STATE OF ARIZONA
DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY DIVISION
PHOENIX, ARIZONA 85007

LIQUID EFFLUENT COLLECTION SYSTEM GENERAL PERMIT IN COMPLIANCE WITH A.R.S. § 49-245

This general permit provides authorization to construct and operate a liquid effluent collection system for onsite wastewater treatment facilities under the Aquifer Protection Program, in compliance with the provisions of the Arizona Revised Statutes (A.R.S.) Title 49, Chapters 1 and 2 and the Arizona Administrative Code (A.A.C.) Title 18, Chapter 9.

This general permit specifically authorizes a liquid effluent collection system pursuant to A.R.S. § 49-245(I).

All discharges authorized by this general permit shall be consistent with the terms and conditions of this general permit. This general permit is effective on 12/30/2025.

This general permit expires pursuant to A.R.S. § 49-245(H).

Signed on 12/30/2025.

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Trevor Baggiore, Director
Water Quality Division
Arizona Department of Environmental

Part A: General

1. Definitions

A. “Applicant” means the person who is either the owner or operator of all components of a liquid effluent collection system, or their authorized representative, that is responsible for satisfaction of application requirements of a liquid effluent collection system general permit.

B. “Aquifer Protection Program” or “APP” means the permitting program authorized by the Arizona Revised Statutes (“A.R.S.”) Title 49, Chapter 2, Article 3, and administered pursuant to the Arizona Administrative Code (“A.A.C.”) Title 18, Chapter 9, Articles 1-3.

C. “Collector pipe” means a pipe and related appurtenances, including an accessible check-valve and shut-off-valve, that conveys effluent from service pipes to a downstream secondary treatment and/or disposal system.

D. “Effluent” or “liquid effluent” means wastewater which has undergone primary treatment for further processing.

E. "*Liquid effluent collection system" or “system” means a collection of lines that convey liquid effluent from multiple septic tanks, as primary treated wastewater, to a common secondary treatment system or common dispersal area through a small diameter pumping system or gravity system (A.R.S. § 49-245(J)(1)).* For the purpose of this definition, “dispersal” has the same meaning as “disposal” and “secondary treatment system” means any treatment technology prescribed in A.A.C. Title 18, Chapter 9, Article 3.

F. “Operator” means a person who controls the functioning of a liquid effluent collection system designed as a septic tank effluent gravity system or a septic tank effluent pump system. For the purpose of this general permit, an operator is not the same as “certified operator” or “operator” as defined in A.A.C. R18-5-101.

G. “Owner” means a person who has legal ownership over the liquid effluent collection system and is responsible for the operation of a liquid effluent collection system under this general permit. An owner may include a municipality, sanitary improvement district, or private utility.

H. “Permittee” means the person who is responsible for compliance with the requirements of this general permit, the Arizona Administrative Code, and the Arizona Revised Statutes.

I. *“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(33)).*

J. “Pump tank” means a watertight tank located after a septic tank within a liquid effluent collection system, which receives and stores effluent only and contains a pump for effluent conveyance or disposal.

K. *"Septic tank effluent gravity (STEG) system" means a collection system that uses septic tanks to separate solids and allow gravity flow of effluent to a subsequent component (A.R.S. § 49-245(J)(2)).*

L. *"Septic tank effluent pump (STEP) system" means a collection system that uses a septic tank to separate solids and incorporates a pump vault, pump and associated devices to convey effluent under pressure to a subsequent component (A.R.S. § 49-245(J)(3)).* For the purpose of this general permit, “pump vault” is a casing that holds the pump in the second chamber of a septic tank and

"pump chamber" is a stand-alone chamber of the septic tank that holds a pump. The terms pump vault and pump chamber are distinct from the term pump tank as defined in subsection (J) of this section.

M. "Service pipe" means a pipe that conveys effluent from a septic tank or pump tank to a collector pipe which leads to a downstream treatment and/or disposal system.

N. "User" means a person who is served by the liquid effluent collection system, who may or may not be the owner.

2. Incorporated by Reference Material

A. The following materials are incorporated by reference and applicable in this general permit unless specifically stated otherwise. The materials include no future editions or amendments, and are on file with the Department and as indicated below:

1. American National Standards Institute (ANSI) / American Water Works Association (AWWA) Standards: available at https://store.awwa.org/
    a. ANSI/AWWA C901-20: "Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm) for Water Distribution", and
    b. ANSI/AWWA C906-21: "Polyethylene (PE) Pressure Pipe and Fittings, 4 In. (100 mm) Through 63 In. (1,575 mm), for Waterworks".
2. American Society for Testing and Materials (ASTM) Standards: available at https://www.astm.org/
    a. ASTM C1244/C1244M-20 (Reapproved 2025), "Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum)",
    b. ASTM C913-23, "Standard Specification for Precast Concrete Water and Wastewater Structures",
    c. ASTM D2241-24, "Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)",
    d. ASTM D2321-25, "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications", and
    e. ASTM F1417-25, "Standard Test Method for Installation of Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air".
3. Engineering Design Standards, Pima County Regional Wastewater Reclamation Department (PCRWRD) , 2022 ed., available at https://www.pima.gov/1812/Design-Standards-Specifications-Details, Section 5.2, "Manholes and Appurtenances".
4. International Association of Plumbing and Mechanical Officials (IAPMO) Standards: available at https://iapmostore.org/standards/, IAPMO PS 52-2021, "Industry Standard for Pump/Dose, Sumps and Sewage Ejector Tanks with or without a Pump".
5. National Fire Protection Association (NFPA) 70, National Electrical Code (NEC) (2023) Chapter 5, https://www.nfpa.org/codes-and-standards/nfpa-70-standard-development/70.
6. Standard Specifications and Details for Construction, Pima County Regional Wastewater Reclamation Department (PCRWRD), 2022 ed., available at https://www.pima.gov/1812/Design-Standards-Specifications-Details.

a. Section 3.3, "Sanitary Sewer Manholes", revised 2022,
b. Standard Details RWRD-200 through RWRD-218, revised 2022, and
c. Standard Detail“Typical Trench for Gravity Sewer Lines” RWRD-104, revised 2022.

