Antidegradation Implementation Guidelines

State of Georgia Environmental Protection Division

~~June~~October 2018

This document ~~supercedes~~supersedes the May 2014 Antidegradation Analysis Guidelines~~,~~ and the 1997 State of Georgia Antidegradation Procedures.

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1.0 ~~OVERVIEW~~ PURPOSE

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~~provisions serves to promote this goal. These antidegradation procedures provide guidance in implementing the State's antidegradation ~~policy~~provisions as found in ~~Chapter~~ 391-3-6-.03 (2)(b) of the ~~Georgia's~~Georgia Rules for Water Quality Control.

1.1 Clean Water Act and Federal Regulations

Antidegradation under the Clean Water Act (CWA) was originally based on the spirit, intent, and goals of the Act, especially the clause ". . . restore and maintain the chemical, physical and biological integrity of the Nation's waters" (101(a)) and the provision of section 303(a) that made water quality standards under prior law the "starting point" for CWA water quality requirements. Antidegradation was explicitly incorporated in the CWA through a 1987 amendment codified in section 303(d)(4)(B) requiring satisfaction of antidegradation requirements before making certain changes in National Pollutant Discharge Elimination System (NPDES) permits.

In 2015, U.S. Environmental Protection Agency (EPA) amended the federal regulations pertaining to antidegradation requirements by creating a more structured process for identifying high quality waters and specifying the type of analysis that is required before a state or authorized tribe allows degradation of high water quality, resulting in enhanced protection of high quality waters and promoting public transparency. The federal regulations pertaining to antidegradation requirements are in 40 CFR 131.12.

1.2 Georgia Water Quality Act and State Regulations

The federal regulations (40 CFR 131.12) require state water quality standards programs to address 3 levels or "tiers" of antidegradation protection. EPD has adopted EPA's three antidegradation tiers virtually verbatim.

In 2018, EPD updated the antidegradation rules in 391-3-6-.03(2)(b) to ensure consistency with updates in the 2015 federal rules. EPD interprets this rule to require an antidegradation analysis only before allowing the discharge of pollutants from a point source to surface waters. This conclusion is apparent from the rule's text, which limits its application to waters that can "support propagation of fish, shellfish, and wildlife and recreation in and on the water." And the rule's genesis in the CWA, which only regulates point source discharges to surface waters, confirms that limit.

The Georgia antidegradation ~~review policy provides~~provisions provide protection for all surface waters of the State as either "Outstanding National Resource Waters" (Tier 3) or "high quality waters" (Tier 2). In Georgia, there are no Tier 1 waters; therefore, the Tier 1 level of protection is ~~bypassed for the more protective~~not used. Tier 2 provisions are more protective; 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.

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 primary trout streams and generally supporting shellfish receive special protection under the Tier 2 provisions. "Outstanding National Resource Waters" (ONRW) prohibit any degradation of water quality~~Tier 2 waters have water quality that exceeds levels necessary to support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water. The water quality of these surface waters shall be maintained and protected unless the State finds that lowering the quality is necessary to accommodate important economic or social development in the area in which the surface waters are located. In allowing such degradation or lowering of water quality, the State shall assure water quality adequate to fully protect existing uses. Further, the State shall assure achievement of the highest statutory and regulatory requirements for all new and existing point sources, and all cost-effective and reasonable best management practices for nonpoint source control.

In Tier 3 "Outstanding National Resource Waters" any degradation of water quality is prohibited 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~~ EPD and if 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~~In waters designated as wild rivers and scenic rivers ~~have similar protections as Tier 3 waters since these designated uses require no~~ , any alteration of the natural water quality of these surface waters from any source is prohibited.

~~2.0~~As stated in 391-3-6-.03(2)(b)(ii)2 of Georgia's Rules, "Before allowing any lowering of high quality water the division shall find, after an analysis of alternatives, that such a lowering is necessary to accommodate important economic or social development in the area in which the waters are located. The analysis of alternatives shall evaluate a range of practicable alternatives that would prevent or lessen the degradation associated with the proposed activity. When the analysis of alternatives identifies one or more practicable alternatives, the division shall only find that a lowering is necessary if one such alternative is selected for implementation."

Alternatives, which include those to prevent degradation and to lessen degradation, shall be analyzed as part of the antidegradation process. The important economic or social development evaluation is also part of this process to determine if lowering the water quality is necessary.

