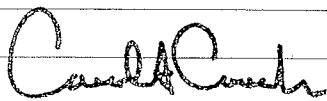


**APPLICATION FOR
FEDERAL ASSISTANCE**

Version 7/03

1. TYPE OF SUBMISSION: Application		Pre-application	2. DATE SUBMITTED - June, 2009	Applicant Identifier	
<input type="checkbox"/> Construction		<input type="checkbox"/> Construction	3. DATE RECEIVED BY STATE	State Application Identifier	
<input checked="" type="checkbox"/> Non-Construction		<input type="checkbox"/> Non-Construction	4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier	
5. APPLICANT INFORMATION					
Legal Name: Georgia Department of Natural Resources			Organizational Unit: Department: Georgia Department of Natural Resources		
Organizational DUNS: 146985544			Division: Environmental Protection Division Watershed Protection		
Address Street: 2 Martin Luther King Jr., Drive, S.E., Suite 1152, East Tower			Name and telephone number of person to be contacted on matters involving this application (give area code)		
City: Atlanta			Prefix:	First Name: Linda	
County: Fulton			Middle Name:		
State: Georgia			Last Name: MacGregor		
Zip Code 30334			Suffix:		
Country: USA			Email: Linda_MacGregor@dnr.state.ga.us		
6. EMPLOYER IDENTIFICATION NUMBER (EIN): 58-1130945			Phone Number (give area code) 404/675-6232	Fax Number (give area code) 404/675-6247	
8. TYPE OF APPLICATION: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision If Revision, enter appropriate letter(s) in box(es) (See back of form for description of letters.) Other (specify)			7. TYPE OF APPLICANT: (See back of form for Application Types) STATE Other (specify)		
10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: 66.454			9. NAME OF FEDERAL AGENCY: United States Environmental Protection Agency		
TITLE (Name of Program): WATER QUALITY MANAGEMENT PLANNING 205(j)(1)/604(b)			11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT: American Recovery and Reinvestment Act of 2009 WATER QUALITY MANAGEMENT PLANNING 205(j)(1)/604(b)		
12. AREAS AFFECTED BY PROJECT (Cities, Counties, States, etc.): State of Georgia			14. CONGRESSIONAL DISTRICTS OF: a. Applicant: District 5 b. Project: Statewide		
13. PROPOSED PROJECT Start Date: 2/17/09 Ending Date: 3/30/11			16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS? a. Yes <input checked="" type="checkbox"/> THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON DATE: June, 2009 b. No <input type="checkbox"/> PROGRAM IS NOT COVERED BY E. O. 12372 OR PROGRAM HAS NOT BEEN SELECTED BY STATE		
15. ESTIMATED FUNDING:			17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT? <input type="checkbox"/> Yes If "Yes" attach an explanation. <input checked="" type="checkbox"/> No		
a. Federal	\$	669,600.00			
b. Applicant	\$.			
c. State	\$.			
d. Local	\$.			
e. Other	\$.			
f. Program Income	\$.			
g. TOTAL	\$	669,600.00			
18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.					
a. Authorized Representative					
Prefix	First Name: CAROL		Middle Name: A.		
Last Name: COUCH			Suffix: Ph.D.		
b. Title: DIRECTOR			c. Telephone Number (give area code): 404/656-4713		
d. Signature of Authorized Representative 			e. Date Signed		

BUDGET INFORMATION - Non-Construction Programs OMB Approval No. 0348-0044

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		Total (g)
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	
1.	66-454	\$	\$	\$ 669,600.00	\$	\$ 669,600.00
2.						
3.						
4.						
5. TOTALS				\$ 669,600.00		\$ 669,600.00

SECTION B - BUDGET CATEGORIES

6. OBJECT CLASS CATEGORIES	GRANT PROGRAM, FUNCTION OR ACTIVITY		Total (5)
	ELEMENT #1	(4)	
a. Personnel			
b. Fringe Benefits			
c. Travel			
d. Equipment			
e. Supplies			
f. Contractual	669,600.00		\$ 669,600.00
g. Construction			
h. Other - In-Kind			
i. Total Direct Charges (sum of 6a - 6h)	\$ 669,600.00		\$ 669,600.00
j. Indirect Charges			
k. TOTALS (sum of 6i and 6j)	\$ 669,600.00		\$ 669,600.00
7. Program Income	\$		

SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8.	\$ 669,600.00	\$	\$	\$ 669,600.00
9.				
10.				
11.				
12. TOTAL (sum of lines 8 and 11)	\$	\$	\$	\$

SECTION D - FORECASTED CASH NEEDS

	(Total for 1st Year)	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	13. Federal	\$ 669,600.00	\$	\$	\$
14. NonFederal					
15. TOTAL (sum of lines 13 and 14)	\$ 669,600.00	\$	\$	\$	\$ 669,600.00

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (Years)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16.	\$	\$	\$	\$
17.				
18.				
19.				
20. TOTALS (sum of lines 16 - 19)	\$	\$	\$	\$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:		22. Indirect Charges:
23. Remarks:		

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BUDGET CATEGORIES INFORMATION (FROM SF424A, SECTION B TOTALS)

Enter Total Program Costs, i.e., Federal and Non-Federal Funds Combined

(Attach Separate Sheet(s) if necessary)

Object Class Categories

f.	<p>CONTRACTUAL: List each planned contract separately, type of services to be procured, proposed procurement method (i.e. small purchase, formal advertising, competitive negotiations or non-competitive negotiations) and the estimated cost. Also, please indicate if the proposed contract performance period will go beyond the budget period of assistance for which this application is submitted.</p>	
	<p>ELEMENT 1- The purpose of this project is to develop the analytical modeling tools for performing resource assessments of the assimilative capacity of selected watersheds in the Chattahoochee River Basin. The contractor will develop computer modeling tools for watersheds, streams and rivers, and lakes using software specified by the Georgia EPD. The results of the work will be used by the newly formed regional water planning councils in the development of their Water Development and Conservation Plans in support of the Georgia Comprehensive Statewide Water Management Plan.</p>	<p>\$ 669,600.00</p>
	<p>COMBINED CONTRACTUAL TOTAL</p>	<p>\$ 669,600.00</p>
g.	<p>CONSTRUCTION (N/A)</p>	
h.	<p>OTHER: Explain by major categories any items not included in above standard budget categories. <u>Caution:</u> Do not include or proposed as a direct project cost, any cost that is indirect in nature (see OMB Circular A-87) or is included in the indirect cost pool on which the indirect cost rate (item j) is based.</p>	
	<p>OTHER TOTAL</p>	
i.	<p>TOTAL DIRECT CHARGES: (Sum of Items a. through h.)</p>	<p>\$ 669,600.00</p>
j.	<p>INDIRECT COSTS: (Attach a copy of your latest indirect cost agreement)</p>	<p>0.00</p>
k.	<p>TOTAL PROPOSED PROGRAM COSTS (Sum of Items i. and j.)</p>	
	<p>SHARE: FEDERAL 100 % GRANTEE %</p>	<p>\$ 669,600.00</p>

KEY PEOPLE LIST

AGENCY DIRECTOR

(Individual who is authorized to sign the assistance agreement application and award acceptance).