7. The Uniform Standard Specifications and Details for Public Works Construction, Maricopa Association of Governments (MAG), January 2025, available at https://azmag.gov/Programs/Public-Works/Specifications-and-Details.
8. Uniform Standard Details for Public Works Construction, Maricopa Association of Governments (MAG), 2025 ed., available at https://azmag.gov/Programs/Public-Works/Specifications-and-Details
    a. "Polymer Concrete Sanitary Sewer Manhole" #419-1, revised 2020,
    b. "Pre-Cast Polymer Concrete Manhole Base" #419-2, revised 2022,
    c. "Polymer Concrete Manhole Base" #419-3, revised 2020,
    d. "Concrete Sanitary Sewer Manhole" #420-1, revised 2023,
    e. "Pre-Cast Concrete Manhole Base" #420-2, revised 2022,
    f. "Concrete Manhole Base" #420-3, revised 2015,
    g. "Offset Manhole 8″ to 30″ Pipe" #421, revised 2015,
    h. “Trench Excavation, Backfilling, and Compaction” #612, revised 2023,
    i. “Manhole Construction and Drop Sewer Connections"#625, revised 2025,
    j. "Manhole Frame and Cover Adjustment - Type 'A'" #422-1, revised 2022, and
    k. "Manhole Frame and Cover Adjustment-Type 'B'" #422-2, revised 2025.

3. Applicability

A. This general permit authorizes construction and operation of a liquid effluent collection system with a design flow of less than 75,000 gallons per day (gpd).
B. This general permit applies to effluent conveyance lines in a liquid effluent collection system.
C. This general permit authorizes the operation of a liquid effluent collection system designed as:
    1. A STEG system; and/or
    2. A STEP system.
D. This general permit shall only be permitted in conjunction with applicable onsite wastewater treatment facility general permits in A.A.C. Title 18, Chapter 9, Article 3, Part E.
E. The Director shall issue a single Construction Authorization and a single Discharge Authorization for a liquid effluent collection system that consists of components or technologies covered by multiple general permits.
F. Existing individual permit applicants or permittees who applied for or were issued an individual permit that are qualified to operate a liquid effluent collection system under this general permit, may, pursuant to A.A.C. R18-9-A214, request that the individual permit be terminated and replaced by this general permit and shall:
    1. Submit a Notice of Intent to Discharge under A.A.C. R18-9-A301(B) and A.A.C. R18-9-A309(B) and (C),
    2. Submit to the Department the applicable fee as specified under Appendix 1 of this general permit,

3. Shall continue to comply with the provisions of the individual permit for a discharge until the Director determines that a discharge is covered under this general permit, and
4. Shall comply with all applicable general permit requirements in this general permit and A.A.C. Title 18, Chapter 9, Article 3.

G. Existing permittees operating a liquid effluent collection system covered under a 1.09 general permit, pursuant to A.A.C. R18-9-B301(I), may continue to operate under the 1.09 general permit unless any of the conditions in A.A.C. R18-9-B301(I)(2) are met.

H. For a person applying for an expansion to an existing liquid effluent collection system permitted under this general permit, the permittee shall submit a new Notice of Intent to Discharge as the applicant, and the Department shall issue a new Discharge Authorization.
1. The applicant may submit documents from a previous Notice of Intent to Discharge if the previous information is identical and in conformance with current rules and this general permit, and the applicant shall:
   a. Provide all documentation related to the previous Notice of Intent to Discharge, and
   b. Provide full and detailed information for any changes.
2. The Notice of Intent to Discharge shall include:
   a. The applicable fee as specified under Appendix 1 of this general permit, and
   b. A certification signed by the prospective permittee stating that the information in the Notice of Intent to Discharge meets, or continues to meet, all applicable general permit requirements.
3. Upon receiving the Notice of Intent to Discharge, the Department shall follow all applicable review and authorization procedures.

4. General Requirements

A. A liquid effluent collection system designed as a STEG or STEP system, including all components, septic tanks, collection lines, secondary treatment technologies and devices, disposal technologies and devices, and appurtenances shall be owned or operated by a single person.

B. This general permit shall be considered a “Type 4” onsite wastewater treatment facility general permit for the purpose of compliance with applicable requirements in: A.R.S. Title 49, Chapter 2; A.A.C. Title 18, Chapter 9, Article 1 and Article 3; and A.A.C. Title 18, Chapter 14, Article 1.

C. The applicant and permittee shall design, install, and maintain a liquid effluent collection system granted coverage under this general permit in accordance with the requirements of this general permit and all applicable requirements in A.A.C. Title 18, Chapter 9, Article 1 and Article 3. Except where the requirements of this general permit explicitly control or otherwise conflict, nothing in this general permit supplants or supersedes any requirement in the A.A.C.

D. The permittee shall be an owner.

E. The permittee shall maintain control over, and access to, system components including septic tanks, secondary treatment components, conveyance pumps and lines, disposal areas, and all related appurtenances for the duration of coverage under this general permit.

F. General Permit Coverage.

1. Coverage under this general permit is valid for the operational life of the liquid effluent collection system or otherwise is subject to the transition requirement in A.R.S. § 49-245(H), whichever occurs first.
2. Coverage under this general permit may be revoked pursuant to A.A.C. R18-9-A307 and A.R.S. § 49-245(B).

G. The applicable point of compliance for a liquid effluent collection system granted coverage under this general permit is as prescribed under A.A.C. R18-9-A302.

H. Permittees shall not maintain and operate a liquid effluent collection system in a manner that causes service interruption, sewage spills, sewage backup, or in any other manner that causes an environmental or human health hazard.