If 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 may outweigh the effects of lower water quality resulting from the discharge, provided that the water quality to protect the existing uses will be maintained. Return flow considerations are discussed in Section 6.0.

1.3 Purpose of These Guidelines

This guidance was developed by EPD staff to guide NPDES wastewater permit applicants when the antidegradation provisions in 391-3-6-.03(2)(b) are applicable. NPDES wastewater permit development is governed by existing requirements of the Georgia Water Quality Act and the Georgia Rules for Water Quality Control. The Georgia Water Quality Act and the Georgia Rules for Water Quality Control contain legally binding requirements. This document does not substitute for those provisions or regulations. Recommendations in this guidance are not binding. EPD may consider other approaches consistent with the Georgia Water Quality Act and the Georgia Rules for Water Quality Control.

2.0 APPLICABILITY

An antidegradation analysis is only required for proposed new or expanded (increase in pollutant loading) ~~wastewater~~point source 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 Prohibited Discharges

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

- Animal feeding operations (CAFOs and AFOs)
- Individual residences

2.2 No Increase in Pollutant Loading

An antidegradation analysis is not required for existing or expanding wastewater treatment facilities for the following activities, so long as they do not increase the permitted pollutant loading to the surface water:

- 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 new or existing permit limits,
- 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,
- A discharge of a pollutant that does not currently have a permit limit but is believed to be present in the current discharge based on new information such as improved analytical techniques or additional analytical information, or
- A Total Maximum Daily Load (TMDL) has been developed for a given pollutant.

2.~~1~~3 Does Not Discharge to a Surface Water

An antidegradation analysis is not required for the following discharges because they are not point source 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~~also known as Land Application Systems (LAS~~), aka~~) or 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,**~~**2.4 Private and Institutional Development Systems (PIDs)**

PIDs are defined 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~~**non** ~~**Prohibited Discharges**~~

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

- ~~Point source discharges from animal feeding operations (CAFOs and AFOs),~~
- ~~Point source discharges from individual residences, or~~

~~New or expanded discharges from Non~~-governmentally ~~Owned Sewerage Systems~~ owned sewerage systems and some governmentally owned sewerage systems, such as schools, parks, prisons, etc~~., also known as Private and Institutional Development Systems (PIDs).~~. PIDs are defined to exclude industrial systems. New or expanded discharges from PIDs are prohibited except as described below.

~~**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:~~

1. ~~Governmentally~~For 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:

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

   ~~.~~b. Effluent discharge must meet the water quality based effluent limits provided in the issued wasteload allocation (WLA~~).~~), and

   c. Satisfy all antidegradation requirements.

~~1.~~2. Non-governmentally ~~Owned Sewerage Systems, not including privately~~ owned ~~industrial~~sewerage systems, with a cold weather surface water discharge from a land disposal or land treatment reuse system, ~~aka~~also known as a land application system~~; or~~, where all of the following requirements are met:

   - ~~Non-governmentally Owned Sewerage Systems, not including privately owned industrial systems, with a year round discharge where **all** of the following requirements are met:~~

     ~~a. 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.~~

   ~~b.~~a. Minimum Treatment Standards

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

     ~~.~~i. 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~~.~~, and

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

   b. Trust Indenture Requirements

     ~~.~~i. 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~~.~~, and

     ~~.~~ii. ~~Legally~~There must be a legally binding contract executed 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.

c. All Antidegradation Requirements are Satisfied.

3. Non-governmentally owned sewerage systems with a year round discharge, where all of the following requirements are met:

a. Receiving Water Body Requirements

i. The 7Q10 of the receiving surface water body must be greater than zero (0.0 cfs), and

ii. The receiving surface water body may only be designated as *"Fishing"* as defined under 391-3-6-.03(6)(c) of Georgia's Rules for Water Quality Control.

b. Minimum Treatment Standards

i. The system has a minimum daily average discharge of 150,000 gal/day, and

ii. 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. Trust Indenture Requirements

i. 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, and

ii. A legally binding contract is executed 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.

d. All Antidegradation Requirements are Satisfied.

2.5 Nonpoint Sources

Nonpoint sources are not required to perform an antidegradation analysis. Instead, 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, silvicultural, and erosion/sedimentation sources.

