APPENDIX A
WATERS ASSESSED FOR COMPLIANCE WITH
DESIGNATED USES

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The attached tables present lists of rivers, streams, lakes, and estuaries for which water quality data have been assessed and used to determine compliance with designated water uses. EPD considers all water quality related data that is received in its assessment of State waters. The data reviewed for the 2006 305(b) report included EPD monitoring data for rivers and streams, both trend data and intensive survey data, major lakes project data, toxic substances stream monitoring project data, aquatic biomonitoring project data, and coastal monitoring project data. The assessment also included data from other State, Federal, local governments, contracted Clean Lakes projects, electrical utility companies and other groups. A full list of data sources can be found on page A-13.

The lists are divided into three categories; waters supporting designated uses, waters partially supporting designated uses, and waters not supporting designated uses. The lists are organized by water type (rivers/streams, lakes and estuaries). The rivers/streams section is further organized by river basin. The list includes information on the location, data source, designated water use classification, and estimates of stream miles, lake acres or estuary square miles assessed. In addition, for the partial and not supporting lists, information is provided on the criterion violated, potential cause, actions planned to alleviate the problem, estimates of stream miles, lake acres or estuary square miles affected, 303(d) status, and priority. A discussion of the potential cause and actions to alleviate columns along with a discussion of priorities is given below. Explanations for the various codes used in the lists are given on page A-13.

In providing the information for the evaluated causes and actions to alleviate columns as listed in the tables on the following pages, many potential sources which may have caused the violation of the indicated criterion were considered. These sources are identified as the most likely candidates for affecting a particular stream segment. One potential source may be largely responsible for the criterion violated or the impact may be the result of a combination of sources. In many cases, action is described that has already been taken to address the potential sources or the ongoing action to alleviate the impact has been indicated. The GAEPD is addressing impacts from point and nonpoint sources through a river basin management planning or watershed protection strategy which provides for a holistic approach to addressing identified problems in Georgia's waters.

EPD developed a listing assessment methodology to use in the assessment of State waters. This methodology describes the different types of data that EPD evaluates and explains how the evaluation of the data results in a water being

listed as supporting, partially supporting, or not supporting its designated use. A copy of Georgia's 2006 Listing Assessment Methodology is found below. In 2006, GAEPD also developed a listing assessment methodology for assessing marine beach waters based on *Enterococci* data gathered under the BEACH Act. A list of Beaches of Concern was developed based on this data and can be found at the end of this appendix.

Georgia's 2006 305(b)/303(d) Listing Assessment Methodology

The outline below provides the listing assessment methodology used for the solicitation, review, assessment and consideration in making listing decisions for Georgia's 2006 305(b)/303(d) List of Waters. Each Listing cycle brings new challenges in review and assessment of data. The information that follows is intended as a guide. Where insufficient information or data were available, a best professional judgment approach to making listing decisions was used. The methodology described below is applicable to the 2006 Listing process and will be updated with each biennial List of Waters developed to reflect the most current Listing Guidance provided by the USEPA.

I.   Data Solicitation
On August 5, 2005, written notification was accomplished by mailing to the USEPA, and individuals and/or organizations on the Georgia Environmental Protection Division's Watershed Protection Branch's Rules mailing list a notice that the Georgia EPD was gathering water quality data and information to be used in the assessment for Georgia's draft 2006 305(b)/303(d) List of Waters. Any comments or information were requested by October 1, 2005. The same notice was placed electronically on the Department's web site at http://environet.dnr.state.ga.us/6 .

II.   Data Acceptability Requirements
Data submitted from outside sources for 305(b)/303(d) listing assessment purposes were required to comply with Section 391-3-6-.03 of the *Georgia Rules and Regulations for Water Quality Control Chapter 391-3-6*. Data used in listing determinations were subject to the Quality Control/Quality Assurance requirements in the Georgia Environmental Protection Division's Quality Assurance Manual and Quality Assurance Project Plan.

