

# Antidegradation Implementation Guidelines

DRAFT

State of Georgia Environmental Protection Division  
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This document supercedes the May 2014 Antidegradation Analysis Guidelines, the 1997 State of Georgia Antidegradation Procedures ~~and the applicable portions of the 1999 Domestic Wastewater Systems Planning Guidelines.~~

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## **1.0 OVERVIEW**

The goal of the Environmental Protection Division (EPD) of the State of Georgia is to enhance, protect, and maintain water quality in Georgia. Implementation of the antidegradation policy procedures serves to promote this goal. These antidegradation procedures provide guidance in implementing the State's antidegradation policy as found in Chapter 391-3-6-.03 (2)(b) of the Georgia's Rules for Water Quality Control.

The federal regulations (40 CFR 131.12) require state water quality standards programs to address 3 levels or "tiers" of antidegradation protection. The Georgia antidegradation review policy provides protection for all waters of the State as either "Outstanding National Resource Waters" (Tier 3) or "high quality waters" (Tier 2). In Georgia, the Tier 1 level of protection is bypassed for the more protective Tier 2 provisions; although Tier 1 waters require, at a minimum, existing uses and the level of water quality necessary to protect those uses shall be maintained and protected(Tier 1 provision).

All Georgia waters-All waters in Georgia are considered to be at minimum "high quality waters" (Tier 2) and are afforded the associated level of protection. Waters designated as wild rivers, scenic rivers, primary trout streams, and waters generally supporting shellfish receive special protection under the Tier 2 provisions. "Outstanding National Resource Waters" (ONRW) prohibit any degradation of water quality by not allowing new point source discharges or increases in the discharge of pollutants above permitted levels from existing point source discharges. However, activities that result in temporary and limited changes in water quality may be allowed if authorized by the -Division EPD and the water quality is returned or restored to conditions equal to or better than those existing prior to the activities. An antidegradation analysis is not required for these activities. Waters designated as wild rivers and scenic rivers have similar protections as Tier 3 waters since these designated uses require no alteration of the natural water quality of these waters from any source.

## **2.0 APPLICABILITY**

An antidegradation analysis is only required for proposed new or expanded (increase in loading) wastewater discharges to surface waters. Some of the items listed below may be reasonable alternatives to discharging to surface waters, see further discussions in Section 4.0.

### **2.1 Does Not Discharge to a Surface Water**

An antidegradation analysis is not required for the following discharges because they are not discharges to surface waters:

- Industrial Pretreatment to a Publicly Owned Treatment Works (POTW),
- Discharge to other POTWs,
- Discharge to privately owned treatment systems,
- Year-round Urban Water Reuse,

- Land Disposal Systems, aka Land Application Systems (LAS), aka Land Treatment Systems, or
- 100% recycle systems.

## **2.2 No Increase in Loading**

An antidegradation analysis is not required for new, expanding, or existing wastewater treatment facilities for the following activities, as long as there is no increase in loading:

- Maintenance of existing treatment system components, where like equipment is replaced, retaining existing permit limits and design capacity,
- The addition of treatment to an existing discharge to meet existing permit limits, or
- A flow expansion of a wastewater treatment facility if the mass discharge of the pollutants is equal to or less than the mass discharge of pollutants allowed in the permit for the existing facility.

## **2.3 Prohibited Discharges**

Certain discharges are prohibited in Georgia. Therefore, permits are not issued for the following types of discharges:

The following discharges to surface waters are prohibited:

- Point source discharges from animal feeding operations (CAFOs and AFOs),
- New or expanded point source discharges from individual residences, or
- New or expanded discharges from Non-governmentally Owned Sewerage Systems and some governmentally owned sewerage systems such as schools, parks, prisons, etc., also known as Private and Institutional Development Systems (PIPs).

## **2.4 Exceptions that Require an Antidegradation Analysis**

The following PIDs are required to do an antidegradation analysis if there is an increase in permitted load:

- Governmentally owned or operated institutional development systems, such as schools, parks, prisons, etc., a surface water discharge is prohibited unless the following criteria are met:
  1. Minimum daily average discharge of 150,000 gal/day, and
  2. Effluent discharge must meet the water quality based effluent limits provided in the issued wasteload allocation (WLA).

- Non-governently Owned Sewerage Systems, not including privately owned industrial systems, with a cold weather surface water discharge from a land disposal or land treatment reuse system, aka land application system; or
- Non-governently Owned Sewerage Systems, not including privately owned industrial systems, with a year round discharge where all of the following requirements are met:

1. Receiving Waterbody Requirements

- a. 7Q10 of the receiving waterbody must be greater than zero (0.0 cfs).
- b. The receiving waterbody may only be designated as “Fishing” as defined in Chapter 319-3-6-.03(6)(c) of Georgia’s Rules.

