

**DEPARTMENT OF ENVIRONMENTAL PROTECTION
CONTRACT REVIEW FORM**

Corrected Version

DEP CONTRACT NO. SP609

(1) ORIGINAL X

AMENDMENT NO. _____

CHANGE ORDER NO. _____

FUNDING LETTER INCREASE NO. _____

(2) CONTRACTOR, MAILING ADDRESS & TELEPHONE # U.S. GEOLOGICAL SURVEY 8505 Research Way Middleton, WI 53562 PHONE # (608) 821-3853		(3) Contractor FEID/SSN: 53-0196958	(4) TYPE: SERVICES <u>X</u> COMMODITIES _____ GRANT _____ CONCESSION _____ OTHER _____
		(5) DMS CLASS CODE: <u>973-360</u>	(6) PROCUREMENT METHOD: <u>Exempt - Gov't.</u>
		(7) BEGIN DATE: <u>Execution</u>	END DATE: <u>June 30, 2002</u>

(8) SUBJECT/DESCRIPTION: Study of the effect of soil dryout on methylmercury Production in Stormwater Treatment Area 2 (STA-2) Cell 1	(9) TOTAL AMOUNT: \$ <u>\$40,000</u>
	ARE FEDERAL FUNDS SUPPORTING THIS CONTRACT? <u>No</u>
	IF YES, SPECIFY THE FEDERAL FUNDING SOURCE AND CFDA NO.: _____
	ARE GRANTS-IN-AID APPROPRIATIONS SUPPORTING THIS CONTRACT? <u>No</u>
	IF YES, LIST THE LINE ITEM APPROPRIATION NO: _____
	(10) DELEGATION OF AUTHORITY: <u>DEP Directive</u>
(11) CMBE: <u>No</u>	
(12) ARE EQUIPMENT PURCHASES AUTHORIZED UNDER THIS AGREEMENT? <u>No</u>	
IF YES, WILL DEP RETAIN EQUIPMENT UPON CONTRACT COMPLETION? <u>N/A</u>	

(13) COMMENTS/EXPLANATION: _____

(14) ORGANIZATION CODE	E. O.	OBJECT CODE	MODULE	SPECIAL CATEGORY	GRANT NUMBER	YR.	AMOUNT
37 25-02-01-002	LA	132600	8567	030000		01-02	\$10,000
37 25-02-01-002	G1	132600	8567	030000	FC 310	01-02	\$30,000
37							\$

(15) DIVISION/DISTRICT: Resource Assessment & Management. (16) BUREAU/OFFICE: Mercury Coordination
(17) PROJECT MANAGER: Donald Axelrad (18) TELEPHONE NO.: 850 414-1347 M.S.#6540

(19) Approved By - Signature: _____ / Date: _____	(20) Notes/Instructions (Reviewers Only)
Contract Manager/Originator: <u>[Signature]</u> / <u>4/11/02</u>	
Budget Representative: <u>[Signature]</u> / <u>4/11/02</u>	
Bureau Chief: <u>[Signature]</u> / <u>4/11/02</u>	
Division Director: <u>[Signature]</u> / <u>4-11-02</u>	
Quality Assurance: <u>[Signature]</u> / <u>4/12/02</u>	
Contracts Administrator: <u>[Signature]</u> / <u>4/11/02</u>	
Purchasing: <u>N/A</u> / _____	DEP CONTRACTS SECTION USE ONLY
*General Counsel: <u>[Signature]</u> / <u>4/11/02</u>	VENDOR RELATIONSHIP - CHECKLIST COMPLETED
IRM/BIS: <u>N/A</u> / _____	

*General Counsel review not required for contracts not exceeding \$23,000 and using DEP 11-011.

IMPORTANT!!! IMPORTANT!!! IMPORTANT!!!

Separation of Duties Notice

DEP Contract No: SP609 Amendment No.
DEP Contract Manager: Don Axelrad

The attached contract/contract amendment is being routed for review and execution by the Department. Adequate separation of duty is required in the procurement of goods and services by the Department. Please be advised that the subject contract/contract amendment must be executed by a reviewing authority for the DEP Contract Manager who is authorized to execute contracts on behalf of the Department. If the DEP Contract Manager happens to have the delegated authority to execute contracts on behalf of the Department, the DEP Contract Manager ***must not execute*** the attached contract/contract amendment.

Separation of duties, which is also referred to as segregation of duties, "involves ensuring that individuals do not perform incompatible duties. Duties are considered incompatible from a control standpoint when it is possible for an individual to commit an error or irregularity and then be in a position to conceal it in the normal course of his or her duties."¹

¹Boynton, William C. and Kell, Walter G., *Modern Auditing*, 6th ed., New York: John Wiley & Sons, Inc.,

If you have any questions regarding this notice, please contact the Contracts Office representative identified below for assistance.

Contracts Office Rep: Ruth Heggen <i>RH</i>	Phone: 850/922-5942
Date: <i>4-11-02</i>	SunCom: 292-5942

NOTE: This Notice is to be maintained in DEP Contract Manager's file.

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR

FL170
DEP Contract No. SP609
TIN #:596001874

WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 11th day of April 2002 by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the **FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**, party of the second part.