III.   Data Assessment Period
All data and information gathered during the calendar years 2003-05 were considered in development of Georgia's 2006 305(b)/303(d) List. Any data from core network monitoring sites or where consecutive multiple years of data were available, the assessment considered data from 2000-05.

IV.   Data Rounding

Data for a given parameter will be rounded to the same number of significant digits as the criterion for that parameter before the two are compared for the purpose of making listing determinations. Should it be necessary to perform mathematical operations with the data before comparison with the appropriate criterion (such as the calculation of an average of a number of data points), EPD will keep extra decimal places throughout the calculations and then round to the appropriate number of decimal places at the end. This practice prevents the propagation of rounding errors throughout the calculation.

V.   Delisting Strategies

The following provides an outline of the Listing/Delisting Strategies employed during the 2006 Listing Assessment. In situations where limited data, suspect data not meeting listing review criteria, or where insufficient information was available to make a strong justification for listing or delisting, Best Professional Judgment was used to make a listing/delisting determination.

A. Fecal Coliform Bacteria:
  1. Listing –
    a. One year of available data (Geometric Mean):
      1. Water bodies were provided a partially supporting use designation if one geometric mean out of the data set exceeded water quality standards and no winter maximum exceedences occurred. A winter maximum exceedence was not counted towards an additional violation if the winter max exceedence occurred in the same 30-day data set used to calculate the geometric mean that exceeded water quality standards.
      2. Water bodies were provided a not supporting use designation if (a) one geometric mean in the set exceeded water quality standards and one or more winter maximum exceedences occurred (provided they did not occur in the same 30 day data set used to calculate the geometric mean exceedence) or (b) if two or more geometric means out of the data set exceeded water quality standards.
    b. Multiple consecutive years of available data (Geometric Mean):
      1. Water bodies were provided a partially supporting use designation if (a) 11-25% of the geometric means out of the data set exceeded water quality standards or (b) if 10% of the geometric means exceeded water quality standards and one or more winter maximum violations occurred in the 30 day data set(s) where the geometric mean met water quality standards.

2. Water bodies were provided a not supporting use designation if (a) 26% or greater of the geometric means out of the data set exceeded water quality standards or if (b) 25% of the geometric means exceeded water quality standards and there were one or more winter maximum violations in the 30 day data sets where the geometric mean met water quality standards.

c. Single Sample Data: In the absence of sufficient data in a data set to calculate a geometric mean, the USEPA's Listing Guidance was used to assess bacterial data

1. Water bodies were provided a partial support use designation if 11-25% of the single samples exceeded the USEPA's recommended review criteria for bacteria of 400/100ml during the months of May-October, and 4,000/100ml during the months of November-April with the exception of waters classified as "Recreation" where the review criteria was 400/100ml January-December.

2. Water bodies were provided a not support use designation if greater than 26% of the single samples exceeded the USEPA's recommended review criteria for bacteria of 400/100ml during the months of May-October, and 4,000/100ml during the months of November-April with the exception of waters classified as "Recreation" where the review criteria was 400/100ml January-December.

2. Delisting –
   a. One year of available data:
      1. New fecal coliform bacteria data collected during the listing assessment period documenting compliance with water quality standards in 4 consecutive geometric means and no exceedence of the winter maximum water quality standard will make this water eligible for delisting for fecal coliform bacteria.
   b. Multiple consecutive years of available data:
      1. Fecal coliform bacteria geometric mean data with 10% or less exceedences of the water quality standards will be eligible for delisting for fecal coliform bacteria.

B. Dissolved Oxygen, pH, Water Temperature:
   1. Listing –
      a. One year of available data:
         1. Water bodies were provided a partially supporting use designation if 11 to 25% of the samples of the data set exceeded water quality standards. Recommended data set consisted of at least 12 samples.

