).
- B. For a facility operating under a general permit and located at a site where an individual area-wide permit has been issued, a permittee may defer some or all closure activities required by this subsection if the Director approves the deferral in writing. The permittee shall complete closure activities no later than the date that the closure activities identified in the individual area-wide permit are performed.

R18-9-A307. Revocation of Coverage Under a General Permit

- A. After notice and opportunity for a hearing, the Director may revoke coverage under a general permit and require the permittee to obtain an individual permit for any of the following:
1. The permittee fails to comply with the terms of the general permit as described in this Article, or
 2. The discharge activity conducted under the terms of the general permit causes or contributes to the violation of an Aquifer Water Quality Standard at the applicable point of compliance.
- B. The Director may revoke coverage under a general permit for any or all facilities within a specific geographic area, if, due to geologic or hydrologic conditions, the cumulative discharge of the facilities has violated or will violate an Aquifer Water Quality Standard established under A.R.S. §§ 49-221 and 49-223. Unless the public health or safety is jeopardized, the Director may allow continuation of a discharge until the Department:
1. Issues a single individual permit,
 2. Authorizes a discharge under another general permit, or
 3. Consolidates the discharges authorized under the general permits by following R18-9-107.
- C. If an individual permit is issued to replace general permit coverage, the coverage under the general permit allowing the discharge is automatically revoked upon issuance of the individual permit and notification under subsection (E) is not required.
- D. If the Director revokes coverage under a general permit, the facility shall not discharge unless allowed under subsection (B) or under an individual permit.

- E. If coverage under the general permit is revoked under subsections (A) or (B), the Director shall notify the permittee by certified mail of the decision. The notification shall include:
1. A brief statement of the reason for the decision;
 2. The effective revocation date of the general permit coverage;
 3. A statement of whether the discharge shall cease or whether the discharge may continue under the terms of revocation in subsection (B);
 4. Whether the Director requires a person to obtain an individual permit, and if so:
 - a. An individual permit application form, and
 - b. Identification of a deadline between 90 and 180 days after receipt of the notification for filing the application;
 5. The applicant's right to appeal the revocation, the number of days the applicant has to file an appeal, and the name and telephone number of the Department contact person who can answer questions regarding the appeals process; and
 6. The applicant's right to request an informal settlement conference under A.R.S. §§ 41-1092.03(A) and 41-1092.06.

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

- 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:
 - 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 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.
- a. A Notice of Intent to Discharge is not required for routine work that maintains a facility.
 - b. The following work is not considered routine work and a Notice of Intent to Discharge is required:
 - i. Converting a facility from operation only under gravity to one requiring a pump or other powered equipment 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;
 - v. Reconstructing any part of the disposal works in soil that is inadequate for the treated wastewater flow or strength;
 - vi. Expanding the footprint of the facility into or within setback buffers established in R18-9-A312(C);
 - vii. Reconstructing the disposal works so that it does not meet the vertical separation requirements specified in R18-9-A312(E);
 - viii. 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
 - ix. Replacing the treatment works.
 - c. Components used in a repair shall meet the design, installation, and operational requirements of this Article.
 - d. A permittee shall comply with any local ordinance that provides independent permitting requirements for repair work.
 - e. A person 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.
- 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. 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. 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 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. 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 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:
 - a. The site plan accurately reflects the final location and configuration of the components of the treatment and disposal works, and
 - b. The applicant 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 of with each other or with R18-9-E302, the Director shall issue the Discharge Authorization if the following documents are submitted to the Department:
 - 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 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);
 - 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;
 - 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, which are incorporated by reference and do 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 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).
 - 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 6 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 sit 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);
 - 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; and
 - 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.
- 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 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); 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(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, 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 drinking 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.
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	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 b. Trench, bed, chamber technology, or gravelless trench with: i. No limiting subsurface condition specified in R18-9-A310(D)(2), ii. A limiting subsurface condition. c. Subsurface drip lines.	10	Measured horizontally from the bottom of the treatment works component to the closest point of daylighting on the surface.
	20	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.
	50	
	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) 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.

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 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 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

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 BOD₅ and is calculated using the following formula:

$$SAR_a = \left[\left(\frac{11.39}{\sqrt[3]{TSS + BOD_5}} - 1.87 \right) SAR^{1.13} + 1 \right] SAR$$

- 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. "BOD₅" 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, 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 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 (10⁸ 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 Subsurface Limiting Condition (feet)	Maximum Allowable Total Coliform Concentration, 95th Percentile, Delivered to Acceptable 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 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 (Log₁₀6) 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 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. Instructions and a wiring diagram are mounted on the inside of a control panel cover;
 - b. The control panel is equipped with a multimode operation switch, red alarm light, buzzer, and reset button;
 - c. The multimode operation switch operates in the automatic position for normal system operation; and
 - d. 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.

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 of 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, either separately or in combination with a septic tank system authorized under R18-9-E302, if the applicant demonstrates that:
 - 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-A313. Facility Installation, Operation, and Maintenance for On-site Wastewater Treatment Facilities

- A. Facility installation. In addition to installation requirements in the general permit, the applicant shall ensure that the following tasks are performed, as applicable:
 1. The facility is installed as described in design documents submitted with the Notice of Intent to Discharge;
 2. Components are installed on a firm foundation that supports the components and operating loads;
 3. The site is prepared to protect native soil beneath the soil absorption area and in adjacent areas from compaction, prevent smeared absorption surfaces, minimize disturbances from grubbing, and otherwise preclude damage to the disposal area that would impair performance;
 4. Components are protected from damage at the construction site and installed in conformance with the manufacturer's instructions if consistent with this Article;
 5. Treatment media are placed to achieve uniform density, prevent differential settling, produce a level inlet surface unless otherwise specified by the manufacturer, and avoid introduction of construction contaminants;
 6. Backfill is placed to prevent damage to geotextile, liners, tanks, and other components;
 7. Soil cover is shaped to shed rainfall away from the backfill areas and prevent ponding of runoff; and
 8. Anti-buoyancy measures are implemented during construction if temporary saturated backfill conditions are anticipated during construction.
- B. Operation and maintenance. In addition to operation and maintenance requirements in the general permit or specified in the operation and maintenance manual, the permittee shall ensure that the following tasks are performed, as applicable:
 1. Pump accumulated residues, inspect and clean wastewater treatment and distribution components, and manage residues to protect human health and the environment;
 2. Clean, backwash, or replace effluent filters according to the manufacturer's instructions, and manage residues to protect human health and the environment;
 3. Inspect and clean the effluent baffle screen and pump tank, and properly dispose of cleaning residue;
 4. Clean the dosing tank effluent screen, pump switches, and floats, and properly dispose of cleaning residue;
 5. Flush lateral lines and return flush water to the pretreatment headworks;
 6. Inspect, remove and replace, if necessary, and properly dispose of filter media;
 7. Rod pressurized wastewater delivery lines and secondary distribution lines (for dosing systems), and return cleaning water to the pretreatment headworks;
 8. Inspect and clean pump inlets and controls and return cleaning water to the pretreatment headworks;
 9. Implement corrective measures if anomalous ponding, dryness, noise, odor, or differential settling is observed;
 10. Inspect and monitor inspection and access ports, as applicable, to verify that operation and maintenance is within

expected limits for:

- a. Influent wastewater quality;
 - b. The pressurized dosing system;
 - c. The aggregate infiltration bed and mound system;
 - d. Wastewater delivery and the engineered pad;
 - e. The pressurized delivery system, filter, underdrain, and native soil absorption system;
 - f. Saturation condition status in peat and other media; and
 - g. Treatment system components;
- 11. Inspect tanks, liners, ports, seals, piping, and appurtenances for watertightness under all operational conditions;
 - 12. Manage vegetation in areas that contain components subject to physical impairment or damage due to root invasion or animals;
 - 13. Maintain drainage, berms, protective barriers, cover materials, and other features; and
 - 14. Maintain the usefulness of the reserve area to allow for repair or replacement of the on-site wastewater treatment facility.

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
- 1. Clearly and permanently marked with the manufacturer’s name or registered trademark, or both, the month and year 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,” 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.
 - d. A septic tank manufactured using fiberglass or polyethylene shall meet the “Material and Property Standards for Prefabricated Septic Tanks, IAPMO PS 1-2004,” 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 & Mechanical Officials, 20001 E. Walnut Drive, South Walnut, CA 91789-2825.
- 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 installation 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 2 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) 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 wastes. 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 the following equation:

$$\text{Interceptor Size (in gallons)} = M \times F \times T \times S.$$
 - a. "M" is the number of meals per peak hour;
 - b. "F" is the 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; and
 4. The interceptor size for silt and grease from laundries and laundromats is calculated using the following equation:

$$\text{Interceptor Size (in gallons)} = M \times C \times F \times T \times S.$$
 - 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.

R18-9-A316. Transfer of Ownership Inspection for On-site Wastewater Treatment Facilities

- A. Conforming with this Section satisfies the Notice of Transfer requirements under R18-9-A304.
- B. Within six months before the date of property transfer, the person who is transferring a property served by an on-site wastewater treatment facility shall retain an inspector to perform a transfer of ownership inspection of the on-site wastewater treatment facility who meets the following qualifications:
1. Possesses working knowledge of the type of facility and the inspection process;
 2. Holds a certificate of training from a course recognized by the Department as sufficiently covering the information specified in this Section by July 1, 2006; and
 3. Holds a license in one of the following categories:
 - a. An Arizona-registered engineer;
 - b. An Arizona-registered sanitarian;
 - c. An owner of a vehicle with a human excreta collection and transport license issued under 18 A.A.C. 13, Article 11 or an employee of the owner of the vehicle;
 - d. A contractor licensed by the Registrar of Contractors in one of the following categories:
 - i. Residential license B-4 or C-41;
 - ii. Commercial license A, A-12, or L-41; or
 - iii. Dual license KA or K-41;
 - e. A wastewater treatment plant operator certified under 18 A.A.C 5, Article 1; or
 - f. A person qualifying under another category designated by the Department.
- C. The inspector shall complete a Report of Inspection on a form approved by the Department, sign it, and provide it to the person transferring the property. The Report of Inspection shall:
1. Address the physical and operational condition of the on-site wastewater treatment facility and describe observed deficiencies and repairs completed, if any;
 2. Indicate that each septic tank or other wastewater treatment container on the property was pumped or otherwise serviced to remove, to the maximum extent possible, solid, floating, and liquid waste accumulations, or that pumping or servicing was not performed for one of the following reasons:

- a. A Discharge Authorization for the on-site wastewater treatment facility was issued and the facility was put into service within 12 months before the transfer of ownership inspection,
 - b. Pumping or servicing was not necessary at the time of the inspection based on the manufacturer's written operation and maintenance instructions, or
 - c. No accumulation of floating or settled waste was present in the septic tank or wastewater treatment container; and
3. Indicate the date the inspection was performed.
- D. Before the property is transferred, the person transferring the property shall provide to the person to whom the property is transferred:
- 1. The completed Report of Inspection; and
 - 2. Documents in the person's possession relating to permitting, operation, and maintenance of the on-site wastewater treatment facility.
- E. The person to whom the property is transferred shall complete a Notice of Transfer on a form approved by the Department and send the form with the applicable fee specified in 18 A.A.C. 14 within 15 calendar days after the property transfer to:
- 1. The Department for transfer of a property with an on-site wastewater treatment facility for which construction was completed before January 1, 2001; or
 - 2. The health or environmental agency delegated by the Director to administer the on-site wastewater treatment facility program for transfer of a property with an on-site wastewater treatment facility constructed on or after January 1, 2001.
- F. If the Department issued a Discharge Authorization for the on-site wastewater treatment facility but the facility was not put into service before the property transfer, an inspection of the facility is not required and the transferee shall complete the Notice of Transfer form as specified in subsection (E).
- G. Effective date.
- 1. The owner of an on-site wastewater treatment facility operating under a Type 4 General Permit shall comply with this Section by [effective date of this Section].
 - 2. The owner of any on-site wastewater treatment facility other than a facility identified in subsection (G)(1) shall comply with this Section by July 1, 2006.

R18-9-A317. Nitrogen Management Area

- A. The Director may designate a new Nitrogen Management Area to control groundwater pollution by sources of nitrogen regulated by Title 49, Chapter 2, Article 3 of the Arizona Revised Statutes and not covered under an individual permit, modify the boundaries or requirements of a Nitrogen Management Area, or rescind designation of a Nitrogen Management Area.
- 1. If existing conditions or trends in nitrogen loading to an aquifer will cause or contribute to an exceedance of the Aquifer Water Quality Standard for nitrate at a point or points of current or reasonably foreseeable use of the aquifer, the Director shall use the following criteria to determine whether to designate the area as a Nitrogen Management Area:
 - a. Population of the area;
 - b. The degree to which the area is unsewered;
 - c. Gross areal nitrogen loading, calculated as the amount of nitrogen discharged into the subsurface by use of on-site wastewater treatment facilities, divided by the land area under consideration for designation as a Nitrogen Management Area;
 - d. Population growth rate of area;
 - e. Existing contamination of groundwater by nitrogen species;
 - f. Existing and potential impact to groundwater by sources of nitrogen other than on-site wastewater treatment facilities;
 - g. Characteristics of the vadose zone and aquifer;
 - h. Location, number, and areal extent of existing and potential sources of nitrogen;
 - i. Location and characteristics of existing and potential drinking water supplies; and
 - j. Any other information relevant to determining the severity of actual or potential nitrogen impact on the aquifer.
 - 2. The Director may modify the boundaries or requirements of a Nitrogen Management Area or rescind designation of a Nitrogen Management Area based on:
 - a. A material change to one or more criterion specified in subsection (A)(1); or
 - b. The adoption by a local agency of a master plan to substantially sewer the area as soon as possible, but with a completion deadline within 10 years, unless a completion deadline of more than 10 years is approved by the Director.
- B. Preliminary designation, modification, or rescission.
- 1. The Director shall provide a report to the mayors and members of the Board of Supervisors of all towns, cities, and counties and the directors of all sanitary districts affected by the Department's proposed action to designate, modify, or rescind a Nitrogen Management Area as follows:
 - a. If the Department proposes to designate a Nitrogen Management Area, the Department shall provide a report

- discussing each criterion specified in subsection (A)(1).
- b. If the Department proposes to modify the boundaries or requirements of a Nitrogen Management Area or rescind the designation of a Nitrogen Management Area, the Department shall provide a report discussing applicable criteria in subsections (A)(1) and (2).
- 2. The town, city, county, or sanitary district receiving the Director's report may provide written comments to the Department within 120 days to dispute the factual information presented in the report and supply any information supporting the comments.
- 3. The Director shall evaluate the comments and supporting information obtained under subsection (B)(2) and either designate, modify, or rescind the Nitrogen Management Area or withdraw the proposal.
- C. Final designation.
 - 1. If the Director designates or modifies the Nitrogen Management Area, the Department shall:
 - a. Issue or modify the Nitrogen Management Area designation and any special provisions established for the area to control groundwater pollution by sources of nitrogen regulated by Title 49, Chapter 2, Article 3 of the Arizona Revised Statutes but not covered under an individual permit. The Department shall provide notice to the mayors and members of the Board of Supervisors of all towns, cities, and counties and the directors of all sanitary districts affected by the determination;
 - b. Maintain the designation and a map showing the boundaries of the Nitrogen Management Area at the Arizona Department of Environmental Quality, 1110 West Washington, Phoenix, Arizona 85007 and on the Department's website at www.azdeq.gov; and
 - c. Provide, upon request, a copy of the Nitrogen Management Area designation and a map of the area.
 - 2. If the Director withdraws the preliminary Nitrogen Management Area designation or rescinds the Nitrogen Management Area designation, the Director shall issue a determination stating the decision and post it on the Department's website at www.azdeq.gov.
- D. Nitrogen Management Area requirements. Within a Nitrogen Management Area:
 - 1. The Department shall issue a Construction Authorization, under R18-9-A301(D)(1)(c), for an on-site wastewater treatment facility only if the applicant proposes, in the Notice of Intent to Discharge, to employ one or more of the technologies allowed under R18-9-E302 through R18-9-E322 that achieves a discharge level containing not more than 15 mg/l of total nitrogen.
 - 2. An agricultural operation shall use the best control measure necessary to reduce nitrogen discharge when implementing the best management practices developed under 18 A.A.C. 9, Article 4. The Director may require the owner or operator to reassess the performance of the impoundment liner systems constructed under R18-9-403 before [the effective date of the rule].
 - 3. A person shall comply with any special provision established for the Nitrogen Management Area, as applicable, for the person's facility.

PART B. TYPE 1 GENERAL PERMITS

R18-9-B301. Type 1 General Permit

- A. A 1.01 General Permit allows any discharge of wash water from a sand and gravel operation, placer mining operation, or other similar activity, including construction, foundation, and underground dewatering, if only physical processes are employed and only hazardous substances at naturally occurring concentrations in the sand, gravel, or other rock material are present in the discharge.
- B. A 1.02 General Permit allows any discharge from hydrostatic tests of a drinking water distribution system and pipelines not previously used, if all the following conditions are met:
 - 1. The quality of the water used for the test does not exceed an Aquifer Water Quality Standard or for non-drinking water pipelines, if reclaimed water is used, the reclaimed water meets Class A+ Reclaimed Water Quality Standards under A.A.C. R18-11-303 or Class B+ Reclaimed Water Quality Standards under A.A.C. R18-11-305;
 - 2. The discharge is not to a water of the United States, unless the discharge is under an AZPDES permit; and
 - 3. The test site is restored to its natural grade.
- C. A 1.03 General Permit allows any discharge from hydrostatic tests of a pipeline, tank, or appurtenance previously used for transmission of fluid, other than those previously used for drinking water distribution systems, if all the following conditions are met:
 - 1. All liquid discharge is contained in an impoundment lined with flexible geomembrane. The liquid is evaporated or removed from the impoundment and taken to a treatment works or landfill authorized to accept the material within:
 - a. 60 days of the hydrostatic test if the liner is 10 mils, or
 - b. 180 days of the hydrostatic test if the liner is 30 mils or greater;
 - 2. The liner is placed over a layer, at least 3 inches thick, of well-sorted sand or finer grained material, or over an underliner that provides protection equal to or better than sand or finer grained material and the calculated seepage is less than 550 gallons per acre per day;
 - 3. The liner is removed and disposed of at an approved landfill unless the liner can be reused at another test location without a reduction in integrity;

4. The test site is restored to its natural grade; and
 5. If the test waters are removed using a method not specified in subsection (C)(1), including a discharge under an AZPDES permit, the test waters meet Aquifer Water Quality Standards and the specific method is approved by the Department before the discharge.
- D. A 1.04 General Permit allows any discharge from a facility that, for water quality sampling, hydrologic parameter testing, well development, redevelopment, or potable water system maintenance and repair purposes, receives water, drilling fluids, or drill cuttings from a well if the discharge is to the same aquifer in approximately the same location from which the water supply was originally withdrawn, or the discharge is under an AZPDES permit.
- E. A 1.05 General Permit allows a discharge to an injection well, surface impoundment, and leach line only if the discharge is filter backwash from a potable water treatment system, condensate from a refrigeration unit, overflows from an evaporative cooler, heat exchange system return water, or swimming pool filter backwash and the discharge is less than 1000 gallons per day. The 1.05 General Permit allows a discharge of those sources to a navigable water if the discharge is authorized by an AZPDES permit.
- F. A 1.06 General Permit allows the burial of mining industry off-road motor vehicle waste tires at the mine site in a manner consistent with the cover requirements in R18-13-1203.
- G. A 1.07 General Permit allows the operation of dockside facilities and watercraft if the following conditions are met:
1. Docks that service watercraft equipped with toilets provide sanitary facilities at dockside for the disposal of sewage from watercraft toilets. No wastewater from sinks, showers, laundries, baths, or other plumbing fixtures at a dockside facility is discharged into waters of the state;
 2. Docks that service watercraft have conveniently located toilet facilities for men and women;
 3. No boat, houseboat, or other type of watercraft is equipped with a marine toilet constructed and operated to discharge sewage directly or indirectly into a water of the state, nor is any container of sewage placed, left, discharged, or caused to be placed, left, or discharged in or near any waters of the state by a person;
 4. Watercraft with marine toilets constructed to allow sewage to be discharged directly into waters of the state are locked and sealed to prevent usage. Chemical or other type marine toilets with approved storage containers are permitted if dockside disposal facilities are provided; and
 5. No bilge water or wastewater from sinks, showers, laundries, baths, or other plumbing fixtures on houseboats or other watercraft is discharged into waters of the state.
- H. A 1.08 General Permit allows for any earth pit privy, fixed or transportable chemical toilet, incinerator toilet or privy, or pail or can-type privy if allowed by a county health or environmental department under A.R.S. Title 36 or a delegation agreement under A.R.S. § 49-107.
- I. A 1.09 General Permit allows:
1. The operation of:
 - a. A sewage treatment facility with flows less than 20,000 gallons per day and approved by the Department before January 1, 2001, and
 - b. An on-site wastewater treatment facility with flows less than 20,000 gallons per day operating before January 1, 2001;
 2. The person who owns or operates a facility under subsections (I)(1)(a) or (b) to operate the facility if the following conditions are met:
 - a. The discharge from the facility does not cause or contribute to a violation of a water quality standard;
 - b. The owner or operator does not expand the facility to accommodate flows above the design flow or 20,000 gallons per day, whichever is less;
 - c. The facility only treats typical sewage;
 - d. The facility does not treat flows from commercial operations using hazardous substances or creating hazardous wastes, as defined in A.R.S. § 49-921(5);
 - e. The discharge from the facility does not create any environmental nuisance condition listed in A.R.S. § 49-141; or
 - f. The owner or operator does not alter the treatment or disposal characteristics of the original facility, except as allowed under R18-9-A309(A)(9)(a).
- J. A 1.10 General Permit allows the operation of a sewage collection system installed before January 1, 2001 that serves downstream from the point where the daily design flow is 3000 gallons per day or that includes a manhole, force main, or lift station serving more than one dwelling regardless of flow, if:
1. The system complies with the performance standards in R18-9-E301(B),
 2. No sewage is released from the sewage collection system to the land surface, and
 3. The system is not operating under the 2.05 General Permit.
- K. A 1.11 General Permit allows the operation of a sewage collection system that serves upstream from the point where the daily design flow is 3000 gallons per day to the building drains, or a single gravity sewer line conveying sewage from a building drain directly to an interceptor, lateral, or manhole, regardless of daily design flow, if all of the following are met:
1. The system does not cause or contribute to an exceedance of a water quality standard established in 18 A.A.C. 11, Articles 1 and 4;
 2. No sewage is released from the sewage collection system to the land surface;

3. No environmental nuisance condition listed in A.R.S. § 49-141 is created;
 4. The system does not include a manhole, force main, or lift station serving more than one dwelling;
 5. Applicable local administrative requirements for review and approval of design and construction are followed;
 6. The performance standards specified in R18-9-E301(B) are met using:
 - a. Local building and construction codes,
 - b. Relevant design and construction standards specified in R18-9-E301, and
 - c. Appropriate operation and maintenance;
 7. The system flows directly into one of the following downstream facilities:
 - a. An on-site wastewater treatment facility;
 - b. A sewage treatment facility operating under an individual permit; or
 - c. A sewage collection system operating under a 1.10, 2.05, or 4.01 General Permit; and
 8. The system is not operating under a 2.05 General Permit.
- L. A 1.12 General Permit allows the discharge of wastewater resulting from washing concrete from trucks, pumps, and ancillary equipment to an impoundment if the following conditions are met:
1. The person holds an AZPDES Construction General Permit authorizing the concrete washout activities;
 2. The Stormwater Pollution Prevention Plan required by the Construction General Permit issued according to 18 A.A.C. 9, Article 9, Part C, for the construction activity addresses the concrete washout activities;
 3. The vegetation at the soil base of the impoundment is cleared, grubbed, and compacted to uniform density not less than 95 percent. If the impoundment is located above grade, the berms or dikes are compacted to a uniform density not less than 95 percent;
 4. If groundwater is less than 20 feet below land surface, the impoundment is lined with a synthetic liner at least 30 mils thick;
 5. The impoundment is located at least 50 feet from any storm drain inlet, open drainage facility, or watercourse and 100 feet from any water supply well;
 6. The impoundment is designed and operated to maintain adequate freeboard to prevent overflow or discharge of wastewater;
 7. The concrete washout wastewater from any wash pad is routed to the impoundment;
 8. The impoundment receives only concrete washout wastewater;
 9. The annual average daily flow of wastewater to the impoundment is less than 3000 gallons per day; and
 10. The following closure requirements are met.
 - a. The facility is closed by removing and appropriately disposing of any liquids remaining in the impoundment,
 - b. The area is graded to prevent ponding of water, and
 - c. Closure activities are completed before filing of the Notice of Termination under the AZPDES Construction General Permit.

