

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ)  
TITLE 18. ENVIRONMENTAL QUALITY  
CHAPTER 9. DEPARTMENT OF ENVIRONMENTAL QUALITY  
WATER POLLUTION CONTROL  
ARTICLE 3. AQUIFER PROTECTION PERMITS  
PART E. TYPE 4 GENERAL PERMITS  
R18-9-E301. 4.01 GENERAL PERMIT: SEWAGE COLLECTION SYSTEMS  
GENERAL COMPLIANCE SHEET

---

(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:

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; and
  - 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.

2. Gravity sewer lines. An applicant shall:

- 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;
- 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.

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;
  - 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;
  - 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
- 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) 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.