NAME: CAROL A. COUCH
TITLE: DIRECTOR, ENVIRONMENTAL PROTECTION DIVISION
ADDRESS: 2 MARTIN LUTHER KING, Jr. DRIVE, SE
SUITE 1152 EAST TOWERS
ATLANTA, GEORGIA 30334
TELEPHONE: 404-656-4713 EMAIL: Carol_Couch@mail.dnr.state.ga.us

PROGRAM/PROJECT DIRECTOR

(Technical program director or person responsible for the project as a contact person in Block #5 of the application).

NAME: LINDA MACGREGOR, P.E.
TITLE: BRANCH CHIEF, WATERSHED PROTECTION BRANCH
ADDRESS: 4220 INTERNATIONAL PARKWAY
SUITE 101
ATLANTA, GEORGIA 30354
TELEPHONE: 404-675-6232 EMAIL: Linda_MacGregor@dnr.state.ga.us

FINANCE DIRECTOR

(Individual responsible for maintaining the accounting/financial management system supporting expenditures, preparing the financial reports, etc.)

TITLE: FINANCIAL SERVICES DIRECTOR
ADDRESS: 2 MARTIN LUTHER KING, Jr. DRIVE, SE
SUITE 1152 EAST TOWERS
ATLANTA, GA 30334
TELEPHONE: 404-657-5011 EMAIL:

INSTRUCTIONS FOR THE SF 424

This is a standard form used by applicants as a required facesheet for preapplications and applications submitted for Federal assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in response to Executive Order 12372 and have selected the program to be included in their process, have been given an opportunity to review the applicant's submission.

- | | | |
|-------|--------|---|
| Item: | Entry: | For preapplications, use a separate sheet to provide a summary description of this project. |
|-------|--------|---|
-
- | | | |
|---|-------|--|
| 1. Self-explanatory. | Item: | Entry: |
| 2. Date application submitted to Federal agency (or State if applicable) & applicant's control number (if applicable). | 12. | List only the largest political entities affected (e.g., State counties, cities). |
| 3. State use only (if applicable). | 13. | Self explanatory. |
| 4. If this application is to continue or revise an existing award, enter present Federal identifier number. If for a new project, leave blank. | 14. | List the applicant's Congressional District and any District(s) affected by the program or project. |
| 5. Legal name of applicant, name of primary organizational unit which will undertake the assistance activity, complete address of the applicant, and name and telephone number of the person to contact on matters related to this application. | 15. | Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, indicate <u>only</u> the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15. |
| 6. Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service. | 16. | Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the State intergovernmental review process. |
| 7. Enter the appropriate letter in the space provided. | 17. | This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes. |
| 8. Check appropriate box and enter appropriate letter(s) in the space(s) provided:

— "New" means a new assistance award.
— "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date.
— "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation. | 18. | To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be submitted as part of the application.) |
| 9. Name of Federal agency from which assistance is being requested with this application. | | |
| 10. Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested. | | |
| 11. Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. | | |

INSTRUCTIONS FOR THE SF-424A

General Instructions

This form is designed so that application can be made for funds from one or more grant programs. In preparing the budget, adhere to any existing Federal grantor agency guidelines which prescribe how and whether budgeted amounts should be separately shown for different functions or activities within the program. For some programs, grantor agencies may require budgets to be separately shown by function or activity. For other programs, grantor agencies may require a breakdown by function or activity. Sections A, B, C, and D should include budget estimates for the whole project except when applying for assistance which required Federal authorization in annual or other funding period increments. In the latter case, Section A, B, C, and D should provide the budget for the first budget period (usually a year) and Section E should present the need for Federal assistance in the subsequent budget periods. All applications should contain a breakdown by the object class categories show in Lines a - k of Section B.

Section A. Budget Summary

Lines 1 - 4, Columns (a) and (b)

For applications pertaining to a *single* federal grant program (Federal Domestic Assistance Catalog number) and *not requiring* a functional or activity breakdown, enter on Line 1 under Column (a) the catalog program title and the catalog number in Column (b).

For applications pertaining to a *single* program *requiring* budget amounts by multiple functions or activities, enter the name of each activity or function on each line in Column (a), and enter the catalog number in Column (b). For applications pertaining to multiple programs where none of the programs require a breakdown by function or activity, enter the catalog program title on each line in Column (a) and the respective catalog number on each line in Column (b).

For applications pertaining to *multiple* programs where one or more programs require a breakdown by function or activity, prepare a separate sheet for each program requiring the breakdown. Additional sheets should be used when one form does not provide adequate space for all breakdown of data required. However, when more than one sheet is used, the first page should provide the summary totals by programs.

Lines 1 - 4, Columns (c) through (g).

For *new* applications, leave Columns (c) and (d) blank. For each line entry in Columns (a) and (b), enter in Columns (e), (f), and (g) the appropriate amounts of

funds needed to support the project for the first funding period (usually a year).

Lines 1 - 4 Columns (c) through (g). (continued)

For *continuing grant program* applications, submit these forms before the end of each funding period as required by the grantor agency. Enter in Columns (c) and (d) the estimated amounts of funds which will remain unobligated at the end of the grant funding period only if the Federal grantor agency instructions provide for this. Otherwise, leave these columns blank. Enter in columns (e) and (f) the amounts of funds needed for the upcoming period. The amount(s) in Column (g) should be the sum of amounts in Columns (e) and (f).

For *supplemental grants and changes to existing grants*, do not use Columns (c) and (d). Enter in Column (e) the amount of the increase or decrease of Federal funds and enter in Column (f) the amount of the increase or decrease of non-Federal funds. In Column (g) enter the new total budgeted amount (Federal and non-Federal) which includes the total previous authorized budgeted amounts plus or minus, as appropriate, the amounts shown in Columns (e) and (f). The amount(s) in Column (g) should not equal the sum of amounts in Columns (e) and (f).

Line 5 - Show the totals for all columns used.