PART C. TYPE 2 GENERAL PERMITS

R18-9-C301. 2.01 General Permit: Drywells That Drain Areas Where Hazardous Substances Are Used, Stored, Loaded, or Treated

- A. A 2.01 General Permit allows for a drywell that drains an area where hazardous substances are used, stored, loaded, or treated.
- B. Notice of Intent to Discharge. In addition to the requirements in R18-9-A301(B), an applicant shall submit:
 1. The Department registration number for the drywell or documentation that a drywell registration form was submitted to the Department;
 2. For a drywell constructed more than 90 days before submitting the Notice of Intent to Discharge to the Department, a certification signed, dated, and sealed by an Arizona-registered professional engineer or geologist that a site investigation has concluded that:
 - a. Analytical results from sampling the drywell settling chamber sediment for pollutants reasonably expected to be present do not exceed either the residential soil remediation levels or the groundwater protection levels;
 - b. The settling chamber does not contain sediments that could be used to characterize and compare results to soil remediation levels and the chamber has not been cleaned out within the last six months;
 - c. Neither a soil remediation level nor groundwater protection level is exceeded in soil samples collected from a boring drilled within 5 feet of the drywell and sampled in 5-foot increments starting from 5 feet below ground surface and extending to 10 feet below the base of the drywell injection pipe; or
 - d. If coarse grained lithology prevents the collection of representative soil samples in a soil boring, a groundwater investigation demonstrates compliance with Aquifer Water Quality Standards in groundwater at the applicable point of compliance;
 3. Design information to demonstrate that the requirements in subsection (C) are satisfied; and
 4. A copy of the Best Management Practices Plan described in subsection (D)(5).
- C. Design requirements. An applicant shall:
 1. Locate the drywell no closer than 100 feet from a water supply well and 20 feet from an underground storage tank;

2. Clearly mark the drywell "Stormwater Only" on the surface grate or manhole cover;
 3. Locate the bottom of the drywell hole at least 10 feet above groundwater. If during drilling and well installation the drywell borehole encounters saturated conditions, the applicant shall backfill the borehole with cement grout to at least 10 feet above the elevation of saturated conditions before constructing the drywell in the borehole;
 4. Ensure that the drywell design or drainage area design includes a method to remove, intercept, or collect pollutants that may be present at the operation with the potential to reach the drywell. The applicant may include a flow control or pretreatment device, such as an interceptor, sump, or another device or structure designed to remove, intercept, or collect pollutants. The applicant may use flow control or pretreatment devices listed under R18-9-C304(D)(1) or (2) to satisfy the design requirements of this subsection;
 5. Record the accurate latitude and longitude of the drywell using a Global Positioning System device or site survey; and
 6. Develop and maintain a current site plan showing the location of the drywell, the latitude and longitude coordinates of the drywell, surface drainage patterns, the location of floor drains and French drains plumbed to the drywell, water supply wells, monitor wells, underground storage tanks, and chemical and waste usage, storage, loading, and treatment areas.
- D. Operational and maintenance requirements.
1. A permittee shall operate the drywell only for the disposal of stormwater. The permittee shall not release industrial process waters or wastes in the drywell or drywell retention basin drainage area.
 2. The permittee shall implement a Best Management Practices Plan for operation of the drywell and control of pollutants in the drywell drainage area.
 3. The permittee shall keep the Best Management Practices Plan on-site or at the closest practical place of work and provide the plan to the Department upon request.
 4. The permittee may substitute any Spill Prevention Containment and Control Plan, facility response plan, or an AZPDES Stormwater Pollution Prevention Plan that meets the requirements of this subsection for a Best Management Practices Plan. If the permittee submits a substitute for the Best Management Practices Plan, the permittee shall identify the conditions within the substitute plan that satisfy the requirements of subsection (D).
 5. The Best Management Practices Plan shall include:
 - a. A site plan showing surface drainage patterns and the location of floor drains, water supply, monitor wells, underground storage tanks, and chemical and waste usage, storage, loading, and treatment areas. The site plan shall show surface grading details designed to prevent drainage and spills of hazardous substances from leaving the drainage area and entering the drywell;
 - b. A design plan showing details of drywell design and drainage design, including flow control or pretreatment devices, such as interceptors, sumps, and other devices and structures designed to remove, intercept, and collect any pollutant that may be present at the operation with the potential to reach the drywell;
 - c. Procedures to prevent and contain spills and minimize discharges to the drywell;
 - d. Operational practices that include routine inspection and maintenance of the drywell and associated pretreatment and flow-control devices, periodic inspection of waste storage facilities, and proper handling of hazardous substances to prevent discharges to the drywell. Routine inspection and maintenance shall include:
 - i. Replacing the adsorbent material in the skimmers, if installed, when the adsorbent capacity is reached;
 - ii. Maintaining valves and associated piping for a drywell injection and treatment system;
 - iii. Maintaining magnetic caps and mats, if installed;
 - iv. Removing sludge from the oil/water separator, if installed, and replacing the filtration or adsorption material to maintain treatment capacity;
 - v. Removing sediment from the catch basin inlet filters and retention basin to maintain required storage capacity; and
 - e. Procedures for periodic employee training on practices required by the Best Management Practices Plan specific to the drywell and prevention of unauthorized discharges.
 6. The permittee shall implement waste management practices to prohibit and prevent discharges, other than those exempted in A.R.S. § 49-250(B)(23), in the drywell drainage area, including:
 - a. Maintaining an up-to-date inventory of generated wastes and waste products;
 - b. Disposing or recycling all wastes or solvents through a company licensed to handle the material;
 - c. Where possible, collecting and storing waste in waste receptacles located outside the drywell drainage area. If the permittee collects and stores the waste within the drywell drainage area, the permittee shall collect and store the waste in properly designed receptacles; and
 - d. Using a licensed waste hauler to transport waste off-site to a permitted waste disposal facility.
- E. Inspection. A permittee shall:
1. Conduct an annual inspection of the drywell for sediment accumulation in the chambers and the flow-control and treatment systems, and remove sediment annually or when 25 percent of the effective capacity is filled, whichever comes first, to restore capacity and ensure that the drywell functions properly. The permittee shall characterize the sediments that are removed from the drywell after inspection and dispose of the sediments according to local, state, and federal requirements; and

2. If the stormwater fails to drain through the drywell within 36 hours, inspect the treatment system and piping to ensure that the treatment system is functioning properly, make repairs, and perform maintenance as needed to restore proper function.
- F. Recordkeeping. A permittee shall maintain for at least 10 years, the following documents on-site or at the closest place of work and make the documents available to the Department upon request:
1. Documentation of drywell maintenance, inspections, employee training, and sampling activities;
 2. A site plan showing the location of the drywell, the latitude and longitude coordinates of the drywell, surface drainage patterns and the location of floor drains or French drains that are plumbed to the drywell or are used to alter drainage patterns, the location of water supply wells, monitor wells, underground storage tanks, and places where hazardous substances are used, stored, or loaded;
 3. A design plan showing details of drywell design and drainage design, including any flow control and pretreatment technologies;
 4. An operations and maintenance manual that includes:
 - a. Procedures to prevent and contain spills and minimize any discharge to the drywell and a list of actions and methods proposed to prevent and contain hazardous substance spills or leaks;
 - b. Methods and procedures for inspection, operation, and maintenance activities;
 - c. Procedures for spill response; and
 - d. A description of the employee training program for drywell inspections, operations, maintenance, and waste management practices;
 5. Drywell sediment waste characteristics and disposal manifest records for sediments removed during routine inspections and maintenance activities; and
 6. Sampling plans, certified laboratory reports, and chain of custody forms for soil, sediment, and groundwater sampling associated with drywell site investigations.
- G. Spills.
1. In the event of a spill, the permittee shall:
 - a. Notify the Department within 24 hours of any spill of hazardous or toxic substance that enters the drywell inlet;
 - b. Contain, clean up, and dispose of, according to local, state, and federal requirements, any spill or leak of a hazardous substance in the drywell drainage area and basin drainage area;
 - c. If a pretreatment system is present, verify that treatment capacity has not been exceeded; and
 - d. If the spill reaches the drywell injection pipe, drill a soil boring within 5 feet of the drywell inlet chamber and sample the soil in 5-foot increments from 5 feet below ground surface to a depth extending at least 10 feet below the base of the injection pipe to determine whether a soil remediation level or groundwater protection level has been exceeded in the subsurface. The permittee shall:
 - i. Submit the results to the Department within 60 days of the date of the spill; and
 - ii. Notify the Department if soil contamination at the facility, not related to the spill, is being addressed by an existing approved remedial action plan.
 2. Based on the results of subsection (G)(1)(d), the Director may require the permittee to submit an application for clean closure or an individual Aquifer Protection Permit.
- H. Closure and decommissioning requirements.
1. A permittee shall:
 - a. Retain a drywell drilling contractor, licensed under 4 A.A.C. 9, to close the drywell;
 - b. Remove sediments and any drainage component, such as standpipes and screens from the drywell's settling chamber and backfill the injection pipe with cement grout;
 - c. Remove the settling chamber;
 - d. Backfill the settling chamber excavation to the land surface with clean silt, clay, or engineered material. Materials containing hazardous substances are prohibited from use in backfilling the drywell; and
 - e. Mechanically compact the backfill.
 2. Within 30 days of closure and decommissioning, the permittee shall submit a written verification to the Department that all material that contributed to a discharge has been removed and any reasonable probability of further discharge from the facility and of exceeding any Aquifer Water Quality Standard at the applicable point of compliance has been eliminated to the greatest degree practical. The written verification shall specify:
 - a. The reason for the closure;
 - b. The drywell registration number;
 - c. The general permit reference number;
 - d. The materials and methods used to close the drywell;
 - e. The name of the contractor who performed the closure;
 - f. The completion date;
 - g. Any sampling data;
 - h. Sump construction details, if a sump was constructed to replace the abandoned drywell; and
 - i. Any other information necessary to verify that closure has been achieved.

R18-9-C302. 2.02 General Permit: Intermediate Stockpiles at Mining Sites

- A. A 2.02 General Permit allows for intermediate stockpiles not qualifying as inert material under A.R.S. § 49-201(19) at a mining site.
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge under R18-9-A301(B), an applicant shall submit the construction and operation specifications used to satisfy the requirements in subsection (C)(1).
- C. Design and operational requirements.
 - 1. An applicant shall design, construct, and operate the stockpile so that it does not impound water. An applicant may rely on stormwater run-on controls or facility design features, such as drains, or both.
 - 2. An applicant shall direct storm runoff contacting the stockpile to a mine pit or a facility covered by an individual or general permit.
 - 3. A permittee shall maintain any engineered feature of the facility in good working condition.
 - 4. A permittee shall visually inspect the facility at least quarterly and repair any defect as soon as practical.
 - 5. A permittee shall not add hazardous substances to the stockpiled material.
- D. Closure requirements. In addition to the closure requirements in R18-9-A306, the following apply:
 - 1. If an intermediate stockpile covered under a 2.02 General Permit is permanently closed, a permittee shall remove any remaining material, to the greatest extent practical, and regrade the area to prevent impoundment of water.
 - 2. The permittee shall submit a narrative description of closure measures to the Department within 30 days after closure.

R18-9-C303. 2.03 General Permit: Hydrologic Tracer Studies

- A. A 2.03 General Permit allows for a discharge caused by the performance of tracer studies.
 - 1. The 2.03 General Permit does not authorize the use of any hazardous substance, radioactive material, or any substance identified in A.R.S. § 49-243(I) a tracer study.
 - 2. A permittee shall complete a single tracer test within two years of the Notice of Intent to Discharge.
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit:
 - 1. A narrative description of the tracer test including the type and amount of tracer used;
 - 2. A Material Safety Data Sheet for the tracer; and
 - 3. Unless the injection or distribution is within the capture zone of an established passive containment system meeting the requirements of A.R.S. § 49-243(G), the following information:
 - a. A narrative description of the impacts that may occur if a solution migrates outside the test area, including a list of downgradient users, if any;
 - b. The anticipated effects and expected concentrations, if possible to calculate; and
 - c. A description of the monitoring, including types of tests and frequency.
- C. Design and operational requirements. A permittee shall:
 - 1. Ensure that injection into a well inside the capture zone of an established passive containment system that meets the requirements of A.R.S. § 49-243(G) does not exceed the total depth of the influence of the hydrologic sink;
 - 2. Ensure that injection into a well outside the capture zone of an established passive containment system that meets the requirements of A.R.S. § 49-243(G) does not exceed rock fracture pressures during injection of the tracer;
 - 3. Not add a substance to a well that is not compatible with the well's construction;
 - 4. Ensure that a tracer is compatible with the construction materials at the impoundment if a tracer is placed or collected in an existing impoundment;
 - 5. For at least two years, monitor quarterly a well that is hydraulically downgradient of the test site for the tracer if a tracer is used outside the capture zone of an established passive containment system that meets the requirements of A.R.S. § 49-243(G) and less than 85 percent of the tracer is recovered. The permittee may adjust this period with the consent of the Department if the permittee shows that the hydraulic gradient causes the tracer to reach the monitoring point in a shorter or longer period of time;
 - 6. Ensure that a tracer does not leave the site in concentrations distinguishable from background water quality; and
 - 7. Monitor the amount of tracer used and recovered and submit a report summarizing the test and results to the Department within 30 calendar days of test completion.
- D. Recordkeeping. A permittee shall retain the following information at the site where the facility is located for at least three years after test completion and make it available to the Department upon request.
 - 1. Test protocols,
 - 2. Material Safety Data Sheet information,
 - 3. Recovery records, and
 - 4. A copy of the report submitted to the Department under subsection (C)(7).
- E. Closure requirements.
 - 1. If a tracer was used outside the capture zone of an established passive containment system that meets the requirements of A.R.S. § 49-243(G), a permittee shall account for any tracer not recovered through attenuation, modeling, or monitoring.
 - 2. The permittee shall achieve closure immediately following the test, or if the test area is within a pollutant management

area defined in an individual permit, at the conclusion of operations.

R18-9-C304. 2.04 General Permit: Drywells that Drain Areas at Motor Fuel Dispensing Facilities Where Motor Fuels Are Used, Stored, or Loaded

- A. A 2.04 General Permit allows for a drywell that drains an area at a facility for dispensing motor fuel, as defined in A.A.C. R20-2-701(19), including a commercial gasoline station with an underground storage tank.
 - 1. A drywell at a motor fuel dispensing facility using hazardous substances is eligible for coverage under the 2.04 General Permit.
 - 2. A drywell at a vehicle maintenance facility owned or operated by a commercial enterprise or by a federal, state, county, or local government is not eligible for coverage under this general permit, unless the facility design ensures that only motor fuel dispensing areas will drain to the drywell. Areas where hazardous substances other than motor fuels are used, stored, or loaded, including service bays, are not covered under the 2.04 General Permit.
 - 3. Definition. For purposes of this Section, “hazardous substances” means substances that are components of commercially packaged automotive supplies, such as motor oil, antifreeze, and routine cleaning supplies such as those used for cleaning windshields, but not degreasers, engine cleaners, or similar products.
- B. Notice of Intent to Discharge. In addition to the requirements in R18-9-A301(B), an applicant shall submit:
 - 1. The Department registration number for the drywell or documentation that a drywell registration form was submitted to the Department;
 - 2. For a drywell constructed more than 90 days before submitting the Notice of Intent to Discharge to the Department, a certification signed, dated, and sealed by an Arizona-registered professional engineer or geologist that a site investigation concluded that:
 - a. Analytical results from sampling sediment from the drywell settling chamber sediment for pollutants reasonably expected to be present do not exceed either the residential soil remediation levels or the groundwater protection levels;
 - b. The settling chamber does not contain sediment that could be used to characterize and compare results to soil remediation levels and the chamber has not been cleaned out within the last six months;
 - c. Neither a soil remediation level nor groundwater protection level is exceeded in soil samples collected from a boring drilled within 5 feet of the drywell and sampled in 5 foot increments starting at a depth of 5 feet below ground surface and extending to a depth of 10 feet below the base of the drywell injection pipe; or
 - d. If coarse grained lithology prevents the collection of soil samples in a soil boring, a groundwater investigation demonstrates compliance with Aquifer Water Quality Standards in groundwater at the applicable point of compliance.
 - 3. Design information to demonstrate that the requirements in subsection (C) are satisfied.
- C. Design requirements.
 - 1. An applicant shall:
 - a. Include a flow control or pretreatment device identified in subsections (D)(1) or (2), or both, that removes, intercepts, or collects spilled motor fuel or hazardous substances before stormwater enters the drywell injection pipe;
 - b. Calculate the volume of runoff generated in the design storm event and anticipate the maximum potential contaminant release quantity to design the treatment and holding capacity of the drywell;
 - c. Follow local codes and regulations to meet retention periods for removing standing water;
 - d. Locate the drywell at least 100 feet from a water supply well and 20 feet from an underground storage tank;
 - e. Locate the bottom of the drywell injection pipe at least 10 feet above groundwater. If during drilling and well installation the drywell borehole encounters saturated conditions, the applicant shall backfill the borehole with cement grout to a level at least 10 feet above the elevation at which saturated conditions were encountered in the borehole before constructing the drywell in the borehole;
 - f. Record the accurate latitude and longitude of the drywell using a Global Positioning System device or site survey and record the location on the site plans;
 - g. Clearly mark the drywell “Stormwater Only” on the surface grate or manhole cover;
 - h. Develop and maintain a current site plan showing the location of the drywell, the latitude and longitude coordinates of the drywell, surface drainage patterns and the location of floor drains and French drains that are plumbed to the drywell or are used to alter drainage patterns, water supply wells, monitor wells, underground storage tanks, and chemical and waste usage, storage, loading, and treatment areas; and
 - i. Prepare design plans showing details of drywell design and drainage design, including one or a combination of pre-approved technologies described in subsections (D)(1) and (2) designed to remove, intercept, and collect any pollutant that may be present at the operation with the potential to reach the drywell.
 - 2. For an existing drywell, an applicant that cannot meet the design requirements in subsections (C)(1)(d) and (e) shall provide the Department with the date of drywell construction, the depth of the drywell borehole and injection pipe, the distance from the drywell to the nearest water supply well and from the drywell to the underground storage tank, and the depth to the groundwater from the bottom of the drywell injection pipe.
- D. Flow control and pretreatment. A permittee shall ensure that motor fuels and other hazardous substances are not discharged to

the subsurface. A permittee may use any of the following flow control or pretreatment technologies:

1. Flow control. The permittee shall ensure that motor fuel and hazardous substance spills are removed before allowing stormwater to enter the drywell.
 - a. Normally closed manual or automatic valve. The permittee shall leave a normally closed valve in a closed position except when stormwater is allowed to enter the drywell;
 - b. Raised drywell inlet. The permittee shall:
 - i. Raise the drywell inlet at least 6 inches above the bottom of the retention basin or other storage structure, or install a 6-inch asphalt or concrete raised barrier encircling the drywell inlet to provide a non-draining storage capacity within the retention basin or storage structure for complete containment of a spill; and
 - ii. Ensure that the storage capacity is at least 110 percent of the volume of the design storm event required by the local jurisdiction and the estimated volume of a potential motor fuel spill based on the facility's past incident reports or incident reports for other facilities that are similar in design;
 - c. Magnetic mat or cap. The permittee shall ensure that the drywell inlet is sealed with a mat or cap at all times, except after rainfall or a storm event when the mat or cap is temporarily removed to allow stormwater to enter the drywell; and that the mat or cap is always used with a retention basin or other type of storage;
 - d. Primary sump, interceptor, or settling chamber. The permittee may use a primary sump, interceptor, or settling chamber only in combination with another flow control or pre-treatment technology.
 - i. The permittee shall remove motor fuel or hazardous substances from the sump, interceptor, or chamber before allowing stormwater to enter the drywell.
 - ii. The permittee shall install a settling chamber or sump and allow the suspended solids to settle before stormwater flows into a drywell; install the drywell injection pipe in a separate chamber and connect the sump, interceptor, or chamber to the drywell inlet by piping and valving to allow the stormwater to enter the drywell.
 - iii. The permittee may install fuel hydrocarbon detection sensors in the sump, interceptor, or settling chamber that use flow control to prevent fuel from discharging into the drywell;
 2. Pretreatment. The permittee shall prevent the bypass of motor fuels and hazardous substances from the pretreatment system to the drywell during periods of high flow.
 - a. Catch basin inlet filter. The permittee shall:
 - i. Install a catch basin inlet filter to fit inside a catchment drain to prevent motor fuels and hazardous substances from entering the drywell,
 - ii. Ensure that a motor fuel spill or a spill during a high rainfall does not bypass the system and directly release to the drywell injection pipe; and
 - iii. Combine the catch basin inlet filter with a flow control technology to prevent contaminated stormwater from entering the drywell injection pipe;
 - b. Combined settling chamber and an oil/water separator.
 - i. The permittee shall install a system that incorporates a catch basin inlet, a settling chamber, and an oil/water separator.
 - ii. The permittee may incorporate a self-sealing mechanism, such as fuel hydrocarbon detection sensors that activate a valve to cut off flow to the drywell inlet.
 - c. Combined settling chamber and oil/water separator, and filter/adsorption. The permittee shall:
 - i. Allow for adequate collection and treatment capacity for solid and liquid separation; and
 - ii. Allow a minimum treated outflow from the system to the drywell inlet of 20 gallons per minute. If a higher outflow rate is anticipated, the applicant shall design a larger collection system with storage capacity.
 - d. Passive skimmer.
 - i. If a passive skimmer is used, the permittee shall install sufficient hydrocarbon adsorbent materials, such as pads and socks, or suspend the materials on top of the static water level in a sump or other catchment to absorb the entire volume of expected or potential spill.
 - ii. The permittee may use a passive skimmer only in combination with another flow control or pre-treatment technology.
- E. Operation and maintenance. A permittee shall:
1. Operate the drywell only for the subsurface disposal of stormwater;
 2. Remove or treat any motor fuel or hazardous substance spills;
 3. Replace the adsorbent material in skimmers, if installed, when the adsorbent capacity is reached;
 4. Maintain valves and associated piping;
 5. Maintain magnetic caps and mats, if installed;
 6. Remove sludge from the oil/water separator and replace the filtration or adsorption materials to maintain treatment capacity;
 7. Remove sediment from the catch basin inlet filters and retention basins to maintain required storage capacity;
 8. Remove accumulated sediment from the settling chamber annually or when 25 percent of the effective settling

- capacity is filled, whichever occurs first; and
9. Provide new employee training within one month of hire and annual employee training on how to maintain and operate flow control and pretreatment technology used in the drywell.
- F. Inspection. A permittee shall:
1. Conduct an annual inspection of the drywell for sediment accumulation in the chambers and in the flow control and treatment systems to ensure that the drywell is functioning properly; and
 2. If the stormwater fails to drain through the drywell within 36 hours, inspect the treatment system and piping to ensure that it is functioning properly, make repairs, and perform maintenance as needed to restore proper function.
- G. Recordkeeping. A permittee shall maintain, for at least 10 years, the following documents on-site or at the closest place of work and make the documents available to the Department upon request:
1. Documentation of drywell maintenance, inspections, employee training, and sampling activities;
 2. A site plan showing the location of the drywell, the latitude and longitude coordinates of the drywell, surface drainage patterns and the location of floor drains or French drains that are plumbed to the drywell or are used to alter drainage patterns, water supply wells, monitor wells, underground storage tanks, and places where motor fuel and hazardous substances are used, stored, or loaded;
 3. A design plan showing details of drywell design and drainage design, including one or a combination of the pre-approved flow control and pretreatment technologies;
 4. An operations and maintenance manual that includes:
 - a. Procedures to prevent and contain spills and minimize any discharge to the drywell and a list of actions and specific methods proposed for motor fuel and hazardous substance spills or leaks;
 - b. Methods and procedures for inspection, operation, and maintenance activities;
 - c. Procedures for spill response; and
 - d. A description of the employee training program for drywell inspections, operations, and maintenance;
 5. Drywell sediment waste characterization and disposal manifest records for sediments removed during routine inspections and maintenance activities; and
 6. Sampling plans, certified laboratory reports, and chain of custody forms for soil, sediment, and groundwater sampling associated with drywell site investigations.
- H. Spills.
1. In the event of a spill, a permittee shall:
 - a. Notify the Department within 24 hours of any spill of motor fuel or hazardous or toxic substances that enters into the drywell inlet;
 - b. Contain, clean up, and dispose of, according to local, state, and federal requirements, any spill or leak of motor fuel or hazardous substance in the drywell drainage area and basin drainage area;
 - c. If a pretreatment system is present, verify that treatment capacity has not been exceeded; and
 - d. If the spill reaches the injection pipe, drill a soil boring within 5 feet of the drywell inlet chamber and sample in 5-foot increments from 5 feet below ground surface to a depth extending at least 10 feet below the base of the injection pipe to determine whether a soil remediation level or groundwater protection level has been exceeded in the subsurface. The permittee shall:
 - i. Submit the results to the Department within 60 days of the date of the spill; and
 - ii. Notify the Department if soil contamination at the facility, not related to the spill, is being addressed by an existing approved remedial action plan.
 2. The Director may, based on the results of subsection (H)(1)(d), require the permittee to submit an application for clean closure or an individual Aquifer Protection Permit.
- I. Closure and decommissioning requirements.
1. A permittee shall:
 - a. Retain a drywell drilling contractor, licensed under 4 A.A.C. 9, to close the drywell;
 - b. Remove sediments and any drainage component, such as standpipes and screens from the drywell's settling chamber and backfill the injection pipe with cement grout;
 - c. Remove the settling chamber;
 - d. Backfill the settling chamber excavation to the land surface with clean silt, clay, or engineered material. A permittee shall not use materials containing hazardous substances in backfilling the drywell; and
 - e. Mechanically compact the backfill.
 2. Within 30 days of closure and decommissioning, the permittee shall submit a written verification to the Department that all material that contributed to a discharge has been removed and any reasonable probability of further discharge from the facility and of exceeding any Aquifer Water Quality Standard at the applicable point of compliance has been eliminated to the greatest degree practical. The written verification shall specify:
 - a. The reason for the closure;
 - b. The drywell registration number;
 - c. The general permit reference number;
 - d. The materials and methods used to close the drywell;
 - e. The name of the contractor who performed the closure;

- f. The completion date;
- g. Any sampling data;
- h. Sump construction details, if a sump was constructed to replace the abandoned drywell; and
- i. Any other information necessary to verify that closure has been achieved.