1. The parties hereto agree that subject to the availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation **A Study of the Effect of Soil Dryout on Methylmercury Production in Stormwater Treatment Area 2 (STA-2) Cell 1 (See attachments 1, 2 and 3 , attached hereto and made a part hereof)**, hereinafter called the program.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program.
 - (a) \$0.00 by the party of the first part during the period
Execution to **June 30, 2002**
 - (b) \$40,000.00 by the party of the second part during the period
Execution to **June 30, 2002**
 - (c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.
8. The maps, records or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. Billing for this agreement will be rendered by June 15, 2002. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983.).

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

U.S. GEOLOGICAL SURVEY
UNITED STATES
DEPARTMENT OF THE INTERIOR

By Warren A. Gebert
(SIGNATURE & TITLE)
Warren A. Gebert, District Chief

By [Signature]
Director, Division of Resource
Assessment & Management

By _____

By _____

(USE REVERSE SIDE IF ADDITIONAL SIGNATURES ARE REQUIRED)

ATTACHMENT 1

DEP Contract No. SP609
USGS Joint Funding Agreement No.: WI02065

Additional Agreement Terms Required by Florida Statutes and DEP

1. The party of the second part (hereinafter referred to as the "DEP") reserves the right to unilaterally cancel this Agreement for refusal by the party of the first part (hereinafter referred to as the "USGS") to allow public access to all documents, papers, letters, or other material made or received by the USGS in conjunction with this Agreement, unless the records are exempt from Section 24(a) of Article I of the State Constitution and Section 119.07(1), Florida Statutes.
2. Each invoice must be submitted in detail sufficient for preaudit and postaudit review. A final invoice must be submitted no later than July 31, 2002, to assure the availability of funds for payment.
3. All travel costs incurred by the USGS are included in the fixed price amount of this Agreement and no additional travel expenses shall be authorized.
4. Pursuant to Florida Statutes, the DEP's Contract Manager shall have five (5) working days, unless otherwise specified herein, to inspect and approve the services for payment; the Department must submit a request for payment to the Florida Department of Banking and Finance within twenty (20) days; and the Department of Banking and Finance is given ten (10) days to issue a warrant. Days are calculated from the latter date the invoice is received or services received, inspected, and approved. Invoice payment requirements do not start until a proper and correct invoice has been received. Invoices which have to be returned to the USGS for correction(s) will result in a delay in the payment. A Vendor Ombudsman has been established within the Florida Department of Banking and Finance who may be contacted if the USGS is experiencing problems in obtaining timely payment(s) from a State of Florida agency. The Vendor Ombudsman may be contacted at 850/410-9724 or 1-800-848-3792.
5. In accordance with Section 215.422, Florida Statutes, the Department shall pay the USGS, interest at a rate as established by Section 55.03(1), Florida Statutes on the unpaid balance, if a warrant in payment of an invoice is not issued within forty (40) days after receipt of a correct invoice and receipt, inspection, and approval of the goods and services. Interest payments of less than \$1 will not be enforced unless the USGS requests payment. The interest rate established pursuant to Section 55.03(1), Florida Statutes, may be obtained by calling the Department of Banking and Finance, Vendor Ombudsman at the telephone number provided above or the Department's Contracts Section at 850/922-5942.
6. The State of Florida's performance and obligation to pay under this Agreement is contingent upon an annual appropriation by the Legislature.
7. A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not perform work as a contractor, supplier, subcontractor, or consultant under an agreement with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, F.S., for Category Two for a period of 36 months from the date of being placed on the convicted vendor list.
8. An entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid on a contract to provide goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not award or perform work as a contractor, supplier, subcontractor, or consultant under contract with any public entity, and may not transact business with any public entity. The Florida Department of Management Services is responsible for maintaining the discriminatory vendor list and intends to post the list on its website. Questions regarding the discriminatory vendor list may be directed to the Florida Department of Management Services, Office of Supplier Diversity at 850/487-0915.
9. The USGS shall comply with all applicable federal, state and local rules and regulations in providing services to the DEP under this Agreement. The USGS acknowledges that this requirement includes compliance with all applicable federal, state and local health and safety rules and regulations. The USGS further agrees to include this provision in all subagreements issued as a result of this Agreement.
10. In accordance with Section 216.347, Florida Statutes, the USGS is hereby prohibited from using funds provided by this Agreement for the purpose of lobbying the Legislature, the judicial branch or a state agency.

ATTACHMENT 2
STATEMENT OF WORK
A STUDY OF THE EFFECT OF SOIL DRYOUT ON METHYLMERCURY
PRODUCTION IN STORMWATER TREATMENT AREA 2 (STA-2) CELL 1;
LAB CAUSE-EFFECT STUDY,
For the United States Geological Survey (USGS)

1.0 INTRODUCTION AND BACKGROUND

This Statement of Work is for a study of the effect of soil dryout on methylmercury production in Stormwater Treatment Area 2 (STA-2) Cell 1.