Section B. Budget Categories

In the column headings (1) through (4), enter the titles of the same programs, functions, and activities shown on Lines 1 - 4, Column (a), Section A. When additional sheets are prepared for Section A, provide similar column headings on each sheet. For each program, function, or activity, fill in the total requirements for funds (both Federal and non-Federal) by object class categories.

Lines 6a-i - Show the totals of Lines 6 a to 6h in each column.

Line 6j - Show the amount of indirect cost.

Line 6k - Enter the total of amounts on Lines 6i and 6j. For all applications for new grants and continuation grants the total amount in column (5), Line 6k, should be the same as the total shown in Section A, Column (g), Line 5. For supplemental grants and changes to grants, the total amount of the increase or decrease as shown in Columns (1)-(4), Line 6k should be the same as the sum of the amounts in Section A, Columns (e) and (f) on Line 5.

INSTRUCTIONS FOR THE SF-424A (continued)

Line 7 - Enter the estimated amount of income, if any, expected to be generated from this project. Do not add or subtract this amount from the total project amount. Show under the program narrative statement the nature and source of income. The estimated amount of program income may be considered by the federal grantor agency in determining the total amount of the grant.

Section C. Non-Federal-Resources

Lines 8-11 - Enter amounts of non-Federal resources that will be used on the grant. If in-kind contributions are included, provide a brief explanation on a separate sheet.

Column (a) - Enter the program titles identical to Column (a), Section A. A breakdown by function or activity is not necessary.

Column (b) - Enter the contribution to be made by the applicant.

Column (c) - Enter the amount of the State's cash and in-kind contribution if the applicant is not a State or State agency. Applicants which are a State or State agency should leave this column blank.

Column (d) - Enter the amount of cash and in-kind contributions to be made from all other sources.

Column (e) - Enter totals of Columns (b), (c), and (d).

Line 12 - Enter the total for each of Columns (b)-(e). The amount in Column (e) should be equal to the amount on Line 5, Column (f), Section A.

Section D. Forecasted Cash Needs

Line 13 - Enter the amount of cash needed by quarter from the grantor agency during the first year.

Line 14 - Enter the amount of cash from all other sources needed by quarter during the first year.

Line 15 - Enter the totals of amounts on Lines 13 and 14.

Section E. Budget Estimates of Federal Funds Needed for Balance of the Project

Lines 16-19 - Enter in Column (a) the same grant program titles shown in Column (a), Section A. A breakdown by function or activity is not necessary. For new applications and continuation grant applications,

enter in the proper columns amounts of Federal funds which will be needed to complete the program or project over the succeeding funding periods (usually in years). This section need not be completed for revisions (amendments, changes, or supplements) to funds for the current year.

If more than four lines are needed to list the program titles, submit additional schedules as necessary.

Line 20 - Enter the total for each of the Columns (b)-(e). When additional schedules are prepared for this Section, annotate accordingly and show the overall totals on this line.

Section F. Other Budget Information

Line 21 - Use this space to explain amounts for individual direct object-class cost categories that may appear to be out of the ordinary or to explain the details as required by the Federal grantor agency.

Line 22 - Enter the type of indirect rate (provisional, predetermined, final or fixed) that will be in effect during the funding period, the estimated amount of the base to which the rate is applied, and the total indirect expense.

Line 23 - Provide any other explanations or comments deemed necessary.

ASSURANCES - NON-CONSTRUCTION PROGRAMS


Note: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of the project costs) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States, and if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§ 4728-4763) relating to prescribed standards for merit systems for programs funded under one of the nineteen statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 795), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§ 6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§ 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. 290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. § 3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made and (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply with the provision of the Hatch Act (5 U.S.C. §§ 1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.
9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§ 276a-7), the Copeland Act (40 U.S.C. § 874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 327-333), regarding labor standards for federally assisted construction subagreements.

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10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplain in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S. C. §§ 1451 et seq.); (f) conformity of Federal actions to State (Clear Air) Implementation Plans under Section 176(c) of the Clear Air Act of 1955, as amended (42 U.S.C. § 7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended, (P.L. 93-523); and (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§ 1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 469a-1 et seq.)
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. 2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§ 4801 et seq.) which prohibits the use of lead based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act of 1984.
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL CAROL A. COUCH 	TITLE DIRECTOR
APPLICANT ORGANIZATION Environmental Protection Division	DATE SUBMITTED

Project Control Number EPA

United States Environmental Protection Agency Washington, DC 20460

**Certification Regarding
Debarment, Suspension, and Other Responsibility Matters**

The prospective participant certifies to the best of its knowledge and belief that it and the principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and
- (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated or cause of default.

I understand that a false statement on this certification may be ground for rejection of this proposal or termination of the award. In addition, under 18 USC Sec 10 01, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

Carol A. Couch, Director

Typed Name & Title of Authorized Representative

Signature of Authorized Representative Date

Carol A. Couch

I am unable to certify to the above statements. My explanation is attached.

EPA Form 5700-49 (11-88)



CERTIFICATION REGARDING LOBBYING

**CERTIFICATION FOR CONTRACTS, GRANTS,
LOANS, AND COOPERATIVE AGREEMENTS**

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including sub-contracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31 U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Carol A. Couch, Director

Typed Name & Title of Authorized Representative



Signature of Authorized Representative

Date

**United States Environmental Protection Agency
Washington, DC 20460**

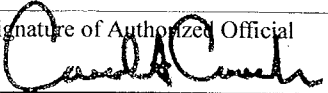
**Preaward Compliance Review Report for
All Applicants and Recipients Requesting EPA Financial Assistance**

Note: Read instructions on other side before completing form.