R18-9-C305. 2.05 General Permit: Capacity, Management, Operation, and Maintenance of a Sewage Collection System

- A. Definition. For purposes of this Section, “imminent and substantial threat to public health or the environment” means when:
 - 1. The volume of a release is more than 2000 gallons; or
 - 2. The volume of a release is more than 50 gallons but less than 2000 gallons and any one of the following apply:
 - a. The release entered onto a recognized public area and members of the public were present during the release or before the release was mitigated;
 - b. The release occurred on a public or private street and pedestrians were at risk of being splashed by vehicles during the release or before the release was mitigated;
 - c. The release entered a perennial stream, an intermittent stream during a time of flow, a waterbody other than an ephemeral stream, a normally dry detention or sedimentation basin, or a drywell;
 - d. The release occurred within an occupied building due to a condition in the permitted sewage collection system; or
 - e. The release occurred within 100 feet of a school or a public or private drinking water supply well.
- B. A 2.05 General Permit allows a permittee to manage, operate, and maintain a sewage collection system under the terms of a CMOM Plan that complies with subsection (D). The Department considers a sewage collection system operating in compliance with an AZPDES permit that incorporates provisions for capacity, management, operation, and maintenance of the system to comply with the provisions of the 2.05 General Permit regardless of whether a Notice of Intent to Discharge for the system was submitted to the Department.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit:
 - 1. The name and ownership of any downstream sewage collection system and sewage treatment facility that receives sewage from the applicant’s sewage collection system;
 - 2. A map of the service area for which general permit coverage is sought, showing streets and sewage service boundaries for the sewage collection system;
 - 3. A statement indicating that the CMOM Plan is in effect and the principal officer or ranking elected official of the sewage collection system has approved the plan; and
 - 4. A statement indicating whether a local ordinance requires an on-site wastewater treatment facility to hookup to the sewage collection system.
- D. CMOM Plan.
 - 1. A permittee shall continuously implement a CMOM Plan for the sewage collection system under the permittee’s ownership, management, or operational control. The CMOM Plan shall include information to comply with subsection (E)(1) and instructions on:
 - a. How to properly manage, operate, and maintain all parts of the sewage collection system that are owned or managed by the permittee or under the permittee’s operational control, to meet the performance requirements in R18-9-E301(B);
 - b. How to maintain sufficient capacity to convey the base flows and peak wet weather flow of a 10-year, 24-hour storm event for all parts of the collection system owned or managed by the permittee or under the permittee’s operational control;
 - c. All reasonable and prudent steps to minimize infiltration to the sewage collection system;
 - d. All reasonable and prudent steps to stop all releases from the collection system owned or managed by the permittee or under the permittee’s operational control; and
 - e. The procedure for reporting releases described in subsection (F).
 - 2. The permittee shall maintain and update the CMOM Plan for the duration of this general permit and make it available for Department and public review.
 - 3. If the Department requests the CMOM Plan and upon review finds that the CMOM Plan is deficient, the Department shall:
 - a. Notify the permittee in writing of the specific deficiency and the reason for the deficiency, and
 - b. Establish a deadline of at least 60 days to allow the permittee to correct the deficiency and submit the amended provision to the Department for approval.
- E. Sewage release response determination. If the sewage collection system releases sewage, the Director shall consider any of the following factors in determining compliance:
 - 1. Sufficiency of the CMOM Plan.
 - a. The level of detail provided by the CMOM Plan is appropriate for the size, complexity, and age of the system;
 - b. The level of detail provided by the CMOM Plan is appropriate considering geographic, climatic, and hydrological factors that may influence the sewage collection system;
 - c. The CMOM Plan provides schedules for the periodic preventative maintenance of the sewage collection

- system, including cleaning of all reaches of the sewage collection system below a specified pipe diameter.
- i. The CMOM Plan may allow inspection of sewer lines by Closed Circuit Television (CCTV) and postponement of cleaning to the next scheduled cleaning cycle if the CCTV inspection indicated that cleaning of a reach of the sewer is not needed.
 - ii. The CMOM Plan may specify inspection and cleaning schedules that differ according to pipe diameter or other characteristics of the sewer;
- d. The CMOM Plan identifies components of the sewage collection system that have insufficient capacity to convey, when properly maintained, the peak wet weather flow of a 10-year, 24-hour storm event. For those identified components, a capital improvement plan exists for achieving sufficient wet weather flow capacity within ten years of the effective date of permit coverage;
 - e. The CMOM Plan includes an overflow emergency response plan appropriate to the size, complexity, and age of the sewage collection system considering geographic, climatic, and hydrological factors that may influence the system;
 - f. The CMOM Plan establishes a procedure to investigate and enforce against any commercial or industrial entity whose flows to the sewage collection system have caused or contributed to a release;
 - g. The CMOM Plan adequately addresses management of flows from upstream sewage collection systems not under the ownership, management, or operational control of the permittee; or
 - h. Any other factor necessary to determine if the CMOM Plan is sufficient;
2. Compliance with the CMOM Plan.
 - a. The permittee's response to releases as established in the overflow emergency response plan, including whether:
 - i. Maintenance staff responds to and arrive at the release within the time period specified in the plan;
 - ii. Maintenance staff follow all written procedures to remove the cause of the release;
 - iii. Maintenance staff contain, recover, clean up, disinfect, and otherwise mitigate the release of sewage; and
 - iv. Required notifications to the Department, public health agencies, drinking water suppliers, and the public are provided;
 - b. The permittee's activities and timeliness in:
 - i. Implementing specified periodic preventative maintenance measures;
 - ii. Implementing the capital improvement plan; and
 - iii. Investigating and enforcing against an upstream sewage collection system, not under the ownership and operational control of the permittee, if those systems are impediments to the proper management of flows in the permittee's sewage collection system; or
 - c. Any other factor necessary to determine CMOM Plan compliance;
 3. Compliance with the reporting requirements in subsection (F) and the public notice requirements in subsection (G); or
 4. The release substantially endangers public health or the environment.
- F. Reporting requirements.
1. Sewage releases.
 - a. A permittee shall report to the Department, by telephone, facsimile, or on the applicable notification form on the Department's Internet web site, any release that is an imminent and substantial threat to public health or the environment as soon as practical, but no later than 24 hours of becoming aware of the release.
 - b. A permittee shall submit a report to the Department within five business days after becoming aware of a release that is an imminent and substantial threat to public health or the environment. The report shall include:
 - i. The location of the release;
 - ii. The sewage collection system component from which the release occurred;
 - iii. The date and time the release began, was stopped, and when mitigation efforts were completed;
 - iv. The estimated number of persons exposed to the release, the estimated volume of sewage released, the reason the release is considered an imminent and substantial threat to public health or the environment if the volume is 2000 gallons or less, and where the release flowed;
 - v. The efforts made by the permittee to stop, contain, and clean up the released material;
 - vi. The amount and type of disinfectant applied to mitigate any associated public health or environmental risk; and
 - vii. The cause of the release or effort made to determine the cause and any effort made to help prevent a future reoccurrence.
 2. Annual report. The permittee shall:
 - a. Submit an annual report to the Department postmarked no later than March 1. The report shall:
 - i. Tabulate all releases of more than 50 gallons from the permitted sewage collection system;
 - ii. Provide the date of any release that is an imminent and substantial threat to public health or the environment; and
 - iii. For other reportable releases under subsection (F)(2)(a)(i), provide the information in subsection (F)(1)(b);

- b. Provide an amended map of the service area boundaries if, during the calendar year, any area was removed from the service area or if any area was added to the service area that the permittee wishes to include under the 2.05 General Permit and associated CMOM Plan.
- G. Public notice. The permittee shall:
 - 1. Post a notice, in a format approved by the Department, at any location where there were more than three reportable releases under subsection (F)(2)(a) from the sewage collection system during any 12-month period,
 - 2. Include within the notice a warning that identified the releases or potential releases at the location and potential health hazards from any release,
 - 3. Post the notice at a place where the public is likely to come in contact with the release, and
 - 4. Maintain the postings until no releases from the location are reported for at least 12 months from the last release and the permittee followed all actions specified in the CMOM Plan to prevent releases at that location during the period.

R18-9-C306. 2.06 General Permit: Fish Hatchery Discharge to a Perennial Surface Water

- A. A 2.06 General Permit allows a fish hatchery to discharge to a perennial surface water if Aquifer Water Quality Standards are met at the point of discharge and the fish hatchery is operating under a valid AZPDES permit.
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall provide:
 - 1. The applicable AZPDES permit number;
 - 2. A description of the facility; and
 - 3. A laboratory report characterizing the wastewater discharge, including the analytical results for all numeric Aquifer Water Quality Standards under R18-11-406.
- C. Design and operational requirements. An applicant shall:
 - 1. Collect a representative sample of the discharge to demonstrate compliance with all numeric Aquifer Water Quality Standards and make the results available to the Department upon request, and
 - 2. Maintain a record of the average and daily flow rates and make it available to the Department upon request.

PART D. TYPE 3 GENERAL PERMITS

R18-9-D301. 3.01 General Permit: Lined Impoundments

- A. A 3.01 General Permit allows a lined surface impoundment and a lined secondary containment structure. A permittee shall:
 - 1. Ensure that inflow to the lined surface impoundment or lined secondary containment structure does not contain organic pollutants identified in A.R.S. § 49-243(I);
 - 2. Ensure that inflow to the lined surface impoundment or lined secondary containment structure is from one or more of the following sources:
 - a. Evaporative cooler overflow, condensate from a refrigeration unit, or swimming pool filter backwash;
 - b. Wastewater that does not contain sewage, temporarily stored for short periods of time due to process upsets or rainfall events, provided the wastewater is promptly removed from the facility as required under subsection (D)(5). Facilities that continually contain wastewater as a normal function of facility operations are not covered under this general permit;
 - c. Stormwater runoff that is not permitted under A.R.S. § 49-245.01 because the facility does not receive solely stormwater or because the runoff is regulated but not considered stormwater under the Clean Water Act;
 - d. Emergency fire event water;
 - e. Wastewater from air pollution control devices at asphalt plants if the wastewater is routed through a sedimentation trap or sump and an oil/water separator before discharge;
 - f. Non-contact cooling tower blowdown and non-contact cooling water, except discharges from electric generating stations with more than 100 megawatts generating capacity;
 - g. Boiler blowdown;
 - h. Wastewater derived from a potable water treatment system, including clarification sludge, filtration backwash, lime and lime-softening sludge, ion exchange backwash, and reverse osmosis spent waste;
 - i. Wastewater from food washing;
 - j. Heat exchanger return water;
 - k. Wastewater from industrial laundries;
 - l. Hydrostatic test water from a pipeline, tank, or appurtenance previously used for transmission of fluid;
 - m. Wastewater treated through an oil/water separator before discharge; and
 - n. Cooling water or wastewater from food processing.
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit:
 - 1. A listing and description of all sources of inflow;
 - 2. A representative chemical analysis of each expected source of inflow. If a sample is not available before facility construction, a permittee shall provide the chemical analysis of each inflow to the Department within 60 days of each inflow to the facility;

3. A narrative description of how the conditions of this general permit are satisfied. The narrative shall include a Quality Assurance/Quality Control program for liner installation, impoundment maintenance and repair, and impoundment operational procedures; and
 4. A contingency plan that specifies actions proposed in case of an accidental release from the facility, overtopping of the impoundment, breach of the berm, or unauthorized inflows into the impoundment or containment structure.
- C. Design and installation requirements. An applicant shall:
1. Design and construct surface water controls to:
 - a. Ensure that the impoundment or secondary containment structure maintains, using design volume or mechanical systems, normal operating volumes, if any, and any inflow from the 100-year, 24-hour storm event. The facility shall maintain at least 2 feet of freeboard or an alternative level of freeboard that the applicant demonstrates is reasonable, considering the size of the impoundment and meteorologic and other site-specific factors; and
 - b. Direct any surface water run-on from the 100-year 24-hour storm event around the facility if not intended for capture by facility;
 2. Ensure that the facility design accommodates any significant geologic hazard, addressing static and seismic stability. The applicant shall document any design adjustments made for this reason in the Notice of Intent to Discharge;
 3. Ensure that site preparation includes, as appropriate, clearing the area of vegetation, grubbing, grading, and embankment and subgrade preparation. The applicant shall ensure that supporting surface slopes and foundation are stable and structurally sound; and
 4. Comply with the following impoundment lining requirements:
 - a. If a synthetic liner is used, ensure that the liner is at least a 30-mil geomembrane liner or a 60-mil liner if High Density Polyethylene, or an alternative, that the liner's calculated seepage rate is less than 550 gallons per acre per day, and:
 - i. Anchor the liner by securing it in an engineered anchor trench;
 - ii. Ensure that the liner is ultraviolet resistant if it is regularly exposed to sunlight; and
 - iii. Ensure that the liner is constructed of a material that is chemically compatible with the wastewater or impounded solution and is not affected by corrosion or degradation;
 - b. If a soil liner is used:
 - i. Ensure that it resists swelling, shrinkage, and cracking and that the liner's calculated seepage rate is less than 550 gallons per acre per day;
 - ii. Ensure that the soil is at least 1-foot thick and compacted to a uniform density of 95 percent to meet the "Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effect (12,400 ft-lbf/ft³), D698-00ae1," (2000) 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; and
 - iii. Upon installation, protect the soil liner to prevent dessication; and
 - c. For new facilities, develop and implement a construction Quality Assurance/Quality Control program that addresses site and subgrade preparation, inspection procedures, field testing, laboratory testing, and final inspection after construction of the liner to ensure functional integrity.
- D. Operational requirements. A permittee shall:
1. Maintain sufficient freeboard to manage the 100-year, 24-hour storm event including at least 2 feet of freeboard under normal operating conditions. Management of the 100-year, 24-hour storm event may be through design, pumping, or a combination of both;
 2. Remove accumulated residues, sediments, debris, and vegetation to maintain the integrity of the liner and the design capacity of the impoundment;
 3. Perform and document a visual inspection for damage to the liner and for accumulation of residual material at least monthly. The operator shall conduct an inspection within 72 hours after the facility receives a significant volume of stormwater inflow;
 4. Repair damage to the liner by following the Quality Assurance/Quality Control Plan required under subsection (B)(3); and
 5. Remove all inflow from the impoundment as soon as practical, but no later than 60 days after a temporary event for facilities designed to contain inflow only for temporary events, such as process upsets.
- E. Recordkeeping. A permittee shall maintain at the site, the following information for at least 10 years and make it available to the Department upon request:
1. Construction drawings and as-built plans, if available;
 2. A log book or similar documentation to record inspection results, repair and maintenance activities, monitoring results, and facility closure;
 3. Capacity design criteria;

4. A list of standard operating procedures;
 5. The construction Quality Assurance/Quality Control program documentation; and
 6. Records of any inflow into the impoundment other than those permitted by this Section.
- F. Reporting requirements.
1. If the liner leaks, as evidenced by a drop in water level not attributable to evaporation, or if the berm breaches or an impoundment is overtopped due to a catastrophic or other significant event, the permittee shall report the circumstance to the Department within five days of discovery and implement the contingency plan required in subsection (B)(4). The permittee shall submit a final report to the Department within 60 days of the event summarizing the circumstances of the problem and corrective actions taken.
 2. The permittee shall report unauthorized flows into the impoundment to the Department within five days of discovery and implement the contingency plan required in subsection (B)(4).
- G. Closure requirements. The permittee shall notify the Department of the intent to close the facility permanently. Within 90 days following closure notification the permittee shall comply with the following requirements, as applicable:
1. Remove liquids and any solid residue on the liner and dispose appropriately;
 2. Inspect the liner for evidence of holes, tears, or defective seams that could have leaked;
 3. If evidence of leakage is discovered, remove the liner in the area of suspected leakage and sample potentially impacted soil. If soil remediation levels are exceeded, the permittee shall define the lateral and vertical extent of contamination and, within 60 days of the exceedance, notify the Department and submit an action plan for achieving clean closure for the Department's approval before implementing the plan;
 4. If there is no evidence of holes, tears, or defective seams that could have leaked:
 - a. Cover the liner in place or remove it for disposal or reuse if the impoundment is an excavated impoundment,
 - b. Remove and dispose of the liner elsewhere if the impoundment is bermed, and
 - c. Grade the facility to prevent the impoundment of water; and
 5. Notify the Department within 60 days following closure that the action plan was implemented and the closure is complete.

R18-9-D302. 3.02 General Permit: Process Water Discharges from Water Treatment Facilities

- A. A 3.02 General Permit allows filtration backwash and discharges obtained from sedimentation and coagulation in the water treatment process from facilities that treat water for industrial process or potable uses. The permittee shall ensure that:
1. Liquid fraction. The discharge meets:
 - a. All numeric Aquifer Water Quality Standards for inorganic chemicals, organic chemicals, and pesticides established in R18-11-406(B) through (D);
 - b. The discharge meets one of the following criteria for microbiological contaminants:
 - i. Either the concentration of fecal coliform organisms is not more than 2/100 ml or the concentration of *E. coli* bacteria is not more than 1/100 ml, or
 - ii. Either the concentration of fecal coliform organisms is less than 200/100 ml or the concentration of *E. coli* bacteria is less than 126/100 ml if the average daily flow processed by the water treatment facility is less than 250,000 gallons; and
 2. Solid Fraction. The solid material in the discharge qualifies as inert material, as defined in A.R.S. § 49-201(19).
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit:
1. A characterization of the discharge, including a representative chemical and biological analysis of expected discharges and all source waters; and
 2. The design capacity of any impoundment covered by this general permit.
- C. Impoundment design and siting requirements. An applicant shall:
1. Ensure that the depth to the static groundwater table is greater than 20 feet;
 2. Not locate the area of discharge immediately above karstic or fractured bedrock, unless the discharge meets the microbial limits specified in subsection (A)(1)(b)(i);
 3. Maintain a minimum horizontal setback of 100 feet between the facility and any water supply well;
 4. Design and construct an impoundment to maintain, using design volume or mechanical systems, normal operating volumes and any inflow from the 100-year, 24-hour storm event. The applicant shall:
 - a. Divert any surface water run-on from the 100-year, 24-hour storm event around the facility if not intended for capture by facility design; and
 - b. Design the facility to maintain 2 feet of freeboard or an alternative level of freeboard that the applicant demonstrates is reasonable, considering meteorological factors, the size of the impoundment, and other site-specific factors; or
 - c. Discharge to surface water under the conditions of an AZPDES permit; and
 5. Manage off-site disposal of sludge according to A.R.S. Title 49, Chapter 4.
- D. Operational requirements.
1. Inorganic chemical, organic chemical, and pesticide monitoring.
 - a. The permittee shall monitor any discharge annually to determine compliance with the requirements of

- subsection (A).
- b. If the concentration of any pollutant exceeds the numeric Aquifer Water Quality Standard, the permittee shall submit a report to the Department with a proposal for mitigation and shall increase monitoring frequency for that pollutant to quarterly.
- c. If, in the quarterly sampling, the condition in subsection (D)(1)(b) continues for two consecutive quarters, the permittee shall submit an application for an individual permit.
- 2. Microbiological contaminant monitoring.
 - a. The permittee shall monitor any discharge annually to determine compliance with the requirements of subsection (A)(1)(b).
 - b. If the concentration of any pollutant exceeds the limits established in subsection (A)(1)(b), the permittee shall submit a report to the Department with a proposal for mitigation and increase monitoring frequency for that pollutant to monthly.
 - c. If, in the monthly sampling, the condition in subsection (D)(2)(b) continues for three consecutive months, the permittee shall submit an application for an individual permit.
- E. Recordkeeping. A permittee shall maintain at the site, the following information, if applicable for the disposal method, for at least 10 year, and make it available to the Department upon request:
 - 1. Construction drawings and as-built plans, if available;
 - 2. A log book or similar documentation to record inspection results, repair and maintenance activities, monitoring results, and facility closure;
 - 3. Water quality data collected under subsection (D);
 - 4. Standard operating procedures; and
 - 5. Records of any discharge other than those identified under subsection (B).
- F. Reporting requirements. The permittee shall:
 - 1. Report unauthorized flows into the impoundment to the Department within five days of discovery, and
 - 2. Submit the report required in subsections (D)(1)(b) or (2)(b) within 30 days of receiving the analytical results.

R18-9-D303. 3.03 General Permit: Vehicle and Equipment Washes

- A. A 3.03 General Permit allows a facility to discharge water from washing vehicle exteriors and vehicle equipment. The 3.03 General Permit does not authorize:
 - 1. Discharge water that typically results from the washing of vehicle engines unless the discharge is to a lined surface impoundment;
 - 2. Direct discharges of sanitary sewage, vehicle lubricating oils, antifreeze, gasoline, paints, varnishes, solvents, pesticides, or fertilizers;
 - 3. Discharges resulting from washing the interior of vessels used to transport fuel products or chemicals, or washing equipment contaminated with fuel products or chemicals; or
 - 4. Discharges resulting from washing the interior of vehicles used to transport mining concentrates that originate from the same mine site, unless the discharge is to a lined surface impoundment.
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit a narrative description of the facility and a design of the disposal system and wash operations.
- C. Design, installation, and testing requirements. An applicant shall:
 - 1. Design and construct the wash pad:
 - a. To drain and route wash water to a sump or similar sediment-settling structure and an oil/water separator or a comparable pretreatment technology;
 - b. Of concrete or material chemically compatible with the wash water and its constituents; and
 - c. To support the maximum weight of the vehicle or equipment being washed with an appropriate safety factor;
 - 2. Not use unlined ditches or natural channels to convey wash water;
 - 3. Ensure that a surface impoundment meets the requirements in R18-9-D301(C)(1) through (3). The applicant shall ensure that berms or dikes at the impoundment can withstand wave action erosion and are compacted to a uniform density not less than 95 percent;
 - 4. Ensure that a surface impoundment required for wash water described in subsection (A)(1) meets design and installation requirements in R18-9-D301(C);
 - 5. If wash water is received by an unlined surface impoundment or engineered subsurface disposal system, the applicant shall:
 - a. Ensure that the annual daily average flow is less than 3000 gallons per day;
 - b. Maintain a minimum horizontal setback of 100 feet between the impoundment or subsurface disposal system and any water supply well;
 - c. Ensure that the bottom of the surface impoundment or subsurface disposal system is at least 50 feet above the static groundwater level and the intervening material does not consist of karstic or fractured bedrock;
 - d. Ensure that the wash water receives primary treatment before discharge through, at a minimum, a sump or similar structure for settling sediments or solids and an oil/water separator or a comparable pretreatment technology designed to reduce oil and grease in the wastewater to 15 mg/l or less;

- e. Withdraw the separated oil from the oil/water separator using equipment such as adjustable skimmers, automatic pump-out systems, or level sensing systems to signal manual pump-out; and
 - f. If a subsurface disposal system is used, design the system to prevent surfacing of the wash water.
- D. Operational requirements. The permittee shall:
- 1. Inspect the oil/water separator before operation to ensure that there are no leaks and that the oil/water separator is in operable condition;
 - 2. Inspect the entire facility at least quarterly. The inspection shall, at a minimum, consist of a visual examination of the wash pad, the sump or similar structure, the oil/water separator, and all surface impoundments;
 - 3. Visually inspect each surface impoundment at least monthly, to ensure the volume of wash water is maintained within the design capacity and freeboard limitation;
 - 4. Repair damage to the integrity of the wash pad or impoundment liner as soon as practical;
 - 5. Maintain the oil/water separator to achieve the operational performance of the separator;
 - 6. Remove accumulated sediments in all surface impoundments to maintain design capacity; and
 - 7. Use best management practices to minimize the introduction of chemicals not typically associated with the wash operations. Only biodegradable surfactant or soaps are allowed. The permittee shall not use products that contain chemicals in concentrations likely to cause a violation of an Aquifer Water Quality Standard at the applicable point of compliance.
- E. Monitoring requirements.
- 1. If wash water is discharged to an unlined surface impoundment or other area for subsurface disposal, the permittee shall monitor the wash water quarterly at the point of discharge for pH and for the presence of C₁₀ through C₃₂ hydrocarbons using a Department of Health Services certified method.
 - 2. If pH is not between 6.0 and 9.0 or the concentration of C₁₀ through C₃₂ hydrocarbons exceeds 50 mg/l, the permittee shall, within 30 days of the monitorings, submit a report to the Department with a proposal for mitigation and shall increase monitoring frequency to monthly.
 - 3. If the condition in subsection (E)(2) persists for three consecutive months, the permittee shall, within 90 days, submit an application for an individual permit.
- F. Recordkeeping. A permittee shall maintain the following information for at least 10 years and make it available to the Department upon request:
- 1. Construction drawings and as-built plans, if available;
 - 2. A log book or similar documentation to record inspection results, repair and maintenance activities, monitoring results, and facility closure; and
 - 3. The Material Safety Data Sheets for the chemicals used in the wash operations and any required monitoring results.
- G. Closure requirements. A permittee shall comply with the closure requirements specified in R18-9-D301(G) if a liner has been used. If no liner is used the permittee shall remove and appropriately dispose of any liquids and grade the facility to prevent impoundment of water.