STA-2 has three treatment cells that can be operated concurrently and independently. Cell 3, the westernmost treatment cell, was originally a sod farm, Cell 2, the middle cell, was about one-third sod farm and two-thirds undeveloped wildlife preserve, while Cell 1, the easternmost cell and adjacent to the L-6 levee, was entirely undeveloped wildlife preserve. The bottom portion of Cell 3 has been supplemented with limerock and submerged macrophytes, which is presently considered to be the most promising Advanced Treatment Technology (ATT) for routinely achieving 10 ppb total phosphorus at the point of discharge. Cells 2 and 3 do not have a methylmercury problem, but Cell 1 has experienced anomalously high concentrations following reflooding after periods of dryout in the fall of 2000 and 2001. Cell 1 has a higher average elevation than Cells 2 and 3, and, consequently, Cell 1 dries out more frequently and for longer periods of time than Cells 2 and 3. A study conducted by the U.S. Geological Survey (USGS) for the South Florida Water Management District (DISTRICT) in 1999, demonstrated that reflooding of the northern Everglades following dryout and burn produced a pulse of methylmercury production, but it was of shorter duration than the one experienced in Cell 1.

Although STA-2 and STA-6 are at different stages of maturation, the anomalous mercury events in STA-2 Cell 1 and the occasional outflow greater than inflow events in STA-6 may share the same cause: a dryout and rewetting cycle that liberates one or more constituents from a soil pool that otherwise limit methylmercury production. Potential limiting factors for methylmercury production include inorganic mercury, easily-degradable organic matter, and sulfate. Inorganic mercury is the substrate from which methylmercury is synthesized by natural bacteria in the hydrated soil. Sulfate-reducing bacteria are important methylators in most ecosystems, including the Everglades, and their activity can be limited by either organic matter availability or by the concentration of the electron acceptor used by these anaerobic organisms, sulfate. Sulfate-reducers respire sulfate to produce sulfide. However, sulfide, at concentrations above roughly 10 micromolar in soil interstitial waters, can limit methylation. Sulfide inhibition occurs through the formation of charged mercury-sulfide complexes that are not readily taken up by bacteria. ACME field data collected from 1995-1998 from the WCAs, LNWR and ENP allow prediction of long-term methylmercury production based on the sulfide content of surficial sediment pore waters.

ACME field studies of mercury and sulfur cycling in WCAs 2 and 3 following the 1999 drought and rewetting strongly suggest that sulfur in sediments is oxidized during drying and burning of peat, and that the sulfate formed stimulates microbial sulfate reduction

and mercury methylation upon rewetting. However, control of this methylation pulse is not well understood. In particular, the relationship between the amount of sulfur stored in sediments (or available in flooding waters) and the total amount of methylmercury produced upon rewetting is unclear. Since sulfate stimulates methylation, but sulfide inhibits methylation, methylation at high sulfur sites may shut down quickly after rewetting as sulfide accumulates. We need to know more clearly how sulfur levels control the magnitude and duration of the methylation pulse. The relative role of organic matter and mercury release during oxidation in the post-rewetting methylation pulse is also not known. However, field data from 1999 suggest that sulfur oxidation is the main factor leading to enhanced methylation after rewetting.

Methylmercury production in the "test" STA (ENR) has been low throughout its history. ENR soils are agricultural soils with very high reduced-sulfur content, and inflow waters to STA-1 are high in sulfate (30-60 mg/L). ENR has never undergone a substantial drying period. The net result is a constant, high sulfide concentration in ENR soils, which limits Hg uptake by bacteria, and therefore limits methylmercury production. STA-2 soils are likely very different than ENR soils, since some have not been cropped and some have been in turf. The history of sulfur use in these areas, and the concentration of reduced sulfur in STA-2 soils are unknown. Therefore it is difficult to predict either the amount of methylmercury production upon rewetting or the long-term methylmercury production of these cells.

How can Cell 1 be opened to minimize the magnitude and duration of the "first-flush" methylmercury pulse? The three most reasonable hypotheses for why Cell 1 is producing high concentrations of methylmercury are:

1. Sulfate and sulfide concentrations are optimal for Hg methylation. While there is enough sulfate from S6 canal water to fuel sulfate reduction after flooding, reduced-sulfur in Cell 1 soils may be much lower than in the ENR, and dissolved sulfide concentrations do not build up quickly. In the best case, sulfur chemistry may be optimal for only a short time after rewetting, and sulfide build-up will limit methylation after weeks to months.
2. Decomposition of organic matter left over from initial flooding of Cell 1 may be fueling increased microbial activity, which is driving excess methylation. It may take months to years to use up this organic matter.
3. Mercury is released from soils during drying, and this fuels a methylation pulse. This release may be related to vegetation flooded during the construction of STA-2. Data collected in WCAs 2 and 3 after the 1999 drought, suggest, however, that Hg is not released from soils for an extended period following drydown.

The Spring 2002 work will be an experimental study of the sulfur and mercury chemistry following rewetting of STA-2 Cell 1 soils, using a set of soil cores removed from Cell 1. The study will provide key information on the duration and magnitude of the methylmercury pulse following rewetting. In particular, the rate of sulfide accumulation in soils wetted with S6 canal water can be determined, and the steady-state production of methylmercury after the initial rewetting can be estimated. If sulfide builds up quickly, and methylmercury pulse following rewetting is short, continued operation of Cell 1 with

S6 water might be possible under permit after a short period of non-compliance. Results will be compared to a companion study run simultaneously with WCA 3A soils.