I.	Applicant/Recipient (Name, Address, State, Zip Code). <i>Georgia Environmental Protection Division, 2 Martin Luther King, Jr. Drive, S.E., Suite 1152 East Tower Atlanta, Georgia 30334-9000</i>	DUNS No.
II.	Is the applicant currently receiving EPA assistance? <i>Yes</i>	
III.	List all civil rights lawsuits and administrative complaints pending against the applicant/recipient that allege discrimination based on race, color, national origin, sex, age, or disability. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7. See instructions on reverse side.) <i>None</i>	
IV.	List all civil rights lawsuits and administrative complaints decided against the applicant/recipient within the last year that allege discrimination based on race, color, national origin, sex, age, or disability and enclose a copy of all decisions. Please describe all corrective action taken. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7. See instructions on reverse side.) <i>None</i>	
V.	List all civil rights compliance reviews of the applicant/recipient conducted by any agency within the last two years and enclose a copy of the review and any decisions, orders, or agreements based on the review. Please describe any corrective action taken. (40 C.F.R. § 7.80(c)(3)) <i>None</i>	
VI.	Is the applicant requesting EPA assistance for new construction? If no, proceed to VII; if yes, answer (a) and/or (b) below. <i>NO</i> a. If the grant is for new construction, will all new facilities or alterations to existing facilities be designed and constructed to be readily accessible to and usable by persons with disabilities? If yes, proceed to VII; if no, proceed to VI(b). b. If the grant is for new construction and the new facilities or alterations to existing facilities will not be readily accessible to and usable by persons with disabilities, explain how a regulatory exception (40 C.F.R. § 7.70) applies.	
VII.*	Does the applicant/recipient provide initial and continuing notice that it does not discriminate on the basis of race, color, national origin, sex, age, or disability in its programs or activities? (40 C.F.R. § 5.140 and § 7.95) <i>Yes</i> a. Do the methods of notice accommodate those with impaired vision or hearing? b. Is the notice posted in a prominent place in the applicant's offices or facilities or, for education programs and activities, in appropriate periodicals and other written communications? c. Does the notice identify a designated civil rights coordinator?	
VIII.*	Does the applicant/recipient maintain demographic data on the race, color, national origin, sex, age, or handicap of the population it serves? (40 C.F.R. § 7.85(a)) <i>No</i>	
IX.*	Does the applicant/recipient have a policy/procedure for providing access to services for persons with limited English proficiency? (40 C.F.R. Part 7, E.O. 13166) <i>No</i>	
X.*	If the applicant/recipient is an education program or activity, or has 15 or more employees, has it designated an employee to coordinate its compliance with 40 C.F.R. Parts 5 and 7? Provide the name, title, position, mailing address, e-mail address, fax number, and telephone number of the designated coordinator. <i>N.A. Not an education program</i>	
XI*	If the applicant/recipient is an education program or activity, or has 15 or more employees, has it adopted grievance procedures that assure the prompt and fair resolution of complaints that allege a violation of 40 C.F.R. Parts 5 and 7? Provide a legal citation or Internet address for, or a copy of, the procedures. <i>N.A. Not an education program.</i>	

For the Applicant/Recipient

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. I assure that I will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized Official 	B. Title of Authorized Official <i>Director</i>	C. Date
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For the U.S. Environmental Protection Agency

I have reviewed the information provided by the applicant/recipient and hereby certify that the applicant/recipient has submitted all preaward compliance information required by 40 C.F.R. Parts 5 and 7; that based on the information submitted, this application satisfies the preaward provisions of 40 C.F.R. Parts 5 and 7; and that the applicant has given assurance that it will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized EPA Official	B. Title of Authorized EPA Official	C. Date
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See ** note on reverse side.

Instructions for EPA FORM 4700-4 (Rev. 03/2008)

General

Recipients of Federal financial assistance from the U.S. Environmental Protection Agency must comply with the following statutes and regulations.

Title VI of the Civil Rights Acts of 1964 provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. The Act goes on to explain that the statute shall not be construed to authorize action with respect to any employment practice of any employer, employment agency, or labor organization (except where the primary objective of the Federal financial assistance is to provide employment).

Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act provides that no person in the United States shall on the ground of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under the Federal Water Pollution Control Act, as amended. Employment discrimination on the basis of sex is prohibited in all such programs or activities.

Section 504 of the Rehabilitation Act of 1973 provides that no otherwise qualified individual with a disability in the United States shall solely by reason of disability be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. Employment discrimination on the basis of disability is prohibited in all such programs or activities.

The Age Discrimination Act of 1975 provides that no person on the basis of age shall be excluded from participation under any program or activity receiving Federal financial assistance. Employment discrimination is not covered. Age discrimination in employment is prohibited by the Age Discrimination in Employment Act administered by the Equal Employment Opportunity Commission.

Title IX of the Education Amendments of 1972 provides that no person in the United States on the basis of sex shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance. Employment discrimination on the basis of sex is prohibited in all such education programs or activities. Note: an education program or activity is not limited to only those conducted by a formal institution.

40 C.F.R. Part 5 implements Title IX of the Education Amendments of 1972.

40 C.F.R. Part 7 implements Title VI of the Civil Rights Act of 1964, Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act, and Section 504 of The Rehabilitation Act of 1973.

The Executive Order 13166 (E.O. 13166) entitled; "Improving Access to Services for Persons with Limited English Proficiency" requires Federal agencies work to ensure that recipients of Federal financial assistance provide meaningful access to their LEP applicants and beneficiaries.

Items

"Applicant" means any entity that files an application or unsolicited proposal or otherwise requests EPA assistance. 40 C.F.R. §§ 5.105, 7.25.

"Recipient" means any entity, other than applicant, which will actually receive EPA assistance. 40 C.F.R. §§ 5.105, 7.25.

"Civil rights lawsuits and administrative complaints" means any lawsuit or administrative complaint alleging discrimination on the basis of race, color, national origin, sex, age, or disability pending or decided against the applicant and/or entity which actually benefits from the grant, but excluding employment complaints not covered by 40 C.F.R. Parts 5 and 7. For example, if a city is the named applicant but the grant will actually benefit the Department of Sewage, civil rights lawsuits involving both the city and the Department of Sewage should be listed.

"Civil rights compliance review" means any review assessing the applicant's and/or recipient's compliance with laws prohibiting discrimination on the basis of race, color, national origin, sex, age, or disability.

Submit this form with the original and required copies of applications, requests for extensions, requests for increase of funds, etc. Updates of information are all that are required after the initial application submission.

If any item is not relevant to the project for which assistance is requested, write "NA" for "Not Applicable."

In the event applicant is uncertain about how to answer any questions, EPA program officials should be contacted for clarification.

* Questions VII – XI are for informational use only and will not affect an applicant's grant status. However, applicants should answer all questions on this form. (40 C.F.R. Parts 5 and 7).

** Note: Signature appears in the Approval Section of the EPA Comprehensive Administrative Review For Grants/Cooperative Agreements & Continuation/Supplemental Awards form.

Approval indicates, in the reviewer's opinion, questions I – VI of Form 4700-4 comply with the preaward administrative requirements for EPA assistance.

"Burden Disclosure Statement"

EPA estimates public reporting burden for the preparation of this form to average 30 minutes per response. This estimate includes the time for reviewing instructions, gathering and maintaining the data needed and completing and reviewing the form. Send comments regarding the burden estimate, including suggestions for reducing this burden, to U.S. EPA, Attn: Collection Strategies Division (MC 2822T), Office of Information Collection, 1200 Pennsylvania Ave., NW, Washington, D.C. 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503.

The information on this form is required to enable the U.S. Environmental Protection Agency to determine whether applicants and prospective recipients are developing projects, programs and activities on a nondiscriminatory basis as required by the above statutes and regulations.