R18-9-D304. 3.04 General Permit: Non-Stormwater Impoundments at Mining Sites

- A. A 3.04 General Permit allows discharges to lined surface impoundments, lined secondary containment structures, and associated lined conveyance systems at mining sites.
- 1. The following discharges are allowed under the 3.04 General Permit:
 - a. Seepage from tailing impoundments, unleached rock piles, or process areas;
 - b. Process solution temporarily stored for short periods of time due to process upsets or rainfall, provided the solution is promptly removed from the facility as required under subsection (D);
 - c. Stormwater runoff not permitted under A.R.S. § 49-245.01 because the facility does not receive solely stormwater or because the runoff is regulated but not considered stormwater under the Clean Water Act; and
 - d. Wash water specific to sand and gravel operations not covered by R18-9-B301(A).
 - 2. Facilities that continually contain process solution as a normal function of facility operations are not eligible for coverage under the 3.04 General Permit. If a normal process solution contains a pollutant regulated under A.R.S. § 49-243(I) the 3.04 General Permit does not apply if the pollutant will compromise the integrity of the liner.
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit:
- 1. A description of the sources of inflow to the facility. An applicant shall include a representative chemical analysis of expected sources of inflow to the facility unless a sample is not available, before facility construction, in which case the applicant shall provide a chemical analysis of solution present in the facility to the Department within 90 days after the solution first enters the facility;
 - 2. Documentation demonstrating that the facility design and operation under subsections (C) and (D) have been reviewed by a mining engineer or an Arizona-registered professional engineer before submission to the Department; and
 - 3. A contingency plan that specifies actions proposed in case of an accidental release from the facility, overtopping of the impoundment, breach of the berm, or unauthorized inflows into the impoundment or containment structure.
- C. Design, construction, and installation requirements. An applicant shall:
- 1. Design and construct the impoundment or secondary containment structure as specified under R18-9-D301(C)(1);

2. Ensure that conveyance systems are capable of handling the peak flow from the 100-year storm;
 3. Construct the liner as specified in R18-9-D301(C)(4)(a);
 4. Develop and implement a Quality Assurance/Quality Control program that meets or exceeds the liner manufacturer's guidelines. The program shall address site and subgrade preparation, inspection procedures, field testing, laboratory testing, repair of seams during installation, and final inspection of the completed liner for functional integrity;
 5. If the facility is located in the 100-year flood plain, design the facility so it is protected from damage or flooding as a result of a 100-year, 24-hour storm event;
 6. Design and manage the facility so groundwater does not come into contact with the liner;
 7. Ensure that the facility design addresses any significant geologic hazard relating to static and seismic stability. The applicant shall document any design adjustments made for this reason in the Notice of Intent to Discharge;
 8. Ensure that the site preparation includes, as appropriate, clearing the area of vegetation, grubbing, grading, and embankment and subgrade preparation. The applicant shall ensure that supporting surface slopes and foundation are stable and structurally sound;
 9. Ensure that the liner is anchored by being secured in an engineered anchor trench. If regularly exposed to sunlight, the applicant shall ensure that the liner is ultraviolet resistant; and
 10. Use compacted clay subgrade in areas with shallow groundwater conditions.
- D. Operational requirements. The permittee shall:
1. Maintain the freeboard required in subsection (C)(1) through design, pumping, or both;
 2. Remove accumulated residues, sediments, debris, and vegetation to maintain the integrity of the liner and the design capacity of the impoundment;
 3. Perform and document a visual inspection for cracks, tears, perforations and residual build-up at least monthly. The operator shall conduct and document an inspection after the facility receives significant volumes of stormwater inflow;
 4. Report cracks, tears, and perforations in the liner to the Department, and repair them as soon as practical, but no later than 60 days under normal operating conditions, after discovery of the crack, tear, or perforation;
 5. For facilities that temporarily contain a process solution due to process upsets, remove the process solution from the facility as soon as practical, but no later than 60 days after cessation of the upset; and
 6. For facilities that temporarily contain a process solution due to rainfall, remove the process solution from the facility as soon as practical.
- E. Recordkeeping. A permittee shall maintain the following information for at least 10 years and make it available to the Department upon request:
1. Construction drawings and as-built plans, if available;
 2. A log book or similar documentation to record inspection results, repair and maintenance activities, monitoring results and facility closure;
 3. Capacity design criteria;
 4. A list of standard operating procedures;
 5. The Quality Assurance/Quality Control program required under subsection (C)(4); and
 6. Records of any unauthorized flows into the impoundment.
- F. Reporting requirements.
1. If the liner is breached, as evidenced by a drop in water level not attributable to evaporation, or if the impoundment breaches or is overtopped due to a catastrophic or other significant event, the permittee shall report the circumstance to the Department within five days of discovery and implement the contingency plan required in subsection (B)(3). The permittee shall submit a final report to the Department within 60 days of the event summarizing the circumstances of the problem and corrective actions taken.
 2. The permittee shall report unauthorized flows into the impoundment to the Department within five days of discovery and implement the contingency plan required in subsection (B)(3).
- G. Closure requirements.
1. The permittee shall notify the Department of the intent to close the facility permanently.
 2. Within 90 days following closure notification the permittee shall comply with the following requirements, as applicable:
 - a. Remove liquids and any solid residue on the liner and dispose appropriately;
 - b. Inspect the liner for evidence of holes, tears, or defective seams that could have leaked;
 - c. If evidence of leakage is discovered, remove the liner in the area of suspected leakage and sample potentially impacted soil. If soil remediation levels are exceeded, the permittee shall, within 60 days notify the Department and submit an action plan for the Department's approval before implementing the plan;
 - d. If there is no evidence of holes, tears, or defective seams that could have leaked:
 - i. Cover the liner in place or remove it for disposal or reuse if the impoundment is an excavated impoundment,
 - ii. Remove and dispose of the liner elsewhere if the impoundment is bermed, and
 - iii. Grade the facility to prevent the impoundment of water; and
 3. Notify the Department within 60 days following closure that the action plan has been implemented and the closure is complete.

R18-9-D305. 3.05 General Permit: Disposal Wetlands

- A. A 3.05 General Permit allows discharges of reclaimed water into constructed or natural wetlands, including waters of the United States, waters of the state, and riparian areas, for disposal. This general permit does not apply if the purpose of the wetlands is to provide treatment.
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit the name and individual permit number of the facility providing the reclaimed water.
- C. Design requirements. An applicant shall:
1. Ensure that the reclaimed water released into the wetland meets numeric and narrative Aquifer Water Quality Standards for all parameters except for coliform bacteria and is Class A+ reclaimed water. A+ reclaimed water is wastewater that has undergone secondary treatment established under R18-9-B204(B)(1), filtration, and meets a total nitrogen concentration under R18-9-B204(B)(3) and fecal coliform limits under R18-9-B204(B)(4);
 2. Maintain a minimum horizontal separation of 100 feet between any water supply well and the maximum wetted area of the wetland;
 3. Post signs at points of access and every 250 feet along the perimeter of the wetland stating, "CAUTION. THESE WETLANDS CONTAIN RECLAIMED WATER. DO NOT DRINK." The applicant shall ensure that the signs are in English and Spanish, or in English with inclusion of the international "do not drink" symbol; and
 4. Ensure that wetland siting is consistent with local zoning and land use requirements.
- D. Operational requirements.
1. A permittee shall manage the wetland to minimize vector problems.
 2. The permittee shall submit to the Department and implement a Best Management Practices Plan for operation of the wetland. The Best Management Practices Plan shall include:
 - a. A site plan showing the wetland footprint, point of inflow, stormwater drainage, and placement of vegetation;
 - b. Management of flows into and through the wetland to minimize erosion and damage to vegetation;
 - c. Management of visitation and use of the wetlands by the public;
 - d. A management plan for vector control;
 - e. A plan or criteria for enhancing or supplementing of wetland vegetation; and
 - f. Management of shallow groundwater conditions on existing on-site wastewater treatment facilities.
 3. The permittee shall perform quarterly inspections to review bank integrity, erosion evidence, the condition of signage and vegetation, and correct any problem noted.
- E. Recordkeeping. A permittee shall maintain the following information for at least 10 years and make it available to the Department upon request:
1. Construction drawings and as-built plans, if available; and
 2. A log book or similar documentation to record inspection results, repair and maintenance activities, monitoring results, and facility closure.
- F. Reporting requirements. The permittee shall, by January 30, provide the Department in writing with an annual assessment of the biological condition of the wetland, including the volume of inflow to the wetland in the past year.

R18-9-D306. 3.06 General Permit: Constructed Wetlands to Treat Acid Rock Drainage at Mining Sites

- A. A 3.06 General Permit allows the operation of constructed wetlands that receive, with the intent to treat, acid rock drainage from a closed facility.
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit a design, including information on the quality of the influent, the treatment process to be used, the expected quality of the wastewater, and the nutrients and other constituents that will indicate wetland performance.
- C. Design, construction, and installation. An applicant shall:
1. Ensure that:
 - a. Water released into the treatment wetland is compatible with construction materials and vegetation;
 - b. Water released from the treatment wetland:
 - i. Meets numeric Aquifer Water Quality Standards,
 - ii. Has a pH between 6.0 and 9.0, and
 - iii. Has a sulfate concentration less than 1000 mg/l; and
 - c. Water released from the treatment wetland complies with and is released under an individual permit and an AZPDES Permit, if required;
 2. Construct the treatment wetland with a liner, using a low-hydraulic conductivity synthetic liner, site-specific liner, or both, to achieve a calculated seepage rate of less than 550 gallons per acre per day. The applicant shall:
 - a. Ensure that, if a synthetic liner is used, such as geomembrane, the liner is underlain by at least 6 inches of prepared and compacted subgrade;
 - b. Anchor the liner along the perimeter of the treatment wetland; and
 - c. Manage the plants in the treatment wetland to prevent species with root penetration that impairs liner performance;
 3. Design the treatment wetland for optimum:

- a. Sizing appropriate for the anticipated treatment,
- b. Cell configuration,
- c. Vegetative species composition, and
- d. Berm configuration;
- 4. Construct and locate the treatment wetland so that it:
 - a. Maintains physical integrity during a 100-year, 24-hour storm event; and
 - b. Operates properly during a 25-year, 24-hour storm event;
- 5. Ensure that the bottom of the treatment wetland is at least 20 feet above the seasonal high groundwater table; and
- 6. If public access to the treatment wetland is anticipated or encouraged, post signs at points of access and every 250 feet along the perimeter of the treatment wetland stating, "CAUTION. THESE WETLANDS CONTAIN MINE DRAINAGE WATER. DO NOT DRINK." The permittee shall ensure that the signs are in English and Spanish, or in English with inclusion of the international "do not drink" symbol.
- D. Operational requirements.
 - 1. The permittee shall monitor the water leaving the treatment wetlands at least quarterly for the standards specified in subsection (C)(1)(b). Monitoring shall include nutrients or other constituents used as indicators of treatment wetland performance.
 - 2. The permittee shall submit to the Department and implement a Best Management Practices Plan for operation of the treatment wetland. The Best Management Practices Plan shall include:
 - a. A site plan showing the treatment wetland footprint, point of inflow, stormwater drainage, and placement of vegetation;
 - b. A contingency plan to address problems, including treatment performance, wash-out and vegetation die-off, and a plan to apply for an individual permit if the treatment wetland is unable to achieve the treatment standards in subsection (C)(1)(b) on a continued basis;
 - c. Management of flows into and through the treatment wetland to minimize erosion and damage to vegetation;
 - d. A description of the measures for restricting access to the treatment wetlands by the public;
 - e. A management plan for vector control; and
 - f. A plan or criteria for enhancing or supplementing treatment wetland vegetation.
 - 3. The permittee shall perform quarterly inspections to review the bank and liner integrity, erosion evidence, and the condition of signage and vegetation, and correct any problems noted.
- E. Recordkeeping. A permittee shall maintain the following information for at least 10 years and make it available to the Department upon request:
 - 1. Construction drawings and as-built plans, if available; and
 - 2. A log book or similar documentation to record inspection results, repair and maintenance activities, monitoring results, and facility closure.
- F. Reporting requirements.
 - 1. If preliminary laboratory results indicate that the quality of the water leaving the treatment wetlands does not meet the standards specified in subsection (C)(1)(b), the permittee may request that the laboratory re-analyze the sample before reporting the results to the Department. The permittee shall:
 - a. Conduct verification sampling within 15 days of receiving final laboratory results,
 - b. Conduct verification sampling only for parameters that are present in concentrations greater than the standards specified in subsection (C)(1)(b), and
 - c. Notify the Department in writing within five days of receiving final laboratory results.
 - 2. If the final laboratory result confirms that the quality of the water leaving the treatment wetlands does not meet the standards in subsection (C)(1)(b), the permittee shall implement the contingency plan required by subsection (D)(2)(b) and notify the Department that the plan is being implemented.
 - 3. The permittee shall, by January 30, provide the Department in writing with an annual assessment of the biological condition of the treatment wetland, including the volume of inflow to the treatment wetland in the past year.

R18-9-D307. 3.07 General Permit: Tertiary Treatment Wetlands

- A. A 3.07 General Permit allows constructed wetlands that receive with the intent to treat, discharges of reclaimed water that meet the secondary treatment level requirements specified in R18-9-B204(B)(1).
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit:
 - 1. The name and individual permit number of any facility that provides the reclaimed water to the treatment wetland;
 - 2. The name and individual permit number of any facility that receives water released from the treatment wetland;
 - 3. The design of the treatment wetland construction and management project, including information on the quality of the influent, the treatment process, and the expected quality of the wastewater;
 - 4. A Best Management Practices Plan that includes:
 - a. A site plan showing the treatment wetland footprint, point of inflow, stormwater drainage, and placement of vegetation;
 - b. A contingency plan to address any problem, including treatment performance, wash-out, and vegetation die-

- off;
 - c. A management plan for flows into and through the treatment wetland to minimize erosion and damage to vegetation;
 - d. A description of the measures for restricting access to the treatment wetlands by the public;
 - e. A management plan for vector control; and
 - f. A plan or criteria for enhancing or supplementing treatment wetland vegetation.
- C. Design requirements. An applicant shall:
1. Release water from the treatment wetland under an individual permit and an AZPDES permit, if required. The applicant shall release water from the treatment wetland only to a direct reuse site if the site is permitted to receive reclaimed water of the quality generated under the individual permit specified in subsection (B)(1);
 2. Construct and locate the treatment wetland so that it:
 - a. Maintains physical integrity during a 100-year, 24-hour storm event; and
 - b. Operates properly during a 25-year, 24-hour storm event;
 3. Ensure that the bottom of the treatment wetland is at least 20 feet above the seasonal high groundwater table;
 4. Maintain a minimum horizontal separation of 100 feet between a water supply well and the maximum wetted area of the treatment wetland;
 5. Maintain the setbacks specified in R18-9-B201(I) for no noise, odor, or aesthetic controls between the property boundary at the site and the maximum wetted area of the treatment wetland;
 6. Fence the treatment wetland area to prevent unauthorized access;
 7. Post signs at points of access stating "CAUTION. THESE WETLANDS CONTAIN RECLAIMED WATER, DO NOT DRINK." The applicant shall ensure that the signs are in English and Spanish, or in English with inclusion of the international "do not drink" symbol;
 8. Construct the treatment wetland with a liner using low hydraulic conductivity liner, site-specific liner, or both, to achieve a calculated seepage rate of less than 550 gallons per acre per day. The applicant shall:
 - a. Ensure that if a synthetic liner is used, such as geomembrane, the liner is underlain by at least 6 inches of prepared and compacted subgrade;
 - b. Anchor the liner along the perimeter of the treatment wetland; and
 - c. Manage the plants in the treatment wetland to prevent species with root penetration that impairs liner performance;
 9. Calculate the size and depth of the treatment wetland so that the rate of flow allows adequate treatment detention time. The applicant shall design the treatment wetland with at least two parallel treatment cells to allow for efficient system operation and maintenance;
 10. Ensure that the treatment wetland vegetation includes cattails, bulrush, common reed, or other species of plants with high pollutant treatment potential to achieve the intended water quality identified in subsection (B)(3); and
 11. Ensure that construction and operation of the treatment wetlands is consistent with local zoning and land use requirements.
- D. Operational requirements. The permittee shall:
1. Implement the Best Management Practices Plan approved under subsection (B);
 2. Monitor wastewater leaving the treatment wetland to ensure that discharge water quality meets the expected wastewater quality specified in subsection (B)(3). The permittee shall ensure that analyses of wastewater samples are conducted by a laboratory certified by the Department of Health Services, following the Department's Quality Assurance/Quality Control requirements;
 3. Follow the prescribed measures as required in the contingency plan under subsection (B)(4)(b) and submit a written report to the Department within five days if verification sampling demonstrates that an alert level or discharge limit is exceeded;
 4. Inspect the treatment wetlands at least quarterly for bank and liner integrity, erosion evidence, and condition of signage and vegetation, and correct any problem discovered; and
 5. Ensure that the treatment wetland is operated by a certified operator under 18 A.A.C. 5, Article 1.
- E. Recordkeeping. A permittee shall maintain the following information for at least 10 years and make it available to the Department upon request:
1. Construction drawings and as-built plans, if available; and
 2. A log book or similar documentation to record inspection results, repair and maintenance activities, monitoring results, and facility closure.
- F. Reporting requirements. The permittee shall, by January 30, provide the Department in writing with an annual assessment of the biological condition of the treatment wetland including the volume of inflow to the treatment wetland in the past year.

PART E. TYPE 4 GENERAL PERMITS

R18-9-E301. 4.01 General Permit: Sewage Collection Systems

- A. A 4.01 General Permit allows for construction and operation of a new sewage collection system or expansion of an existing sewage collection system involving new construction as follows:

1. A sewage collection system or portion of a sewage collection system that serves downstream from the point where the daily design flow is 3000 gallons per day based on Table 1, Unit Design Flows, except a gravity sewer line conveying sewage from a single building drain directly to an interceptor, collector sewer, lateral, or manhole regardless of daily design flow;
 2. A sewage collection system that includes a manhole; or
 3. A sewage collection system that includes a force main or lift station serving more than one dwelling.
- B. Performance. An applicant shall design, construct, and operate a sewage collection system so that the sewage collection system:
1. Provides adequate wastewater flow capacity for the planned service area;
 2. Minimizes sedimentation, blockage, and erosion through maintenance of proper flow velocities throughout the system;
 3. Prevents releases of sewage to the land surface through appropriate sizing, capacities, and inflow and infiltration prevention measures throughout the system;
 4. Protects water quality through minimization of exfiltration losses from the system;
 5. Provides for adequate inspection, maintenance, testing, visibility, and accessibility;
 6. Maintains system structural integrity; and
 7. Minimizes septic conditions in the sewage collection system.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit the following information:
1. A statement on a form approved by the Director, signed by the owner or operator of the sewage treatment facility that treats or processes the sewage from the proposed sewage collection system.
 - a. The statement shall affirm that the additional volume of wastewater delivered to the facility by the proposed sewage collection system will not cause any flow or effluent quality limits of the individual permit for the facility to be exceeded.
 - b. If the facility is classified as a groundwater protection permit facility under A.R.S. § 49-241.01(C), or if no flow or effluent limits are applicable, the statement shall affirm that the design flow of the facility will not be exceeded;
 2. If the proposed sewage collection system delivers wastewater to a downstream sewage collection system under different ownership or control, a statement on a form approved by the Director, signed by the owner or operator of the downstream sewage collection system, affirming that the downstream system can maintain the performance required by subsection (B) when receiving the increased flows;
 3. A general site plan showing the boundaries and key aspects of the project;
 4. Construction quality drawings that provide overall details of the site and the engineered works comprising the project including:
 - a. The plans and profiles for all sewer lines, manholes, force mains, depressed sewers, and lift stations with sufficient detail to allow Department verification of design and performance characteristics;
 - b. Relevant cross sections showing construction details and elevations of key components of the sewage collection system to allow Department verification of design and performance characteristics, including the slope of each gravity sewer segment stated as a percentage;
 - c. Drainage features and controls, and erosion protection as applicable, for the components of the project; and
 - d. Horizontal and vertical location of utilities within the area affected by the sewer line construction;
 5. Documentation of design flows for significant components of the sewage collection system and the basis for calculating the design flows;
 6. Drawings, reports, and other information that are clear, reproducible, and in a size and format specified by the Department. The applicant may submit the drawings in a Department-approved electronic format; and
 7. Design documents, including plans, specifications, drawings, reports, and calculations that are signed, dated, and sealed by an Arizona-registered professional engineer. The designer shall use good engineering judgment by following engineering standards of practice, and rely on appropriate engineering methods, calculations, and guidance.
- D. Design requirements.
1. General Provisions. An applicant shall design and construct a new sewage collection system or an expansion of an existing sewage collection system involving new construction, according to the requirements of this general permit. An applicant shall:
 - a. Base design flows for components of the system on unit flows specified in Table 1, Unit Design Flows.
 - b. Design gravity sewer lines and all other sewage collection system components, including, manholes, force mains, lift stations, depressed sewers, and appurtenant devices and structures to accommodate maximum sewage flows determined as follows:
 - i. Any point in a sewer main when flowing full can accommodate a peak wet weather flow calculated by multiplying the sum of the upstream sources of flow from Table 1, Unit Design Flows by a dry weather peaking factor based on upstream population, as tabulated below, and adding a wet weather infiltration and inflow rate based on either a percentage of peak dry weather flow or a gallons per acre rate of flow;

Upstream Population	Dry Weather Peaking Factor
100	3.62
200	3.14
300	2.90
400	2.74
500	2.64
600	2.56
700	2.50
800	2.46
900	2.42
1000	2.38
1001 to 10,000	$PF = (6.330 \times p^{-0.231}) + 1.094$
10,001 to 100,000	$PF = (6.177 \times p^{-0.233}) + 1.128$
More than 100,000	$PF = (4.500 \times p^{-0.174}) + 0.945$

PF = Dry Weather Peaking Factor
 p = Upstream Population

- ii. For a lift station serving less than 600 single family dwelling units (d.u.), use either of the following methods to size the pumps for peak dry weather flow in gallons per minute and add an allowance for wet weather flow and infiltration:
 - (1) Peak dry weather flow = 17 d.u.^{0.42}, or
 - (2) Peak dry weather flow = 11.2 (population)^{0.42}
- iii. If justified by the applicant, the Department may accept lower unit flow values in the served area due to significant use of low-flow fixtures, hydrographs of actual flows, or other factors;
- c. Use the “Uniform Standard Specifications for Public Works Construction” (revisions through 2004) and the “Uniform Standard Details for Public Works Construction” (revisions through 2004) published by the Maricopa Association of Governments, and the “Standard Specifications for Public Improvements,” (2003 Edition), and “Standard Details for Public Improvements,” (2003 Edition), published jointly by Pima County Wastewater Management and the City of Tucson, as the applicable design and construction criteria, unless the Department approves alternative design standards or specifications. An applicant in a county other than Maricopa and Pima shall use design and construction criteria from either the Maricopa Association of Governments or the Pima County Wastewater Management and the City of Tucson for the facility unless alternative criteria are designated by the Department.
 - i. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material.
 - ii. 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 Maricopa Association of Governments, 302 N. 1st Avenue, Suite 300, Phoenix, Arizona 85003, or on the web at <http://www.mag.maricopa.gov/archive/Newpages/on-line.htm>; or from Pima County Wastewater Management, 201 N. Stone Avenue, Tucson, Arizona 85701-1207, or on the web at <http://www.pima.gov/wwm/stdet>;
- d. Ensure that sewage collection system components are separated from drinking water distribution system components as specified in 18 A.A.C. 5, Article 5;
- e. Ensure that sewage collection system components are separated from reclaimed water system components as specified in 18 A.A.C. 9, Article 6; and
- f. Request review and approval of an alternative to a design feature specified in this Section by following the requirements in R18-9-A312(G).