I. Design Requirements.
1. The design of the liquid effluent collection system consists of gray water and black water flows, expressed in gpd and based on Table 1, Unit Design Flows, in A.A.C. Title 18, Chapter 9, Article 3.
2. All components of the liquid effluent collection system shall be separated from any drinking water distribution system components pursuant to A.A.C. Title 18, Chapter 5, Article 5.
3. All components of the liquid effluent collection system shall be separated from any recycled water system components pursuant to A.A.C. Title 18, Chapter 9, Article 7.
4. A liquid effluent collection system shall be located in an area free of disturbance from flora that has a potential to interfere with the operation of, damage the components of, or otherwise impede access to that system.
5. The effluent lines in a liquid effluent collection system shall be identified as sewer lines and meet all applicable requirements of A.R.S. § 40-360.22.
6. All components of the liquid effluent collection system shall be protected against buoyancy forces.

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

K. A person who owns or operates a facility contrary to the provisions of this general permit or A.A.C. Title 18, Chapter 9, Articles 1 and 3 is subject to the enforcement actions established under A.R.S. Title 49, Chapter 2, Article 4.

L. The applicant and permittee granted coverage under this general permit shall comply with the application and annual fee requirements as prescribed in Appendix 1.

5. Performance

A person shall design, construct, and operate an effluent collection system so that the system:

1. Provides adequate 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 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 conveyance and disposal.

6. Installation

A. The applicant shall ensure that installation of a liquid effluent collection system meets the following requirements:
   1. Installation is conducted in accordance with ASTM D2321-25 "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications",
   2. Installation is conducted in accordance with a detailed installation plan, drawn to-scale, which includes piping layouts, electrical service, and proposed installation of tanks in accordance with the manufacturer's instructions,
   3. The design plan submitted to the Department pursuant to part B, section 1 of this general permit shall indicate trenching and bedding details applicable for each pipe material and size in accordance with either:
      a. MAG "Trench Excavation, Backfilling, and Compaction";
      b. MAG "The Uniform Standard Specifications and Details for Public Works Construction"; or
      c. PCRWRD "Typical Trench for Gravity Sewer Lines".
   4. Manholes are installed in accordance with either:
      a. MAG "Manhole Construction and Drop Sewer Connections"; or
      b. PCRWRD "Sanitary Sewer Manholes."

B. All construction must be completed by an appropriately-licensed Arizona contractor, unless otherwise authorized by statute.

C. Installation of proprietary treatment equipment, not public domain products, shall comply with A.R.S. § 49-245(E).

Part B: Notice of Intent to Discharge Application

1. Application Requirements

A. The application requirements under this section shall be met for all applicable systems pursuant to part A, section 3 of this general permit.

B. Notice of Intent to Discharge and Construction Authorization.
   1. All Notice of Intent to Discharge requirements under A.A.C. R18-9-A301(B) and A.A.C. R18-9-A309(B) and (C) apply to this general permit, in addition to the following requirements, which shall be submitted by the applicant along with the Notice of Intent to Discharge application:

a. A general site plan showing the boundaries and key aspects of the project including a map of the collection area for which the liquid effluent collection system will serve, showing streets, treatment, and disposal areas, and
b. Construction quality drawings that include the following:
    i. The plans and profiles for collector and service pipes, clean-outs, manholes, and pump tanks with sufficient detail to allow Departmental verification of design and performance characteristics,
    ii. Relevant cross sections showing construction details and elevations of key components of the sewage collection system to allow Departmental verification of design and performance characteristics, including the slope of each gravity sewer segment stated as a percentage,
    iii. Drainage features and controls, and erosion protection as applicable, for the components of the project,
    iv. Horizontal and vertical location of utilities within the area affected by the sewer line construction,
    v. Documentation of design flows for significant components of the sewage collection system and the basis for calculating the design flows.
    vi. Drawings, reports, and other details that are clear, reproducible, and in a size and format specified by the Department, and
    vii. Design documents, including plans, specifications, drawings, reports, and calculations that are signed, dated, and sealed by an Arizona-registered professional engineer using good engineering judgment by following engineering standards of practice and relying on appropriate engineering methods, calculations, and guidance.

2. All pre-construction and construction requirements under A.A.C. R-18-9-A301(D)(1) apply to this general permit.
3. The Department retains all pre-construction and construction authorities, including the authority to issue or deny a Construction Authorization following review of a Notice of Intent to Discharge application.

2. Design

A. General Design Requirements.
    1. For the design of the conveyance portion of the STEG and STEP systems, ensure the calculated maximum sewage flows at any point in the effluent lines when flowing full, uses 80 gallons per person per day. Accommodate peak wet weather flow by multiplying the sum of the upstream sources of flow from A.A.C. Title 18, Chapter 9, Article 3, Table 1, Unit Design Flows, by a dry weather peaking factor based on upstream population, 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; as per A.A.C. R18-9-E301(D)(1)(i).

2. All collection lines, connections, and fittings of a liquid effluent collection system shall be designed and installed using materials that meet or exceed any manufacturer's specifications in order to:
    a. Limit inflows, infiltration, and exfiltration,
    b. Resist corrosion in the ambient electrochemical environment,
    c. Withstand anticipated static and live loads, and
    d. Provide internal erosion protection through maintenance of proper flow velocities.
3. Scour and Bed Degradation Requirements. If effluent lines cross or are constructed in floodways, the system shall meet the requirements of this subsection:
    a. Effluent lines shall be placed at least two feet below the level of a 100-year storm scour depth and a calculated 100-year bed degradation, otherwise, if two feet of clearance is not possible, the applicant shall ensure the system is located and designed in such a way that withstands any lateral and vertical load, however if the top of the pipe is located a minimum of 5 feet below the point of maximum scour and bed degradation, the pipe shall be PVC-SDR 26, DIP, or HDPE-DR11,
    b. Effluent lines shall be constructed of pipe of appropriate tensile strength, compressive strength, shear resistance, and scour protection,
    c. Effluent lines shall extend at least ten feet beyond the boundary of the 100-year storm scouring, and
    d. All locations of effluent lines shall be identified on construction drawings submitted to the Department under the Request for Discharge Authorization.
4. Freezing Requirements. The liquid effluent collection system shall meet the requirements of this subsection:
    a. All system components, except the effluent lines prescribed in section (B)(2), shall be buried at a minimum of 2 feet below the surface, or below the frost line, whichever is more protective,
    b. For system components placed above the frost line, insulation or heat tape may be used for protection,
    c. Risers shall be backfilled with pea gravel to prevent frost heave from separating the riser from the tank, and
    d. During shutdown conditions in freezing temperatures, all bridge crossings shall be drained and all air relief valve assemblies shall be protected with appropriate insulation.