Nonpoint sources are addressed through a combination of regulatory (e.g., Stream Buffer Variances, Land Application or Treatment System permits and nonregulatory mechanisms (e.g., implementation of agricultural and silvicultural BMPs), in cooperation with numerous Federal, State, and Local government agencies, universities, environmental groups and individual citizens implementing cost effective and reasonable BMPs. 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. Additional information about specific practices to address nonpoint source pollution can be found in Georgia's Nonpoint Source Management Plan.

2.6 Point Source Discharges of Stormwater

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 require the use of BMPs to control pollution from stormwater to the maximum extent practicable. Compliance with these permits prevents, reduces, or eliminates pollutants entering surface waters, and therefore an antidegradation analysis is not required. All permits for stormwater runoff include additional required BMPs 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.

3.0 ANALYSIS OF ANTIDEGRADATION ~~ANALYSIS~~

The antidegradation review process is triggered when a new or expanded point source discharge that will degrade or lower water quality is proposed for discharge to surface waters. If an alternative is selected that would prevent degradation (Section 4.1), then an antidegradation analysis is not required.

A new discharge is a discharge of pollutants from a point source to a surface water of the State for which there has never been a finally effective NPDES wastewater discharge permit. An expanded discharge is one that has an effective NPDES wastewater discharge permit and for which an increase in loading ~~has occurred~~is proposed. For the purposes of this guidance, an increase in loading is:

- An increase in a permitted pollutant loading,
- ~~A discharge~~An addition 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 Total Maximum Daily Load (TMDL) by the treatment technology selected to meet these WLAs.~~

Applicants requesting 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 or social development. ~~The EPD uses~~ Georgia's rule (391-3-6-.03(2)(b)(ii)1) allows identification of waters for Tier 2 protections on a parameter-by-parameter basis or ~~waterbody~~on a water body-by-~~waterbody~~water body basis. Since all of Georgia's water bodies are Tier 2 or higher, EPD uses water body-by-water body approach ~~for implementation of the State's antidegradation policy and will review each parameter separately as it evaluates an application~~to identify waters for ~~a new or expanded discharge.~~Tier 2 protection.

The antidegradation analysis consists of ~~three~~two basic steps:

~~1. 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 antidegration analysis does not apply (Section 4).~~

~~2. An applicant must demonstrate that the discharge is necessary to accommodate important social or economic development (Section 5), and~~

~~3.~~1. ~~An applicant must provide at least one practicable alternative for disposal of wastewater into surface waters.~~ As outlined in 391-3-6-.03(2)(b)(ii)2., ~~when the~~an analysis of alternatives ~~identifies~~must identify 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).~~4.0), and

2. An applicant must demonstrate that the discharge is necessary to accommodate important economic or social development (Section 5.0).

4.0 ~~REASONABLE ALTERNATIVE~~ ANALYSIS OF ALTERNATIVES

~~A reasonable~~The alternatives analysis shall evaluate a range of practicable alternatives that would prevent or lessen the degradation associated with the proposed activity. The applicant will submit the analysis including its selection of the practicable alternative(s) to be implemented for EPD's approval. Georgia's antidegradation rule does not require the least degrading practicable alternative be selected for implementation. The requirement is for the applicant to examine alternatives and provide to EPD documentation of the alternatives analysis and a reasoned explanation for whichever practicable alternative is ultimately selected for implementation.

"Practicable ~~may~~alternatives" is defined in the Georgia Rules for Water Quality Control at 391-3-6-.03(3), as "alternatives that are technologically possible, able to be put in to practice, and economically viable" (see also 40 CFR 131.3). An alternative is technologically possible if the

technology is currently available. An alternative is economically viable if it can be implemented without unreasonably impacting the financial health of the applicant.

4.1 Prevention of Degradation of Surface Waters

The applicant shall evaluate whether alternatives exist that would provide the needed wastewater capacity without authorizing degradation of state surface waters, thus eliminating the need for a new or expanded wastewater discharge into surface waters. If the applicant selects an alternative that will replace the need for a new or expanded discharge to surface waters~~; therefore, an~~, then the antidegradation analysis ~~may~~described in Section 4.2 and Section 5.0 is not ~~be~~ required.

The following is a list of ~~reasonable~~ alternatives that ~~need to~~should be considered~~. However, each system~~ by the applicant. Each applicant's situation is unique and other ~~reasonable~~ alternatives may be available based on available technology, location, and ~~financial status.~~the nature of the project. The return flow considerations described in Section 6.~~1.3 may~~0 should also be taken into ~~consideration for~~account when considering the ~~reasonable~~ alternatives analysis.