2. Minimum Treatment Standards

- a. Minimum daily average discharge of 150,000 gal/day.
- b. At a minimum, the wastewater treatment plant must be designed in accordance with EPD’s *Guidelines for Water Reclamation and Urban Water Reuse*, as amended.
- c. There must be a commitment to reuse treated wastewater.

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3. Trust Indenture Requirements

- a. A local government must be the trustee of the PID and have control or powers of administration of property in trust with a legal obligation to administer it solely for the purposes specified.
- b. Legally binding contract between the PID and trustee (local government) stating the trustee will be responsible for operations and maintenance of the treatment system, compliance with permit requirements, and funding and billing of the operations, etc. in case the PID disbands, dissolves, or becomes insolvent.

## 23.0 ANTIDEGRADATION ANALYSIS FOR WASTEWATER POINT SOURCES

The antidegradation review process is triggered when a new or expanded point source ~~which that~~ will degrade or lower water quality is proposed for discharge to surface waters. A new discharge is a discharge of pollutants from a point source to a surface water of the ~~state~~ State for which there has never been a finally effective NPDES wastewater discharge permit. An expanded discharge is one ~~which that~~ has an finally effective NPDES wastewater discharge permit and for

which an increase in loading has occurred. For the purposes of this guidance, an increase in loading is:

- An increase in a permitted pollutant loading,
- A discharge of a pollutant not currently discharged, or
- An increase in the mass of a pollutant discharged that triggers the need for a new effluent limitation.

Additionally, the Director has the discretion to require an antidegradation analysis for other discharges of pollutants on a case by case basis. Antidegradation analyses for a group of discharges may be addressed in the wasteload allocations (WLAs) given in a the development of Total Maximum Daily Load (TMDL) by the treatment technology selected to meet these WLAs.

Applicants requesting such-a new or expanded wastewater point source discharge into any surface water must perform an antidegradation analysis to demonstrate that the discharge is necessary to accommodate important social or economic development. The EPD uses a parameter-by-parameter or waterbody-by-waterbody approach for implementation of the State's antidegradation policy and will review each parameter separately as it evaluates an application for a new or expanded discharge.

The antidegradation analysis consists of twothree basic steps:

1. First, An applicant must demonstrate that no reasonable alternatives exist that would provide the needed wastewater capacity without authorizing a new or expanded wastewater discharge into surface waters. If a reasonable alternative is available and will replace the need for a new or expanded discharge to surface waters, then the antidegradation analysis does not apply (Section 4).
2. aAn applicant must demonstrate that the discharge is necessary to accommodate important social or economic development (Section 5), and Second, an applicant must demonstrate that no reasonable alternatives exist that would provide the needed wastewater capacity without authorizing a new or expanded wastewater discharge into surface waters.
3. An applicant must provide at least one practicable alternative for disposal of wastewater into surface waters. , which may include the wasteload allocation (WLA) provided by GA EPD As outlined in 391-3-6-.03(2)(b)(ii)2., when the analysis of alternatives identifies one or more practicable alternatives, the EPD shall only find that a lowering of high quality water is necessary if one such alternative is selected for implementation (Section 6).

#### **34.0 APPLICABILITY AND REASONABLE ALTERNATIVES ANALYSIS**

A reasonable alternative may replace the need for a new or expanded discharge to surface waters; therefore, an antidegradation analysis may not be required. The following is a list of reasonable alternatives that need to be considered. However, each system is unique and other

reasonable alternatives may be available based on available technology, location, and financial status. The return flow considerations described in 6.1.3 may also be taken into consideration for the reasonable alternatives analysis.

~~An antidegradation analysis is only required for proposed new or expanded (increase in loading) wastewater discharges to surface waters. An antidegradation analysis is not required for the following:~~

#### **4.1 Discharges to Other Treatment Systems**

Existing sewer lines within a five-mile radius must be identified. A preliminary indication of flow acceptance from the existing system must be provided. If the existing system will not agree to accept the wastewater, include a letter documenting this. If the existing system will accept the wastewater, determine the transportation cost (including any tap-on fees) to connect. The EPD works with the Georgia Department of Economic Development to encourage new industries to locate in communities where adequate capacity is available in the POTW. Options that should be considered prior to requesting a discharge include:

- Industrial Pretreatment to a Publicly Owned Treatment Works (POTW),
- Discharge to other ~~treatment systems~~POTWs,
- Discharge to privately owned treatment systems,
- Opportunities for industrial co-location should be explored including the feasibilities of implementation and the financial costs. Co-location may provide opportunities for discharge to existing industrial wastewater treatment systems, or source water substitution

#### **4.2 Use of Land Disposal Treatment Systems**

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

#### **4.3 100% Year-round Urban Water Reuse**

Facilities that have 100% year round urban reuse of the wastewater are not required to do an antidegradation analysis.

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## Land Disposal Application Systems (LAS)

### 4.4 100% Recycle Systems

Facilities that have 100% recycle where there is no discharge are not required to do an antidegradation analysis.