The objectives of the first phase laboratory soil core study are, for STA-2 Cell 1 soils, to:

1. Simulate the likely duration and magnitude of the methylmercury pulse following rewetting.
2. Examine the sulfur biogeochemistry of soils during drying and rewetting. In particular, examine:
 - a. The amount of sulfur oxidation during drying.
 - b. The amount and duration of sulfate reduction following rewetting with S6 canal water.
 - c. The rate of sulfide accumulation in pore waters following rewetting with S6 canal water.
3. Discriminate the contribution of the "old" mercury in soils and the "new" mercury in stormwater and rainfall to net methylmercury production after rewetting.
4. Use this information to:
 - a. Gauge the environmental and public health significance of methylmercury production during STA-2 Cell 1 start-up, and to identify mitigative options (e.g., wait for the pulse to pass; continued input of S6 water; soil preparation or treatment).
 - b. Model the amount of methylmercury production, export and bioaccumulation within and downstream of STA-2 Cell 1 during long-term operation, under various operational regimens.

To fulfill these objectives, representative soil samples from STA2 Cell 1 will be collected and held under controlled laboratory conditions that explore the effect of various durations of dryout and then reflooding on sulfur chemistry and methylmercury production. Cores will be collected from Site C within Cell 1. To ensure maximum realism of this simulation, the soils will be collected so as to best preserve their physical, chemical, and microbiological structure. Canal water from S6, amended with a stable mercury isotope, will be used for rewetting. The stable mercury isotope serves as a marker for newly introduced mercury, so that mercury in rain and floodwaters can be separated from Hg potentially remobilized from soils during drydown.

2.0 OBJECTIVE

The objectives of this study are to develop a predictive capability with which to determine whether or how best to start up Cell 1 with the return of the 2002 wet season to avoid or minimize the magnitude and duration of the "first-flush" methylmercury pulse. Together with enhanced monitoring data collected under another contract (C-11900-A03) the results of this study will also be used to calibrate and validate a mechanistic mathematical model of mercury (Hg) transport, biogeochemistry, and bioaccumulation with which to fulfill long-term project objectives. The model is being developed under another contract (C-9693-A01).

3.0 SCOPE OF WORK

Multiple replicate soils cores (~40) will be collected intact from STA-2 Cell 1 at Site C as soon as possible in Spring 2002 for the dry/rewet experiments. In addition to cores collected for laboratory experiments, additional samples will be taken to assess mercury and sulfur biogeochemistry in STA-2 Cell 1 Site C at the time of the sampling. Cores will be collected in 7 cm PVC barrels and in 10 cm Teflon barrels. Teflon barrels will be used for cores from which water samples will be taken. Cores will be returned to the Academy of Natural Sciences Environmental Research Center (ANSERC) and held at ambient summer temperature with sunlight spectrum lighting. Some cores will be maintained wet as controls, while most cores will be allowed to dry, either for about 1 month or about 7 months. After drying, cores will be rewetted with stormwater from the L-7 canal at the S-6 pump station, dosed with a stable mercury isotope. -The soil, surface water, and pore water from the rewetted cores and the controls will be sampled at approximately 0, 3, 14, 28, 56, 112 and 168 days after rewetting. Solid phase samples and pore water samples will be taken by sacrificing whole cores; overlying water will be sampled repeatedly from cores in Teflon barrels. Water over cores will be replaced with S6 water as need to maintain volume.

The soil will be analyzed for total and methyl-mercury using ICP-quadrupole mass spectrometry. Digestion or distillation of samples for total and methylmercury analysis will be as previously described by ACME. Other soil measurements will include total sulfur, acid volatile sulfide, chromium reducible sulfur, organic sulfur, organic carbon, bulk density, and moisture content using standard wet and instrumental analytical methods. The surface water and pore water will be analyzed for filtered total mercury, methylmercury, sulfate, partially reduced sulfate species, sulfide, total iron, total manganese, and dissolved organic carbon using the previously referenced methods. Temperature and dissolved oxygen will be monitored in water overlying cores.

4.0 WORK BREAKDOWN STRUCTURE

Task 1. Collection of Soil, Surface Water, and Pore Water Samples at STA-2

Task 1.1 Soil Collection for Baseline Biogeochemistry

Total and methylmercury, total sulfur, AVS, CRS, OS, and mercury methylation/demethylation rate will each be measured in duplicate in 0-4 cm soils from Site C in STA-2 Cell 1, at the time of core collection for the dry/rewet experiment. Methylation and demethylation rates will be estimated using Hg stable isotopes. Samples will be archived. Soil cores will be collected using appropriate equipment that has been appropriately cleaned and stored prior to use. -Soil cores will be collected at the same site and time as the water samples described in Task 1.2. Soil cores will be collected so as to preserve the undisturbed physical, chemical, and microbiological community structure of the soil to the maximum practicable extent.

Deliverable: Collection of baseline soil cores

Due Date: April 15, 2002

Task 1.2 Surface Water and Soil Pore Water Collection for Baseline Biogeochemistry

Surface water grab samples will be carefully collected to minimize resuspension of soil particulate matter or interstitial waters into the sample. Soil pore water will be collected at Cell 1 Site C using a sipper technology. -Pore water samples taken by sipper will produce a depth-integrated sample with an average depth of approximately 5 cm. The sipper is made out of an appropriate material that has been properly cleaned and stored for ultra-trace mercury and sulfur species analysis. -Surface water and pore water will be collected at the same sites and times as the soil cores.