4.1.1 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 POTWs,
- Discharge to privately owned treatment systems, or
- 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~~*4.1.2 100% Year-Round Urban Water Reuse*

Potential reuse customer(s) for 100% year round urban water reuse should be evaluated as part of the analysis.

4.1.3 100% Recycle Systems

The potential for 100% recycling of the generated wastewater should be evaluated as part of the analysis.

4.1.4 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~~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~~should also be provided. The availability and cost of land and the cost of transporting the wastewater to a suitable, available site ~~must~~should 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.~~

~~4.4 100% Recycle Systems~~

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

4~~1~~.5 No ~~Load~~ Increase

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

- ~~Addition~~For expanding facilities, an evaluation should be made 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~~ the potential for installing a wastewater treatment system that would result in no increase in pollutant loading~~.~~

~~Flow expansion if the mass discharge of~~ to 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~~surface waters.

~~The results~~4.2 Lessening of Degradation of Surface Waters

The following is a list of alternatives that when employed lessen degradation of surface waters and should be considered, if applicable, by the ~~reasonable~~applicant as part of the antidegradation alternatives analysis. In addition, other options to lessen degradation may be available.

4.2.1 Wastewater Treatment System Design and Selected Technology

The WLA provided by 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 water body 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 water body. The wastewater treatment plant must be built to meet the permit effluent limits.

The applicant must request a WLA evaluation from EPD (see Appendix A) to discharge into surface waters of the state. The applicant must provide a characterization of the effluent with its WLA request. 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 and nutrients from discharges to lake watersheds that have lake-specific limits.

WLAs provide water quality based limits that may reserve assimilative capacity for stream protection, future growth, and margins of safety. 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 below 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.

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 projections. 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 (or optional Project Name if appropriate),
- NPDES Permit Number (for a proposed expansion),
- Mailing Address,
- County,
- Facility Location (Latitude and Longitude),
- Discharge type (Industrial or Domestic) with description and numeric (or expected numeric) effluent waste characterization,

- Description of Treatment Process, if known,
- Outfall Location (Latitude and Longitude),
- Location Map,
- Name of Receiving Water Body,
- Stream Classification (listed in 391-3-6-.03 of Georgia's Rules for Water Quality Control),
- River Basin,
- Requested Flows (MGD), and
- A Long-Term BOD Test (if performed)

After receipt of a WLA, the applicant may use the wasteload information to assist in determining wastewater treatment system design and selecting appropriate ~~, consideration of return flows, and economic feasibility analysis~~technologies, then comparing the costs of those technologies to other alternatives.

4.2.2 Flow Minimization

The purpose of this assessment is to identify alternatives that minimize flow. The flow projections shall be ~~submitted for EPD's review and concurrence.~~used in the assessment. The assessment should include:

- Water conservation measures to reduce flow,
- Infiltration/inflow (I/I) reduction measures for expansions of domestic wastewater facilities, and/or
- Partial reuse of reclaimed water. Potential reuse customer(s) and the quantity of reuse water each customer could use should be described.

4.2.3 Pollutant Reduction

For industrial discharges, potential pollution prevention measures should be evaluated and the feasibilities of implementation and the financial costs discussed. Measures that should 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. Potential recycle or reuse opportunities should be evaluated, including the feasibilities of implementation and the financial costs. Indicate which of the opportunities can be implemented.

4.2.4 Best Management Practices (BMPs)

The consideration and implementation of BMPs that will assist in minimizing the effects of lowering water quality from the proposed discharge should be discussed. BMPs should include site-specific considerations, as well as accepted industry-wide practices.

5.0 IMPORTANT ~~SOCIAL OR~~ ECONOMIC OR SOCIAL DEVELOPMENT EVALUATION

The proposed project associated with the discharge must ~~support~~be necessary to accommodate important economic or social ~~and economic~~ development. ~~If the proposed discharge does support~~ A project is considered an "important social ~~and~~or economic development~~, then EPD may decide to grant the request for lowering of water quality, provided water quality sufficient to protect existing designated uses is maintained. The decision must also be subject to public participation and comment~~" if (1) it is explicitly included in a regional water plan; or (2) the Director determines, based on the information described below, that it will produce meaningful social or economic benefits in the form of amenities, jobs, or economic activity.