### 4.5 No Load Increase

If there is no increase in the permitted load, an antidegradation analysis is not necessary.

- Addition of new treatment equipment, or update and/or maintenance of existing treatment system components, where like equipment is replaced, thereby retaining existing permit limits and design capacity and therefore, there is no increase in pollutant loading.

The addition of treatment to an existing discharge to meet existing permit limits, or

- A flow expansion of a wastewater treatment facility if the mass discharge of the pollutants is equal to or less than the mass discharge of pollutants allowed in the current permit and therefore, there is no increase in pollutant loading for the existing facility.

The results of the reasonable alternatives analysis, consideration of return flows, and economic feasibility analysis shall be submitted for EPD's review and concurrence.

The following discharges to surface waters are prohibited:

- New or expanded discharges from Private and Institutional Development Systems (PIDs), unless a cold weather surface water discharge from a reuse system is being considered
- Point source discharges from animal feeding operations (CAFOs and AFOs)
- New or expanded point source discharges from individual residences
- New or expanded discharges from Non governmentally Owned Sewerage Systems and some governmentally owned sewerage systems such as schools, parks, prisons, etc., also known as Private and Institutional Development Systems (PIDs).

For governmentally owned or operated institutional developments, a surface water discharge is prohibited unless the following criteria are met:

- 1) Minimum daily average discharge of 150,000 gal/day; and
- 2) Effluent discharge must meet the water quality based effluent limits provided in the issued WLA.

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~~For privately owned developments (Non governmentally Owned Sewerage Systems, not including privately owned industrial systems), a surface water discharge is prohibited unless the following criteria are met:~~

~~i. A cold weather surface water discharge from a land disposal reuse system; or~~

~~2) A year round discharge where all of the following requirements are met:~~

#### **Receiving Waterbody Requirements**

~~— 7Q10 of the receiving waterbody must be greater than zero (0.0 cfs).~~

~~— The receiving waterbody may only be designated as “*fishing*” as defined in Chapter 319-3-6-.03(6)(e) of the Rules.~~

#### **Minimum Treatment Standards**

~~— Minimum daily average discharge of 150,000 gal/day.~~

~~— At a minimum, the wastewater treatment plant must be designed in accordance with EPD’s , as amended.~~

~~— There must be a commitment to reuse treated wastewater.~~

#### **Trust Indenture Requirements**

~~— A local government must be the trustee of the PID and have control or powers of administration of property in trust with a legal obligation to administer it solely for the purposes specified.~~

~~— Legally binding contract between the PID and trustee (local government) stating the trustee will be responsible for operations and maintenance of the treatment plant, compliance with permit requirements, and funding and billing of the operations, etc. in case the PID disbands, dissolves, or becomes insolvent.~~

### **4.0 ANTIDEGRADATION ANALYSIS DOCUMENT CONTENTS**

~~A wastewater antidegradation analysis must include demonstrations to show that important social or economic development will be accommodated and that no reasonable practicable alternatives for the discharge exist , plus the following basic information:~~

**Facility Name**

**NPDES Permit Number (for a proposed expansion)**

**Location (Lat and Long)**

**Location Map**

County

Receiving Water Name (tributary and basin)

Stream Classification (listed in Chapter 391-3-6-.03 of the Rules)

## **5.0 DOMESTIC WASTEWATER**

### **5.24.1 Wasteload Allocation Process**

After EPD has concurred with the projections, ~~t~~The applicant may then should request a wasteload allocation WLA evaluation to discharge into Georgia's surface waters. A WLA is the portion of a receiving water's assimilative capacity that can be allocated to a point source without exceeding the numeric water quality criteria associated with the waterbody and/or pollutant of concern. WLAs establish water quality based effluent limits for point source discharge facilities. A WLA is needed to ensure that NPDES permit limits will be protective of the water quality standards and designated uses of the receiving waterbody. WLAs are used to establish design targets for consulting engineers to design wastewater treatment plants to meet effluent limits. Water quality standards change from time to time as new scientific information becomes available, and as a result, water quality based limits need to be updated from time to time.

~~The establishment of a WLA for a particular discharge is dependent on the outfall location of the facility, stream critical low flows, the available dilution, water quality standards, discharge flows and background conditions of the receiving water. The WLA request shall include the flow(s), GPS coordinates of the proposed discharge location(s), and a map showing the proposed discharge location(s). If the project is to be phased, up to three flows may be requested. However, the highest flow cannot exceed the flow projection. If several discharge locations are under consideration, the request may include multiple locations, not to exceed three. If EPD determines that sufficient assimilative capacity is available, the wasteload allocationWLA for the proposed project will be generated and a letter will be sent to the applicant.~~

~~Wasteload allocations and permit application reviews are not part of the antidegradation review process. They WLA can be expected to yield conservative results and may result in the establishment of permit limits that can only be met through the use of enhanced treatment technologies. Reasonable Potential Analysis will be performed during the technical review of the application. Permit limits will be developed that ensure the proposed discharge does not cause or contribute to violations of the water quality criteria and protects the designated uses.~~