2. Water bodies were provided a not supporting use designation if 26% or greater of the samples of the data set exceeded water quality standards. Recommended data set consisted of at least 12 samples.
b. Multiple consecutive years of available data:
1. Water bodies were provided a partially supporting use designation if 11 to 25% of the samples of the data set exceeded water quality standards.
2. Water bodies were provided a not supporting use designation if 26% or greater of the samples of the data set exceeded water quality standards.

2. Delisting –
a. Dissolved Oxygen - One year or multiple consecutive years of available data:
1. New data with 10% or less exceedences of the water quality standards will be eligible for delisting. Recommended data set consisted of at least 12 samples.
2. For those segments where a DO TMDL has been approved and a natural DO was established, EPD will compare the DO data with the natural DO established in the TMDL. If no violations of the natural DO occurred, the segment would be eligible for delisting.
b. Water Temperature, pH - One year or multiple consecutive years of available data:
1. New data with 10% or less exceedences of the water quality standards will be eligible for delisting. Recommended data set consisted of at least 12 samples.
2. For those segments that have been identified as black water streams through mapping and data assessments and were identified as not having land use or point source issues, waters were not listed for the pH criterion.

C. Metals:
1. Listing –
a. Waterbodies were provided a partially supporting use designation if one sample exceeded the acute criteria in a three-year period and a not supporting use designation if more than one sample exceeded the acute criteria in a three-year period.
b. Waterbodies were provided with a partially supporting use designation if more than one sample in three years exceeded the chronic criteria.
2. Delisting –
a. New data where no exceedences of the acute criteria occurred and no more than one exceedence of the chronic criteria occurred in three years.

D. Priority Pollutant/Organic Chemicals:
1. Listing –
a. Waterbodies were provided a partially supporting use designation if one sample exceeded the criteria in a three-year period and a not supporting use designation if more than one sample exceeded the acute criteria in a three-year period.
2. Delisting –
a. New data where no exceedences of the criteria occurred in a three-year period.

E. Toxicity:
1. Listing –
a. Acute or Chronic toxicity tests conducted on municipal or industrial effluent samples and receiving waters:
1. One or more effluent and/or receiving waters toxicity test(s) predicted in-stream toxicity at critical 7Q10 low stream flow conditions were provided a partial support use designation.
2. One or more effluent and/or receiving waters toxicity test(s) gave an indication of in-stream toxicity at critical 7Q10 low stream flow conditions were provided a not support use designation.
2. Delisting –
a. New data with passing facility WET test(s) if listing originated based on effluent toxicity test results will be eligible for delisting.
b. New data with passing receiving waters acute and/or chronic toxicity test(s) if listing originated based on stream toxicity test results will be eligible for delisting.

F. Fish/Shellfish Guidelines:
1. Listing –
a. All Fish Tissue Except Mercury:
1. USEPA guidance for evaluating fish consumption guidelines formation for 305(b)/303(d) use support determinations has been used to assess a water as fully supporting uses if fish can be consumed in unlimited amounts; as partially supporting if consumption needs to be limited; and, as not supporting if no consumption is recommended.
b. Fish Tissue Mercury:
1. Mercury in fish tissue was assessed and a segment or water body was listed if the Trophic-Weighted Residue Value (as described in the October 19, 2001 Georgia

EPD "Protocol"), was in excess of the USEPA water quality criterion (*Water Quality Criterion for the Protection of Human Health: Methylmercury*, EPA-823-R-01-001, January 2001), which was adopted as a human health standard in the Georgia Rules in December 2002. The USEPA criteria represents a national approach to address what mercury levels are protective of human health for fishing waters. For mercury, waters were placed on the partial support list if the calculated Trophic-Weighted Residue Value was greater than 0.3 mg/kg wet weight total mercury, and less than 2 mg/kg wet weight, and on the not support list if the value was greater than 2 mg/kg wet weight. The formerly used criterion code "FCG (Hg)" was changed to "TWR" in the 2004 listing.