5.1 Domestic Wastewater

To assess whether the ~~socioeconomic importance~~discharge of a domestic wastewater treatment facility is necessary to accommodate important economic or social development, the following should be evaluated:

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 or social development due to the extensive multi-jurisdictional planning and review process, including public participation, required before approval of these plans.

2. Facilities Not Part of a Regional Water Plan

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

   a. Population Projections

      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~~should be clearly justified. Support ~~must~~should be provided for the proposed population projection.

   b. Flow Projections

      Justification of flow using population projections, as well as a demonstration of need, shall be provided. ~~Flow~~The permitted flow is based on the monthly average; therefore, flow projections ~~shall~~should 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~~, should be ~~provided~~evaluated. If the existing I/I is excessive, rehabilitation ~~shall~~should 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~~gallon per day/capita (gpcd) 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~~should be ~~provided~~evaluated.

iii. Future Commercial Flow - 20-year commercial flows based on projected growth ~~must~~should be ~~provided~~evaluated.

iv. Future Industrial Flow - Flow for future industrial contributions ~~must~~should be ~~provided~~evaluated. 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~~projection evaluations, with supporting documentation, must be submitted for EPD review and concurrence.

3. Economic Analysis

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. 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 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:

a. Capital Costs
   i. Land acquisition
   ii. Equipment
   iii. Construction

iv. Design

b. Recurring Costs
i. Operation and maintenance
ii. Equipment replacement
iii. Laboratory for permit compliance and process control
iv. Operator and support staff
v. Sludge disposal
vi. Utilities

c. Present Worth Calculation

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

$$PV = C_o + C \{[(1+r)^n - 1]/[r(1+r)^n]\}$$

Where:
PV = Present value of costs
C_o = 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.

5.2 Industrial Wastewater

To assess ~~the socioeconomic importance of a~~whether the proposed industrial discharge ~~for the affected community~~is necessary to accommodate important economic or social development, each of the following should be evaluated and supporting documentation ~~will~~should be ~~provided~~submitted:

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 ~~/~~or maintained and the quality of those jobs ~~must~~should be included.

3. Household Incomes

Current median household income levels ~~must~~should 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~~should be included.

4. Tax Revenues

Current tax revenues of the affected community ~~must~~should 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~~should be discussed.

5. Environmental Impacts

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

6. Other Socioeconomic Benefits

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

~~6.0 PRACTICABLE ALTERNATIVE ANALYSIS~~

7. Economic Analysis

Provide valid cost comparisons of the ~~"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,~~ as compared to the ~~EPD shall only find that a lowering [of high quality water] is necessary if one such~~ alternative ~~is selected~~chosen for implementation~~" (see Rule 396-3-6-.03(2)(b)(ii)).~~. The ~~permitee 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*~~

should include all monetary costs

~~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 permitee 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~~ construction, startup, and annual operation and maintenance of a 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~~

~~.~~

6.0 RETURN FLOW CONSIDERATIONS

Permittees may consider the water

~~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.~~

~~*6.1.2 Flow Minimization*~~

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

- ~~Water 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.~~

- ~~Infiltration/inflow (I/I) reduction measures for expansions of domestic wastewater facilities.~~

- ~~Less than 100% reuse of reclaimed water. Potential reuse customer(s) and the~~ quantity benefits of ~~reuse~~pursuing a surface water ~~each customer could use must be described.~~

~~***6.1.3 Return Flow Considerations***~~

discharge. 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 treatment systems can affect the quantities and timing of returns to surface waters. Some portion of the water treated in land disposal 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~~water 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 Water Management Plan and some TMDLs require 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 the water quantity benefits of allowing a surface water discharge may outweigh the effects of lower water quality resulting from the discharge provided that the water quality to protect the existing uses will be maintained. ~~This demonstration~~ Sources of information that might inform return flow considerations include, but ~~is~~are not limited to~~, references~~:

- References to surface water flow needs ~~identified in~~ or evaluations from an applicable Regional Water Plan~~, TMDL, applicable recommendations for~~;
- Information included in TMDLs; or
- Other water management ~~(for example, restoration opportunities identified in "Running Dry", a report by American Rivers and the Flint Riverkeeper), or the need~~recommendations needed to support aquatic life and drinking water supplies.