The following information is required to obtain a WLA:

- Facility Name
- NPDES Permit Number (for a proposed expansion)
- Mailing Address
- County
- Facility Location (Latitude and Longitude)
- Discharge type (Industrial or Domestic) with description of waste characteristics

- Description of Treatment Process, if known
- Outfall Location (Latitude and Longitude)
- Location Map
- Name of Receiving Waterbody
- Stream Classification (listed in Chapter 391-3-6-.03 of the Rules)
- River Basin
- Requested Flows (MGD)
- Have you performed a Long-Term BOD Test (Yes, No)
- Do you have an approved Watershed Protection Plan (Yes, No)

~~After receipt of a wasteload allocation WLA, the applicant should may use the wasteload information to assist in comparing discharge and no-discharge alternatives.~~

~~The permit application reviews are not part of the antidegradation review process.~~

## **5.1-5.0 IMPORTANT SOCIAL OR ECONOMIC DEVELOPMENT EVALUATION/ POPULATION AND FLOW PROJECTIONS**

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~~If the receiving stream has sufficient assimilative capacity and EPD should find that the pollution prevention and alternative treatments are unable to minimize or eliminate the need for lowering of water quality in the affected area, then it must be determined whether The proposed discharge will must support important social and economic development. If the proposed discharge does support important social and economic development, then the EPD may decide to grant the request for lowering of water quality, provided water quality sufficient to protect existing designated and classified uses is maintained and provided. The decision must also be subject to public participation and comment.~~

### **4.25.1 Domestic Wastewater**

~~To assess the socioeconomic importance of a domestic wastewater treatment facility, the following should be evaluated and any supporting documentation should be provided:~~

#### **1. 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 the Metropolitan North Georgia Water Planning District), absent sufficient evidence to the contrary, then it will be presumed necessary to accommodate important social and 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, then the following should be submitted:~~

#### **2. Facilities Not Part of a Regional Water Plan**

If the proposed flow and location are not specifically addressed in a plan and supported by an applicable plan, then the following should be submitted:

a. Population Projections

a.

Typically a twenty-year planning period is used to size a domestic wastewater treatment plant. The applicant for a new or expanding domestic wastewater treatment plant shall 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 must be clearly justified. Support must be provided for the proposed population projection.

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b. 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.

- i. 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)
- ii. Future Residential Flow - 20-year residential flows based on projected growth must be provided.
- iii. Future Commercial Flow - 20-year commercial flows based on projected growth must be provided.
- iv. 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.
- v. 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.

The population and flow projections with supporting documentation must be submitted for EPD review and concurrence.

#### **4.25.2 Industrial Wastewater**

To assess the socioeconomic importance of a proposed industrial discharge for the affected community, each of the following should be evaluated and ~~any~~-supporting documentation ~~should will~~ be provided:

1. Affected Community

The boundaries of the region of the affected community, including all cities, towns, counties and the associated populations must be provided. The region must include the proposed receiving water.

2. Employment Projections

Current unemployment rates in the affected community must be compared to current state and national unemployment rates. A discussion of how the proposed project will positively or negatively impact those rates, including quantifying the number of jobs created /maintained and the quality of those jobs must be included.

3. Household Incomes

Current median household income levels must be compared with projected median household income levels. A discussion explaining how the proposed project will positively or negatively impact the median household income in the affected community, including the number of households expected to be impacted, must be included.

4. Tax Revenues

Current tax revenues of the affected community must be compared with the projected increase in tax revenues generated by the proposed project. The positive and negative social and economic impacts on the affected community by the projected increase must be discussed.

5. Environmental Impacts  
~~and Public Health~~

The proposed project's positive or negative impact on existing environmental ~~or public health~~ issues in the affected community must be discussed.

6. Other Socioeconomic Benefits

A discussion of any other socioeconomic benefits predicted to result from the project must be included. Where possible, these benefits should be justified with supporting documentation.

**5.2 Wasteload Allocation Process**

~~After EPD has concurred with the projections, the applicant may then request a wasteload allocation evaluation. The request shall include the flow(s), GPS coordinates of the proposed discharge location(s), and a map showing the proposed discharge location(s). If the project is to~~

~~be phased, up to three flows may be requested. However, the highest flow cannot exceed the flow projection. If several discharge locations are under consideration, the request may include multiple locations, not to exceed three. If EPD determines that sufficient assimilative capacity is available, the wasteload allocation for the proposed project will be generated and a letter will be sent to the applicant.~~

~~Wasteload allocations and permit application reviews are not part of the antidegradation review process. They can be expected to yield conservative results and may result in the establishment of permit limits that can only be met through the use of enhanced treatment technologies.~~

~~After receipt of a wasteload allocation, the applicant should use the wasteload information to assist in comparing discharge and no discharge alternatives.~~