ELEMENT 1
AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009
CWA SECTION 205(j)/604(b) GRANT
WATER QUALITY MANAGEMENT PLANNING

Name of Project: Developing Analytical Modeling Tools for Performing Resource Assessments of Assimilative Capacity in Support of the Georgia Comprehensive Statewide Water Management Plan

Lead Organizations: U. S. Environmental Protection Agency
Georgia Environmental Protection Division

Cooperating Organizations: Federal, State, and Local Partners in
The Georgia Comprehensive Statewide Water Management Planning Process

Background:

Georgia's future relies on the protection and sustainable management of the state's limited water resources. In 2004 the Georgia General Assembly passed the "Comprehensive Statewide Water Management Planning Act" which called for the development of a statewide water management plan. The legislation established a far-reaching vision for water management as follows: "Georgia manages water resources in a sustainable manner to support the state's economy, to protect public health and natural systems, and to enhance the quality of life for all citizens." The legislation assigned the responsibility for developing a draft plan to the Georgia Environmental Protection Division and established a planning oversight committee, the Georgia Water Council, composed of legislators, legislative appointees, and state agency heads with water related responsibilities. The legislation called for an initial draft plan by July 1, 2007 and for the Water Council to recommend a final draft plan to the General Assembly the first day of the regular session in 2008.

The Water Council worked with the EPD in developing planning objectives and tools, and in establishing a Statewide Advisory Committee, Technical Advisory Committees and Basin Advisory Committees. The Council reviewed and approved each draft plan and recommended the final draft plan to the General Assembly in January 2008. The General Assembly debated the provisions of the draft plan and approved the plan on February 5, 2008. Governor Perdue signed HR1022, the Statewide Water Plan, on February 6. The approved plan can be found at <http://www.georgiawaterplanning.org/>. The major components of the State Water Plan are as follows:

- **Resource Assessments**

The Georgia Environmental Protection Division (EPD) will conduct water resource assessments to develop a sound scientific understanding of the condition of water

resources, in terms of the quantity of surface water and groundwater available to support current and future instream aquatic life uses and offstream human uses and to assess current water quality conditions and the assimilative capacity of surface waters. This work will meet the provisions of the Clean Water Act for the restoration and protection of (1) water quality, (2) hydrological systems, and (3) aquatic resources and their habitats.

- **Forecasting**

Forecasts of future population expectations, water demands, wastewater returns, land surface types and distribution and employment characteristics will be developed. Water use will be developed for: 1) domestic/ commercial water use; 2) industrial water use; 3) energy water use, and 4) agricultural water use.

- **Regional Water Planning**

Regional water planning councils will prepare recommended Water Development and Conservation Plans (WDCPs). These regional plans will promote the sustainable use of Georgia's waters, through the selection of an array of management practices, to support the state's economy, to protect public health and natural systems, and to enhance the quality of life for all citizens. WDCPs will describe the water resources, water users, local governments and education partners in each region. The plans will include forecasts through 2050 of population, and domestic and commercial water use, as well as a comparison of these forecasts with the water resource assessments for each region. Based on these comparisons, the WDCPs will recommend regionally appropriate management practices for water protection that may include green infrastructure, water or energy efficiency improvements or other environmentally innovative activities to encourage quality growth and low-impact development initiatives, green infrastructure planning, land conservation, open space protection programs and innovative practices to manage stormwater.

The plans will identify steps, which will be taken to ensure that the forecasted needs can be met. If "gaps" between available and future (or current) demands are identified, the councils will determine which water and land use management practices should be employed to ensure there is sufficient water and assimilative capacity to meet future needs while protecting public health and natural systems and enhancing the quality of life for all citizens.

EPD will provide the regional water planning councils with technical assistance, such as contractor support, resource assessments, forecasts and guidance. After the regional WDCPs are adopted, EPD permits and Georgia Environmental Facilities Authority (GEFA) grants and loans for water projects will be guided by the each regional plan.

The initial regional Water Development and Conservation Plans are scheduled for completion in 2011. EPD, in cooperation with federal agencies, local governments, and other partners, will continue to monitor water resources to maintain and update information on the status and condition of the state's waters. This information will

support future revisions in resource assessments and management practices and provide the basis for updates to the regional WDCPs.

Project Introduction:

Georgia has more than 70,000 miles of streams, 400,000 acres of lakes, 4,500,555 acres of freshwater wetlands, 384,000 acres of tidal wetlands, 854 square miles of estuaries, 100 miles of coastline, and an enormous amount of water in aquifers. Additionally, over the course of an average year Georgia will receive fifty inches of precipitation. These waters are used in a wide variety of ways, and are affected by a number of human activities. Assessing these resources and their condition, as well as determining what factors influence the ability to protect and utilize these resources in a sustainable manner, is vital to effective water quality planning. If Georgia is to develop water resource plans that allow continued sustainable use and enjoyment of the state's water resources, the state must first define the capabilities and current use of these water resources. These resource capabilities must be defined in terms of the quality of each water resource to support additional water withdrawals and to safely assimilate pollutants while protecting public health and natural systems and enhancing the quality of life for all citizens.

This project is a part of the statewide resource assessment related to assessment of current water quality and the analysis of assimilative capacity available in Georgia's waters on a watershed or regional basis. Georgia issued an RFQ for the statewide project in 2008 and a contractor was selected through a competitive process. The overall project was divided into watershed units and work was initiated in FY2009 on several watersheds with work on the remaining watersheds to be initiated in FY2010. The budget for this project in FY2010 was threatened by shortfalls in state revenues due to the current economic downturn experienced in Georgia and across the nation and the world. The ARRA funds have helped to bridge the gap between available funds and needed funds to accomplish this project. These funds will allow the contractor to maintain staffing at the levels necessary to complete the project in the time allotted and will allow Georgia to complete the resource assessment in time for the work to provide the necessary foundation for regional water planning council's development of the water quality protection and assimilative capacity elements of their Water Development and Conservation Plans. This project will provide for the preservation of seven jobs in the private sector. These jobs include 2 Senior Watershed/Lake Modelers, 2 Junior Watershed/Lake Modelers, 1 Senior River Modeler, 1 Junior River Modeler and 1 Engineering Technician (data compilation, data processing, etc.). The fact that the contract for the work is already in place will allow the project to be started and completed expeditiously.