~~***6.1.4 Pollutant Reduction***~~

~~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.~~

~~***6.1.5 Best Management Practices***~~

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

6.2 Economic 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:

a. Capital Costs
   - i. Land acquisition
   - i. Equipment
   - i. Construction
   - i. Design

b.a. Recurring Costs
   - i. Operation and maintenance
   - i. Equipment replacement
   - i. Laboratory for permit compliance and process control
   - i. Operator and support staff
   - i. Sludge disposal
   - i. Utilities

c.a. Present Worth Calculation

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

$$PV = C_e + C\,\{[(1+r)^n - 1]/[\,r(1+r)^n]\}$$

Where:

- PV = Present value of costs
- C_e = 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.

7.0 ~~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, silvicultural, and erosion/sedimentation sources.~~

~~Nonpoint sources are addressed 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. 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 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 to control pollution to the maximum extent practicable. All permits for stormwater runoff include additional required BMPs 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 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.~~

~~8.0~~ 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.~~

Public notice of the antidegradation analysis, which includes an opportunity for comment, is combined with the public participation procedures 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~~4)(e)

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~~4)(d)

Appendix A
Wasteload Allocation Request Form

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

For EPD Use Only
Date

Wastewater Regulatory Program
Wasteload Allocation Request

☐ Proposed New Facility ☐ Expansion for a Permitted Facility

Existing Permit No.:

SECTION I. APPLICANT & FACILITY INFORMATION

Is the wasteload allocation request for domestic or industrial wastewater? Please check the applicable box:

☐ Domestic/Municipal Wastewater ☐ Industrial Wastewater

Applicant Organization/Legal Name:

Applicant Mailing Address:

City:	State:	Zip Code:	County:

If you are performing a site suitability analysis and need to request a WLA for multiple locations, please provide a list of facility addresses and the information in Section IV below as an attachment.

Facility or Project Name:

Facility Address:

City:	State: **GA**	Zip Code:	County:

Facility Site Coordinates (ex. 34.545263, -84.885404):

SIC Code(s) in order of priority:	NAICS Code(s) in order of priority:
1. 2. 3. 4.	1. 2. 3. 4.

SECTION II. CONTACT INFORMATION

Contact Affiliation Type:

☐ Owner Contact ☐ Contractor ☐ Permit Contact ☐ Engineer ☐ Project Contact ☐ Unknown

First Name:	Last Name:	Title:

E-mail Address:	Phone No.:

SECTION III. NATURE OF BUSINESS & EFFLUENT CHARACTERISTICS

1. Describe the nature of your business:

2. Describe the wastewater effluent characteristics of each waste streams (i.e. domestic, metals, chemicals, food processing, waste strength for $BOD_{5\text{-day}}$, ammonia, cooling water, etc.):

3. Have you performed a Long Term BOD Test? If yes, please provide the results. Yes/No

4. For municipal POTWs only, do you have an approved Watershed Protection Plan? Yes/No

5. Describe the wastewater treatment process, if known:

6. Additional Information:

7. Provide the monthly average and monthly maximum design flow(s) (MGD):

1. 2. 3.

SECTION IV. RECEIVING WATERBODY

Provide the following information for each outfall location.

A list of Georgia's impaired water bodies, Category 4 or 5, can be found at: http://epd.georgia.gov/georgia-305b303d-list-documents

A list of Georgia's TMDLs can be found at: http://epd.georgia.gov/total-maximum-daily-loading

Outfall Coordinates Where the outfall enters the receiving water body (ex.34.545253, -84.804526)	Name of Receiving Water Body	River Basin	Does Discharge Enter an Impaired Waters (Category 4 or 5) (Yes or No)
		Choose From List	Yes/No
		Choose From List	Yes/No
		Choose From List	Yes/No
		Choose From List	Yes/No

SECTION VI. FOR INDUSTRIAL FACILTIES ONLY

Is there a federal Effluent Limit Guideline (ELG) established for this type of industrial wastewater being proposed to discharge to surface waters? If yes, please provide the name and applicable citations below in the table.

☐ Yes ☐ No

Name & Citation of ELG	Name & Citation of Applicable ELG Subpart(s)
Example: *Iron and Steel Manufacturing*	*Example:* *Acid Pickling; 40 CFR part 420 subpart I*

SECTION VII: ATTACHMENTS

1. Attach a map of the area extending to at least one mile beyond property boundaries. The map must show:

   a) the outline of the facility
   b) the location of each of its existing and proposed intake and discharge structure, if applicable
   c) all springs, rivers, and other surface water bodies in the map area

2. Attach a process flow diagram