

**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 (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 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).

#### **Historical Note**

New Section adopted by final rulemaking at 7 A.A.R. 235, effective January 1, 2001 (Supp. 00-4).

Amended by final rulemaking at 11 A.A.R. 4544, effective November 12, 2005 (05-3).

#### **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.

#### **Historical Note**

New Section adopted by final rulemaking at 7 A.A.R. 235, effective January 1, 2001 (Supp. 00-4).  
Amended by final rulemaking at 11 A.A.R. 4544, effective November 12, 2005 (05-3).

#### **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.

#### **Historical Note**

New Section adopted by final rulemaking at 7 A.A.R. 235, effective January 1, 2001 (Supp. 00-4).

Amended by final rulemaking at 11 A.A.R. 4544, effective November 12, 2005 (05-3).

#### **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 (BOD<sub>5</sub>) less than 30 mg/l (30-day average) and 45 mg/l (seven-day average), or carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>) 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 BOD<sub>5</sub>, CBOD<sub>5</sub>, 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.

#### **Historical Note**

New Section adopted by final rulemaking at 7 A.A.R. 235, effective January 1, 2001 (Supp. 00-4).

Amended by final rulemaking at 11 A.A.R. 4544, effective November 12, 2005 (05-3).

#### **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.

**Historical Note**

New Section adopted by final rulemaking at 7 A.A.R. 235, effective January 1, 2001 (Supp. 00-4).  
Amended by final rulemaking at 11 A.A.R. 4544, effective November 12, 2005 (05-3).

**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).

**Historical Note**

New Section adopted by final rulemaking at 7 A.A.R. 235, effective January 1, 2001 (Supp. 00-4).  
Amended to correct a manifest typographical error in subsection (1) (Supp. 01-1). Amended by  
final rulemaking at 11 A.A.R. 4544, effective November 12, 2005 (05-3).