This project will develop the analytical modeling tools for performing water quality assessments of selected watersheds in the Chattahoochee River Basin to allow Georgia to manage point and nonpoint source pollution on a watershed basis to ensure the physical, chemical and biological integrity of those waters is maintained now and into the future. This requires protecting waters that currently meet water quality standards and restoring waters whose physical, chemical or biological integrity are impaired. The tools along with water use forecasts will allow the regional water planning councils to develop a shared vision for the region's future. If gaps between available

assimilative capacity and future demands are identified, the councils will decide which water, land use and best management practices should be employed to ensure there is sufficient assimilative capacity to meet future needs and what actions can be taken for restoration. The EPD will strongly encourage green infrastructure and other environmentally innovative best management practices to protect water quality and biological integrity of Georgia waters and to conserve assimilative capacity and promote water and energy efficiency. EPD will use the computer models to test the ability of the recommended green infrastructure and innovative practices to close any identified assimilative capacity gaps. The water quality models will also be used in concert with water quantity models (being developed as an additional part of the overall resource assessment process) to address Clean Water Act provisions for anti-degradation and restoration of water quality, hydrological systems and aquatic resources and their habitats.

This project will provide for immediate and long-term economic and environmental benefits. The modeling tools will provide the analysis needed for the regional water planning councils to determine the most environmentally sound best management practices to protect and sustain water quality. The modeling tools will be used to determine wastewater treatment levels needed to protect water quality and provide the information to assess current loads and predict future loads based on population forecasts. In some cases it can be anticipated that following the completion of regional water development and conservation plans in 2011 work to construct new or upgraded water pollution and/or install green infrastructure or other best management practices will begin immediately providing economic stimulus as a result of an increase in construction projects. The design and construction of one new water pollution control plant and/or several green infrastructure or other best management practices will provide an economic stimulus that will surpass the funding provided in this grant. Considering this project addresses several high growth areas in the Chattahoochee River watershed, it is likely that a number of water pollution control projects including green infrastructure or other environmentally innovative projects will be initiated shortly after the approval of the water development and conservation plans. Extrapolating this project to the entire state would suggest that a significant number of water pollution control projects would be initiated following approval of the water development and conservation plans for the ten new regional water planning regions. In addition, significant economic stimulus could also result from regionally appropriate management practices that may include innovative ways to manage impervious surfaces to increase infiltration of stormwater including enhancement or expansion of existing programs such as post-construction stormwater management, quality growth and low-impact development initiatives, green infrastructure planning, land conservation, open space protection programs and other environmentally innovative practices. This work will provide long-term public benefits by investing in environmental protection and restoration that will provide sustainable water resources to support the state's economy, protect public health and natural systems, and enhance the quality of life for all Georgians.

Project Objectives:

The purpose of this project is to develop the analytical modeling tools for performing resource assessments of the assimilative capacity of selected water bodies in the Chattahoochee River Basin. The Contractor will be required to develop computer modeling tools for watersheds, streams and rivers, and lakes using software specified by the Georgia EPD. The results of this work will be used by the newly formed regional water planning councils in the development of their Water Development and Conservation Plans in support of the Georgia Comprehensive Statewide Water Management Plan. The following sections describe the tasks required to develop the models and tools needed for this Work Plan.

Task 1: Quality Assurance Project Plan

The Contractor will be expected to adhere to a high standard of quality. A Quality Assurance Project Plan (QAPP) shall be developed to ensure that all work meets the needs of Georgia EPD. The QAPP shall address both technical quality and practicable/operational quality. The QAPP needs to be prepared following EPA Guidance as appropriate for this scope of work. The QAPP shall be prepared within 30 days from Notice to Proceed and submitted to EPD for approval.

Task 2: Data Compilation and Management

The modeling tools will require historic data of various types for either model input or model calibration. The data types described in this section are general in nature and will be needed for most model applications. Other model specific data requirements will be described later.

In general, the Contractor shall identify sources, collect available data, and develop digital databases and accompanying geographic information system (GIS) map coverages for the data categories described in this and following tasks. Data should be collected for the time period that includes, at a minimum, the period from 1997 through 2007. All numerical databases will be developed using the Water Resources Database (WRDB) software, which is available from Georgia EPD. A description of the data categories follows.

- Water Quality Data: Georgia EPD and U.S. Geological Survey (USGS) have monitored water quality for a variety of water bodies at various locations in the Chattahoochee River Basin.
- Flow Data: The USGS has monitored streamflow at a variety of locations in the Chattahoochee River Basin.
- Watershed Assessment Data: Georgia EPD has required some municipalities to perform watershed assessments for the watersheds in their jurisdictions. These watershed assessments include initial and long-term water quality monitoring programs.

- Facility NPDES Monitoring Data: Municipal and industrial wastewater treatment facilities with National Pollutant Discharge Elimination System (NPDES) permits have monitoring data that includes effluent flow and quality. These data are often recorded on a daily basis and summarized monthly. Note that in the case of the Chattahoochee River Basin, it will also be necessary to obtain information from facilities located in Alabama.
- Water Withdrawal Data: Municipal and industrial facilities that operate water withdrawals have data on their withdrawal rates. These data are often recorded on a daily basis and summarized monthly. Note that in the case of the Chattahoochee River Basin, it will be necessary to obtain information from facilities located in Alabama.
- Heat Load Data: Heat load data for power plants and other facilities will have to be compiled. These data will include both flow and temperature discharge data. These data may not be available in NPDES compliance reports, so the Contractor will have to develop an alternative method for estimating heat loads that will be approved by Georgia EPD.
- Meteorological Data: A number of organizations including the National Climatic Data Center (NCDC) and UGA's Georgia Automated Environmental Monitoring Network (GAEMN) have meteorological data at a number of locations within and near the Chattahoochee River Basin. Typical meteorological data parameters include precipitation, air temperature, dew point temperature, barometric pressure, solar radiation, relative humidity, and wind speed. These data are collected in various time intervals including 15-minute, hourly, or daily.

The Contractor, with assistance from Georgia EPD, shall identify the available data for the watersheds, retrieve the data, and develop a database containing these data using WRDB. For the Chattahoochee River Basin, the Contractor shall coordinate with regulatory agencies in the State of Alabama, with Georgia EPD's assistance, to compile similar data from facilities on the Alabama side.

All of the data types described above have a location associated with them that can be used to create GIS coverages. The Contractor will develop and maintain GIS coverages for each data type that includes the location and other descriptive information for the site using GIS software. The software needs to be compatible with ArcGIS developed by Environmental Systems Research Institute (ESRI). The Contractor will work with Georgia EPD to develop the GIS database structure to be used for all data types.

Task 3: Watershed Modeling

As a part of the process of determining the assimilative capacity for the rivers, the Contractor shall develop watershed models for each river. Watershed models will be developed for the Chattahoochee River Basin from Buford Dam to Lake Seminole. The

watershed models will be designed to perform a continuous simulation for flow and water quality for the period 1997 through 2007.