2. Delisting –
   a. Waters where new fish tissue consumption data indicates there are no consumption restrictions and fish can be consumed in unlimited amounts will be eligible for delisting.
   b. Waters where new fish tissue data with calculated Trophic-Weighted Residue Values for mercury less than or equal to 0.3 mg/kg wet weight total will be eligible for delisting.

G. Biotic Data:
   1. Listing – Water bodies were assessed for "Bio" based on Fish Index of Biotic Integrity (IBI) data.
      a. Water bodies were provided a partially supporting use designation if the IBI rankings of fish populations and habitat ranked poor or very poor.
   2. Delisting –
      a. Water bodies where new Fish IBI rankings of Excellent, Good, or Fair will be eligible for delisting.

H. Lake-Specific Lake Standards Data (6 major lakes, monitored annually):
   1. Listing –
      a. Chlorophyll *a* (lake stations): The last five calendar years of chlorophyll *a* data collected at each site-specific lake standard station are assessed.
         1. If during the five-year assessment period, the average exceeds the site-specific growing season standard for 2 out of the 5 years, the lake area representative for that station is assessed as not fully supporting designated uses.
      b. Total Nitrogen (lake stations): The last five calendar years of total nitrogen concentrations collected at each site-specific lake standard station are assessed.

1. If greater than 10% of the total nitrogen values exceed the site-specific standard, the lake area representative for that station is assessed as not fully supporting designated uses.
c. Fecal Coliform: as in A.1. above.
d. Dissolved Oxygen, pH, Water Temperature: as in B.1. above.
e. Major Lake Tributary Annual Total Phosphorous Loading Standards: The last five calendar years of available total phosphorous annual loadings data collected at each site-specific major lake tributary standard station are assessed.
1. If the average of annual total phosphorous loadings exceeds the site-specific standard, the site is assessed as not fully supporting designated uses.

2. Delisting –
a. Chlorophyll _a_ (lake stations): The last five calendar years of chlorophyll _a_ data collected at each site-specific lake standard station are assessed.
1. If during the five-year assessment period, there are one or less chlorophyll _a_ growing season averages exceeding the site-specific growing season standard, the lake area representative for that station will be eligible for delisting.
b. Total Nitrogen (lake stations): The last five calendar years of total nitrogen concentrations collected at each site-specific lake standard station are assessed.
1. If less than 10% of the total nitrogen values exceed the site-specific standard, the lake area representative for that station is eligible for delisting.
c. Fecal Coliform: as in A.2. above.
d. Dissolved Oxygen, pH, Water Temperature: as in B.2. above.
e. Major Lake Tributary Annual Total Phosphorous Loading Standards: The last five calendar years of available total phosphorous annual loadings data collected at each site-specific major lake tributary standard station are assessed.
1. If the average of annual total phosphorous loadings does not exceed the site-specific standard, the site is assessed as fully supporting designated uses and eligible for delisting.

V. Priorities for Action:
The list of waters includes all waters for which available data indicate that water quality standards are or are not being met and designated uses are supported or not fully supported. This list of waters has become a comprehensive list of waters for Georgia incorporating the information requested by Sections 305(b), 303(d), 314, and 319 of the Federal CWA.

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As noted, waters listed on the partial and not supporting lists are active 305(b) waters. The list of lakes or reservoirs listed as partial or not supporting designated uses provides the information requested in Section 314 of the CWA. Waters with nonpoint sources identified as a potential cause of a standards violation are considered to provide the information requested in the CWA Section 319 nonpoint assessment. The 303(d) designation is described in the following paragraph.

The 303(d) list is a subset of the 305(b) listed waters. To develop the 303(d) list, the 305(b) list was reviewed and coded based on the guidance provided by the USEPA. First, segments were identified where enforceable State, local or Federal requirements have led to or will lead to attainment of water quality standards. Segments where improvements were completed would be assigned a "1" code and segments with ongoing action which will lead to attainment of water quality standards would be assigned a "2" code under 303(d) status. A "3" code would be assigned to segments where TMDLs have been developed and approved. The remaining segments marked with an "X" represent 303(d) listed waters for Georgia. In addition to these waters, the USEPA added waters to the Georgia 305(b)/303(d) list as shown in Attachment 2.