B. Septic Tank Effluent Gravity (STEG). The following design requirements apply to a liquid effluent collection system designed as a STEG system:
1. All gravity conveyance lines shall be a minimum of 4 inches in diameter,
2. All effluent lines shall be covered with at least 3 feet of earth cover, and the applicant shall:
    a. Include at least one note specifying this requirement in construction plans submitted to the Department in the Notice of Intent, and
    b. If site-specific limitations prevent 3 feet of earth cover, a minimum of 2 feet coverage may be acceptable if the design of the pipe and joints can withstand crushing or

shearing from any expected static and live load and protect the structural integrity of the pipe,

3. Gravity effluent conveyance lines shall be designed with at least the minimum slope calculated from Manning's Formula using a coefficient of roughness of 0.013 and a sewage velocity of 1 fps when flowing full,
4. Effluent lines shall be designed to avoid a slope that creates a velocity greater than 10 feet per second,
5. The applicant shall construct any effluent line carrying a flow with a normal velocity of greater than 10 feet per second using ductile iron pipe (DIP), polyvinyl chloride (PVC), high density polyethylene pipe (HDPE), or pipe with equivalent erosion resistance, and structurally reinforce the receiving manhole or sewer main,
6. Any effluent line that runs between manholes, if not straight, shall be of constant horizontal curvature with a radius of curvature in accordance with the pipe manufacturers' specifications,
7. 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,
8. Cleanouts used in a STEG system shall follow all applicable, current MAG or PCRWRD standards in addition to the following requirements:
    a. Cleanouts shall not be spaced at intervals more than 100 feet,
    b. Cleanouts shall be sealed to prevent inflow, and
    c. Cleanouts shall be visibly accessible, and
9. Manholes.
    a. Manholes shall be required for effluent lines 8 inches in diameter or larger,
    b. Where manholes are required, the applicant shall install manholes at all grade changes, size changes, and alignment changes,
    c. Manholes shall not be spaced more than 400 feet apart,
    d. The applicant shall ensure that manhole design is consistent with the following standards, as applicable:
        i. MAG: "Polymer Concrete Sanitary Sewer Manhole"; "Pre-Cast Polymer Concrete Manhole Base"; "Polymer Concrete Manhole Base"; "Concrete Sanitary Sewer Manhole"; "Pre-Cast Concrete Manhole Base"; "Concrete Manhole Base"; "Offset Manhole 8″ to 30″ Pipe"; "Manhole Frame and Cover Adjustment - Type 'A''; and "Manhole Frame and Cover Adjustment-Type 'B'",
        ii. PCRWR: Section 3.3, "Sanitary Sewer Manholes"; RWRD-200 through RWRD-218; "Engineering Design Standards"; Section 5.2, "Manholes and Appurtenances", and
    e. The applicant shall not install manholes in areas subject to more than incidental runoff from rainfall in the immediate vicinity unless the manhole cover assembly is designed to restrict or eliminate stormwater inflow,
    f. The applicant shall perform the manhole testing pursuant to part C, section (1)(A)(1)(c)(v), 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, and:

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, and

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, and

g. The applicant shall install a manhole to provide adequate visibility and vehicular maintenance accessibility following construction.

C. Septic Tank Effluent Pump (STEP). The following design requirements apply to a liquid effluent collection system designed as a STEP system:

1. Pumps.

a. A STEP system shall include a grinder pump or a septic tank effluent pump that is located downstream of the septic tank,

b. Pump discharge rates shall allow the capacity of the pump and the volume of the wet well, dedicated for flow discharge and storage, to accommodate the expected peak flow,

c. A single pumping unit may be used for a single dwelling unit, however, a design plan, submitted to the Department pursuant to part B, section 1 of this general permit, shall include an analysis that justifies the size of the selected pump(s) and shall include the system head curve plotted on the pump curve to determine the operating point,

d. Two effluent pumps shall be required when a septic tank receives flows from two or more sources, or from a commercial source, to ensure the pump tank is capable of operating at design flow with any one pump out of service. A design plan, submitted to the Department pursuant to part B, section 1 of this general permit, shall include an analysis that justifies the size of the selected pumps;

e. All pipes and appurtenances within a pump chamber shall be corrosion-resistant,

f. A pump shall be housed in a separate stand-alone unit,

g. An effluent filter with an opening no larger than ⅛-inch shall be placed at the outlet of the septic tank prior to the pump chamber,

h. The discharge assembly for each pump shall include at least one brass swing check valve and globe or ball isolation valve and a service union prior to connection to the discharge pipe,

i. The effluent pump shall be a multi-stage turbine pump, centrifugal pump, or positive displacement pump, designed and UL listed for wastewater applications,

j. All float controls shall be adjustable and attached to manufacturer acceptable hanger tree or float hanger bracket, and

k. The requirements of this subsection shall apply to both grinder pumps and effluent pumps, except where this subsection expressly indicates otherwise.