Watershed models will be developed using either Hydrologic Simulation Program Fortran (HSPF) or the Loading Simulation Program in C++ (LSPC). The Environmental Protection Agency (EPA) Regions 3 and 4 developed LSPC for preparing TMDLs. It utilizes the hydrologic core program of HSPF with a custom interface of the Mining Data Analysis System (MDAS) and modifications for non-mining applications such as nutrient and pathogen modeling.

Each watershed model will be divided into modeling sub-basins based on hydrologic criteria to be represented as a series of hydraulically connected sub-watersheds in which the watershed model will calculate surface water runoff and the advective transport of constituents using historic precipitation data. Because of the water temperature issues in the Upper Chattahoochee Watershed (Buford Dam to Franklin, GA), this watershed model will also include water temperature modeling.

The following data and other modeling requirements will be required to perform the continuous watershed model simulations:

- Meteorological Data: Hourly meteorological data from weather stations within, or in close proximity to, the sub-watershed will be used in the watershed model. Precipitation data for the watershed will be gathered from several sources and the watershed will be subdivided into Thiessen polygons with precipitation stations as centers, in order to select the station for the watershed. The potential evapotranspiration will be calculated from the maximum and minimum daily temperatures obtained from either NCDC or GAEMN stations. The Hamon PET method will be used to calculate hourly potential evapotranspiration using air temperature, a monthly variable coefficient, the number of hours of sunshine (based on latitude), and absolute humidity (computed from air temperature).
- Land Use/Land Cover: The watershed model uses land cover data as the basis for representing hydrology and nonpoint source loading. The Contractor shall obtain, from EPD or other sources if more recent data is available, the most current digital map coverages for land use/land cover for the watersheds to be modeled. In addition, forecasted future land use coverages will be provided to the Contractor to use for future planning. Land cover categories for modeling will include open water, urban, barren or mining, cropland, pasture, forest, grassland, and wetlands. Coverages of imperviousness will also be utilized to develop the typical imperviousness percentages for each land use category. The percent imperviousness of a given land category will be calculated as an area-weighted average of land use classes encompassing the modeling land category.
- Soils Data: Soils data for the watershed will be obtained from the State Soil Geographic Database (STATSGO). There are four main

hydrologic soil groups. The different soil groups range from soils that have a low runoff potential to soils that have a high runoff potential. The total area that each hydrologic soil group covers within each sub-watershed will be determined. The hydrologic soil group that has the highest percent of coverage within each sub-watershed will be used to represent the sub-watershed.

- Digital Elevation Model: Digital elevation model (DEM) data will be obtained for the watersheds modeled and shall have a 10-meter grid resolution. These data will be used to determine the channel and watershed slopes for use in the watershed model.
- Point Source Discharge Data: The watershed model should be designed to include point source discharge data.

The watershed models will include all point sources of nutrients and organic material. Georgia EPD will prepare the Georgia DOSAG models that will be used to determine wasteload allocations (WLAs). These models will be incorporated into the watershed models. This may be represented as a single load representing one or more discharges to the watershed.

The watershed model will be calibrated to daily flows and discrete instream water quality data measured by Georgia EPD, USGS, local municipalities, counties, Georgia Power, and the Corps of Engineers, if available. The watershed models will simulate the rainfall runoff process for both flow and water quality and the results of these models will be used as tributary inputs to the lake and or river models.

Task 4: River Modeling

The Contractor shall develop one-dimensional hydrodynamic and water quality models for the Chattahoochee River from Rock Shoals Dam to Oswichee Creek (approximately 19 miles), and from Walter F. George dam to Bryans Creek (approximately 46 miles). River modeling will be done using Georgia EPD's EPD RIV-1. Model development and calibration shall be done using a period between 1997 and 2007 that has the most complete available data for model input and calibration. The period should span a minimum of two years.

Requirements of the river modeling also include:

- River Cross Sections: The EPD RIV-1 hydrodynamic model requires river channel cross sections as input for the open channel hydraulics calculations. The Contractor shall obtain available measured cross sections for the modeled river segments and incorporate them into the model geometry. Where cross section data are not available, cross sections may be developed using other means to be approved by Georgia EPD.

- Watershed Inflows: River model input data for watershed contributions of flow and water quality will be obtained from the watershed model results.
- Meteorological Data: Hourly meteorological data from one or more monitoring stations in the vicinity of the river will be used as model input.
- USGS Streamflow Data: USGS streamflow data will be used where appropriate for boundary flow input.
- Water Quality Data: Available water quality data collected at the boundary will be used as model input.
- Facility Monitoring Data: Daily facility operating data for both wastewater discharges and water withdrawals will be used in the model for the period modeled.

The river model will be calibrated with available USGS streamflow data and water quality data collected at locations within the model reach and during the modeling period.

Task 5: Lake Modeling

The Contractor shall develop lake models for West Point and Walter F. George in the Chattahoochee River Basin and Lake Seminole, which straddles portions of both the Chattahoochee and Flint River Basins, and shall consist of linked hydrodynamic and water quality models. Both the hydrodynamic and water quality models will be three-dimensional. The lakes will be modeled in three-dimensions, which will allow Georgia EPD to calibrate the models to site-specific data and to determine the effect of direct discharges into the lake without assuming laterally average segments.

The Environmental Fluid Dynamics Code (EFDC) will be used to simulate the internal flows and water temperature of the lake models. The Water Quality Analysis Simulation Program (WASP) will be used to simulate the fate and transport of water quality constituents within the lake. Model development and calibration will be done for a period within 1997 through 2007 that has the most complete data set, and should span a minimum of two years.

Lake Hydrodynamic Modeling

EFDC is a general-purpose hydrodynamic model capable of simulating one, two, and three-dimensional flow in surface water systems including rivers and lakes. The Contractor shall develop an EFDC model for each lake, which will include:

- A three-dimensional model grid having an appropriate resolution based on lake shoreline and bathymetric data.
- Boundary inflows provided by results from the HSPF or LSPC watershed model

- Hourly meteorological data including barometric pressure, air temperature, relative humidity, dew point, rainfall, evaporation, wind speed, solar radiation, and cloud cover
- Water temperature modeling

Estimated bottom elevations and shoreline boundaries define the EFDC model grid. Bathymetric assumptions will be derived from available cross-sections from lake bathymetry. In addition, any previously developed models for the lakes will be examined to insure consistency.