### **5.34.3 6.0 REASONABLE PRACTICABLE ALTERNATIVE ANALYSIS**

~~“Practicable alternatives” is defined in Georgia’s Rules, under 391-3-6-.03(3), as “alternatives that are technologically possible, able to be put into practice, and economically viable” (see also 40 CFR 131.3). “When the analysis of alternatives identifies one or more practicable alternatives, the EPD shall only find that a lowering [of high quality water] is necessary if one such alternative is selected for implementation” (see Rule 396-3-6-.03(2)(b)(ii)). The permittee will submit the antidegradation analysis identifying the practicable alternative(s) and selecting the one to be implemented for the EPD’s approval.~~

#### **6.1 Technologically Possible**

##### **6.1.1 Wastewater Treatment System Design and Selected Technology**

~~The WLA provided by the EPD is the pathway to determine the design of the wastewater treatment system and the technology selected. A WLA is the portion of a receiving water’s assimilative capacity that can be allocated to a point source without exceeding the numeric water quality criteria associated with the waterbody and/or pollutant of concern. WLAs establish water quality based permit limits used to design and operate wastewater treatment plants. A WLA is needed to ensure that NPDES permit limits will be protective of the water quality standards and designated uses of the receiving waterbody. The wastewater treatment plant must be built to meet the permit effluent limits.~~

~~The applicant must request a WLA evaluation to discharge into surface waters of the state. WLAs establish water quality based effluent limits for conventional, nonconventional, and toxic pollutants of concern for point source discharge facilities. Water quality models are used to determine limits for oxygen demanding substances. Reasonable Potential Analysis (RPA) is used to determine effluent limits for pollutants. RPA will be performed during the technical review of the application. Permit limits will be developed that ensure the proposed discharge does not cause or contribute to violations of the instream water quality criteria and protects the designated uses.~~

~~For domestic waste discharges, secondary effluent limits are the minimum level of acceptable technology based treatment. Historically, all available assimilative capacity for oxygen~~

demanding substances was given to a permittee requesting a WLA. Now, however, WLAs provide limits that reserve assimilative capacity for stream protection, future growth, and margins of safety, resulting in effluent limits more restrictive than those required for secondary treatment. Water quality models determine the minimum instream dissolved oxygen (DO) downstream from a discharge. If the minimum instream DO predicted by the model, under critical, low flow, high temperature conditions, is above the water quality criteria, then the facility design will require a higher level treatment. The WLA can be expected to yield conservative results and may result in the establishment of permit limits that can only be met through the use of enhanced treatment technologies.

If a receiving waterbody is impaired and a Total Maximum Daily Load (TMDL) has been developed for the waterbody to meet water quality standards through both point and non-point source reductions, then the WLA that is incorporated into an approved TMDL will provide the antidegradation analysis by the treatment technology selected to meet the WLA. If new information becomes available that will require a revision to the TMDL and WLAs, the revised TDML will serve as the antidegradation analysis pathway for these revised WLAs.

Water quality standards may change from time to time as new scientific information becomes available, and as a result, water quality based effluent limits in the WLAs and NPDES Permits may need to be updated.

The establishment of a WLA for a particular discharge is dependent on the outfall location of the facility, stream critical low flows, the available dilution, water quality standards, discharge flows and background conditions of the receiving water. If the project is to be phased, up to three flows may be requested. However, the highest flow cannot exceed the flow projection. If several discharge locations are under consideration, the request may include multiple locations, not to exceed three. If EPD determines that sufficient assimilative capacity is available, the WLA for the proposed project will be generated and a letter will be sent to the applicant.

The following information is required to obtain a WLA:

- Facility Name
- NPDES Permit Number (for a proposed expansion)
- Mailing Address
- County
- Facility Location (Latitude and Longitude)
- Discharge type (Industrial or Domestic) with description of waste characteristics
- Description of Treatment Process, if known
- Outfall Location (Latitude and Longitude)
- Location Map
- Name of Receiving Waterbody
- Stream Classification (listed in Chapter 391-3-6-.03 of Georgia's Rules)
- River Basin
- Requested Flows (MGD)
- Have you performed a Long-Term BOD Test (Yes, No) – if yes, please submit

After receipt of a WLA, the applicant may use the wasteload information to assist in determining wastewater treatment system design and selecting appropriate technology to meet permit limits and then comparing the discharge and no discharge alternatives, provided in Section 4.0.

#### **4.3.16.1.2 Domestic Wastewater(a) Flow Minimization Technological Feasibility**

The following alternatives must be evaluated before a new or expanded (increase in loading ~~as defined above~~) ~~domestic or industrial~~ discharge can be authorized. The purpose of this demonstration is to identify ~~reasonable practicable~~ alternatives that ~~minimize flow increases without changing the effluent concentrations or increase the pollutant loadings as restricted by antibacksliding regulations could be used to accommodate important social or economic development without authorizing a new or expanded discharge.~~ The projected flow shall be used in the evaluation. Additional alternatives may also be considered.