2. Pump Tanks.

a. Pumps shall be located in a separate tank that is located downstream of the septic tank,

b. The volume of the pump tank shall accommodate 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 at least equal to the daily design flow volume,
c. After installation, pump tanks shall be tested for watertightness by following the hydrostatic test prescribed in this subsection, and shall be considered watertight if the tank complies with all elements of the test:
    i. The pump tank is filled with clean water, to the invert of the outlet and the water left standing in the tank for 24 hours,
    ii. After 24 hours, the tank is refilled to the invert, if necessary,
    iii. The initial water level and time is recorded,
    iv. After one hour, water level and time is recorded, and
    v. The water level does not drop over the one-hour period and no visible leaks or flowing water, beyond any damp or wet spots, are present, and
d. Use of an alternative technology such as a pump vault or a pump chamber instead of a pump tank shall necessitate an alternative design request pursuant to R18-9-A312(G) and part B, section 3 of this general permit.

3. Tank Construction.
    a. Tanks shall be structurally designed to withstand all anticipated earth or other loads.
    b. The tank shall be designed to achieve the following minimum requirements:
        i. All tank tops are capable of supporting an earth load of 300 pounds per square foot, and
        ii. If the tank top is greater than 2 feet below finish grade, the tank and cover are capable of supporting an additional load of 150 pounds per square foot for each additional foot of cover, and
    c. Tanks shall be designed to protect against corrosion,
    d. Tanks shall be designed to last at least 20 years,
    e. All anti-buoyancy measures shall be implemented in the design and during construction, if required,
    f. All construction shall be performed in accordance with the following standards:
        i. ASTM C913-23 “Standard Specification for Precast Concrete Water and Wastewater Structures”; or
        ii. IAPMO PS 52-2021 “Industry Standard for Pump/Dose, Sumps and Sewage Ejector Tanks with or without a Pump”, and
    g. Tanks constructed of wood, block, or structural foam are prohibited.
4. Access Covers.
    a. In this section, the term cover means a lid,
    b. Covers shall be structurally designed to withstand all anticipated earth or other loads,
    c. Pump tanks shall have a minimum of one maintenance hole with a minimum diameter of 20 inches,
    d. All maintenance hole risers shall extend through the tank cover above final grade,

e. Sufficient maintenance holes shall be provided so access can be gained within six feet of all walls for solids removal,
f. Covers shall be locked, bolted, or screwed, and fastened with non-corrosive, tamper resistant fasteners,
g. Covers shall be capable of withstanding a 2500-pound load for 60 minutes with a maximum deflection of ¾ inches,
h. Covers shall be leak resistant,
i. Covers shall have a non-skid surface,
j. Covers shall be designed to prevent sliding or flipping and shall contain a secondary safety barrier to protect against unauthorized access to the tank,
k. Covers shall contain a written and graphic label warning of the hazardous conditions inside the tank,
l. Covers shall be made of a material suitable for outdoor use and resistant to ultraviolet degradation, and
m. All risers shall be constructed to be watertight and be attached to the tanks using an appropriate tank adapter structural adhesive such that a watertight seal and structurally sound joint is provided.

5. Identification.
   a. All tanks shall be:
      i. Clearly and permanently marked with the manufacturer's name or registered trademark, or both, the month and year, or Julian date, of manufacture,
      ii. The maximum recommended depth of earth coverage in feet, per the manufacturer, and
      iii. The design liquid capacity of the tank, and
   b. The tank shall be manufactured to protect identification markings from corrosion to ensure all markings remain readable for the operational life of the tank, and
   c. If equalization tanks are used, they must meet the requirements of this subsection in addition to the requirement to incorporate a dual pump system to account for pump failure.
6. Service Pipe.
   a. A pressure service line shall incorporate a check valve and a fully closing gate or ball valve, unions incorporated, at the junction of a collection pipe and a service pipe to allow isolation of the service pipe,
   b. A check valve shall allow unrestricted flow when fully open,
   c. A valve shall be made of corrosion-resistant material and shall have a position indicator to show its open and closed position,
   d. The minimum size of a service pipe shall be 1.25 inches in diameter,
   e. The minimum size of a service pipe for multiple sources shall be 1.5 inches in diameter,
   f. A junction to collection pipes shall be made with a tee or service saddle,
   g. The diameter of a service pipe shall be no greater than the diameter of the collector pipe to which it is connected,

h. Material used in a service pipe shall contain performance characteristics that are at least equivalent to either:
    i. ASTM D-2241-24 polyvinyl chloride (PVC) pipe with a minimum pressure rating of 200 psi;
    ii. ANSI/AWWA C901-20; or
    iii. ANSI/AWWA C906-21 for Polyethylene (PE) Pressure Pipe and Tubing with a Pressure Class of 200, minimum, and
i. A discharge pipe and connections used to join on-site mechanical equipment to a pressure service pipe shall:
    i. Be pressure rated at a minimum of 2.5 times the maximum system design pressure,
    ii. Use a minimum of schedule 40 pipe when PVC pressure is used,
    iii. Be conducted of corrosion-resistant materials for all pipes and valves,
    iv. Include a check valve, a pipe union, and a full closing gate valve or ball valve, with a check valve preceding a full closing gate valve, and
    v. Include position indicators for a ball or gate valve displaying open and closed positions, and
j. All isolation valves for the conveyance system must be in valve boxes separated from onsite mechanical equipment.

7. Control Panels.
    a. Control panels for all pumps shall be at least 3.0 feet above finished grade,
    b. Control panels shall be secured to prevent tampering and contain, affixed on its exterior, at least one warning sign that includes the 24-hour emergency phone number of the owner or operator,
    c. A control panel or other electrical enclosure shall:
        i. Be constructed of corrosion-resistant materials,
        ii. Be watertight,
        iii. Prevent the migration and venting of odor to the panel or enclosure,
        iv. Prevent the migration and venting of corrosive or explosive gases to the panel or enclosure and bear the seal of the Underwriter Laboratory, Inc. or comply with the NFPA 70 “National Electrical Code”,
        v. Include an audiovisual alarm for each control panel serving a pump(s) where:
            (1) The visual portion of the signal is conspicuous from a distance of 50 feet from the system and its appurtenances,
            (2) 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,
            (3) Alarms, test features, and controls are on a non-dedicated electrical circuit separate from the dedicated circuit for the pump with constant visual confirmation that the circuit is electrically active, and
            (4) The alarm is clearly audible and visible inside the structure served.
8. Collector Pipe.

