

**TITLE 18. ENVIRONMENTAL QUALITY**  
**CHAPTER 9. WATER POLLUTION CONTROL**  
**PART E. TYPE 4 GENERAL PERMITS**

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

- A.** A 4.04 General Permit allows for the use of a pressurized distribution of wastewater system with a design flow less than 3000 gallons per day that treats wastewater to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. For purposes of this Section, a “pressure distribution system” means a tank, pump, controls, and piping that conducts wastewater under pressure in controlled amounts and intervals to a bed or trench or other means of distribution authorized by a general permit for an on-site wastewater treatment facility.
  2. An applicant may use a pressure distribution system if a gravity flow system is unsuitable, inadequate, unfeasible, or cost prohibitive because of site limitations or other conditions, or if needed to optimally distribute wastewater.
- B.** Performance. An applicant shall ensure that a pressure distribution system:
1. Disperses wastewater so that:
    - a. Loading rates are optimized for the intended purpose, and
    - b. The wastewater is delivered under pressure and evenly distributed within the disposal works, and
  2. Prevents ponding on the land surface.
- C.** Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), the applicant shall submit:
1. A copy of operation, maintenance, and warranty materials for the principal components; and
  2. A copy of dosing specifications, including pump curves, dispersing component details, and float control settings.
- D.** Design requirements.
1. Pumps. An applicant shall ensure that pumps used in the on-site wastewater treatment facility:
    - a. Are rated for wastewater service by the manufacturer and certified by Underwriters Laboratories;
    - b. Achieve the minimum design flow rate and total dynamic head requirements for the particular site; and
    - c. Incorporate a quick disconnect using compression-type unions for pressure connections. The applicant shall ensure that:
      - i. Quick-disconnects are accessible in the pressure piping, and
      - ii. A pump has adequate lift attachments for removal and replacement of the pump and switch assembly without entering the dosing tank or process chamber.
  2. Switches, controls, alarms, timers, and electrical components. An applicant shall ensure that:
    - a. Switches and controls accommodate the minimum and maximum dose capacities of the distribution network design. The applicant shall not use pressure diaphragm level control switches;
    - b. Fail-safe controls that can be tested in the field are used to prevent discharge of inadequately treated wastewater. The applicant shall include counters or flow meters if critical to control functions, such as timed dosing;
    - c. Control panels and alarms:
      - i. Are 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 discernible from a distance of 50 feet from the system and its appurtenances; and
      - iii. Alarms, test features, and controls are on a non-dedicated electrical circuit associated with a frequently used household lighting fixture and separate from the dedicated circuit for the pump;
    - 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.