The majority of resources will be directed to insuring the ongoing pollution control actions are completed and water quality improvements are achieved. This work applies to those waters which are identified as 305(b) waters and coded with a "2" in the 303(d) status column of the table. These stream segments while listed on the 305(b) report list are not segments on the Georgia 303(d) list in accordance with USEPA guidance as actions are ongoing which will resolve the issues. However, these streams are the highest priority waters and will continue to require resources to complete actions and insure standards are achieved. These stream segments have been assigned priority one. This is evidenced by the "1" noted in the column titled priority on the listing. A "1" is also used for those stream segments where "Tox" or "CFB" is the criterion violated.

Second priority was allocated to segments which showed DO, metals or other organic chemicals in excess of water quality standards and to segments in which dissolved oxygen concentration was an issue.

Third priority was assigned to waters where air deposition, urban runoff or general nonpoint sources caused fish consumption guideline listings, poor fish communities, fecal coliform bacteria standards violations, pH and/or temperature violations. Waters added to the Georgia 303(d) list by EPA were also assigned to third priority.

Assessment Methodology for Beaches and Enterococci Data

Beaches where samples are collected monthly

Only data from the Recreational Season (May – October) will be used in the evaluation. A geometric mean (GM) of all the data points (May – October) will be calculated.

One Year of Available Data
- If there is only 1 year of data available the GM will be compared with the instream criterion of 35. If the GM is greater than 35, the beach will be placed on the partial support list.

Multiple Consecutive Years of Data
- If there are two years of data available, each GM will be compared with the instream criterion of 35. If either year's GM was >35, the beach will be placed on the partial support list.

Beaches where samples are collected more frequently than monthly

Data from all of the months (not just the recreation season) will be used in the evaluation. A rolling GM (over a 30-day period) will be calculated. There must be at least 4 data points in the 30-day period to calculated a GM. In addition, as the rolling GM are calculated, if one is calculated that uses the same data as was used for the previous GM (other than that the first data point in the data set had been dropped), then this GM will not be used in the evaluation. For example, if data were collected on 5/31, 6/7, 6/14, 6/21, 6/28 and 7/12 a 30-day GM could be calculated using data from 5/31 - 6/28. The next rolling GM would be calculated using data from 6/7 – 6/28. This GM would not be used in the evaluation since the data has the same end date as the first mean and less data is used in its calculation (4 points instead of 5). The rolling GMs will then be compared with the Enterococci criterion of 35.

One Year of Data Available
- If the percentage of GMs above the criterion is less than or equal to 10%, then the beach will be considered to be in compliance with the Enterococci criterion. If the percentage of GMs above the criterion is greater than 10% and less than or equal to 25%, then the beach will be placed on the partial support list. If the percentage of GMs above the criterion is greater than 25%, the beach will be placed on the not support list.

Multiple Consecutive Years of Data
- The data from multiple years will first be added together. If the percentage of GMs above the criterion is less than or equal to 10%, then the beach will be considered to be in compliance with the Enterococci criterion. If the percentage of GMs above the criterion is greater than 10% and less than

or equal to 25%, then the beach will be placed on the partial support list. If the percentage of GMs above the criterion is greater than 25%, the beach will be placed on the not support list.

Beaches with a mixture of data types over consecutive years

In the case of a beach where the data is mixed (i.e. one year the data is collected monthly and one year the data is collected more frequently), the following strategy will be used in making a listing determination. If both types of data indicate that the beach is not in compliance with the criterion, then the beach will be placed on the partial support or not support list. If the different data types call for a different listing decision (i.e. one type indicates that the water is supporting the criterion and the other that it is not supporting) then EPD will use its best professional judgment in making the listing decision. EPD will generally place more weight on the year of data where the data is collected more frequently than monthly.