2. Gravity sewer lines. An applicant shall:
 - a. Ensure that any sewer line that runs between manholes, if not straight, is of constant horizontal curvature with a radius of curvature not less than 200 feet;
 - b. Cover each sewer line with at least 3 feet of earth cover meeting the requirements of subsection (D)(2)(h). The applicant shall:
 - i. Include at least one note specifying this requirement in construction plans;
 - ii. If site-specific limitations prevent 3 feet of earth cover, provide the maximum cover attainable, construct the sewer line of ductile iron pipe or other design of equivalent or greater tensile and compressive strength, and note the change on the construction plans; and
 - iii. Ensure that the design of the pipe and joints can withstand crushing or shearing from any expected static and live load to protect the structural integrity of the pipe. Construction plans shall note locations requiring these measures;
 - c. If sewer lines cross or are constructed in floodways:
 - i. Place the lines at least 2 feet below the level of the 100-year storm scour depth and calculated 100-year bed degradation and construct the lines using ductile iron pipe or pipe with equivalent tensile strength, compressive strength, shear resistance, and scour protection;
 - ii. If it is not possible to maintain the 2 feet of clearance specified in subsection (D)(2)(c)(i), using the process described in R18-9-A312(G), provide a design that ensures that the sewer line will withstand any lateral and vertical load for the scour and bed degradation conditions specified in subsection (D)(2)(c)(i);
 - iii. Ensure that sewer lines constructed in a floodway extend at least 10 feet beyond the boundary of the 100-year storm scouring;
 - iv. If a sewer line is constructed in a floodway and is longer than the applicable maximum manhole spacing distance in subsection (D)(3)(a), using the process described in R18-9-A312(G), provide a design that ensures the performance standards in subsection (B) are met; and
 - v. Note locations requiring these measures on the construction plans;
 - d. Ensure that each sewer line is 8 inches in diameter or larger except the first 400 feet of a dead end sewer line with no potential for extension may be 6 inches in diameter if the design flow criteria specified in subsections (D)(1)(a) and (D)(1)(b) are met and the sewer line is installed with a slope sufficient to achieve a velocity of at least 3 feet per second when flowing full. If the line is extended, the applicant seeking the extension shall replace the entire length with larger pipe to accommodate the new design flow unless the applicant demonstrates with engineering calculations that using the existing 6-inch pipe will accommodate the design flow;
 - e. Design sewer lines with at least the minimum slope calculated from Manning's Formula using a coefficient of roughness of 0.013 and a sewage velocity of 2 feet per second when flowing full.
 - i. An applicant may request a smaller minimum slope under R18-9-A312(G) if the smaller slope is justified by a quarterly program of inspections, flushings, and cleanings.
 - ii. If a smaller minimum slope is requested, the applicant shall not specify a slope that is less than 50 percent of that calculated from Manning's formula using a coefficient of roughness of 0.013 and a sewage velocity of 2 feet per second.
 - iii. The ratio of flow depth in the pipe to the diameter of the pipe shall not exceed 0.75 in peak dry weather flow conditions;
 - f. Design sewer lines to avoid a slope that creates a sewage velocity greater than 10 feet per second. The applicant shall construct any sewer line carrying a flow with a normal velocity of greater than 10 feet per second using ductile iron pipe or pipe with equivalent erosion resistance, and structurally reinforce the receiving manhole or sewer main;
 - g. Design and install sewer lines, connections, and fittings with materials that meet or exceed manufacturer's specifications consistent with this Chapter to:
 - i. Limit inflows, infiltration, and exfiltration;
 - ii. Resist corrosion in the ambient electrochemical environment;
 - iii. Withstand anticipated static and live loads; and
 - iv. Provide internal erosion protection;
 - h. Indicate trenching and bedding details applicable for each pipe material and size in the design plans. Unless the Department approved alternative design standards or specifications under subsection (D)(1)(c), the applicant shall place and bed the sewer lines in trenches following the specifications in "Trench Excavation, Backfilling, and Compaction" (Section 601) revised 2004, published by the Maricopa Association of Governments; and "Rigid Pipe Bedding for Sanitary Sewers" (WWM 104) revised July 2002, and "Flexible Pipe Bedding for Sanitary Sewers" (WWM 105) revised July 2002, published by Pima County Wastewater Management. This material is part of the material incorporated by reference in subsection (D)(1)(b).
 - i. Perform a deflection test of the total length of all sewer lines made of flexible materials to ensure that the installation meets or exceeds the manufacturer's recommendations and record the results;

- j. Test each segment of the sewer line for leakage using the applicable method below and record the results:
 - i. “Standard Test Method for Installation of Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air, F1417-92(1998),” published by the American Society for Testing and Materials;
 - ii. “Standard Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method, C924-02 (2002),” published by the American Society for Testing and Materials;
 - iii. “Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines, C828-03 (2003),” published by the American Society for Testing and Materials;
 - iv. “Standard Test Method for Hydrostatic Infiltration Testing of Vitrified Clay Pipe Lines, C1091-03a (2003),” published by the American Society for Testing Materials;
 - v. “Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines, C969-02 (2002),” published by the American Society for Testing Material; or
 - vi. “Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications, D2321-00 (2000),” published by the American Society for Testing Materials; or
 - vii. The material listed in subsections (D)(2)(j)(i) through (vi) 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;
 - k. Test the total length of the sewer line for uniform slope by lamp lighting, remote camera, or similar method approved by the Department, and record the results; and
 - l. Minimize the planting within the disturbed area of new sewage collection system construction of plant species having roots that are likely to reach and damage the sewer or impair the operation of the sewer or visual and vehicular access to any manhole.
3. Manholes.
- a. An applicant shall install manholes at all grade changes, size changes, alignment changes, sewer intersections, and at any location necessary to comply with the following spacing requirements:

Sewer Pipe Diameter (inches)	Maximum Manhole Spacing (feet)
Less than 8	400
8 to less than 18	500
18 to less than 36	600
36 to less than 60	800
60 or greater	1300

- b. The Department shall allow greater manhole spacing if the applicant follows the procedure provided in R18-9-A312(G) and provides documentation showing the operator possesses or has available specialized sewer cleaning equipment suitable for the increased spacing.
- c. The applicant shall ensure that manhole design is consistent with “Pre-cast Concrete Sewer Manhole” #420-1, revised January 1, 2004 and #420-2, revised January 1, 2001, “Offset Manhole for 8” – 30” Pipe” #421 (1998), and “Sewer Manhole and Cover Frame Adjustment” #422, revised January 1, 2001, published by the Maricopa Association of Governments; and “Manholes and Appurtenant Items” (WWM 201 through WWM 211, except WWM 204, 205, and 206), revised July 2002, published by Pima County Wastewater Management. This material is part of the material incorporated by reference in subsection (D)(1)(b).
- d. The applicant shall not locate manholes in areas subject to more than incidental runoff from rain falling in the immediate vicinity unless the manhole cover assembly is designed to restrict or eliminate stormwater inflow.
- e. The applicant shall test each manhole using one of the following test protocols:
 - i. Watertightness testing by filling the manhole with water. The applicant shall ensure that the drop in water level following presoaking does not exceed 0.0034 of total manhole volume per hour;
 - ii. Negative air pressure testing using the “Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test, C1244-02e1 (2002),” published by the American Society for Testing and Materials. This material 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, Phoenix, AZ 85007, or obtained from the American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959; or
 - iii. Holiday testing of a lined manhole constructed with uncoated rebar using the “High-Voltage Electrical Inspection of Pipeline Coatings, RP0274-2004 (2004),” published by the National

Association of Corrosion Engineers (NACE International). This material is incorporated by reference as modified below, 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, Phoenix, AZ 85007 or obtained from NACE International, 1440 South Creek Drive, Houston, Texas 77084-4906. The following substitutions apply:

- (1) Where the word “metal” is used in the standard, use the word “surface” instead; and
 - (2) Where the words “pipe” or “pipeline” are used, use the word “manhole” instead.
- f. The applicant shall perform manhole testing under subsection (D)(3)(e) after installation of the manhole cone or top riser to verify watertightness integrity of the manhole from the top of the cone or riser down.
 - i. Upon satisfactory test results, the applicant shall install the manhole ring and any spacers, complete the joints, and seal the manhole to a watertight condition.
 - ii. If the applicant can install the manhole cone or top riser, spacers, and ring to final grade without disturbance or adjustment by later construction, the applicant may perform the testing from the top of the manhole ring on down.
 - g. The applicant shall locate a manhole to provide adequate visibility and vehicular maintenance accessibility following construction.
4. Force mains. An applicant may install a force main if it meets the following design, installation, and testing requirements. The applicant shall:
 - a. Design force mains to maintain a minimum flow velocity of 3 feet per second and a maximum flow velocity of 7 feet per second. The applicant may design for sustained periods of flow above 7 feet per second, if the applicant justifies the design using the process specified in R18-9-A312(G);
 - b. Ensure that force mains have the appropriate valves and controls required to prevent drainback to the lift station. If drainback is necessary during cold weather to prevent freezing, the control system may allow manual or automatic drainback;
 - c. Incorporate air release valves or other appropriate components in force mains at all high points along the line to eliminate air accumulation. If engineering calculations provided by the applicant demonstrate that air will not accumulate in a given high point under typical flow conditions, the Department shall waive the requirement for an air release valve;
 - d. Design restrained joints or thrust blocks on force mains to accommodate water hammer, surge control, and to prevent excessive movement of the force main. Submitted construction plans shall show restrained joint or thrust block locations and details;
 - e. If a force main is proposed to discharge directly to a sewage treatment facility without entering a flow equalization basin, include in the Notice of Intent to Discharge a statement from the owner or operator of the sewage treatment facility that the design is acceptable;
 - f. Design a force main to withstand a pressure of 50 pounds per square inch or more above the design working pressure for two hours and test upon completion to ensure no leakage;
 - g. Supply flow to a force main using a lift station that meets the requirements of subsection (D)(5); and
 - h. Ensure that force mains are designed to control odor.
 5. Lift stations. An applicant shall:
 - a. Secure a lift station to prevent tampering and affix on its exterior, or on the nearest vertical object if the lift station is entirely below grade, at least one warning sign that includes the 24-hour emergency phone number of the owner or operator of the collection system;
 - b. Protect lift stations from physical damage from a 100-year flood event. An applicant shall not construct a lift station in a floodway;
 - c. Lift station wet well design.
 - i. Ensure that the minimum wet well volume in gallons is 1/4 of the product of the minimum pump cycle time, in minutes, and the total pump capacity, in gallons per minute;
 - ii. Protect the wet well against corrosion to provide at least a 20-year operational life;
 - iii. Ensure that wet well volume does not allow the sewage retention time to exceed 30 minutes unless the sewage is aerated, chemicals are added to prevent or eliminate hydrogen sulfide formation, or adequate ventilation is provided. Notwithstanding these measures, the applicant shall not allow the septic condition of the sewage to adversely affect downstream collection systems or sewage treatment facility performance;
 - iv. Ensure that excessively high or low levels of sewage in the wet well trigger an audible or visible alarm at the wet well site and at the system control center;
 - v. Ensure that a wet well designed to accommodate more than 5000 gallons per day has a horizontal cross-sectional area of at least 20 square feet; and
 - vi. Ensure that lift stations are designed to prevent odor from emanating beyond the lift station site;
 - d. Equip a lift station wet well with at least two pumps. The applicant shall ensure that:
 - i. The pumps are capable of passing a 2.5-inch sphere or are grinder pumps;
 - ii. The lift station is capable of operating at design flow with any one pump out of service; and

- iii. Piping, valves, and controls are arranged to allow independent operation of each pump;
 - e. Not use suction pumps if the sewage lift is more than 15 feet. The applicant shall ensure that other types of pumps are self-priming and that pump water brake horsepower is at least 0.00025 times the product of the required discharge, in gallons per minute, and the required total dynamic head, in feet; and
 - f. For lift stations receiving an average flow of more than 10,000 gallons per day, include a standby power source and redundant wastewater level controls in the lift station design that will provide immediate service and remain available for 24 hours per day if the main power source or controls fail.
- 6. Depressed sewers. An applicant shall:
 - a. Size the depressed sewer to attain a minimum velocity of 3 feet per second through all barrels of the depressed sewer when the flow equals or exceeds the design daily peak dry weather flow,
 - b. Design the depressed sewer to convey the sewage flow through at least two parallel pipes at least 6 inches in diameter,
 - c. Include an inlet and outlet structure at each end of the inverted sewer,
 - d. Design the depressed sewer so that the barrels are brought progressively into service as flow increases to its design value, and
 - e. Design the depressed sewer to minimize release of odors to the atmosphere.
- E. Additional Discharge Authorization requirements. An applicant shall:
 - 1. Supply a signed, dated, and sealed Engineer's Certificate of Completion in a format approved by the Department that provides the following:
 - a. Confirmation that the project was completed in compliance with the requirements of this Chapter, as described in the plans and specifications corresponding to the Construction Authorization issued by the Director, or with changes that are reflected in as-built plans submitted with the Engineer's Certificate of Completion;
 - b. As-built plans, if required, that are properly identified and numbered; and
 - c. Satisfactory field test results from deflection, leakage, and uniform slope testing;
 - 2. Provide any other relevant information required by the Department to determine that the facility conforms to the terms of the 4.01 General Permit; and
 - 3. Provide a signed certification on a form approved by the Department that:
 - a. Confirms that an operation and maintenance manual exists for the sewage collection system;
 - b. Confirms that the operation and maintenance manual addresses components of operation and maintenance specified on the certification form;
 - c. Provides the 24-hour emergency number of the owner or operator of the sewage collection system; and
 - d. Provides an address where the operation and maintenance manual is maintained and confirms that the manual is available for inspection at that address by the Department on request.
- F. Operation and maintenance requirements. The permittee shall:
 - 1. Operate the new sewage collection system or expansion of an existing sewage collection system involving new construction using the operation and maintenance manual certified by the owner or operator in subsection (E)(3), to meet the performance standards specified in subsection (B), unless the permittee is operating the sewage collection system under a CMOM Plan under the general permit established in R18-9-C305;
 - 2. Ensure that the sewage collection system is operated according to the operator certification requirements in 18 A.A.C. 5, Article 1; and
 - 3. For safety during operation and maintenance of lift station and other confined space components of the sewage collection system, follow all applicable state and federal confined space entry requirements.
- G. Recordkeeping. A person owning or operating a facility permitted under this Section shall maintain the documents listed in subsection (E) for the life of the facility and make them available to the Department upon request.
- H. Repairs.
 - 1. A Notice of Intent to Discharge is not required for sewage collection system repairs. Repairs include work performed in response to deterioration or damage of existing structures, devices, and appurtenances with the intent to maintain or restore the system to its original design flow and operational characteristics. Repairs do not include changes in vertical or horizontal alignment.
 - 2. Components used in the repair shall meet the design, installation, and operational requirements of this Section.

R18-9-E302. 4.02 General Permit: Septic Tank with Disposal by Trench, Bed, Chamber Technology, or Seepage Pit, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.02 General Permit allows for the construction and operation of a system with less than 3000 gallons per day design flow consisting of a septic tank dispensing wastewater to an approved means of disposal described in this Section. Only gravity flow of wastewater from the septic tank to the disposal works is authorized by this general permit.
 - 1. The standard septic tank and disposal works design specified in the 4.02 General Permit serves sites where no site limitations are identified by the site investigation conducted under R18-9-A310.
 - 2. If site conditions allow, this general permit authorizes the discharge of wastewater from a septic tank meeting the

requirements of R18-9-A314 to one of the following disposal works:

- a. Trench,
 - b. Bed,
 - c. Chamber technology, or
 - d. Seepage pit.
- B. Performance. An applicant shall design a system consisting of a septic tank and one of the disposal works listed in subsection (A)(2) so that treated wastewater released to the native soil meets the following criteria:
- 1. TSS of 75 milligrams per liter, 30-day arithmetic mean;
 - 2. BOD₅ of 150 milligrams per liter, 30-day arithmetic mean;
 - 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 - 4. Total coliform level of 100,000,000 (Log₁₀ 8) colony forming units per 100 milliliters, 95th percentile.
- C. Design and installation requirements.
- 1. General provisions. In addition to the applicable requirements in R18-9-A312, the applicant shall:
 - a. Ensure that the septic tank meets the requirements specified in R18-9-A314;
 - b. Before placing aggregate or disposal pipe in a prepared excavation, remove all smeared or compacted surfaces from trenches by raking to a depth of 1 inch and removing loose material. The applicant shall:
 - i. Place aggregate in the trench to the depth and grade specified in subsection (C)(2);
 - ii. Place the drain pipe on aggregate and cover it with aggregate to the minimum depth specified in subsection (C)(2); and
 - iii. Cover the aggregate with landscape filter material, geotextile, or similar porous material to prevent filling of voids with earth backfill;
 - c. Use a grade board stake placed in the trench to the depth of the aggregate if the disposal pipe is constructed of drain tile or flexible pipe that will not maintain alignment without continuous support;
 - d. Disposal pipe. If two or more disposal pipes are installed, install a distribution box approved by the Department of sufficient size to receive all lateral lines and flows at the head of each disposal works and:
 - i. Ensure that the inverts of all outlets are level and the invert of the inlet is at least 1 inch above the outlets;
 - ii. Design distribution boxes to ensure equal flow and install the boxes on a stable level surface such as a concrete slab or native or compacted soil; and
 - iii. Protect concrete distribution boxes from corrosion by coating them with an appropriate bituminous coating, constructing the boxes with concrete that has a 15 to 18 percent fly ash content, or by using other equivalent means;
 - e. Construct all lateral pipes running from a distribution box to the disposal works with watertight joints and ensure that multiple disposal laterals, wherever practical, are of uniform length;
 - f. Lay pipe connections between the septic tank and a distribution box on natural ground or compact fill and construct the pipe connections with watertight joints;
 - g. Construct steps within distribution line trenches or beds, if necessary, to maintain a level disposal pipe on sloping ground. The applicant shall construct the lines between each horizontal section with watertight joints and install them on natural or unfilled ground; and
 - h. Ensure that a disposal works consisting of trenches, beds, chamber technology, or seepage pits is not paved over or covered by concrete or any material that can reduce or inhibit possible evaporation of wastewater through the soil to the land surface or oxygen transport to the soil absorption surfaces.
 - 2. Trenches.
 - a. The applicant shall calculate the trench absorption area as the total of the trench bottom area and the sum of both trench sidewall areas to a maximum depth of 48 inches below the bottom of the disposal pipe.
 - b. The applicant shall ensure that trench bottoms and disposal pipe are level. The applicant shall calculate trench sizing from the soil absorption rate specified under R18-9-A312(D) and the design flow established in R18-9-A312(B).
 - c. The following design criteria for trenches apply:

Trenches	Minimum	Maximum
1. Number of trenches	1 (2 are recommended)	No Maximum
2. Length of trench ¹	—	100 feet
3. Bottom width of trench	12 inches	36 inches
4. Trench absorption area (sq. ft. of absorption area per linear foot of trench)	No Minimum	11 sq. ft.
5. Depth of cover over aggregate surrounding disposal pipe	9 inches	24 inches ²

6. Thickness of aggregate material over disposal pipe	2 inches	2 inches
7. Thickness of aggregate material under disposal pipe	12 inches	No Maximum
8. Slope of disposal pipe	Level	Level
9. Disposal pipe diameter	3 inches	4 inches
10. Spacing of trenches (measured between nearest sidewalls)	2 times effective depth ³ or five feet, whichever is greater	No Maximum

Notes:

1. If unequal trench lengths are used, proportional distribution of wastewater is required.
2. For more than 24 inches, Standard Dimensional Ratio 35 or equivalent strength pipe is required.
3. The effective depth is the distance between the bottom of the disposal pipe and the bottom of the trench.

- d. The applicant may substitute clean, durable, crushed, and washed recycled concrete for aggregate if noted in design documents and the trench absorption area calculation excludes the trench bottom.
3. Beds. An applicant shall:
 - a. If a bed is installed, use the soil absorption rate specified in R18-9-A312(D) for “SAR, Bed. The applicant may, in computing the bed bottom absorption area, include the bed bottom and the perimeter sidewall area not more than 36 inches below the disposal pipe;
 - b. Comply with the following design criteria for beds:

Gravity Beds	Minimum	Maximum
1. Number of disposal pipes	2	No Maximum
2. Length of bed	No Mimimum	100 feet
3. Distance between disposal pipes	4 feet	6 feet
4. Spacing of beds measured between nearest sidewalls	2 times effective depth ¹ or 5 feet, whichever is greater	No Maximum
5. Width of bed	10 feet	12 feet
6. Distance from disposal pipe to sidewall	3 feet	3 feet
7. Depth of cover over disposal pipe	9 inches	14 inches
8. Thickness of aggregate material under disposal pipe	12 inches	No Maximum
9. Thickness of aggregate material over disposal pipe	2 inches	2 inches
10. Slope of disposal pipe	Level	Level
11. Disposal pipe diameter	3 inches	4 inches

Note:

1. The effective depth is the distance between the bottom of the disposal pipe and the bottom of the bed.
4. Chamber technology. An applicant shall:
 - a. Calculate an effective chamber absorption area to size the disposal works area and determine the number of chambers needed. The effective absorption area of each chamber is calculated as follows:

$$A = (1.8 \times B \times L) + (2 \times V \times L)$$
 - i. “A” is the effective absorption area of each chamber,
 - ii. “B” is the exterior width of the bottom of the chamber,
 - iii. “V” is the vertical height of the louvered sidewall of the chamber, and
 - iv. “L” is the length of the chamber;
 - b. Calculate the disposal works size and number of chambers from the effective absorption area of each chamber and the soil absorption rates specified in R18-9-A312(D);
 - c. Ensure that the sidewall of the chamber provides at least 35 percent open area for sidewall credit and that the design and construction minimizes the movement of fines into the chamber area. The applicant shall not use

- filter fabric or geotextile against the sidewall openings.
5. Seepage pits. If allowed by R18-9-A311(B)(1), the applicant shall:
 - a. Design a seepage pit to comply with R18-9-A312(E)(1) for minimum vertical separation distance;
 - b. Ensure that multiple seepage pit installations are served through a distribution box approved by the Department or connected in series with a watertight connection laid on undisturbed or compacted soil. The applicant shall ensure that the outlet from the pit has a sanitary tee with the vertical leg extending at least 12 inches below the inlet;
 - c. Ensure that each seepage pit is circular and has an excavated diameter of 4 to 6 feet. If multiple seepage pits are installed, ensure that the minimum spacing between seepage pit sidewalls is 12 feet or three times the diameter of the seepage pit, whichever is greater. The applicant may use the alternative design procedure specified in R18-9-A312(G) for a proposed seepage pit more than 6 feet in diameter;
 - d. For a gravel filled seepage pit, backfill the entire pit with aggregate. The applicant shall ensure that each pit has a breather conductor pipe that consists of a perforated pipe at least 4 inches in diameter, placed vertically within the backfill of the pit. The pipe shall extend from the bottom of the pit to within 12 inches below ground level;
 - e. For a lined, hollow seepage pit, lay a concrete liner or a liner of a different protective material in the pit on a firm foundation and fill excavation voids behind the liner with at least 9 inches of aggregate;
 - f. For the cover of a lined seepage pit, use an approved one or two piece reinforced concrete slab with a minimum compressive strength of 2500 pounds per square inch. The applicant shall ensure that the cover:
 - i. Is at least 5 inches thick and designed to support an earth load of at least 400 pounds per square foot;
 - ii. Has a 12-inch square or diameter minimum access hole with a plug or cap that is coated on the underside with an protective bituminous seal, constructed of concrete with 15 percent to 18 percent fly ash content, or made of other nonpermeable protective material; and
 - iii. Has a 4-inch or larger inspection pipe placed vertically not more than 6 inches below ground level;
 - g. Ensure that the top of the seepage pit cover is 4 to 18 inches below the surface of the ground;
 - h. Install a vented inlet fitting in every seepage pit to prevent flows into the seepage pit from damaging the sidewall. An applicant may use a 1/4 bend fitting placed through an opening in the top of the slab cover if a one or two piece concrete slab cover inlet is used;
 - i. Bore seepage pits five feet deeper than the proposed pit depth to verify underlying soil characteristics and backfill the five feet of overdrill with low permeability drill cuttings or other suitable material;
 - j. Backfill seepage pits that terminate in gravelly, coarse sand zones five feet above the beginning of the zone with low permeability drill cuttings or other suitable material;
 - k. Determine the minimum sidewall area for a seepage pit from the design flow and the soil absorption rate derived from the testing procedure described in R18-9-A310(G). The effective absorption surface for a seepage pit is the sidewall area only. The sidewall area is calculated using the following formula:

$$A = 3.14 \times D \times H$$
 - i. "A" is the minimum sidewall area in square feet needed for the design flow and soil absorption rate for the installation,
 - ii. "D" is the diameter of the proposed seepage pit in feet, and
 - iii. "H" is the vertical height in feet in the seepage pit through which wastewater infiltrates native soil. The applicant shall ensure that H is at least 10 feet for any seepage pit.
- D. Operation and maintenance. The permittee shall follow the applicable operation and maintenance requirements in R18-9-A313.