EFDC requires boundary conditions to simulate circulation and transportation. These conditions include the water elevations at the downstream boundary, watershed inflows, and meteorological data. The upstream boundaries will be the tributary flows and water quality results from the watershed models. The lake levels recorded at the lake dam will be used to define the water surface elevation at the downstream boundary.

The meteorological data that will be used include barometric pressure, air temperature, relative humidity, dew point, rainfall evaporations, wind speed, solar radiation, and cloud cover. These data are measured at the NCDC or GAEMN stations.

Water temperature will be simulated in EFDC using solar radiation, atmospheric temperature, heat transfer at the water surface, and the temperature of the hydraulic inputs.

Lake Water Quality Modeling

WASP is a dynamic compartmental model designed for aquatic systems that models the time varying processes of advection, dispersion, point and diffuse mass loading, and boundary exchange and can be structured in one, two, or three dimensions. WASP contains a series of independent kinetic process routines that can be employed. WASP will be used with its eutrophication module (EUTRO) which models conventional water quality constituents and algal kinetics. The water quality constituents and nutrient and algal kinetics in EUTRO are as follows:

- Organic nitrogen
- Ammonia
- Nitrate-nitrite
- Organic phosphorus
- Orthophosphate
- Chlorophyll a
- Dissolved oxygen
- Biochemical oxygen demand (BOD)

WASP is not a hydrodynamic model. The model uses the EFDC model results contained in the hydrodynamic linkage file, to provide the transport parameters required by the WASP water quality model. Therefore, the WASP model segmentation shall be compatible with the EFDC grid structure.

The WASP model simulates sediment oxygen demand, reaeration, full nutrient dynamics, and algal kinetics. Boundary inflow and constituent concentrations of BOD, total nitrogen, and total phosphorus will be imported from the calibrated HSPF or LSPC models. Since the watershed models only predict total nitrogen and phosphorus loadings, these lumped constituents must be partitioned into their component parts including organic phosphorus, ortho-phosphate, organic nitrogen, ammonia, and nitrate-nitrite for use as input to the lake water quality model. The nitrogen and phosphorus loads will be fractionated based on the results of measured water quality data.

If there are direct discharges to the lakes, daily discharge flows, 5-day BOD, ammonia, total phosphorus, and dissolved oxygen concentrations for the NPDES permitted discharges will be obtained from Operating Monitoring Reports (OMRs) and will be input into the model. If the lake has direct water withdrawals, daily water withdrawal data will also be input into the model.

The model lake water quality model will be calibrated with existing water quality data including chlorophyll *a*, nitrogen components, phosphorus components, dissolved oxygen profiles, and water temperature profiles.

Task 6: Current Assimilative Capacity Modeling

The current demand models will be used to assess the current loads. The Contractor shall develop the models for critical conditions in accordance with Georgia EPD standard practices. The critical conditions models will be run with the NPDES point sources at their full permit loads. The Contractor shall train Georgia EPD staff in the use and operation of the models. The calibrated and critical conditions models shall then be submitted to Georgia EPD for review. Georgia EPD will make these models available for technical review by outside parties. The technical review will be performed to validate that the models are appropriate and properly calibrated based on the available data.

Task 7: Current Assimilative Capacity Modeling Report

The Contractor shall prepare a draft modeling report that outlines the model structure (including water withdrawals, thermal discharges, and wastewater discharges), model input, modeling parameters, and calibration results. The report should include a sensitivity analysis of the various modeling parameters. Finally, the report should include the results of the critical conditions model and indicate streams that have available assimilative capacity and those that do not. The draft report will be submitted to EPD for review. After receiving comments from EPD and possibly others, the Contractor will incorporate all comments received and submit a final report.

Task 8: Accounting and Reporting

The EPD will provide appropriate progress reports to satisfy grant conditions and ARRA reporting requirements. In addition the state will follow all EPA and ARRA accounting guidelines by ensuring that these funds are clearly distinguishable from non-ARRA funds in agency financial systems, grant and contract writing systems, and reporting

systems. In this way the state will insure the transparency, accounting, and reporting requirements of ARRA are met.

Schedule of Task Completion Dates, Costs and Deliverables

The deliverables and costs for the tasks outlined above are given in the table below:

Task	Description	Deliverables	Date	Cost
1	Data Compilation and Management			\$ 17,325.00
		FTP Site for Data Exchange	July-09	
		Meteorological Data Processed through 2007	October-09	
		NPDES Data Processed through 2007	October-09	
		Water Withdrawal Data Process through 2007	October-09	
		EFDC Grids (West Point, Walter F George, Blackshear, Seminole)	January-10	
2	Chattahoochee River Watershed Modeling			\$122,000.00
		Chattahoochee River Watershed Model - Calibrated for Hydrology	January-10	
		LSPC Hydrology Modeling Report for Chattahoochee River Basin	June-10	
		Chattahoochee River Watershed Model - Calibrated for Water Quality	March-10	
		LSPC Water Quality Modeling Report for Chattahoochee River Basin	June-10	
		Future Chattahoochee River Watershed Modeling	December-10	
3	West Point Lake Modeling			\$160,000.00
		West Point Lake EFDC Model - Calibrated for Hydrodynamics	March-10	
		EFDC Hydrodynamic Modeling Report for West Point Lake	November-10	
		West Point Lake WASP Model - Calibrated for Water Quality	August-10	
		WASP Water Quality Modeling Report for West Point Lake	November-10	
4	Lake Walter F. George Modeling			\$106,675.00
		Lake Walter F. George EFDC Model - Calibrated for Hydrodynamics	March-10	
		EFDC Hydrodynamic Modeling Report for Lake Walter F. George	November-10	
		Lake Walter F. George WASP Model - Calibrated for Water Quality	August-10	
		WASP Water Quality Modeling Report for Lake Walter F. George	November-10	
5	Lake Seminole Modeling			\$117,150.00
		Lake Seminole EFDC Model - Calibrated for Hydrodynamics	March-10	
		EFDC Hydrodynamic Modeling Report for Lake Seminole	November-10	
		Lake Seminole WASP Model - Calibrated for Water Quality	August-10	
		WASP Water Quality Modeling Report for Lake Seminole	November-10	
6	Chattahoochee River RIV1D Modeling			\$146,450.00
		Chattahoochee River RIV-1	March-10	
		RIV-1 Hydrodynamic Modeling Report for Chattahoochee River	November-10	
		Chattahoochee River RIV-1 - Water Quality	August-10	
		RIV-1 Water Quality Modeling Report for Chattahoochee River	November-10	
			Total	\$669,600.00

Budget Summary: Section 604(b) ARRA 2009 Grant Funds

(1) Contract	\$669,600
Total Section 604(b) ARRA 2009 Grant Funds	\$669,600