- ~~Implementation of wW~~ater conservation measures to reduce the flow of domestic wastewater. This applies only to utilities, municipalities, or other entities that have responsibility for both wastewater and water supply. Documentation on the per capita quantities for water and wastewater for existing systems must be provided.
- ~~Implementation of i~~Infiltration/inflow (I/I) reduction measures for expansions of domestic wastewater facilities.
- ~~Less than 100% R~~euse of reclaimed water. Potential reuse customer(s) and ~~what the~~ quantity of reuse water each customer could use must be described.

I. ~~Reuse/recycling of waste by products, or production materials and fluids. This is not applicable for domestic wastewater discharges.~~

II. ~~Use of a Land Disposal land application system. Land application treatment includes subsurface, drip irrigation, reuse and spray irrigation systems. An estimate of the best case hydraulic loading rate based on County Soil Surveys or from a soil evaluation performed by a soil scientist must be provided. Calculations showing the hydraulic loading rate and the total area of land needed for the land disposal system, including buffers, must also be provided. The availability and cost of land and the cost of transporting the wastewater to a suitable, available site must be included.~~

III. ~~Discharge to other treatment systems. Existing sewer lines within a five mile radius must be identified. A preliminary indication of flow acceptance from the existing system must be provided. If the existing system will not agree to accept the wastewater, include a letter documenting this. If the existing system will accept the wastewater, determine the transportation cost (including any tap on fees) to connect.~~

~~Use of best management practices that would reduce or eliminate the need for a new or expanded discharge. This is not applicable for domestic wastewater discharges.~~

~~For items above found not to be technologically feasible, supporting documentation must be provided.~~

#### **6.1.3 (b) Return Flow Considerations**

Wastewater treatment practices can affect the flow regimes of streams, and should be consistent with the protection of natural systems. For example, the use of land ~~application-treatment~~ systems can affect the quantities and timing of returns to surface waters. Some portion of the water treated in land ~~disposal application~~-systems is not returned to surface waters in a time frame that allows users of that water source, and users of hydrologically connected adjoining waters sources, to make reasonable use of the returned water. For practical purposes, the short-term lag in returns contributes to the cumulative consumptive use in the sub-basin or watershed.

The Georgia Comprehensive State-Wide Management Plan ~~and some TMDLs~~ requires EPD to consider the extent to which wastewater discharges will influence the location, amounts, and timing of waters returning to streams or other waters, and the implications these considerations may have on the continued sustainable use and physical, chemical, and biological integrity of the affected waters.

Therefore, if the permit applicant can demonstrate that water quantity in the receiving water is limited ~~and there are potential water quantity gaps under low flow conditions, then to the degree that~~ the water quantity benefits of allowing a surface water discharge outweigh the effects of lower water quality resulting from the discharge ~~(provided that the level of water quality necessary to protect the existing uses will be maintained and protected), the analysis of alternatives described above in 5.3(a) is limited to Items I (water conservation), II (infiltration/inflow) and IV (recycling or reuse of waste byproducts, or production materials and fluids)~~. 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 (for example, restoration opportunities identified in “Running Dry”, a report by American Rivers and the Flint Riverkeeper), or the need to support aquatic life and drinking water supplies.

#### **4.3.26.1.4 Industrial Wastewater Pollutant Reduction**

##### **(a) Technological Feasibility**

~~The following alternatives must be evaluated before a new or expanded (increase in loading as defined above) industrial discharge with an increase in pollutant loading can be authorized.~~

~~EPD works with the Georgia Department of Economic Development to encourage new industries to locate in communities where adequate capacity is available in the POTW. Therefore, industries are encouraged to thoroughly explore this option prior to requesting a discharge.~~

~~Implementation of water conservation opportunities and pollution prevention measures. The potential water conservation and pollution prevention measures evaluated, including the feasibilities of implementation and the financial costs, must be discussed. Measures to be addressed include, but are not limited to, changes in processes, source reductions or substitution with less toxic substances. Indicate which measures and opportunities are to be implemented.~~

~~Reuse/recycling of reclaimed water. Potential recycle or reuse opportunities must be evaluated including the feasibilities of implementation and the financial costs, and the opportunities that can be implemented must be indicated.~~

Reuse/recycling of waste by-products, or production materials and fluids. Potential recycle or reuse opportunities must be evaluated, including the feasibilities of implementation and the financial costs. Indicate which of the opportunities can be implemented.

~~Pollution prevention measures. The potential pollution prevention measures evaluated, including the feasibilities of implementation and the financial costs, must be discussed. Measures to be addressed include, but are not limited to, changes in processes, source reductions or substitution with less toxic substances. Indicate which measures and opportunities are to be implemented.~~

- I. Use of land application treatment systems. Additional consideration should be given to the wastewater characteristics and whether the constituents are conducive to land application. Acreage requirements may be driven by either hydraulics or agronomics.