a. The velocity of wastewater in a pump pressure system main pipe shall achieve at least 1.0 feet per second (fps) and shall not be less than 1.0 fps when flowing full,
b. A collection system head loss calculation shall use a Hazen-Williams "C" factor appropriate to the pipe material, and the use of a "C" factor greater than 140 shall be prohibited,
c. The pipe used in a pressure collection system shall be at least 2 inches in diameter as long as the minimum velocity of 1 fps can be demonstrated,
d. Pipe material shall have performance characteristics at least equivalent to ASTM D-2241(24), with a minimum pressure rating of 200 psi for PVC pipe,
e. A pipe equal-to or greater than 3.0 inches in diameter shall require elastomeric pipe joints, or otherwise shall be HDPE with fused joints,
f. Restrained joints or thrust blocks on pressure pipes shall be designed to accommodate water hammer, surge control, and to prevent excessive movement of the pressure pipe, with all details demonstrated to the Department in the design plan submitted to the Department pursuant to part B, section 1 of this general permit,
g. Pressure pipes shall have all appropriate valves and controls required to prevent drainback,
h. Air release valves or other appropriate components shall be incorporated in the pressure pipe at all high points along the line to eliminate air accumulation, and if engineering calculations provided by the applicant demonstrate that air will not accumulate in a given high point under typical flow conditions, the Department may waive the requirement for an air release valve,
i. An isolation valve shall be located:
    i. At each intersection of a collection system main pipe,
    ii. On both sides of a stream crossing,
    iii. On both sides of an area of unstable soil, and
    iv. At maximum intervals of 1,250 feet, and
j. An isolation valve shall be:
    i. A resilient seated gate valve or ball valve with a position indicator,
    ii. Constructed from corrosion-resistant materials, and
    iii. Located in a secured valve box, and
k. Collector pipes shall be tested to withstand a pressure of 1.5 times the operational pressure for a minimum of two hours.

3. Alternative Design, Installation, Operational Features

A. The alternative design, setback, installation, and operational features requirements in A.A.C. R18-9-A312(G) apply for all liquid effluent collection system onsite wastewater treatment facility components permitted under a Type 4 permit in A.A.C. Title 18, Chapter 9, Article 3.

B. For alternative design, installation, and operational features associated with all liquid effluent collection system effluent lines under this general permit, the following requirements apply in lieu of the requirements in A.A.C. R18-9-A312(G):
   1. When the applicant submits a Notice of Intent to Discharge, the applicant may request, on a form approved by the Department, that the Department review and approve a feature of improved or alternative technology, design, installation, or operation that differs from a requirement in this general permit.
   2. The applicant shall submit the appropriate fee pursuant to Appendix 1 of this general permit. 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. A request shall be assessed, and may be approved, by the Department upon demonstration that an alternative design, installation, and operational feature is equivalent to or more protective than a requirement in this general permit.
   4. The Department may deny a request if the applicant fails to demonstrate that the alternative design, installation, and operational feature is equivalent to or more protective than a requirement in this general permit.

Part C: Request for Discharge Authorization

1. Request for Discharge Authorization Requirements

A. Request for Discharge Authorization and Discharge Authorization. All post-construction requirements under A.A.C. R-18-9-A301(D)(2) and A.A.C. R-18-9-A309(C) apply to liquid effluent collection systems covered under this general permit, in addition to the following requirements, which shall be submitted by the applicant along with the Request for Discharge Authorization:
   1. Supply a signed, dated, and sealed Engineer's Certificate of Completion in a format approved by the Department that provides the following, as accurately recorded:
      a. Confirmation that the system was constructed in compliance with the requirements of this general permit, 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,
      b. Properly identified and numbered as-built plans,
      c. Satisfactory field test results for the following:
         i. Deflection testing performed on the total length of all effluent lines by camera or other method, ensuring that the installation meets or exceeds the manufacturer's recommendations,
         ii. Leakage testing of each segment of the effluent line using the ASTM "Standard Test Method for Installation of Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air" testing method,
         iii. Uniform slope testing on the total length of the effluent line by lamp lighting, remote camera, or other generally accepted method,

iv. Collector pipe testing demonstrating pipes can withstand a pressure of 1.5 times the operational pressure for a minimum of two hours, and

v. Manhole testing using one of the following test protocols:

(1) A watertightness test. The applicant shall fill the manhole with water and shall ensure that the drop in water level following presoaking does not exceed 0.0034 of total manhole volume per hour;

(2) Negative air pressure test. Testing in accordance with ASTM "Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum)"; or

(3) Any other testing methods approved by the Department.

d. A signed certification:

i. Confirming that an Operation and Maintenance Manual, as specified in part D, section 2 of this general permit, exists for the system,

ii. Providing the 24-hour emergency number of the prospective permittee of the system and, if applicable, the designated facility agent, and

iii. Providing an address where the Operation and Maintenance Manual is maintained and available for inspection by the Department upon request, and

2. Supply a "Rights and Responsibilities Between Owners and Users Plan", which shall include the following:

a. A list of all components of the system along with ownership details of each component,

b. If a component of the system is not owned by the permittee, a copy of a contract between the permittee and user which:

i. Certifies all system components will be operated by the system operator,

ii. Establishes right-of-entry to the system operator to perform activities necessary for operation, maintenance, an inspection, and

c. A certification that all current and future users shall be provided a copy of the Operation and Maintenance Manual developed in accordance with part D, section 2 of this general permit, and

3. Provide the name of the system operator, along with their qualifications pursuant to Part D(2)(B), and

4. Supply any other relevant information required by the Department to determine that the facility conforms to the terms of this general permit.

B. The Department retains all post-construction authorities, including the authority to issue or deny a Discharge Authorization following a review of a Request for Discharge Authorization.