Deliverable: Collection of baseline soil pore water

Due Date: April 15, 2002

Task 1.3 Soil Core Collection for Measuring Baseline Net Methylmercury Production

See Task 1.1

Deliverable: Collection of baseline soil cores

Due Date: April 15, 2002

Task 1.4 Soil Collection for Minicosm Study

Soil cores will be collected for the "coffee can" or "minicosm" study using 7-cm PVC barrels and 10-cm Teflon barrels. Teflon barrels will be used for cores from which water samples will be taken. Teflon barrels will be appropriately cleaned and stored properly for ultra-trace mercury analysis. Soil cores will be collected so as to preserve the undisturbed physical, chemical, and microbiological community structure of the soil as possible. Sufficient numbers of cores (~11 Teflon and ~27 PVC) will be collected to support the dryout, dosing, and sampling regimen with replication set forth in Table A1-1 and A1-2 in Appendix A1.

Deliverable: Collection of minicosm soil cores.

Due Date: April 15, 2002

Task 2. Baseline Chemical Analysis of Surface Water, Soil and Pore Water

The media will be collected, preserved, stored, processed, and analyzed at the sites indicated one time for the constituents listed in Table A1-1 in Appendix A-1.

Appropriate field quality control samples of surface water will be collected and analyzed for total mercury and methylmercury. In the analytical laboratory, appropriate laboratory blanks, spikes, and replicates will be run each day. The data will be reviewed routinely to ensure that quality control criteria for blank contamination are met.

Data entry will be performed electronically. The database will be maintained in an Excel spreadsheet. Data entries will be double-checked against the hardcopy of the data report by a technician and then the Quality Assurance Officer. An electronic copy of the

database will be transmitted to the FDEP Project Manager with the submittal of the Final Report.

2.1 Preliminary Results

Deliverable: Report on preliminary results of baseline chemical analyses.

Due Date: June 1, 2002

On consideration of the results of this research, a new Joint Funding Agreement with USGS for continued STA-2 methylmercury research during DEP FY 2002/03 will be considered.

5.0 RESPONSIBILITIES OF THE PARTIES

Don Axelrad is the Project Manager. Dr. Axelrad will ensure the quality, quantity, and timeliness of the work products of the USGS upon whom fulfillment of the specifications of this contract depends.

6.0 REPORTING

The USGS will provide a report on preliminary results of baseline chemical analyses by June 1, 2002

7.0 INVOICING

The USGS shall submit one invoice upon project completion.

DELIVERABLES SCHEDULE

Task No.	Deliverable	Due Date
1	Sample Collection	4/15/02
2	Chemical Analysis	
2.1	Report on Preliminary Results	6/01/02

Budget Summary for Invoicing

FY 2001/02

Salary	\$23,674
Expenses	\$ 2,000
Indirect	\$14,326
Total Requested	\$40,000

ATTACHMENT 3

- 1 All sampling and analyses performed under this Contract must conform to the requirements set forth in Chapter 62-160, Florida Administrative Code (F.A.C.) and the document "Requirements for Field and Analytical Work performed for the Department of Environmental Protection under Contract" (DEP-QA-002/02), February 2002.

2. LABORATORIES

- a. The Department has determined that because of the nature of the analytical work, certification by the Department of Health Environmental Laboratory Certification Program is not necessary. However, all laboratory activities shall conform to the standards of the National Environmental Laboratory Accreditation Conference (NELAC).
- b. The laboratory shall ensure that an initial demonstration of capability (IDOC) specified in Appendix C of Chapter 5 in the NELAC standards is performed for each proposed test method. The IDOC shall be performed before the test procedure is used to generate data for this contract. If requested by the Department, documentation that supports the IDOC shall be made available for review.
- c. Performance test samples (where available) shall be successfully performed at least twice annually. Analysis of standard reference material (SRM), with test results within the acceptable range for the SRM may be used in lieu of performance test samples. The laboratory must provide documentation for each analytical test that, within the last 6 months, either performance test samples have been passed, or standard reference materials have been within the acceptance limits of the SRM.
- d. All non-standard laboratory procedures (i.e. those that do not appear on the Department's list of recognized methods) shall be submitted for review and approval in accordance with DEP-QA-001/01, "New and Alternative Analytical Laboratory Methods", January 1, 2002. The method must be approved by the Department before use.
- e. The CONTRACTOR shall ensure that the essential quality control measures, laboratory report content and documentation are consistent with Chapter 5 of the NELAC standards and DEP-QA-002/02.

3. FIELD ACTIVITIES

- a. All sample collection and field activities shall be performed in accordance with the Department's "Standard Operating Procedures for Field Activities" (DEP-SOP-001/01 dated January 1, 2002).
- b. Any non-standard field procedure shall be submitted for review and approval in accordance with FA 2000 of the Department's Standard Operating Procedures. The procedure must be approved by the Department before use.

4. REPORTING, DOCUMENTATION AND RECORDS RETENTION

- a. All laboratory and field records as specified in Chapter 62-160, F.A.C. shall be retained for a minimum of five years after the project completion.
- b. In addition to the NELAC-compliant laboratory report, the Contractor shall require that the laboratory provide additional information to satisfy the Tier 1 (basic reporting options) validation requirements as outlined in DEP-QA-002/02.
- c. The data for validation purposes shall be submitted in the electronic format specified in DEP-QA-002/002.