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 with 18 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. Wastewater passes into an interceptor before it is conducted to the subsurface for dispersal;
 - b. 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. The interceptor is covered to restrict access and eliminate habitat for mosquitoes and other vectors; and
 - d. Minimum interceptor size is based on design flow.
 - i. For a dwelling, the following apply:

No. of Bedrooms	Design Flow (gallons per day)	Minimum Interceptor Size (gallons)	
		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) 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 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 mounted in an exterior location visible from the dwelling,
 - 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 discernable 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;
 - 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-E305. 4.05 General Permit: Gravelless Trench, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.05 General Permit allows for the use of a gravelless trench with less than 3000 gallons per day design flow receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
- 1. Definition. For purposes of this Section, a “gravelless trench” means a disposal technology characterized by installation of a proprietary pipe and geocomposite or other substitute media into native soil instead of the distribution pipe and aggregate fill used in a trench allowed in R18-9-E302.
 - 2. A permittee may use a gravelless trench if suitable gravel or volcanic rock aggregate is unavailable, excessively expensive, or if adverse site conditions make movement of gravel difficult, damaging, or time consuming.
- B. Performance. An applicant shall design a gravelless trench so that treated wastewater released to the native soil meets the following criteria:
- 1. TSS of 75 milligrams per liter, 30-day arithmetic mean;
 - 2. BOD₅ of 150 milligrams per liter, 30-day arithmetic mean;
 - 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
 - 4. Total coliform level of 100,000,000 (Log₁₀ 8) colony forming units per 100 milliliters, 95th percentile.
- 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), an applicant shall submit the following:
- 1. The soil absorption area that would be required if a conventional disposal trench filled with aggregate was used at the site,
 - 2. The configuration and size of the proposed gravelless disposal works, and
 - 3. The manufacturer’s installation instructions and warranty of performance for absorbing wastewater into the native soil.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall:
- 1. Ensure that the top of the gravelless disposal pipe or similar disposal mechanism is at least 6 inches below the surface of the native soil and 12 to 36 inches below finished grade if approved fill is placed on top of the installation;

2. Calculate the infiltration surface as follows:
 - a. For 8-inch diameter pipe, 2 square feet of absorption area is allowed per linear foot;
 - b. For 10-inch diameter pipe, 3 square feet of absorption area is allowed per linear foot;
 - c. For bundles of two pipes of the same diameter, the absorption area is calculated as 1.67 times the absorption area of one pipe; and
 - d. For bundles of three pipes of the same diameter, the absorption area is calculated as 2.00 times the absorption area of one pipe;
 3. Use a pressure distribution system meeting the requirements of R18-9-E304 in medium sand, coarse sand, and coarser soils; and
 4. Construct the drainfield of material that will not decay, deteriorate, or leach chemicals or byproducts if exposed to sewage or the subsurface soil environment.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall:
1. Install the gravelless pipe material according to manufacturer's instructions if the instructions are consistent with this Chapter,
 2. Ensure that the installed disposal system can withstand the physical disturbance of backfilling and the load of any soil cover above natural grade placed over the installation, and
 3. Shape any backfill and soil cover in the area of installation to prevent settlement and ponding of rainfall for the life of the disposal works.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall inspect the finished grade in the vicinity of the gravelless disposal works for maintenance of proper drainage and protection from damaging loads.

R18-9-E306. 4.06 General Permit: Natural Seal Evapotranspiration Bed, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.06 General Permit allows for the use of a natural seal evapotranspiration bed with less than 3000 gallons per day design flow receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. For purposes of this Section, a "natural seal evapotranspiration bed" means a disposal technology characterized by a bed of sand or other media with an internal wastewater distribution system, contained on the bottom and sidewalls by an engineered liner consisting of natural soil and clay materials.
 2. An applicant may use a natural seal evapotranspiration bed if site conditions restrict soil infiltration or require reduction of the volume of wastewater discharged to the native soil underlying the natural seal liner.
- B. Restrictions. Unless a person provides design documentation to show that a natural seal evapotranspiration bed will properly function, the person shall not install this technology if:
1. Average minimum temperature in any month is 20°F or less,
 2. Over 1/3 of the average annual precipitation falls in a 30-day period, or
 3. Design flow exceeds net evaporation.
- C. Performance. An applicant shall ensure that a natural seal evapotranspiration bed:
1. Minimizes discharge to the native soil through the natural seal liner,
 2. Maximizes wastewater disposed to the atmosphere by evapotranspiration, and
 3. Prevents ponding of wastewater on the bed surface and maintains an interval of unsaturated media directly beneath the bed surface.
- D. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:
1. Capillary rise potential test results for the media used to fill the evapotranspiration bed, unless sand meeting a D₅₀ of 0.1 millimeter (50 percent by weight of grains equal to or smaller than 0.1 millimeter) is used; and
 2. Water mass balance calculations used to size the evapotranspiration bed.
- E. Design requirements. An applicant shall:
1. Ensure that the evapotranspiration bed is from 18 to 36 inches deep and shall calculate the bed design based on the capillary rise of the bed media, following the "Standard Test Method for Capillary-Moisture Relationships for Coarse- and Medium-Textured Soils by Porous-Plate Apparatus, D2325-68 (2000)," incorporated by reference in R18-9-E307(E), and the anticipated maximum frost depth;
 2. Ensure the media is sand or other durable material;
 3. Base design area calculations on a water mass balance for the winter months and the design seepage rate;
 4. Ensure that the natural seal liner is a durable, low-hydraulic conductivity liner and is accompanied by the liner performance specification and calculations for bottom and sidewall seepage rate;
 5. If a surfacing layer is used, use topsoil, dark cinders, decomposed granite, or similar landscaping material placed to a maximum depth of 2 inches and ensure that:
 - a. If topsoil is used as a surfacing layer for growth of landscape plants:
 - i. The topsoil is a fertile, friable soil obtained from well-drained arable land;
 - ii. The topsoil is free of nut grass, refuse, roots, heavy clay, clods, noxious weeds, or any other material toxic to plant growth;
 - iii. The pH of the topsoil is between 5.5 and 8.0;

- iv. The plasticity index of the topsoil is between 3 and 15; and
- v. The topsoil contains approximately 1-1/2 percent organic matter, by dry weight, either natural or added;
- b. If landscaping material other than topsoil is used as a surfacing layer, the material meets the following gradation:

Sieve Size	Percent Passing
1"	100
1/2"	95-100
No. 4	90-100
No. 10	70-100
No. 200	15-70

- 6. Use shallow-rooted, non-invasive, salt- and drought-tolerant evergreens if vegetation is planted on the evapotranspiration bed;
- 7. Install at least two observation ports to determine the level of the liquid surface of wastewater within the evapotranspiration bed;
- 8. Design the bed to pump out the saturated zone if accumulated salts or a similar condition impairs bed performance; and
- 9. Instead of the minimum vertical separation required under R18-9-A312(E), ensure that the minimum vertical separation from the bottom of the natural seal evapotranspiration bed liner to the seasonal high water table is at least 12 inches.
- F. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that:
 - 1. The liner covers the bottom and all sidewalls of the bed and is installed on a stable base according to the manufacturer's installation specifications;
 - 2. If the inlet pipe passes through the liner, the joint is tightly sealed to minimize leakage during the operational life of the facility;
 - 3. The liner is leak tested under the supervision of an Arizona-registered professional engineer to confirm the design leakage rate; and
 - 4. A 2- to 4-inch layer of 1/2- to 1-inch gravel or crushed stone is placed around the distribution pipes within the bed. The applicant shall ensure that the filter cloth is placed on top of the gravel or crushed stone to prevent sand from settling into the gravel or crushed stone.
- G. Additional Discharge Authorization requirements. An applicant shall submit the satisfactory results of the leakage test required under subsection (F)(3) to the Department before the Department issues the Discharge Authorization.
- H. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall:
 - 1. Not allow irrigation of an evapotranspiration bed, and
 - 2. Protect the bed from vehicle loads and other damaging activities.

R18-9-E307. 4.07 General Permit: Lined Evapotranspiration Bed, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.07 General Permit allows for the use of a lined evapotranspiration bed receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
 - 1. Definition. For purposes of this Section, a "lined evapotranspiration bed" means a disposal technology characterized by a bed of sand or other media with an internal wastewater distribution system contained on the bottom and sidewalls by an impervious synthetic liner.
 - 2. An applicant may use a lined evapotranspiration bed if site conditions restrict soil infiltration or require reduction or elimination of the volume of wastewater or nitrogen load discharged to the native soil.
 - 3. Provision of a reserve area is not required for a lined evapotranspiration bed.
- B. Restrictions. Unless a person provides design documentation to show that a lined evapotranspiration bed will properly function, the person shall not install this technology if:
 - 1. Average minimum temperature in any month is 20°F or less,
 - 2. Over 1/3 of average annual precipitation falls in a 30-day period, or
 - 3. Design flow exceeds net evaporation.
- C. Performance. An applicant shall ensure that a lined evapotranspiration bed:
 - 1. Prevents discharge to the native soil by a synthetic liner,
 - 2. Attains full disposal of wastewater to the atmosphere by evapotranspiration, and
 - 3. Prevents ponding of wastewater on the bed surface and maintains an interval of unsaturated media directly beneath the bed surface.
- 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), an applicant shall submit:
 - 1. Capillary rise potential test results for the media used to fill the evapotranspiration bed, unless sand meeting a D₅₀ of 0.1 millimeter (50 percent by weight of grains equal to or smaller than 0.1 millimeter in size) is used; and

2. Water mass balance calculations used to size the evapotranspiration bed.
- E. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall:
1. Ensure that the evapotranspiration bed is from 18 to 36 inches deep and calculate the bed design on the basis of the capillary rise of the bed media, according to the “Standard Test Method for Capillary-Moisture Relationships for Coarse- and Medium-Textured Soils by Porous-Plate Apparatus, D2325-68 (2003),” published by the American Society for Testing and Materials and the anticipated maximum frost depth. 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;
 2. Ensure the media is sand or other durable material;
 3. Base design area calculations on a water mass balance for the winter months;
 4. Ensure that the evapotranspiration bed liner is a durable, low hydraulic conductivity synthetic liner that has a calculated bottom area and sidewall seepage rate of less than 550 gallons per acre per day;
 5. If a surfacing layer is used, use topsoil, dark cinders, decomposed granite, or similar landscaping material placed to a maximum depth of 2 inches. The applicant shall ensure that:
 - a. If topsoil is used as a surfacing layer for growth of landscape plants:
 - i. The topsoil is a fertile, friable soil obtained from well-drained arable land;
 - ii. The topsoil is free of nut grass, refuse, roots, heavy clay, clods, noxious weeds, or any other material toxic to plant growth;
 - iii. The pH of the topsoil is between 5.5 and 8.0;
 - iv. The plasticity index of the topsoil is between 3 and 15; and
 - v. The topsoil contains approximately 1-1/2 percent organic matter, by dry weight, either natural or added;
 - b. If another landscaping material is used as a surfacing layer, the material meets the following gradation:

Sieve Size	Percent Passing
1”	100
1/2”	95-100
No. 4	90-100
No. 10	70-100
No. 200	15-70

6. Use shallow-rooted, non-invasive, salt and drought tolerant evergreens if vegetation is planted on the evapotranspiration bed;
 7. Install at least two observation ports to allow determination of the depth to the liquid surface of wastewater within the evapotranspiration bed;
 8. Design the bed to pump out the saturated zone if accumulated salts or a similar condition impairs bed performance; and
 9. Instead of the minimum vertical separation required under R18-9-A312(E), ensure that the minimum vertical separation from the bottom of the evapotranspiration bed liner to the surface of the seasonal high water table or impervious layer or formation is at least 12 inches.
- F. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that:
1. All liner seams are factory fabricated or field welded according to manufacturer’s specifications. The applicant shall ensure that:
 2. The liner covers the bottom and all sidewalls of the bed and is cushioned on the top and bottom with layers of sand at least 2 inches thick or other puncture-protective material;
 3. If the inlet pipe passes through the liner, the joint is tightly sealed to minimize leakage during the operational life of the facility;
 4. The liner is leak tested under the supervision of an Arizona-registered professional engineer; and
 5. A 2- to 4-inch layer of 1/2- to 1-inch gravel or crushed stone is placed around the distribution pipes within the bed. The applicant shall place filter cloth on top of the gravel or crushed stone to prevent sand from settling into the crushed stone or gravel.
- G. Additional Discharge Authorization requirements. An applicant shall submit the liner test results sealed by an Arizona-registered professional engineer to the Department for issuance of the Discharge Authorization.
- H. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall:
1. Not allow irrigation of an evapotranspiration bed; and
 2. Protect the bed from vehicle loads and other damaging activities.

R18-9-E308. 4.08 General Permit: Wisconsin Mound, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.08 General Permit allows for the use of a Wisconsin mound with a design flow of less than 3000 gallons per day receiving

- wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. For purposes of this Section, a “Wisconsin mound” means a disposal technology characterized by:
 - a. An above-grade bed system that blends with the land surface into which is dispensed pressure-dosed wastewater from a septic tank or other upstream treatment device,
 - b. Dispersal of wastewater under unsaturated flow conditions through the engineered media system contained in the mound, and
 - c. Wastewater treated by passage through the mound before percolation into the native soil below the mound.
 2. An applicant may use a Wisconsin mound if:
 - a. The native soil has excessively high or low permeability,
 - b. There is little native soil overlying fractured or excessively permeable rock, or
 - c. A reduction in minimum vertical separation is desired.
- B. Performance. An applicant shall design a Wisconsin mound so that treated wastewater released to the native soil meets the following criteria:
1. Performance Category A.
 - a. TSS of 20 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 20 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
 - d. Total coliform level of 1000 (Log₁₀ 3.0) colony forming units per 100 milliliters, 95th percentile; or
 2. Performance Category B.
 - a. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
 - d. Total coliform level of 300,000 (Log₁₀ 5.5) colony forming units per 100 milliliters, 95th percentile.
- 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), an applicant shall submit:
1. Specifications for the internal wastewater distribution system media proposed for use in the Wisconsin mound;
 2. Two scaled or dimensioned cross sections of the mound (one of the shortest basal area footprint dimension and one of the lengthwise dimension); and
 3. Design calculations following the “Wisconsin Mound Soil Absorption System: Siting, Design, and Construction Manual,” published by the University of Wisconsin – Madison, January 1990 Edition (the Wisconsin Mound Manual). 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 University of Wisconsin – Madison, SSWMP, 1525 Observatory Drive, Room 345, Madison, WI 53706.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
1. Pressure dosed wastewater is delivered into the Wisconsin mound through a pressurized line and secondary distribution lines into an engineered aggregate infiltration bed, or equivalent system, in conformance with R18-9-E304 and the Wisconsin Mound Manual. The applicant shall ensure that the aggregate is washed;
 2. Wastewater is applied to the inlet surface of the mound media at not more than 1.0 gallon per day per square foot of mound bed inlet surface if the mound bed media conforms with the “Standard Specification for Concrete Aggregates, C33-03 (2003),” published by the American Society for Testing and Materials and the Wisconsin Mound Manual, except if cinder sand is used that is the appropriate grade with not more than 5 percent passing a #200 screen. 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. The applicant shall:
 - a. For cinder sand, ensure that the rate is not more than 0.8 gallons per day per square foot of mound bed inlet surface; and
 - b. Wash the media used for the mound bed;
 3. The aggregate infiltration bed and mound bed is capped by coarser textured soil, such as sand, sandy loam, or silt loam. An applicant shall not use silty clay, clay loam, or clays;
 4. The cap material is covered by topsoil, following the procedure in the Wisconsin Mound Manual, and the topsoil is capable of supporting vegetation, is not clay, and is graded to drain;
 5. The top and bottom surfaces of the aggregate infiltration bed are level and do not exceed 10 feet in width and that:
 - a. The minimum depth of the aggregate infiltration bed is 9 inches, and
 - b. Synthetic filter fabric permeable to water and air and capable of supporting the cap and topsoil load is placed on the top surface of the aggregate infiltration bed;
 6. The minimum depth of mound bed media is:
 - a. Performance Category A, 24 inches; or
 - b. Performance Category B, 12 inches;
 7. The maximum allowable side slope of the mound bed, cap material, and topsoil is not more than one vertical to three

- horizontal;
8. Ports for inspection and monitoring are provided to verify performance, including verification of unsaturated flow within the aggregate infiltration bed. The applicant shall:
 - a. Install a vertical PVC pipe and cap with a minimum diameter of 4 inches as an inspection port at the end of the disposal line, and
 - b. Install the pipe with a physical restraint to maintain pipe position;
 9. The main pressurized line and secondary distribution lines for the aggregate infiltration bed are equipped at appropriate locations with cleanouts to grade;
 10. The following requirements and the setbacks specified in R18-9-A312(C) are observed:
 - a. Increase setbacks for the following downslope features at least 30 feet from the toe of the mound system:
 - i. Property line,
 - ii. Driveway,
 - iii. Building,
 - iv. Ditch or interceptor drain, or
 - v. Any other feature that impedes water movement away from the mound; and
 - b. Ensure that no upslope natural feature or improvement channels surface water or groundwater to the mound area;
 11. The portion of the basal area of native soil below the mound conforms to the Wisconsin Mound Manual. The applicant shall:
 - a. Calculate the absorption of wastewater into the native soil for only the effective basal area;
 - b. Apply the soil absorption rate specified in R18-9-A312(D). The applicant may increase allowable loading rate to the mound bed inlet surface up to 1.6 times if the wastewater dispersed to the mound is pretreated to reduce the sum of TSS and BOD₅ to 60 mg/l or less. The applicant may increase the soil absorption rate to not more than 0.20 gallons per day per square foot of basal area if the following slowly permeable soils underlie the mound:
 - i. Sandy clay loam, clay loam, silty clay loam, or finer with weak platy structure; or
 - ii. Sandy clay loam, clay loam, silty clay loam, or silt loam with massive structure;
 12. The slope of the native soil at the basal area does not exceed 25 percent, and a slope stability analysis is performed whenever the basal area or site slope within 50 horizontal feet from the mound system footprint exceeds 15 percent.
- E. Installation. An applicant shall:
1. Prepare native soil for construction of a Wisconsin mound system. The applicant shall:
 - a. Mow vegetation and cut down trees in the vicinity of the basal area site to within 2 inches of the surface;
 - b. Leave in place boulders and tree stumps and other herbaceous material that would excessively alter the soil structure if removed after mowing and cutting;
 - c. Plow native soil serving as the basal area footprint along the contours to 7- to 8-inch depth;
 - d. Not substitute rototilling for plowing; and
 - e. Begin mound construction immediately after plowing;
 2. Place each layer of the bed system to prevent differential settling and promote uniform density; and
 3. Use the Wisconsin Mound Manual to guide any other detail of installation. The applicant may vary installation procedures and criteria depending on mound design but shall use installation procedures and criteria that are at least equivalent to those in the Wisconsin Mound Manual.
- F. Operation and maintenance requirements. In addition to the applicable requirements specified in R18-9-A313(B), the permittee shall:
1. If an existing mound system shows evidence of overload or hydraulic failure, conduct the following sequence of evaluations:
 - a. Verify the actual loading and performance of the pretreatment system.
 - b. Verify the watertightness of the pretreatment and dosing tanks;
 - c. Determine the dosing rates and dosing intervals to the aggregate infiltration bed and compare it with the original design to evaluate the presence or absence of saturated conditions in the aggregate infiltration bed;
 - d. If the above steps in subsections (F)(1)(a) through (c) do not indicate an anomalous condition, evaluate the site and recalculation of the disposal capability to determine if mound lengthening is feasible;
 - e. Determine if site modifications are possible including changing surface drainage patterns at upgrade locations and lowering the groundwater level by installing interceptor drains to reduce native soil saturation at shallow levels; and
 - f. Determine if the basal area can be increased, consistent with R18-9-A309(A)(9)(b)(iv);
 2. Prepare servicing and waste disposal procedures and task schedules necessary for clearing the main pressurized wastewater line and secondary distribution lines, septic tank effluent filter, pump intake, and controls.

R18-9-E309. 4.09 General Permit: Engineered Pad System, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.09 General Permit allows for the use of an engineered pad system receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).

1. Definition. For purposes of this Section, an “engineered pad system” means a treatment and disposal technology characterized by:
 - a. The delivery of pretreated wastewater by gravity or pressure distribution to the engineered pad and sand bed assembly, followed by dispersal of the wastewater into the native soil; and
 - b. Wastewater movement through the engineered pad and sand bed assembly by gravity under unsaturated flow conditions to provide additional passive biological treatment.
 2. The applicant may use an engineered pad system if:
 - a. The native soil is excessively permeable,
 - b. There is little native soil overlying fractured or excessively permeable rock, or
 - c. The available area is limited for installing a disposal works authorized by R18-9-E302.
- B. Performance. An applicant shall ensure that:
1. The engineered pad system is designed so that the treated wastewater released to the native soil meets the following criteria:
 - a. TSS of 50 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 50 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
 - d. Total coliform level of 1,000,000 (Log₁₀ 6) colony forming units per 100 milliliters, 95th percentile; or
 2. The engineered pad system is designed to meet any other performance, loading rate, and configuration criteria specified in the reviewed product list maintained by the Department as required under R18-9-A309(E).
- 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), an applicant shall submit design materials and construction specifications for the engineered pad system.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
1. Gravity and pressurized wastewater delivery is from a septic tank or intermediate watertight chamber equipped with a pump and controls. The applicant shall ensure that:
 - a. Delivered wastewater is distributed onto the top of the engineered pad system and achieves even distribution by good engineering practice, and
 - b. The dosing rate for pressurized wastewater delivery is at least four doses per day and no more than 24 doses per day;
 2. The sand bed consists of mineral sand washed to conform to the “Standard Specification for Concrete Aggregates, C33-03 (2003),” which is incorporated by reference in R18-9-E308(D)(2), unless the performance testing and design specifications of the engineered pad manufacturer justify a substitute specification. The applicant shall ensure that:
 - a. The sand bed design provides for the placement of at least 6 inches of sand bed material below and along the perimeter of each pad, and
 - b. The contact surface between the bottom of the sand bed and the native soil is level;
 3. The spacing between adjacent two-pad-wide rows is at least two times the distance between the bottom of the distribution pipe and the bottom of the sand bed or 5 feet, whichever is greater;
 4. The wastewater distribution system installed on the top of the engineered pad system is covered with a breathable geotextile material and the breathable geotextile material is covered with at least 10 inches of backfill.
 - a. The applicant shall ensure that rocks and cobbles are removed from backfill cover and grade the backfill for drainage.
 - b. The applicant may place the engineered pad system above grade, partially bury it, or fully bury it depending on site and service circumstances;
 5. The engineered pad system is constructed with durable materials and capable of withstanding stress from installation and operational service; and
 6. At least two inspection ports are installed in the engineered pad system to confirm unsaturated wastewater treatment conditions at diagnostic locations.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A) an applicant shall place sand media to obtain a uniform density of 1.3 to 1.4 grams per cubic centimeter.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), an applicant shall inspect the backfill cover for physical damage or erosion and promptly repair the cover, if necessary.