#### **6.1.5 Best Management Practices**

~~Best Management Practices (BMPs).~~ The consideration and implementation of BMPs that will assist in minimizing or eliminating the effects of lowering water quality from the proposed ~~activity discharge~~ must be discussed. BMPs should include site-specific considerations, as well as accepted industry-wide practices.

**(b) Quantity Demonstration**

~~If the permit applicant can demonstrate that water quantity in the receiving basin is limited potential to the degree that the water quantity benefits of allowing a surface water discharge outweigh the effects of lowering water quality as a result of the discharge, provided that the level of water quality necessary to protect the existing uses will be maintained and protected, then the analysis of alternatives described above is limited to Items I (water conservation/pollution prevention), III (reuse/recycling of waste by-products and production material and fluids), and V (best management practices).~~

#### **5.44.4-6.2 Economic Feasibility Viability for Domestic Dischargers**

To provide valid cost comparisons among all technologically feasible wastewater alternatives identified above and the proposed discharge project, a 20-year Present Worth analysis must be performed. A preliminary design level effort is considered sufficient for comparing feasible options and their associated costs. For the cost comparison, all future expenditures should be converted to a present worth cost at the beginning of the 20-year planning period.

The analysis should include all monetary costs associated with construction, startup, and annual operation and maintenance of a facility. All unit cost information must be provided, and costs must be supported (e.g., vendor quotes, realtor land quotes, past bids, Means Construction Index, etc.) and submitted. For each treatment alternative identified as technologically feasible and the proposed discharge project, costs should include, but not be limited to, the following:

1. Capital Costs
  - Land acquisition
  - Equipment
  - Construction
  - Design
2. Recurring Costs
  - Operation and maintenance
  - Equipment replacement
  - Laboratory for permit compliance and process control
  - Operator and support staff
  - Sludge disposal
  - Utilities
3. Present Worth Calculation

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

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

Where:

PV = Present value of costs

C<sub>o</sub> = 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 shall be used in evaluating the cost of each alternative in relation to its benefits.

~~The results of the reasonable alternatives analysis, consideration of return flows, and economic feasibility analysis shall be submitted for EPD's review and concurrence. Note that these domestic guidelines replace Attachment 1 of the *Planning for Domestic Wastewater Systems* (2/24/99) document.~~

## **6.0 INDUSTRIAL WASTEWATER**

The above methodology for domestic wastewater should be followed for an industrial wastewater project with the following modifications:

#### **6.1 Discharge to Publicly Owned Treatment Works**

EPD works with the Georgia Department of Economic Development to encourage new industries to locate in communities where adequate capacity is available in the publicly owned sewer system. Therefore, industries are encouraged to thoroughly explore this option prior to requesting a discharge.

#### **6.2 Important Social or Economic Development Evaluation**

To assess the socioeconomic importance of a proposed discharge for the affected community, each of the following should be evaluated and any supporting documentation should be provided:

a) **Affected Community**

The boundaries of the region of the affected community, including all cities, towns, counties and the associated populations must be provided. The region must include the proposed receiving water.

b) **Employment Projections**

Current unemployment rates in the affected community must be compared to current state and national unemployment rates. A discussion of how the proposed project will positively or negatively impact those rates, including quantifying the number of jobs created /maintained and the quality of those jobs must be included.

c) **Household Incomes**

Current median household income levels must be compared with projected median household income levels. A discussion explaining how the proposed project will positively or negatively impact the median household income in the affected community, including the number of households expected to be impacted, must be included.

d) **Tax Revenues**

Current tax revenues of the affected community must be compared with the projected increase in tax revenues generated by the proposed project. The positive and negative social and economic impacts on the affected community by the projected increase must be discussed.

e) **Environmental and Public Health**

The proposed project's positive or negative impact on existing environmental or public health issues in the affected community must be discussed.

f) **Other Socioeconomic Benefits**

~~A discussion of any other socioeconomic benefits predicted to result from the project must be included. Where possible, these benefits should be justified with supporting documentation.~~

### **6.3 Wasteload Allocation Process**

~~If the new or expanded discharge will have wastewater characteristics that include oxygen demanding constituents, nutrients a wasteload allocation must be requested as described in section 5.2.~~

### **6.4 Reasonable Alternatives Analysis**

#### **(a) Technological Feasibility**

~~The six alternative elements listed in section 5.3 shall be evaluated with the following modifications:~~