- d. All applicable data qualifier codes as mandated by Chapter 62-160, F.A.C. and included in DEP-QA-002/02 shall be used.
- e. The Contractor shall adhere to the documentation and records requirements for project data contained in DEP-QA-002/02.
- f. All field and laboratory records that are associated with work performed under this contract shall be organized so that any information can be quickly and easily retrieved.

5. AUDITS

- a. AUDITS BY THE DEPARTMENT – Pursuant to 62-160.650, F.A.C., the Department may conduct audits of field and/or laboratory activities. In addition to allowing Department representatives to conduct onsite audits, the Contractor, upon request, must provide the Department with the requested information, including the raw analytical data for all analyses of a sample (regardless of whether the data are reported). If an audit by the Department results in a determination that the data are not usable for the proposed purpose, the Department reserves the right to terminate the contract
- b. PLANNING REVIEW AUDITS –
 - 1. Initial: Within one month after the second sampling and analysis event has been completed (including all analyses), the Contractor and all associated subcontractors shall review the planning document (see 6 below) relative to the field and laboratory activities to determine if the data quality objectives are being met, identify any improvements to be made to the process, and refine the sampling design or schedule. A summary of the review, including any corrective action plans or amendments to the planning document shall be sent to the DEP Contract Manager within one month of the review, and a copy shall be maintained with the permanent project records.
 - 2. Ongoing: Planning reviews as described in 1 above shall occur annually.
- c. QUALITY SYSTEMS AUDITS – The Contractor and all subcontractors shall ensure that the required laboratory and field quality system and management systems audits are performed, and documented in the organization's records.
- d. STATEMENTS OF USABILITY - As a part of the audit process and the final report, the Contractor shall provide statements about data usability relative to the Project Data Quality Objectives and Data Quality Indicators

6. PLANNING DOCUMENTS

- a. Within 30 days of contract execution, the Contractor shall submit a detailed project proposal or sampling and analysis plan that discusses the information contained in contained in the document "Requirements for Field and Analytical Work Performed for the Department of Environmental Protection Under Contract, DEP-QA-002/02" and the additional topics specified in 62-160.600, F.A.C.
- b. The Contractor and affected subcontractors have three (3) opportunities to submit an acceptable sampling and analysis plan to the Department. If any plan fails the approval process three (3) times, the Department may terminate the Contract in its entirety. Failure to provide acceptable Sampling and Analysis Plans as required will result in suspension or termination of this Contract.
- c. The DEP Contract Number shall appear on the title page of the submitted document. Within forty-five (45) days of receipt of properly identified documents by the Department, the Department shall review and either approve the document, or provide comments to the Contractor and affected subcontractors as to why the Plan is not approved. If further revisions are needed, the Contractor shall then have fifteen (15) days from the receipt of

such comments to respond. The Department shall respond to all revisions within 30 days of receipt.

d. If Plan review is delayed, through no fault of the Contractor, beyond sixty (60) days after the Plan is received by the Department, the Contractor shall have the option, after the Plan is approved, of requesting and receiving an extension in the term of the Contract for a time period not to exceed the period that review was delayed. This option must be exercised at least sixty (60) days prior to the current termination date of the Contract.

e. Sampling and analysis may not begin until the Plan been approved.

f. Once approved, the Contractor shall follow the protocols specified in the approved Plan including, but not limited to:

1. Ensuring that all stated quality control measures are collected, analyzed and evaluated for acceptability;
2. Using only the protocols approved in the Plan; and
3. Using only the equipment approved in the Plan.

g. If any significant changes such as changes in procedures or test methods, changes in organizations, or changes in key personnel occur, the Contractor shall submit appropriate amendments to the Department Contract Manager for review and inclusion into the Sampling and Analysis Plan. Failure to submit the required amendments or to meet any of the above-stated conditions may result in the decision by the Department Contract Manager to suspend or terminate the Contract.

7. DELIVERABLES

a. The following outlines the expected schedule for the deliverables that are associated with the Quality Assurance requirements of this Contract:

1. Non-standard laboratory or field procedures – Prior written approval, or submission of the complete packet of information for review.
2. Planning review audits – As specified in 5.b.
3. Statement of Usability – As specified in 5.d.
4. Planning Document – see 6.

Note: All documents referenced in the Attachment are available at the following website:

<http://www.dep.state.fl.us/labs/>

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QC OPTIONS

			Applicability				
			Chemistry	Microbiology	Toxicity	Taxonomy	Field
1		The CONTRACTOR shall ensure that at least five percent of the field-collected environmental samples associated with this project are used to prepare matrix spikes, and laboratory duplicates or matrix spike duplicates. Spike levels must be at concentrations specified in item 3 below.	✓				✓
2		The CONTRACTOR shall ensure that the laboratory is provided with sufficient sample volume to perform the matrix-related quality control indicators at a frequency of 5% per test and matrix.	✓				✓
3		Laboratory Control Samples (also known as Laboratory Fortified Blanks) (LCS) must be evaluated with each analytical batch at the same concentration as the sample matrix spikes. The results must meet method-specified limits.	✓				
4		The final concentration of any spike fortification must be at the laboratory's stated PQL or at the action level if it exceeds the PQL. If the measured sample background exceeds the specified spike level by more than a factor of two, then the spike level must be 2-5 times the measured background level in the sample that is selected for spiking. If a spiked sample is spiked at an incorrect level, then the entire batch of samples must be re-prepared, a new aliquot of the same sample must be re-spiked at the correct level for this batch, and the batch reanalyzed. The sample to be spiked should be randomly selected, and it must be reported which sample was spiked. All spike fortification must take place prior to any necessary preparation. The results must meet the established laboratory acceptance criteria for the specific matrix. If none have been developed, the laboratory shall use the criteria for LCS until such limits are established.	✓				
5		Sample duplicates or matrix spike duplicates must be evaluated for precision.	✓				
6		Continuing Calibration Verifications (CCV's) must be analyzed at a minimum of 5% frequency, or one for every 20 samples. In order to accept the calibration run, all CCVs must meet the method specified acceptance criteria.	✓				