R18-9-E310. 4.10 General Permit: Intermittent Sand Filter, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.10 General Permit allows for the use of an intermittent sand filter receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. For purposes of this Section, an “intermittent sand filter” means a treatment technology characterized by:
 - a. The pressurized delivery of pretreated wastewater to an engineered sand bed in a containment vessel equipped with an underdrain system or designed as a bottomless filter;
 - b. Delivered wastewater dispersed throughout the sand media by periodic doses from the delivery pump to maintain unsaturated flow conditions in the bed; and
 - c. Wastewater that is treated during passage through the media, collected by a bed underdrain chamber, and removed by pump or gravity to the disposal works, or wastewater that percolates downward directly into the

1. Definition. For purposes of this Section, a “peat filter” means a disposal technology characterized by:
 - a. The dosed delivery of treated wastewater to the peat bed, which can be a manufactured module or a disposal bed excavated in native soil and filled with compacted peat;
 - b. Wastewater passing through the peat that is further treated by removal of positively charged molecules, filtering, and biological activity before entry into native soil; and
 - c. If the peat filter system is constructed as a disposal bed filled with compacted peat, wastewater that is absorbed into native soil at the bottom and sides of the bed.
 2. An applicant may configure a modular system if a portion of the wastewater that has passed through the peat filter is recirculated back to the pump chamber.
 3. An applicant may use a peat filter system if:
 - a. The native soil is excessively permeable,
 - b. There is little native soil overlying fractured or excessively permeable rock,
 - c. A reduction in setback distances or minimum vertical separation is desired, or
 - d. Cold weather inhibits performance of other treatment or disposal technologies.
- B. Performance. An applicant shall ensure that a peat filter is designed so that it produces treated wastewater that meets the following criteria:
1. TSS of 15 milligrams per liter, 30-day arithmetic mean;
 2. BOD₅ of 15 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
 4. Total coliform level of 100,000 (Log₁₀ 5) colony forming units per 100 milliliters, 95th percentile.
- 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), an applicant shall submit:
1. Specifications for the peat media proposed for use in the peat filter or provided in the peat module, including:
 - a. Porosity;
 - b. Degree of humification;
 - c. pH;
 - d. Particle size distribution;
 - e. Moisture content;
 - f. A statement of whether the peat is air dried, and whether the peat is from sphagnum moss or bog cotton; and
 - g. A description of the degree of decomposition;
 2. Specifications for installing the peat media; and
 3. If a peat module is used:
 - a. The name and address of the manufacturer,
 - b. The model number, and
 - c. A copy of the manufacturer’s warranty.
- D. Design requirements.
1. If a pump tank is used to dose the peat module or bed, an applicant shall:
 - a. Ensure that the pump tank is sized to contain the dose volume and a reserve volume above the high water alarm that will contain the volume of daily design flow; and
 - b. Use a control panel with a programmable timer to dose at the applicable loading rate.
 2. Peat module system. In addition to the applicable requirements in R18-9-A312, the applicant shall:
 - a. Size the gravel bed supporting the peat filter modules to allow it to act as a disposal works and ensure that the bed is level, long, and narrow, and installed on contour to optimize lateral movement away from the disposal area;
 - b. For modules designed to allow wastewater flow through the peat filter and base material into underlying native soil, size the base on which the modules rest to accommodate the soil absorption rate of the native soil;
 - c. Place fill over the module so that it conforms to the manufacturer’s specification. If the fill is planted, the applicant shall use only grass or shallow rooted plants; and
 - d. Ensure that the peat media depth is at least 24 inches, the peat is installed with the top and bottom surfaces level and the maximum wastewater loading rate is 5.5 gallons per day per square foot of inlet surface at the rated daily design flow, unless the Department approves a different wastewater loading rate under R18-9-A309(E).
 3. Peat filter bed system. In addition to the applicable requirements in R18-9-A312, the applicant shall ensure that:
 - a. The bed is filled with peat derived from sphagnum moss and compacted according to the installation specification;
 - b. The maximum wastewater loading rate is 1 gallon per day per square foot of inlet surface at the rated daily design flow;
 - c. At least 24 inches of installed peat underlies the distribution piping and 10 to 14 inches of installed peat overlies the piping;
 - d. The cover material over the peat filter bed is slightly mounded to promote runoff of rainfall. The applicant shall not place additional fill over the peat; and

- e. The peat is air dried, with a porosity greater than 90 percent, and a particle size distribution of 92 to 100 percent passing a No. 4 sieve and less than 8 percent passing a No. 30 sieve.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), the applicant shall:
 - 1. Peat module system.
 - a. Compact the bottom of all excavations for the filter modules, pump, aerator, and other components to provide adequate foundation, slope the bottom toward the discharge to minimize ponding, and ensure that the bottom is flat, and free of debris, rocks, and sharp objects. If the excavation is uneven or rocky, the applicant shall use a bed of sand or pea gravel to create an even, smooth surface;
 - b. Place the peat filter modules on a level, 6-inch deep gravel bed;
 - c. Place backfill around the modules and grade the backfill to divert surface water away from the modules;
 - d. Not place objects on or move objects over the system area that might damage the module containers or restrict airflow to the modules;
 - e. Cover gaps between modules to prevent damage to the system;
 - f. Fit each system with at least one sampling port that allows collection of wastewater at the exit from the final treatment module;
 - g. Provide the modules and other components with anti-buoyancy devices to ensure stability in the event of flooding or high water table conditions; and
 - h. Provide a mechanism for draining the filter module inlet line; or
 - 2. Peat filter bed system.
 - a. Scarify the bottom and sides of the leaching bed excavation to remove any smeared surfaces, and
 - i. Unless directed by an installation specification consistent with this Chapter, place peat media in the excavation in 6-inch lifts; and
 - ii. Compact each lift before the next lift is added. The applicant shall take care to avoid compaction of the underlying native soil;
 - b. Lay distribution pipe in trenches cut in the compacted peat, and
 - i. Ensure that at least 3 inches of aggregate underlie the pipe to reduce clogging of holes or scouring of the peat surrounding the pipe, and
 - ii. Place peat on top of and around the sides of the pipes.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall inspect the finished grade over the peat filter for proper drainage, protection from damaging loads, and root invasion of the wastewater distribution system and perform maintenance as needed.

R18-9-E312. 4.12 General Permit: Textile Filter, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.12 General Permit allows for the use of a textile filter receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
 - 1. Definition. For purposes of this Section, a “textile filter” means a disposal technology characterized by:
 - a. The flow of wastewater into a packed bed filter in a containment structure or structures. The packed bed filter uses a textile filter medium with high porosity and surface area; and
 - b. The textile filter medium provides further treatment by removing suspended material from the wastewater by physical straining, and reducing nutrients by microbial action.
 - 2. An applicant may use a textile filter in conjunction with a two-compartment septic tank or a two-tank system if the second compartment or tank is used as a recirculation and blending tank. The applicant shall divert a portion of the wastewater flow from the textile filter back into the second tank for further treatment.
 - 3. An applicant may use a textile filter if:
 - a. Nitrogen reduction is desired,
 - b. The native soil is excessively permeable,
 - c. There is little native soil overlying fractured or excessively permeable rock, or
 - d. A reduction in setback distances or minimum vertical separation is desired.
- B. Performance. An applicant shall ensure that a textile filter is designed so that it produces treated wastewater that meets the following criteria:
 - 1. TSS of 15 milligrams per liter, 30-day arithmetic mean;
 - 2. BOD₅ of 15 milligrams per liter, 30-day arithmetic mean;
 - 3. Total nitrogen (as nitrogen) of 30 milligrams per liter, five-month arithmetic mean, or 15 milligrams, five-month arithmetic mean per liter if documented under subsection (C)(4); and
 - 4. Total coliform level of 100,000 (Log₁₀ 5) colony forming units per 100 milliliters, 95th percentile.
- 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), an applicant shall submit:
 - 1. The name and address of the filter manufacturer;
 - 2. The filter model number;
 - 3. A copy of the manufacturer’s filter warranty;
 - 4. If the system is for nitrogen reduction to 15 milligrams per liter, five-month arithmetic mean, specifications on the

- nitrogen reduction performance of the filter system and corroborating third-party test data;
 - 5. The manufacturer's operation and maintenance recommendations to achieve a 20-year operational life; and
 - 6. If a pump or aerator is required for proper operation, the pump or aerator model number and a copy of the manufacturer's warranty.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
- 1. The textile medium has a porosity of greater than 80 percent;
 - 2. The wastewater is delivered to the textile filter by gravity flow or a pump;
 - 3. If a pump is used to dose the textile filter, the pump and appurtenances meet the following criteria:
 - a. The textile media loading rate and wastewater recirculation rate are based on calculations that conform with performance data listed in the reviewed product list maintained by the Department as required under R18-9-A309(E),
 - b. The tank and recirculation components are sized to contain the dose volume and a reserve volume above the high water level alarm that will contain the volume of daily design flow, and
 - c. A control panel with a programmable timer is used to dose the textile media at the applicable loading rate and wastewater recirculation rate.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall:
- 1. Before placing the filter modules, slope the bottom of the excavation for the modules toward the discharge point to minimize ponding;
 - 2. Ensure that the bottom of all excavations for the filter modules, pump, aerator, or other components is level and free of debris, rocks, and sharp objects. If the excavation is uneven or rocky, the applicant shall use a bed of sand or pea gravel to create an even, smooth surface;
 - 3. Provide the modules and other components with anti-buoyancy devices to ensure they remain in place in the event of high water table conditions; and
 - 4. Provide a mechanism for draining the filter module inlet line.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall not flush corrosives or other materials known to damage the textile material into any drain that transmits wastewater to the on-site wastewater treatment facility.

R18-9-E313. 4.13 General Permit: Denitrifying System Using Separated Wastewater Streams, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.13 General Permit allows for the use of a separated wastewater streams, denitrifying system for a dwelling.
- 1. Definition. For purposes of this Section a "denitrifying system using wastewater streams" means a gravity flow treatment and disposal system for a dwelling that requires separate plumbing drains for conducting dishwasher, kitchen sink, and toilet flush water to wastewater treatment tank "A" and all other wastewater to a wastewater treatment tank "B."
 - a. Treated wastewater from tanks "A" and "B" is delivered to an engineered composite disposal bed system that includes an upper distribution pipe to deliver treated wastewater from tank "A" to a columnar celled, sand-filled bed.
 - b. The wastewater drains downward into a sand bed, then into a pea gravel bed with an internal distribution pipe system that delivers the treated wastewater from tank "B."
 - c. The entire composite bed is constructed within an excavation about 6 feet deep.
 - d. The system operates under gravity flow from tanks "A" and "B."
 - e. An engineered sampling assembly is installed at the midpoint of the disposal line run and at the base of the composite bed during construction to monitor system performance.
 - 2. An applicant may use a separated wastewater streams, denitrifying system where total nitrogen reduction is required under this Article before release to the native soil.
- B. Performance. An applicant shall ensure that a separated wastewater streams, denitrifying system is designed so that the treated wastewater released to the native soil meets the following criteria:
- 1. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 - 2. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 - 3. Total nitrogen (as nitrogen) of 30 milligrams per liter, five-month arithmetic mean; and
 - 4. Total coliform level of 1,000,000 (Log₁₀ 6) colony forming units per 100 milliliters, 95th percentile.
- 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).
- D. Design, installation, operation, and maintenance requirements. The applicant shall comply with the applicable design, installation, operation, and maintenance requirements in R18-9-A312, R18-9-A313(A), and R18-9-A313(B).
- E. Reference design.
- 1. An applicant may use a separated wastewater streams, denitrifying system achieving the performance requirements specified 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 system with the applicant's submittal of the Notice of Intent to Discharge.

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.
 - 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).
- 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 twenty-four 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-E315. 4.15 General Permit: Aerobic System Less Than 3000 Gallons Per Day Design Flow

- A. A 4.15 General Permit allows for the construction and use of an aerobic system that uses aeration for treatment.
 - 1. Definition. For purposes of this Section, an "aerobic system" means a treatment unit consisting of components that:
 - a. Mechanically introduce oxygen to wastewater,
 - b. Typically provide clarification of the wastewater after aeration, and
 - c. Convey the treated wastewater by pressure or gravity distribution to the disposal works.
 - 2. An applicant may use an aerobic system if:
 - a. Enhanced biological processing is needed to treat wastewater with high organic content,
 - b. A soil or site condition is not adequate for installation of a standard septic tank and disposal works under R18-9-E302,
 - c. A highly treated wastewater amenable to disinfection is needed, or
 - d. Nitrogen removal from the wastewater is needed and removal performance of the system is documented according to subsection (C)(6).
- B. Performance.
 - 1. An applicant shall ensure that the aerobic system is designed so that the treated wastewater released to the native soil meets the following criteria:
 - a. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean, or as low as 15 milligrams, five-month arithmetic mean per liter if documented under subsection (C)(6); and
 - d. Total coliform level of 300,000 (Log₁₀ 5.5) colony forming units per 100 milliliters, 95th percentile.
 - 2. An applicant may use an aerobic system that meets the following less stringent performance criteria if the aerobic technology is listed by the Department under R18-9-A309(E) and the Department bases its review and listing on the technology being less costly and simpler to operate when compared to other aerobic technologies:
 - a. TSS of 60 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 60 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean, or as low as 15 milligrams, five month arithmetic mean per liter, if documented under subsection (C)(6); and
 - d. Total coliform level of 1,000,000 (Log₁₀ 7) colony forming units per 100 milliliters, 95th percentile.
- 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), an applicant shall submit:
1. The name and address of the aerobic system manufacturer;
 2. The model number of the aerobic system;
 3. Evidence of performance specified in subsection (B)(1) or (B)(2), as applicable;
 4. A list of pretreatment components needed to meet performance requirements;
 5. A copy of the manufacturer's warranty and operation and maintenance recommendations to achieve performance over a 20-year operational life; and
 6. If the aerobic system will be used for nitrogen removal from the wastewater, either:
 - a. Evidence of a valid product listing under R18-9-E309(E) indicating nitrogen removal performance, or
 - b. Specifications and third party test data corroborating nitrogen reduction to the intended level.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
1. The wastewater is delivered to the aerobic treatment unit by gravity flow either directly or by a lift pump;
 2. An interceptor or other pretreatment device is incorporated if necessary to meet the performance criteria specified in subsection (B)(1) or (2), or if recommended by the manufacturer for pretreatment if a garbage disposal appliance is used;
 3. A clarifier is provided after aeration for any treatment technology that achieves performance that is equal to or better than the performance criteria specified in subsection (B)(1); and
 4. Ports for inspection and monitoring are provided to verify performance.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that:
1. The installation of the aerobic treatment components conforms to manufacturer's specifications that do not conflict with Articles 1 and 3 of this Chapter and to the design documents specified in the Construction Authorization issued under R18-9-A301(D)(1)(c); and
 2. Excavation and foundation work, and backfill placement is performed to prevent differential settling and adverse drainage conditions.
- F. Operation and maintenance requirements. The permittee shall:
1. Follow the applicable requirements in R18-9-A313(B), and
 2. Ensure that filters are cleaned and replaced as necessary.
- G. Reference design.
1. An applicant may use an aerobic system that achieves the applicable performance requirements by following a reference design on file with the Department.
 2. An applicant using a reference design shall submit, with the Notice of Intent to Discharge, supplemental information specific to the proposed installation on a form approved by the Department.

R18-9-E316. 4.16 General Permit: Nitrate-Reactive Media Filter, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.16 General Permit allows for the construction and use of a nitrate-reactive media filter receiving pretreated wastewater.
1. Definition. "Nitrate-reactive media filter" means a treatment technology characterized by:
 - a. The application of pretreated, nitrified wastewater to a packed bed filter in a containment structure. A packed bed filter consists of nitrate-reactive media that receives pretreated wastewater under appropriate design and operational conditions, and
 - b. The ability of the nitrate-reactive filter to further treat the nitrified wastewater by removing total nitrogen by chemical and physical processes.
 2. An applicant shall use a nitrate-reactive media filter with a treatment or disposal works to pretreat and dispose of the wastewater.
 3. An applicant may use a nitrate-reactive media filter if nitrogen reduction is required under this Article.
- B. Restrictions. The applicant shall not use any product to supply pretreated wastewater to the nitrate-reactive media filter unless:
1. The product meets the pretreatment requirements for the filter based on product performance information in the product listing, and
 2. The product is listed by the Department as a reviewed product under R18-9-A309(E).
- C. Performance. An applicant shall ensure that a nitrate-reactive media filter is designed so that it produces treated wastewater that does not exceed the following criteria:
1. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 2. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 10 milligrams per liter, five-month arithmetic mean; and
 4. Total coliform level of 1,000,000 (Log₁₀ 6) colony forming units per 100 milliliters, 95th percentile.
- 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), an applicant shall submit:
1. The name and address of the filter manufacturer;
 2. The filter model number;
 3. The manufacturer's requirements for pretreated wastewater supplied to the nitrate-reactive media filter;
 4. The manufacturer's specifications for design, installation, and operation for the nitrate-reactive media filter system and appurtenances;

5. The manufacturer=s warranty for the nitrate-reactive media filter system and appurtenances;
 6. The manufacturer=s operation and maintenance recommendations to achieve a 20-year operational life for the nitrate-reactive media filter system and appurtenances; and
 7. The manufacturer name and model number for all appurtenances that significantly contribute to achieving the performance required in subsection (C).
- E. Design requirements. In addition to the applicable design requirements specified in R18-9-A312, an applicant shall ensure that:
1. The nitrate-reactive media filter and appurtenances conform with manufacturer=s specifications,
 2. The loading rate of pretreated wastewater to the nitrate-reactive media inlet surface meets the manufacturer=s specification and does not exceed 5.00 gallons per day per square foot of media inlet surface area, and
 3. The bed packed with nitrate reactive media is at least 24 inches thick.
- F. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that:
1. The nitrate-reactive media filter and appurtenances are installed according to manufacturer’s specifications to achieve proper wastewater treatment, hydraulic performance, and operational life; and
 2. Anti-buoyancy devices are installed when high water table or extreme soil saturation conditions are likely during operational life of the facility.
- G. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B) and the manufacturer=s specifications for the nitrite-reactive media filter, the permittee shall not dispose of corrosives or other materials that are known to damage the nitrate-reactive media filter system into the on-site wastewater treatment facility.

R18-9-E317. 4.17 General Permit: Cap System, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.17 General Permit allows for the use of a cap fill cover over a conventional trench disposal works receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. For purposes of this Section, a “cap system” means a disposal technology characterized by:
 - a. A soil cap, consisting of engineered fill placed over a trench that is not as deep as a trench allowed by R18-9-E302; and
 - b. A design that compensates for reduced trench depth by maintaining and enhancing the infiltration of wastewater into native soil through the trench sidewalls.
 2. An applicant may use a cap system if:
 - a. There is little native soil overlying fractured or excessively permeable rock, or
 - b. A high water table does not allow the minimum vertical separation to be met by a system authorized by R18-9-E302.
- B. Performance. An applicant shall ensure that the design soil absorption rate and vertical separation complies with this Chapter for a trench, based on the following performance, unless additional pretreatment is provided:
1. TSS of 75 milligrams per liter, 30-day arithmetic mean;
 2. BOD₅ of 150 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 4. Total coliform level of 100,000,000 (Log₁₀ 8) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit specifications for the proposed cap fill material.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
1. The soil texture from the natural grade to the depth of the layer or the water table that limits the soil for unsaturated wastewater flow is no finer than silty clay loam;
 2. Cap fill material used is free of debris, stones, frozen clods, or ice, and is the same as or one soil group finer than that of the disposal site material, except that the applicant shall not use fill material finer than clay loam as an additive;
 3. Trench construction.
 - a. The trench bottom is at least 12 inches below the bottom of the disposal pipe and not more than 24 inches below the natural grade, and the trench bottom and disposal pipe are level;
 - b. The aggregate cover over the disposal pipe is 2 inches thick and the top of the aggregate cover is level and not more than 9 inches above the natural grade;
 - c. The cap fill cover above the top of the aggregate cover is at least 9 inches but not more than 18 inches thick. The applicant shall ensure that:
 - i. The cap surface is protected to prevent erosion and sloped to route surface drainage around the ends of the trench; and
 - ii. If the top of the aggregate is at or below the original ground surface, the cap surface has side slopes not more than one vertical to three horizontal; or
 - iii. If the top of the aggregate is above the original ground surface, the horizontal extent of the finished fill edges is at least 10 feet beyond the nearest trench sidewall or endwall;
 - d. The criteria for trench length, bottom width and spacing, and disposal pipe size is the same as that for the trench system prescribed in R18-9-E302;
 - e. Permeable geotextile fabric is placed on the aggregate top, trench end, and sidewalls extending above natural grade;

- f. The native soil within the disposal site and the adjacent downgradient area to a 50-foot horizontal distance does not exceed a 12 percent slope if the top of the aggregate cover extends above the natural grade at any location along the trench length. The applicant shall ensure that the slope within the disposal site and the adjacent downgradient area to a 50-foot horizontal distance does not exceed 20 percent if the top of the aggregate cover does not extend above the natural grade;
 - g. The fill material is compacted to a density of 90 percent of the native soil if the invert elevation of the disposal pipe is at or above the natural grade at any location along the trench length;
 - h. At least one observation port is installed to the bottom of each cap fill trench;
 - i. The effective absorption area for each trench is the sum of the trench bottom area and the sidewall area. The height of the sidewall used for calculating the sidewall area is the vertical distance between the trench bottom and the lowest point of the natural land surface along the trench length; and
 - j. If the applicant uses correction factors for soil absorption rate under R18-9-A312(D)(3) and minimum vertical separation under R18-9-A312(E), additional wastewater pretreatment is provided.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall prepare the disposal site when high soil moisture is not present and equipment operations do not create platy soil conditions. The applicant shall:
- 1. Plow or scarify the fill area to disrupt the vegetative mat while avoiding smearing,
 - 2. Construct trenches as specified in subsection (D)(3),
 - 3. Scarify the site and apply part of the cap fill to the fill area and blend the fill with the scarified native soil within the contact layers, and
 - 4. Follow the construction design specified in the Construction Authorization issued under R18-9-A301(D)(1)(c).
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall inspect and repair the cap fill and other surface features as needed to ensure proper disposal function, proper drainage of surface water, and prevention of damaging loads on the cap.

R18-9-E318. 4.18 General Permit: Constructed Wetland, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.18 General Permit allows for the use of a constructed wetland receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
- 1. Definition. “Constructed wetland” means a treatment technology characterized by a lined excavation, filled with a medium for growing plants and planted with marsh vegetation. The treated wastewater flows horizontally through the medium in contact with the aquatic plants.
 - a. As the wastewater flows through the wetland system, additional treatment is provided by filtering, settling, volatilization, and evapotranspiration.
 - b. The wetland system allows microorganisms to break down organic material and plants to take up nutrients and other pollutants.
 - c. The wastewater treated by a wetland system is discharged to a subsurface soil disposal system.
 - 2. An applicant may use a constructed wetland if further wastewater treatment is needed before disposal.
- B. Performance. An applicant shall ensure that a constructed wetland is designed so that it produces treated wastewater that meets the following criteria:
- 1. TSS of 20 milligrams per liter, 30-day arithmetic mean;
 - 2. BOD₅ of 20 milligrams per liter, 30-day arithmetic mean;
 - 3. Total nitrogen (as nitrogen) of 45 milligrams per liter, five-month arithmetic mean; and
 - 4. Total coliform level of 100,000 (Log₁₀ 5) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. The applicant shall comply with the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B).
- D. Design, installation, operation, and maintenance requirements. The permittee shall comply with the applicable design, installation, operation, and maintenance requirements in R18-9-A312, R18-9-A313(A), and R18-9-A313(B).
- E. Reference design.
- 1. An applicant may use a constructed wetland 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 constructed wetland with the applicant’s submittal of the Notice of Intent to Discharge.

R18-9-E319. 4.19 General Permit: Sand-Lined Trench, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.19 General Permit allows for the use of a sand-lined trench receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
- 1. Definition. For purposes of this Section, a “sand lined trench” means a disposal technology characterized by:
 - a. Engineered placement of sand or equivalently graded glass in trenches excavated in native soil,
 - b. Wastewater dispersed throughout the media by pressure distribution technology as specified in R18-9-E304 using a timer-controlled pump in periodic uniform doses that maintain unsaturated flow conditions, and
 - c. Wastewater treated during travel through the media and absorbed into the native soil at the bottom of the trench.

