

State of Georgia
Department of Natural Resources
Environmental Protection Division
Watershed Protection Branch

National Pollutant Discharge Elimination System (NPDES)
Domestic Antidegradation Analysis

SECTION 1. PROJECT INFORMATION

SECTION 2. ALTERNATIVES ANALYSIS

2.1 Provide the alternatives considered that could result in no degradation of surface waters. If the applicant selects an alternative that results in no degradation, the following sections are not required.

2.2 Provide the alternatives considered that could lessen degradation to surface waters. Identify which alternative(s) is/are technologically possible, able to be put into practice, and economically viable..

SECTION 3 SOCIAL OR ECONOMIC DEMONSTRATION - For each factor provide a discussion of expected positive and negative impacts. Include appropriate support documentation.

SECTION 4. PRACTICABLE ALTERNATIVE CHOSEN

SECTION 5. CERTIFICATION

Name and Title: Indicate the name and title of the person signing the form.
Telephone No.: Provide the telephone number of the person signing the form.
Date: Indicate the date that the form was signed.

This form is an attached part of the NPDES permit application and must be signed in accordance with Georgia Rule 391-3-6-.06(5). Please refer to Georgia EPD's Antidegradation Analysis Guidelines for additional guidance in completing this form.

Please attach additional pages and/or documentation as needed.

C. Land Disposal Treatment System:

Land treatment includes subsurface, drip irrigation, reuse and spray irrigation systems. Consideration should be given to the wastewater characteristics and whether the constituents are conducive to land application. Provide the following:

1. An estimate of the best case hydraulic loading rate based on County Soil Surveys or from a soil evaluation performed by a soil scientist. Acreage requirements may be driven by either hydraulics or agronomics.
2. Calculations showing hydraulic loading rate and total area of land needed for the land disposal system, including buffers.
3. The availability and cost of land and the cost of transporting the wastewater to a suitable, available site.
4. Overall feasibility and cost of use of land treatment.

D. No Increase In Pollutant Loading:

Expanding systems only - Evaluate the installation of a wastewater treatment system resulting in no increase in pollutant loading to the surface waters.

Section 2.2 Alternatives Analysis - Provide the alternatives considered that could lessen degradation to surface waters

E. Treatment system design and selected technology:

Provide the preliminary treatment system design for a direct discharge and selected technology/technologies to meet the wasteload allocation (WLA). Describe each candidate technology including the efficiency and reliability in pollutant removal and the capital and operational costs to implement those candidate technologies. Justify the selection of the proposed treatment technology. Provide feasibility and costs.

F. Flow minimization

Evaluate potential water conservation opportunities (partial recycling, reuse opportunities of wastewater, &/or infiltration/inflow (I/I) reduction measures for expansions of domestic wastewater facilities) including the feasibility of implementation and the costs. Indicate which of these may be implemented.

Section 3. Social or Economic Demonstration

A. Regional Water Plan Projections:

If a wastewater point source discharge is specifically identified in an applicable Regional Water Plan (i.e., developed by a Regional Water Planning Council or Metropolitan North Georgia Water Planning District), absent sufficient evidence to the contrary, it will be presumed necessary to accommodate important social or economic development due to the extensive multi-jurisdictional planning and review process, including public participation, required before approval of these plans. If the proposed flow and location are not specifically addressed and supported by an applicable plan, Part 3.B. below should be completed instead.

B. Facilities Not in a Regional Plan:

1. Population Projections - Determine the population to be served within the service area using a 20-year planning period. If 20-year population projections for the project area are not available, a linear extrapolation of population trends from the past decade should be used. Any deviation from a linear projection method should be clearly justified. Support should be provided for the proposed population projection.

- 2. Flow Projections** - Justification of flow using population projections, as well as a demonstration of need, shall be provided. Flow projections shall represent the projected average flows since the permit flow is based on the monthly average. Consider the following:
- a. Current flow for proposed expansions. Current flows including residential, commercial, industrial, and non-excessive infiltration/inflow (I/I) based on actual flow data or water billing records must be provided. If the existing I/I is excessive, rehabilitation shall be addressed prior to any request for flow expansion. (Excessive I/I is considered to be a rate for domestic wastewater plus infiltration exceeding 120 gpd/capita during high groundwater or a total flow rate exceeding 275 gpcd during storm events. 40 CFR 35.2120)
 - b. Future 20-year residential flow based on project growth.
 - c. Future 20-year commercial flow based on project growth
 - d. Future industrial flow. Flow for future industrial contributions must be provided. A reasonable allowance for undocumented industrial expansions may be included if the basis is clearly justified and current land-use plans and local zoning include it.
 - e. Future Non-excessive I/I - A nominal allowance for non-excessive I/I for new sewer lines may be considered if the basis is clearly justified.

C. Economic Analysis

Compare feasibility and costs of proposed treatment with the feasibility and costs of alternative or enhanced treatment technologies that may result in more complete pollutant removal.

To provide valid cost comparisons among all technologically possible wastewater alternatives identified above and the proposed discharge project, a 20-year Present Worth analysis should be performed. The analysis should include all monetary costs associated with construction, startup, and annual operation and maintenance of a facility. All unit cost information should be provided, and costs should be supported (e.g., vendor quotes, realtor land quotes, past bids, Means Construction Index, etc.) and submitted. For each treatment alternative identified as technologically possible and the proposed discharge project, costs should include, but not be limited to, the following:

1. Capital Costs
 - a. Land acquisition
 - b. Equipment
 - c. Construction
 - d. Design

2. Recurring Costs
 - a. Operation and maintenance
 - b. Equipment replacement
 - c. Laboratory for permit compliance and process control
 - d. Operator and support staff
 - e. Sludge disposal
 - f. Utilities

3. Present Worth Calculation

The following standard formula for computing the present worth should be used in all cost estimates made under this evaluation:

$$PV = C_0 + C \left\{ \frac{[(1+r)^n - 1]}{r(1+r)^n} \right\}$$

Where:

- PV = Present value of costs
- C_0 = Costs incurred in the present year = Capital costs
- C = Costs incurred annually = Recurring costs
- n = Life of the facility = Typically 20 years
- r = interest rate dependent on the type of debt instrument to be used

The results of the present worth analysis should be used in evaluating the cost of each alternative in relation to its benefits.

Please attach the economic viability for each alternative(s).

D. Return Flow Considerations (Optional) :

Demonstrate that water quantity in the receiving water is limited and there are potential water quantity gaps under low flow conditions, then the water quantity benefits of allowing a surface water discharge outweigh the effects of lower water quality resulting from the discharge provided the water quality to protect the existing uses will be maintained. This demonstration might include, but is not limited to, references to surface water flow needs identified in an applicable Regional Water Plan, TMDL, applicable recommendations for water management or the need to support aquatic life and drinking water supplies.

Section 4. Practicable Alternative Chosen – Include rationale.

Section 5. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:	Date:
Title:	Telephone:
Signature:	