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		Applicability			
		Chemistry	Microbiology	Toxicity	Taxonomy
7	When an initial instrument calibration is not performed, continuing calibration Verifications (CCV's) must be analyzed daily prior to analyzing samples. A CCV must also be analyzed at the end of the sampling day or every 12 hours whichever is less.	✓			
8	No analyses may be performed using expired reagents, calibration solutions or check solutions	✓			
9	Linear instrument calibration curves must have a correlation coefficient of at least 0.995.	✓			
10	The concentration of each calibration standard used to generate a nonlinear calibration curve must be calculated based on the curve. All calculated calibration concentrations must be within 85% - 115% of the known concentration for that standard.	✓			
11	If a relative response factor is used to determine the sample concentration, the continuing calibration checks must meet the method stated acceptance criteria.	✓			
12	Analytical sensitivity must be evaluated using a check standard prepared at the practical quantitation limit for each analytical run as described above for PQLs.	✓			
13	The absolute value of the raw instrument value must be less than the MDL for all blanks	✓			
14	If method control limits for any measurements are exceeded (including control limits for sample matrix spikes), then the analysis must be repeated if possible. All sample data that is associated with a failed quality control measure must be appropriately qualified as specified in Chapter 62-160, F.A.C. An explanatory comment must be attached to the final report for each result that has a qualifier code other than U, I, or A. Any additional qualifier codes used, but not explicitly provided for in Chapter 62-160, F.A.C., must be identified and defined in the report.	✓			
15	If a method blank or PQL check fails, the blank and associated sample results must be reported with the appropriate qualifier from Chapter 62-160, F.A.C., unless the affected results are at least 10 times the absolute value of the observed bias.	✓			

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		Applicability				
		Chemistry	Microbiology	Toxicity	Taxonomy	Field
16	For chromatographic analyses, all analytes with concentrations above the method detection limit shall be confirmed by a different separation or instrument configuration. Confirmation must occur the first time an analyte is detected at a sampling point. Second column/same detector Second column/ alternate detector Second column Mass spectrometry Alternate Wavelength	✓				
17	The reported MDL and PQL for each sample must be adjusted for dilution factors, and any relevant preparation weights and volumes.	✓				
18	Microbiological analyses must conform to requirements for facilities, personnel and equipment specifications stated under <i>AWWA Standard Methods 18th edition</i> , section 9020.					
19	Field duplicates (not to be confused as laboratory duplicates) shall be collected and analyzed for at a frequency of 5% of each matrix/analyte combination.	✓				✓
20	All field duplicate results greater than the PQL should agree within 20% RPD for each measured analyte. In the event that field duplicate agreement is not observed, the laboratory must investigate sufficiently to determine that poor precision is not due to a laboratory error, and report the results with appropriate qualifiers and/or comments.	✓				✓
21	If a field blank, equipment blank or trip blank result is greater than the MDL, the result must be confirmed by reanalyzing a new aliquot of the sample. The laboratory must investigate sufficiently to determine that positive blank results are not due to a laboratory error, and report results with appropriate qualifiers and/or comments.	✓				✓

**Recommended elements.

DEP USE ONLY		COMPTROLLER USE ONLY	
DEP Contract No.: <u>SP609</u>	Date Prepared: <u>4-11-02</u>	Received Date: _____	
Prepared By: <u>RUTH HEGGEN</u>		Approved Date: _____	
Return to: _____	Mail Station No.: _____	Approved By: _____	
Phone No.: _____	Fax No.: _____		

COMPTROLLER CONTRACT REVIEW CHECKLIST

- Indicate Original Contract or ****Amendment** or ****Renewal** 0
1. OLO: 37 Site/District: _____
 2. DEP Contract No.: SP609 Project Number: _____
 3. DMS No.: 973-360
 4. Contractor: U.S. GEOLOGICAL SURVEY FEID/SS#: 53-0196958
 5. Contract start date: EXECUTION Contract end date: 6/30/02
 6. Contract last signed date: ~~4/11/02~~
 7. If last date signed is after the contract start date, you must submit emergency certification [287.058(2) F.S.] or certificate of noncompliance [287.058(2) F.S.] or settlement document [CM4 (87-88) or CM11 (91-92)].
 8. Total Contract amount: \$ 40,000 Ceiling amount: \$ _____
 9. Contract SAMAS account code: _____
 10. Deliverable/Milestones - must be clear, detailed, concise language (i.e. tasks, % complete, time frame or milestones, goods, services): ATTACHMENT 2

11. CONTRACT DOCUMENT—Mandatory Provisions (insert page number, paragraph number, identify section or attachment from contract in space provided, as applicable):