C. If the Department issues a Discharge Authorization, coverage under this general permit is granted at that time.

Part D: Operating Requirements Under a Discharge Authorization

1. Notice of Transfer

A. The notice of transfer requirements listed in A.A.C. R18-9-A316 apply for all liquid effluent collection system onsite wastewater treatment facility components permitted under a Type 4 permit in A.A.C. Title 18, Chapter 9, Article 3, in addition to the notice of transfer requirements of this section.

B. Transfer of property ownership that affects any aspect of ownership over a liquid effluent collection system, permitted as a STEG or STEP system under this general permit, is subject to the requirements of this section.

C. Within six months prior to the date of a property transfer or sale, for property upon which all of a STEG or STEP liquid effluent collection system granted coverage under this general permit is located, the seller (the "transferor"), who is the permittee-owner, shall comply with the following requirements:

1. The transferor shall retain an inspector, who meets the qualifications in A.A.C. R18-9-A316(B), to perform a transfer of ownership inspection of all owned components of the system,
2. The inspector shall complete a Report of Inspection in accordance with A.A.C. R18-9-A316(C), in addition to the following requirements specific to the STEG or STEP system:
    a. The inspector shall inspect the system for odors and effluent back-ups,
    b. The inspector shall inspect all components associated with the system including, but not limited to, pump tanks, control panels, pumps, and valves, and
    c. The inspector shall inspect for corrosion all components subject to corrosion including, but not limited to, manholes, clean-outs, valves, pump tanks, covers, and risers, and
3. Before the property is transferred, the transferor shall provide to the buyer (the "transferee"):
    a. The completed Report of Inspection, on a form approved by the Department, and
    b. All documents in the transferor's possession related to the permitting, operation, and maintenance of the system including, but not limited to, an up-to-date Operation and Maintenance Manual and an operator's log, maintained pursuant to part D, section 2 of this general permit, and
4. Within 15 calendar days after the property transfer, the transferee shall complete a Notice of Transfer, on a form approved by the Department, and
5. Within 15 calendar days after the property transfer, the transferee shall provide the following documents to the Department:

a. A completed Notice of Transfer form along with the applicable fee, as specified in Appendix 1 of this general permit, and
b. A copy of the Report of Inspection form.

D. Conforming with this section satisfies the Notice of Transfer requirements under A.A.C. R18-9-A304.

2. Operation and Maintenance

A. In addition to the applicable operation and maintenance requirements listed in A.A.C. R18-9-A313, and all associated Type 4 onsite wastewater treatment general permits, the permittee shall follow the operation and maintenance requirements of this section.
B. The liquid effluent collection system shall be operated under the supervision of a qualified operator, as determined in this section. In determining whether an operator is qualified, the Director shall consider:
   1. The operator's years of experience in the same or related field,
   2. The operator's relevant certifications,
   3. The operator's education in a qualifying discipline, and/or
   4. Any other factor relevant to qualification at the Director's discretion.
C. For the purposes of this general permit, an operator is not the same as a service provider under A.A.C. R18-9-A309(C)(2)(d) and A.R.S. § 49-245(E), however, a person may serve both functions for systems with design flow of greater than 3,000 gpd if appropriately qualified.
D. The operator shall:
   1. Be available 24 hours/day in order to respond to problems that require immediate attention and to resolve issues within a timely manner, and
   2. Maintain an on-site, or readily available, inventory of frequently necessary replacement parts and tools.
E. Operation and Maintenance Manual.
   1. The permittee shall maintain, and an operator shall follow, an Operation and Maintenance Manual during operation of the liquid effluent collection system.
   2. The elements under an Operations and Maintenance Manual, as prescribed under subsection(E)(3), are required to be managed or operated routinely or otherwise in accordance with the manufacturers specifications.
   3. At a minimum, an Operation and Maintenance Manual shall contain the following elements, as applicable:
      a. A copy of operations and maintenance manuals provided by the technology manufacturer,
      b. A description of all critical control functions for compliance testing, including, but not limited to:
         i. Alarms, test features, and controls,
         ii. Float switch level settings, and
         iii. Voltage test on pumps, motors, and controls, as applicable, and

c. A description of requirements related to the control panel, including, but not limited to:
    i. Eliminating intrusions such as water or insects,
    ii. Ensuring the UL listing is intact,
    iii. Alarm testing for sounds and lights, and
    iv. Verifying all floats are operational, and
d. A description of all requirements related to pumps, including, but not limited to:
    i. Inspecting and cleaning pump inlets and controls and returning cleaning water to the pretreatment headworks,
    ii. Measuring amperage draw at system start-up and during system operation, and
    iii. Ensuring adequate discharge pressure from the pumps, and
e. A description of all requirements related to inspecting and testing all check valves,
f. A description of all requirements related to inspecting and testing all air relief valves,
g. A description of all requirements related to pump tanks, including, but not limited to:
    i. Inspecting the condition of the pump tank for corrosion, cracks, leaks, root intrusion, collapsing sidewalls, or other conditions that may impair tank integrity,
    ii. Ensuring lids are secure and watertight, and
    iii. Verifying all floats are operational, and
h. A description of all requirements related to piping, including, but not limited to:
    i. Inspecting piping for leaks, and
    ii. Verifying all valves are operational, and
i. A description of all requirements related to drainage, including, but not limited to:
    i. Observing and maintaining the finished grade for proper surface drainage, and
    ii. Monitoring differential settling in tanks to determine proper grading and ensure surface drainage.