- ~~II. Implementation of water conservation opportunities and pollution prevention measures. The potential water conservation and pollution prevention measures evaluated, including the feasibilities of implementation and the financial costs, must be discussed. Measures to be addressed include, but are not limited to, changes in processes, source reductions or substitution with less toxic substances. Indicate which measures and opportunities are to be implemented.~~
- ~~III. Infiltration/inflow reduction measures are not applicable.~~
- ~~IV. Reuse/recycling of reclaimed water. Potential recycle or reuse opportunities must be evaluated including the feasibilities of implementation and the financial costs, and the opportunities that can be implemented must be indicated.~~
- ~~V. Reuse/recycling of waste by products, or production materials and fluids. Potential recycle or reuse opportunities must be evaluated, including the feasibilities of implementation and the financial costs. Indicate which of the opportunities can be implemented.~~
- ~~VI. Use of land application systems. Additional consideration should be given to the wastewater characteristics and whether the constituents are conducive to land treatment application. Acreage requirements may be driven by either hydraulics or agronomics.~~
- ~~VII. Opportunities for industrial co-location should be explored including the feasibilities of implementation and the financial costs. Co-location may provide opportunities for discharge to existing industrial wastewater treatment systems, or source water substitution.~~

VIII. Best Management Practices (BMPs). The consideration and implementation of BMPs that will assist in minimizing or eliminating the effects of lowering water quality from the proposed activity must be discussed. BMPs should include site-specific considerations, as well as accepted industry wide practices.

(b) Quantity Demonstration

If the permit applicant can demonstrate that water quantity in the receiving basin is limited to the degree that the water quantity benefits of allowing a surface water discharge outweigh the effects of lowering water quality as a result of the discharge, provided that the level of water quality necessary to protect the existing uses will be maintained and protected, then the analysis of alternatives described above is limited to Items I (water conservation / pollution prevention), IV (reuse / recycling of waste by products and production material and fluids), and VII (best management practices).

## **757.0 NONPOINT SOURCE**

EPD provides a framework for identifying, assessing, and controlling nonpoint sources to protect and restore the quality of Georgia's waters. The framework addresses nonpoint source discharges from urban, agricultural, ~~forestry~~sylvicultural, ~~stormwater~~, ~~and~~ erosion/sedimentation, ~~and~~ ~~surface mining~~ sources.

EPD's ~~a~~Nonpoint sources ~~program are addressed~~is implemented through a combination of regulatory and nonregulatory mechanisms, in cooperation with numerous Federal, State, and Local government agencies, universities, environmental groups and individual citizens implementing cost effective and reasonable ~~BMPs~~best management practices. Additional information about specific practices to address nonpoint source pollution can be found in Georgia's Nonpoint Source Management Plan.

### **7.1 Regulatory**

The regulatory mechanisms address ~~surface mining~~, erosion and sedimentation control, Clean Water Act Section 401 water quality certifications, and ~~stormwater~~. While ~~stormwater runoff is considered a nonpoint source~~, EPD regulates point source discharges of stormwater through issuance of the following National Pollutant Discharge Elimination System (NPDES) permits: municipal separate storm sewer system (MS4) permits, the industrial stormwater general permit, and the construction stormwater general permits. These permits use ~~BMPs~~best management practices to control pollution to the maximum extent practicable, ~~and ensure that existing water quality will not be degraded through the issuance of the permit~~. All permits for stormwater runoff include additional required best management practiceBMPs for discharges into impaired waters. EPD expects that compliance with the conditions in the stormwater permits is sufficient to prevent the degradation of water quality, and as a result, evaluating whether the permitted discharge will support important social and economic development is unnecessary.

## **7.2 Nonregulatory**

The nonregulatory mechanisms include floodplain management and implementation of ~~best management practices~~BMPs, in cooperation with local governments, agricultural and silvicultural agencies. ~~State seed and federal 319(h) grants can support some nonpoint source BMP implementation efforts for agriculture, silviculture, erosion and sediment control, and urban stormwater management above and beyond any NPDES requirements.~~ In addition, EPD supports nonpoint source education. ~~EPD does not issue permits for nonpoint source discharges into Tier 2 waters.~~

## **68.0 PUBLIC PARTICIPATION**

~~The Antidegradation review process provides opportunity for public participation. Involvement in the triennial review of the water quality standards program (i.e., use designations, water quality criteria determinations, antidegradation implementation procedures) and participation in rule development relative to permitting processes is the first touch point. Public notice of antidegradation review findings, solicitations of public comment, and maintenance of antidegradation review documents as part of the public record help ensure that interested parties can be engaged and involved throughout the review process. Public notice and opportunity for comment may be combined with other public participation procedures, such as those related to NPDES permitting processes.~~

### **Definition References**

Antibacksliding – Section 402 (o) of the Clean Water Act

Outstanding National Resource Waters (ONRW) – Georgia Rule 391-3-6-.03(2)(b)

Practicable Alternative – Georgia Rule 391-3-6-.03(3)

Scenic rivers – Georgia Rule 391-3-6-.03(3)

Tier 1 waters – Georgia Rule 391-3-6-.03(2)(b)

Tier 2 waters – Georgia Rule 391-3-6-.03(2)(b)

Tier 3 waters – Georgia Rule 391-3-6-.03(2)(b)

Wild rivers – Georgia Rule 391-3-6-.03(3)