2. An applicant may use a sand lined trench if:
 - a. The native soil is excessively permeable,
 - b. There is little native soil overlying fractured or excessively permeable rock, or
 - c. Reduction in setback distances or minimum vertical separation is desired.
- B. Performance. An applicant shall ensure that a sand lined trench is designed so that treated wastewater released to the native soil meets the following criteria:
 1. TSS of 20 milligrams per liter, 30-day arithmetic mean;
 2. BOD₅ of 20 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 4. Total coliform level of 100,000 (Log₁₀ 5) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit specifications for the proposed media in the trench.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
 1. The media used in the trench is 1 mineral sand, crushed glass, or cinder sand and that:
 - a. The media conforms to “Standard Specifications for Concrete Aggregates, C33-03,” which is incorporated by reference in R18-9-E308(D)(2), “Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing, C117-04 (2004),” published by the American Society for Testing and Materials, or an equivalent method approved by the Department. 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; and
 - b. Sieve analysis complies with the “Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing, C11704,” which is incorporated by reference in subsection (D)(1)(a), or an equivalent method approved by the Department;
 2. Trenches.
 - a. Distribution pipes are capped on the end;
 - b. The spacing between trenches is at least two times the distance between the bottom of the distribution pipe and the bottom of the trench or 5 feet, whichever is greater;
 - c. The inlet filter media surface, wastewater distribution pipe, and bottom of the trench are level and the maximum effluent loading rate is not more than 1.0 gallon per day per square foot of sand media inlet surface;
 - d. The depth of sand below the gravel layer containing the distribution system is at least 24 inches;
 - e. The gravel layer containing the distribution system is 5 to 12 inches thick, at least 36 inches wide, and level;
 - f. Permeable geotextile fabric is placed at the base of and along the sides of the gravel layer, as necessary. The applicant shall ensure that:
 - i. Geotextile fabric is placed on top of the gravel layer, and
 - ii. Any cover soil placed on top of the geotextile fabric is capable of maintaining vegetative growth while allowing passage of air;
 - g. At least one observation port is installed to the bottom of each sand lined trench;
 - h. If the trench is installed in excessively permeable soil or rock, at least 1 foot of loamy sand is placed in the trench below the filter media. The minimum vertical separation distance is measured from the bottom of the loamy sand; and
 - i. The trench design is based on the design flow, native soil absorption area at the trench bottom, minimum vertical separation below the trench bottom, design effluent infiltration rate at the top of the sand fill, and the adjusted soil absorption rate for the final effluent quality; and
 3. The dosing system consists of a timer-controlled pump, electrical components, and distribution network and that:
 - a. Orifice spacing on the distribution piping does not exceed 4 square feet of media infiltrative surface area per orifice, and
 - b. The dosing rate is at least four doses per day and not more than 24 doses per day.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that the filter media is placed in the trench to prevent differential settling and promote a uniform density throughout of 1.3 to 1.4 grams per cubic centimeter.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall ensure that:
 1. The septic tank filter and pump tank are inspected and cleaned;
 2. The dosing tank pump screen, pump switches, and floats are cleaned yearly and any residue is disposed of lawfully; and
 3. Lateral lines are flushed and the liquid waste discharged into the treatment system headworks.

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, 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-E321. 4.21 General Permit: Surface Disposal, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.21 General Permit allows for surface application of treated wastewater that is nominally free of coliform bacteria produced by the treatment works of an on-site wastewater treatment facility.
- B. Performance. An applicant shall ensure that the treated wastewater distributed for surface application meets the following criteria:
1. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 2. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean;
 4. Is nominally free of total coliform bacteria as indicated by a total coliform level of Log₁₀ 0 colony forming units per 100 milliliters, 95th percentile.
- C. Restrictions. The applicant shall not install the disposal works if weather records indicate that:
1. Average minimum temperature in any month is 20°F or less, or

2. Over 1/3 of the average annual precipitation falls in a 30-day period.
- D. Design requirements. An applicant shall ensure that:
 1. The land surface application rate does not exceed the lowest application rate as determined under R18-9-A312(D) minus no greater than 50 percent of the evapotranspiration that may occur during the month with the least evapotranspiration in any soil zone within the top 5 feet of soil;
 2. The design incorporates sprinklers, bubbler heads, or other dispersal components that optimize wastewater loading rates and prevent ponding on the land surface;
 3. The design specifies containment berms:
 - a. Compacted to a minimum of 95 percent Proctor;
 - b. Designed to contain the runoff of the 10-year, 24-hour storm event in addition to the daily design flow; and
 - c. Designed to remain intact in the event of a more severe rainfall event; and
 4. The design incorporates placement of signage on hose bibs, human ingress points to the surface disposal area, and at intervals around the perimeter of the surface disposal area to provide notification of use of treated wastewater and a warning against ingestion.
- E. Installation requirements. An applicant shall ensure that installation of the wastewater dispersal components conforms to manufacturer's specifications that do not conflict with this Article and to the design documents specified in the Construction Authorization issued under R18-9-A301(D)(1)(c).
- F. Operation and maintenance. In addition to the requirements specified in R18-9-A313(B), the permittee shall operate and maintain the surface disposal works to:
 1. Prevent treated wastewater from coming into contact with drinking fountains, water coolers, or eating areas;
 2. Contain all treated wastewater within the bermed area; and
 3. Ensure that hose bibs discharging treated wastewater are secured to prevent use by the public.

R18-9-E322. 4.22 General Permit: Subsurface Drip Irrigation Disposal, Less Than 3000 Gallons Per Day Design Flow

- A. A 4.22 General Permit allows for the construction and use of a subsurface drip irrigation disposal works that receives high quality wastewater from an on-site wastewater treatment facility to dispense the wastewater to an irrigation system that is buried at a shallow depth in native soil. A 4.22 General Permit includes a pressure distribution system under R18-9-E304.
 1. The subsurface drip irrigation disposal works is designed to disperse the treated wastewater into the soil under unsaturated conditions by pressure distribution and timed dosing. The applicant shall ensure that the pressure distribution system meets the requirements specified in R18-9-E304, and the Department shall consider whether the requirements of R18-9-E304 are met when processing the application under R18-9-A301(B).
 2. A subsurface drip irrigation disposal works reduces the downward percolation of wastewater by enhancing evapotranspiration to the atmosphere.
 3. An applicant may use a subsurface drip irrigation disposal works to overcome site constraints, such as high groundwater, shallow soils, slowly permeable soils, or highly permeable soils, or if water conservation is needed.
 4. The subsurface drip irrigation disposal works includes pipe, pressurization and dosing components, controls, and appurtenances to reliably deliver treated wastewater to driplines using supply and return manifold lines.
- B. Performance. An applicant shall ensure that:
 1. Treated wastewater that meets the following criteria is delivered to a subsurface drip irrigation disposal works:
 - a. Performance Category A.
 - i. TSS of 20 milligrams per liter, 30-day arithmetic mean;
 - ii. BOD₅ of 20 milligrams per liter, 30-day arithmetic mean;
 - iii. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 - iv. Total coliform level of one colony forming unit per 100 milliliters, 95th percentile; or
 - b. Performance Category B.
 - i. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 - ii. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 - iii. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 - iv. Total coliform level of 300,000 (Log₁₀ 5.5) colony forming units per 100 milliliters, 95th percentile; and
 2. The subsurface drip irrigation works is designed to meet the following performance criteria:
 - a. Prevention of ponding on the land surface, and
 - b. Incorporation of a fail-safe wastewater control or operational process to prevent inadequately treated wastewater from being discharged.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements in R18-9-A301(B), R18-9-A309(B), and R18-9-E304, the applicant shall submit:
 1. Documentation of the pretreatment method proposed to achieve the wastewater criteria specified in subsection (B)(1), such as the type of pretreatment system and the manufacturer's warranty;
 2. Initial filter and drip irrigation flushing settings;
 3. Site evapotranspiration calculations if used to reduce the size of the disposal works; and
 4. If supplemental irrigation water is introduced to the subsurface drip irrigation disposal works, an identification of the

- cross-connection controls, backflow controls, and supplemental water sources.
- D. Design requirements. In addition to the applicable design requirements specified in R18-9-A312, an applicant shall ensure that:
1. The design requirements of R18-9-E304 are followed, except that:
 - a. The requirement for quick disconnects in R18-9-E304(D)(1)(c) is not applicable, and
 - b. The applicant may provide the reserve volume specified in R18-9-E304(D)(3)(a)(iv) in an oversized treatment tank or a supplemental storage tank;
 2. Drip irrigation components and appurtenances are properly placed.
 - a. Performance category A subsurface drip irrigation disposal works. The applicant shall ensure that:
 - i. Driplines and emitters are placed to prevent ponding on the land surface, and
 - ii. Cover material and placement depth follow manufacturer's requirements to prevent physical damage or ultraviolet degradation of components and appurtenances; or
 - b. Performance category B subsurface drip irrigation disposal works. The applicant shall ensure that:
 - i. Driplines and emitters are placed at least 6 inches below the surface of the native soil;
 - ii. A cover of soil or engineered fill is placed on the surface of the native soil to achieve a total emitter burial depth of at least 12 inches;
 - iii. Cover material and placement depth follow manufacturer's requirements to prevent physical damage or ultraviolet degradation of components and appurtenances; and
 - iv. The drip irrigation disposal works is not used for irrigating food crops;
 3. Wastewater is filtered upstream of the dripline emitters to remove particles 100 microns in size and larger;
 4. A pressure regulator is provided to limit the pressure of wastewater in the drip irrigation disposal works;
 5. Wastewater pipe meets the approved pressure rating in "Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120, D1785-04a (2004)," or "Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80, F441/F441M-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;
 6. The system design flushes the subsurface drip irrigation disposal works components with wastewater at a minimum velocity of 2 feet per second, unless the manufacturer's manual and warranty specify another flushing practice. The applicant shall ensure that piping and appurtenances allow the wastewater to be pumped in a line flushing mode of operation with discharge returned to the treatment system headworks;
 7. Air vacuum release valves are installed to prevent water and soil drawback into the emitters;
 8. Driplines.
 - a. Driplines are placed from 12 to 24 inches apart unless other configurations are allowed by the manufacturer's specifications;
 - b. Dripline installation and design requirements, including the allowable deflection, follow manufacturer's requirements;
 - c. The maximum length of a single dripline follows manufacturer's specifications to provide even distribution;
 - d. The dripline incorporates a herbicide to prevent root intrusion for at least 10 years;
 - e. The dripline incorporates a bactericide to reduce bacterial slime buildup;
 - f. Disinfection does not reduce the life of the bactericide or herbicide in the dripline;
 - g. Any return flow from a drip irrigation disposal works to the treatment works does not impair the treatment performance; and
 - h. When dripline installation is under subsection (E)(1)(b) or (c), backfill consists of the excavated soil or similar soil obtained from the site that is screened for removal of debris and rock larger than 1/2-inch;
 9. Emitters.
 - a. Emitters are spaced no more than 2 feet apart, and
 - b. Emitters are designed to discharge from 0.5 to 1.5 gallons per hour;
 10. A suitable backflow prevention system is installed if supplemental water for irrigation is introduced to the pumping system. The applicant shall not introduce supplemental water to the treatment works;
 11. The drip irrigation disposal works is installed in soils classified as:
 - a. Sandy clay loam, clay loam, silty clay loam, or finer with weak platy structure or in soil with a percolation rate from 45 to 120 minutes per inch;
 - b. Sandy clay loam, clay loam, silty clay loam, or silt loam with massive structure or in soil with a percolation rate from 31 to 120 minutes per inch; and
 - c. Other soils if an appropriate site-specific SAR is determined;
 12. The minimum vertical separation distances are 1/2 of those specified in R18-9-A312(E)(2) if the design evapotranspiration rate during the wettest 30-day period of the year is 50 percent or more of design flow, except that the applicant shall not use a minimum vertical separation distance less than 1 foot;
 13. In areas where freezing occurs, the irrigation system is protected as recommended by the manufacturer;

14. If drip irrigation components are used for a disposal works using a shaded trench constructed in native soil, the following requirements are met:
 - a. The trench is between 12 and 24 inches wide;
 - b. The trench bottom is between 12 and 30 inches below the original grade of native soil and level to within 2 inches per 100 feet of length;
 - c. Two driplines are positioned in the bottom of the trench, not more than 4 inches from each sidewall;
 - d. The trench with the positioned driplines is filled to a depth of 6 to 10 inches with decomposed granite or C-33 sand or a mixture of both, with mixture composition, if applicable, and placement specified on the construction drawing;
 - e. A minimum of 8 inches of backfill is placed over the decomposed granite or C-33 sand fill to an elevation of 1 to 3 inches above the native soil finished grade;
 - f. Observation ports are placed at both ends of each shaded trench to confirm the saturated wastewater level during operation; and
 - g. A separation distance of 24 inches or more is maintained between the nearest sidewall of an adjacent trench; and
15. The soil absorption area used for design of a drip irrigation works is calculated using:
 - a. For a design that uses the shaded trench method described in subsection (D)(14), the bottom and sidewall area of the shaded trench not more than 4 square feet per linear foot of trench; or
 - b. For all other designs, the number of emitters times an area for each emitter where the emitter area is a square centered on each emitter with the side dimension equal to the emitter separation distance selected by the designer in accordance with R18-9-E322(D)(9)(a), excluding all areas of overlap of adjacent squares.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A) and R18-9-E304, the applicant shall ensure that:
 1. The dripline is installed by:
 - a. A plow mechanism that cuts a furrow, dispenses pipe, and covers the dripline in one operation;
 - b. A trencher that digs a trench 4 inches wide or less;
 - c. Digging the trench with hand tools to minimize trench width and disruption to the native soil; or
 - d. Without trenching, removing surface vegetation, scarifying the soil parallel with the contours of the land surface, placing the pipe grid, and covering with fill material, unless prohibited in subsection (D)(2)(b)(ii);
 2. Drip irrigation pipe is stored to preserve the herbicidal and bactericidal characteristics of the pipe;
 3. Pipe deflection conforms to the manufacturer's requirements and installation is completed without kinking to prevent flow restriction;
 4. A shaded trench drip irrigation disposal works is installed as specified in the design documents used for the Construction Authorization; and
 5. The pressure piping and electrical equipment are installed according to the Construction Authorization in R18-9-A301(D)(1)(c) and any local building codes.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313 (B) and R18-9-E304, the permittee shall:
 1. Test any fail-safe wastewater control or operational process quarterly to ensure proper operation to prevent discharge of inadequately treated wastewater, and
 2. Maintain the herbicidal and bacteriological capability of the drip irrigation disposal works.

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 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 covered under other general permits, but are sized larger to accommodate increased flows;
 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 covered by one of the following general permits available for a design flow of less than 3000 gallons per day:
 - a. An aerobic system with subsurface or surface disposal described in R18-9-E315;
 - b. A disinfection device described in R18-9-E320; 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

Airport	Passenger (average daily number)	4
	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	see R18-9-A314(D)(1)	see R18-9-A314(D)(1)
Other than Single Family Dwelling,, the greater flow value based on:		
Bedroom count		
1-2 bedrooms	Bedroom	300
Each bedroom over 2	Bedroom	150
Fixture count	Fixture unit	25
Fire Station	Employee	45
Hospital		
All flows	Bed	250
Kitchen waste only	Bed	25
Laundry waste only	Bed	40

Hotel/motel		
Without kitchen	Bed (2 person)	50
With kitchen	Bed (2 person)	60
Industrial facility		
Without showers	Employee	25
With showers	Employee	35
Cafeteria, add	Employee	5
Institutions		
Resident	Person	75
Nursing home	Person	125
Rest home	Person	125
Laundry		
Self service	Wash cycle	50
Commercial	Washing machine	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
With toilet, add	Customer	7
Kitchen waste, add	Meal	6
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
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.

ARTICLE 4. NITROGEN MANAGEMENT GENERAL PERMITS
R18-9-401. Definitions

In addition to the definitions established in A.R.S. §§ 49-101 and 49-201 and A.A.C. R18-9-101, the following terms apply to this Article:

1. "Application of nitrogen fertilizer" means any use of a substance containing nitrogen for the commercial production of a crop or plant. The commercial production of a crop or plant includes commercial sod farms and nurseries.
2. "Contact stormwater" means stormwater that comes in contact with animals or animal wastes within a concentrated animal feeding operation.
3. "Crop or plant needs" means the amount of water and nitrogen required to meet the physiological demands of a crop or plant to achieve a defined yield.
4. "Crop or plant uptake" means the amount of water and nitrogen that can be physiologically absorbed by the roots and vegetative parts of a crop or plant following the application of water.
5. "Impoundment" means any structure, other than a tank or a sump, designed and maintained to contain liquids. A structure that stores or impounds only non-contact stormwater is not an impoundment under this Article.
6. "Liner" or "lining system" means any natural, amendment, or synthetic material used to reduce seepage of impounded liquids into a vadose zone or aquifer.
7. "NRCS guidelines" means the United States Department of Agriculture, Natural Resources Conservation Service, National Engineering Handbook, Part 651 Agricultural Waste Management Field Handbook, Chapter 10, 651.1080, Appendix 10D – Geotechnical, Design, and Construction Guideline (November 1997). 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 United States Department of Agriculture, Natural Resources Conservation Service at <ftp://ftp.wcc.nrcs.usda.gov/downloads/wastemgmt/AWMFH/awmfh-chap10-app10d.pdf>.

R18-9-402. Nitrogen Management General Permits: Nitrogen Fertilizers

An owner or operator may apply a nitrogen fertilizer under this general permit without submitting a notice to the Director, if the owner or operator complies with the following best management practices:

1. Limit application of the fertilizer so that it meets projected crop or plant needs;
2. Time application of the fertilizer to coincide to maximum crop or plant uptake;
3. Apply the fertilizer by a method designed to deliver nitrogen to the area of maximum crop or plant uptake;
4. Manage and time application of irrigation water to minimize nitrogen loss by leaching and runoff; and
5. Use tillage practices that maximize water and nitrogen uptake by a crop or plant.

R18-9-403. Nitrogen Management General Permits: Concentrated Animal Feeding Operations

A. An owner or operator may discharge from a concentrated animal feeding operation without submitting a notice to the Director, if the owner or operator complies with the following best management practices:

1. Harvest, stockpile, and dispose of animal manure from a concentrated animal feeding operation to minimize discharge of any nitrogen pollutant by leaching and runoff;
2. Control and dispose of nitrogen-contaminated water resulting from an activity associated with a concentrated animal feeding operation, up to a 25-year, 24-hour storm event equivalent, to minimize the discharge of any nitrogen pollutant;
3. Following the requirements in subsection (B), construct and maintain a lining for an impoundment, used to contain process wastewater or contact stormwater from a concentrated animal feeding operation to minimize the discharge of any nitrogen pollutant; and
4. Close a facility in a manner that will minimize the discharge of any nitrogen pollutant. If a liner was used in an impoundment:
 - a. Remove liquids and any solid residue on the liner and dispose appropriately;
 - b. Inspect any synthetic liner for evidence of holes, tears, or defective seams that could have leaked. If evidence of leakage is discovered:
 - i. Remove the liner in the area of suspected leakage,
 - ii. Sample potentially impacted soil, and
 - iii. Properly dispose of impacted soil or restore to background nitrogen levels;
 - c. Cover the liner in place or remove it for disposal or reuse if the impoundment is an excavated impoundment,
 - d. Remove and dispose of the liner elsewhere if the impoundment is bermed;
 - e. Grade the facility to prevent the impoundment of water; and
 - f. Notify the Department within 60 days following closure.

B. Lining requirements for concentrated animal feeding operation impoundments.

1. New impoundments. The owner or operator shall:
 - a. Follow the NRCS guidelines for any newly constructed impoundment or an impoundment first used after

- [effective date of the rule], and
- b. Use a coefficient of permeability of 1×10^{-7} centimeters per second or less as acceptable liner performance. The owner or operator may include up to 1 order of magnitude reduction in permeability from manure sealing in impoundments that hold wastes having manure as a significant component.
2. Impoundments already in use.
 - a. The owner or operator shall maintain the existing seal for any impoundment first used before [the effective date of the rule].
 - b. If any of the following conditions exist at a concentrated animal feeding operation, the Director shall send a notice requiring the owner or operator to reassess the performance of the lining system:
 - i. The concentrated animal feeding operation is located within a Nitrogen Management Area designated under A.A.C. R18-9-A317; or
 - ii. Existing conditions or trends in nitrogen loading to an aquifer will cause or contribute to an exceedance of an Aquifer Water Quality Standard for a nitrogen pollutant at the point of compliance determined under A.R.S. § 49-244, based on the following information:
 - (1) Existing contamination of groundwater by nitrogen species;
 - (2) Existing and potential impact to groundwater by sources of nitrogen other than the concentrated animal feeding operation;
 - (3) Characteristics of the soil surface, vadose zone, and aquifer;
 - (4) Depth to groundwater;
 - (5) The estimated operational life of the impoundment;
 - (6) Location and characteristics of existing and potential drinking water supplies;
 - (7) Construction material and design of existing impoundment structure; and
 - (8) Any other information relevant to determining the severity of actual or potential nitrogen impact on the aquifer.
 - c. The owner or operator shall, within 90 days of the Director's notice, submit either:
 - i. A report to the Department demonstrating consistency with NRCS guidelines and the acceptable liner performance criteria established in subsection (B)(1)(b); or
 - ii. Plans and a schedule to upgrade the liner for the impoundment to meet the NRCS guidelines and the acceptable liner performance criteria in subsection (B)(1)(b). The Director may provide additional time for the submittal of the plans and a schedule for upgrade, if the owner or operator demonstrates that technical or financial assistance to develop the plans is needed.
 - d. Preliminary decision.
 - i. Within 90 days from the date of receipt, the Director shall review the report or the plans submitted under subsection (B)(2)(c) and provide to the owner or operator a preliminary decision on the submittal.
 - ii. The owner or operator may, within 30 days of the preliminary decision, submit written comments and supporting information to the Director on the preliminary decision.
 - iii. The Director shall evaluate any comments on the preliminary decision and supporting information and, within 90 days of receipt of the comments and information, make a final decision.
 - e. Final decision.
 - i. If the Director determines that the owner or operator has demonstrated that the lining system meets NRCS guidelines and the acceptable performance criteria in subsection (B)(1)(b), no additional action is necessary.
 - ii. If the Director approves the plans and schedules under subsection (B)(2)(c)(ii), the owner or operator shall implement the plans within the time-frame specified in the approved schedule.
 - iii. If the Director determines that the owner or operator failed to demonstrate that the lining system meets NRCS guidelines and the acceptable performance criteria in subsection (B)(1)(b) or that the schedule to upgrade the lining is not acceptable, the owner or operator shall upgrade the lining system within a time-frame specified by the Director.
 - iv. The owner or operator may appeal the Director's decision under A.R.S. Title 41, Chapter 6, Article 10.
3. Notification requirement. The owner or operator of any lined impoundment shall either:
 - a. Notify the Department of the type of liner that was used to line each impoundment by February 19 of each year following either:
 - i. The first use of an impoundment not used before [effective date of the rule]; or
 - ii. Completion of a liner upgrade required under this Section for an impoundment used before [effective date of the rule]; or
 - b. Include the information required in subsections (B)(3)(a)(i) and (ii) in the next annual report submitted for the AZPDES Concentrated Animal Feeding Operation General Permit, issued under 18 A.A.C. 9, Article 9, Part C.

R18-9-404. Revocation of Coverage under a Nitrogen Management General Permit

- A. The Director may revoke coverage under a nitrogen management general permit and require the permittee to obtain an individual permit under 18 A.A.C. 9, Article 2, if the Director determines that the permittee failed to comply with the best management practices under R18-9-403.
- B. Notification.
 - 1. If coverage under the nitrogen management general permit is revoked under subsection (A), the Director shall notify the permittee by certified mail of the decision according to the notification and hearing procedures in A.R.S. Title 41, Chapter 6, Article 10. The notification shall include:
 - a. A brief statement of the reason for the decision,
 - b. The effective revocation date of the general permit coverage, and
 - c. A statement of whether the discharge shall cease immediately or whether the discharge may continue until the individual permit is issued, and
 - 2. If the Director requires a person to obtain an individual permit, the notification shall include:
 - a. An individual permit application form, and
 - b. A deadline between 90 and 180 days after receipt of the notification for filing the application.
- C. When the Director issues an individual permit to an owner or operator of a facility covered under a nitrogen management general permit, the coverage under the nitrogen management general permit is superseded by the individual permit allowing the discharge.