4. The Operation and Maintenance Manual shall maintain the following requirements related to system users:
    a. A prohibition against users modifying, repairing, or tampering with the system, and
    b. A description of procedures for users to connect to, or otherwise initiate service with the system.
5. The Operation and Maintenance Manual shall include a Response Plan, which includes, but is not limited to, the following requirements:
    a. A description of situations requiring action under the Response Plan including sewage spills, sewage backup, or system overflows,
    b. A description of remedial actions required to be undertaken, and by whom,
    c. A notification procedure including notice to the Department and any other appropriate response authority, and
    d. A detailed timeframe guiding remedial and notification requirements.
6. The Operation and Maintenance Manual shall include inspection procedures, including, but not limited to:

a. Inspection and maintenance of all tanks, and internal tank components, annually from the date of coverage under this general permit,
b. Sludge and scum removal, as necessary, or at least every five years from the date of coverage under this general permit, and
c. Inspection of all other critical components of the system, as designated by the system designer or as specified in a performance assurance plan, every six-months from the date of coverage under this general permit.

7. In the circumstance of any conflict between this general permit and any technology manufacturer's operations and maintenance manual, the requirements of this general permit shall apply.

F. Operator Log.
1. During system operation, an operator shall maintain an operator's log on-site.
2. The permittee shall make the operator's log available to the Department upon request.
3. The operator's log shall include, but is not limited to:
a. A list of equipment that has been repaired or replaced along with the respective date of the repair or replacement,
b. Documentation of operational events including run time, alarm events, pump time, overflows, security issues, and any other relevant operational information,
c. Measurements from amperage draw on the pumps,
d. A log of completed maintenance checklists, and
e. An inspection log, detailing all routine inspections of the system under the Operation and Maintenance Manual.

3. Reporting

A. For an effluent collection system covered under this general permit designed as a STEG or STEP system with a design flow greater than 3,000 gpd but less than 75,000 gpd, the permittee shall:
1. Include the liquid effluent collection system in the performance assurance plan under A.A.C. R18-9-E323(G), and
2. Follow all reporting requirements under A.A.C. R18-9-E323(G).

B. For any effluent collection system covered under this general permit, on the anniversary date of the Discharge Authorization, the permittee shall provide information to the Department about changes made to the operation of the system, such as changes to the operator, and any report of a change in operator shall include evidence of the operator's qualifications pursuant to Part D(2)(B) of this general permit.

4. Repair

C. A Notice of Intent to Discharge is not required for effluent collection system component repairs.

D. 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.
E. Repairs do not include changes in vertical or horizontal alignment.
F. Components used in the repair shall meet the design, installation, and operational requirements of this general permit.

5. Closure

A. For closure of liquid effluent collection lines authorized under this general permit, notification to the Department is required, except in the following circumstances, which shall be considered "clean closure":
    1. The permittee removes any material that may contribute to a continued discharge, and
    2. The permittee eliminates, to the greatest degree practical, any reasonable probability of further discharge from the liquid effluent collection system, and
    3. The permittee eliminates, to the greatest degree practical, any reasonable probability of an exceedance of any Aquifer Water Quality Standard at the applicable point of compliance.
B. For closure of liquid effluent collection system components authorized under an accompanying Type 4 general permit, the permittee shall comply with the closure requirements in A.A.C. R18-9-A309(D).

6. Recordkeeping

Permittees shall maintain the Discharge Authorization, associated documents, and operation and maintenance records for the facility covered under the effluent collection system general permit and one or more Type 4 general permits on-site for the life of the facility.

The permittee shall make the records prescribed in subsection (A) available to the Department upon request.

Appendix 1: Fees

1. Fees

A. The Department shall assess fees for a liquid effluent collection system general permit as authorized under A.R.S. § 49-245(G) and established pursuant to A.R.S. § 49-104(B)(17).
B. The following shall be considered a "water quality protection service", as defined in A.A.C. R18-14-101(11), for a liquid effluent collection system general permit:

1. Pre-application consultation, granting coverage, renewing, amending, modifying, transferring, or denying a general permit,
2. Reviewing supplemental information required by a general permit condition,
3. Conducting a site visit, and
4. Reviewing proprietary and other reviewed products.

C. The Department shall assess and collect fees for a water quality protection service related to a liquid effluent collection system general permit.

1. A flat fee shall be assessed under each Notice of Intent to Discharge on a per-component basis for the components listed in Table 1, and assessed cumulatively up to the maximum fee listed in Table 1, adjusted annually under A.A.C. R18-14-108(E).

Table 1: Flat Fees and Maximum Fees:

Maximum Fee	$36,670
Gravity lines with design flow less than or equal to 2,999 gpd	$1,470
Each additional increment of 15,000 gpd or less of gravity line	$1,470
Pressure lines with design flow less than or equal to 2,999 gpd	$1,470
Each additional increment of 15,000 gpd or less of pressure line	$1,470
Each pump tank	$1,470

2. An annual fee shall be assessed for a liquid effluent collection system general permit related water quality protection service subject to a flat fee based on the design flow listed in Table 2, and adjusted annually under A.A.C. R18-14-108(E).

Table 2: Annual Fees:

Collection system with design flow less than or equal to 2,999 gpd	$1,470
Each additional increment of 15,000 gpd or less of effluent line	$1,470

3. Additional fees shall be assessed for a liquid effluent collection system general permit, outlined in Table 3, Table 4, and adjusted annually under A.A.C. R18-14-108(E).

Table 3: Alternative Design, Installation, Operational Features Fee:

Each Alternative Design, Installation, Operational Features request	$1,470

Table 4: Notice of Transfer Fee:

Per permit transfer of a Discharge Authorization	$70

D. The Department shall assess the applicable liquid effluent collection system general permit fees described in this section in addition to the applicable fees for all Type 4 general permits permitted in conjunction with this liquid effluent collection system general permit designed as a STEG or STEP system, in accordance with the following:
   1. For STEG or STEP systems with a design flow of less than or equal to 2,999 gpd, the permittee shall apply for and pay all applicable Type 4.02 - Type 4.22 general permit fees in 18 A.A.C. 14, Article 1.
   2. For STEG or STEP systems with a design flow greater than 2,999 gpd to less than or equal to 74,999 gpd, the permittee shall apply for and pay all applicable Type 4.23 general permit fees in 18 A.A.C. 14, Article 1.

—---------- END OF PERMIT —----------