<u>ATTACH 1, #4+5</u> 215.422(5)	<u>ATTACH. 2</u> 287.058(1)(d)	<u>N/A</u> 287.058(4)
<u>ATTACH 1, #10</u> 216.347	<u># 2</u> 287.058(1)(e)	<u>ATTACH 1, #6</u> 287.0582
<u>ATTACH 1, #2</u> 287.058(1)(a)	<u>N/A</u> 287.058(1)(f)	<u>ATTACH 1, #7</u> 287.133(2)(a)
<u>ATTACH 1, #3</u> 287.058(1)(b)	_____ 287.058(2)	<u>ATTACH 1, #8</u> 287.134(3)(a)
<u>ATTACH 1, #1</u> 287.058(1)(c)	<u>N/A</u> 287.058(3)	<u>N/A</u> Rule 60A-1.017

****Complete only applicable portions of checklist for renewals, amendments, etc.**

12. Method of Procurement IGA (Refer to attached list) (Provide documentation, where applicable)
13. Method of Payment LS (FR, LS, CR, CP, AD)

A. Fixed Rate (FR) - specify unit and rates (may be multiple units & rates).

- B. Lump Sum (LS) - specify partial payment criteria and identify what constitutes completion and acceptance.
ONE INVOICE UPON COMPLETION
- C. Cost Reimbursement (CR) (216.346 F.S. must be complied with) - Provide budget: _____
- D. Cost Plus (any combination of these) (CP) _____
- E. Advance funded (AD) - Y (N)
If yes, compliance with 216.181(16)(b) or 215.422(14) must be documented _____
14. Amendments /renewals /extensions NA
Executed prior to the end of the contract and must be in compliance with 215.425 F.S. _____
Renewals in compliance with 287.057(12) F.S. _____
Extensions in compliance with 287.057(11). _____
15. Amendments/renewals/extensions are effective on last date signed. NA
16. Method of Procurement will be required if additional services are added to existing contract. NA
17. INFORMATION TECHNOLOGY RESOURCE acquisitions NA
Attach approvals, if applicable [see 282.102, F.S.] _____
18. OTHER SERVICES REQUIRING SPECIAL APPROVALS (Attach, if applicable): NA
Private Attorney Services _____
Consultant and professional services contracts entered into by agencies under the Governor and Cabinet _____
19. Purchase of communication equipment or services in excess of Threshold Category II requires approval of the DMS Division of Communications (Rule 60C). NA
20. Management Controls -
- a) All the foregoing statements are true and correct; the undersigned management represents that controls are in place to insure that goods/services are received, and payments are made in accordance with contract terms.
- b) All completed work will be verified in a certified statement signed by the contract manager or higher authority prior to payment. The undersigned understands that the State Comptroller's office reserves the right to either appoint special contract monitors on contracts or to conduct periodic site post-audits of any contracts.

Management Name (please print) RUTH HEGGEN

Management Approval Signature Ruth Heggen

Management Approval Date: 4/11/02

Checklist for Nonstate Organizations

Note: This form is to be used to evaluate the applicability of the Florida Single Audit Act to local governments (excluding district school boards and community colleges), and nonprofit organizations with which the agency has contracts/agreements. This form does not need to be completed for local governments and nonprofits under contracts/agreements which only provide for the procurement of commodities, or which only provide federal or state matching funds. Given that for-profit organizations, including sole-proprietors, generally have vendor relationships with state agencies, completion of the form for such organizations is optional.

Nonstate Organization ⁽¹⁾: US Geological Survey Agency: DEP

State Project: SP609 CSFA ⁽²⁾ Number: N/A

Contract/Agreement Period: Execution - 6/30/02 Authorizing Statute: N/A

Completed by: Donald M. Axelrad Date: 4/5/02

⁽¹⁾ Nonstate Organization does not include universities within the State University System

⁽²⁾ Catalog of State Financial Assistance

Part A: If the response to either of the following questions is yes, the nonstate organization is a recipient. Skip Part B and go to Part C.

X	1. Does State law/legislative proviso establish or create the nonstate organization to carry out the state project?	Yes ☐	No ☐	
	2. Does the nonstate organization determine final program eligibility?	Yes ☐	No ☐	

Part B: Complete the following table. A "yes" answer is indicative of the type of relationship being reviewed.

Recipient				Vendor			
	Yes	No	Comments		Yes	No	Comments
1. Does state statute or legislative proviso establish the state project and authorize the agency to provide funding for the project?		x		1. Does the nonstate organization provide its services within the normal course of business operations?	x		
2. Is the nonstate organization required to provide matching funds.		x		2. Does the nonstate organization operate in a competitive environment?		x	
3. Does the nonstate organization make programmatic decisions on behalf of the State.		x		3. Does the nonstate organization provide similar services to many different purchasers?	x		
4. Are the funds provided to the nonstate organization for it to carry out its own program or operations?		x		4. Does the contract/agreement specify payment on a per unit or deliverable basis?	x		
5. If the nonstate organization receives federal funds under a similar program, is it designated as a recipient by your agency for that program?		x		5. Was the contract/agreement awarded based on free and open competition?		x	
6. Is the nonstate organization organized primarily for a public purpose?	x			6. If the nonstate organization receives federal funds under a similar program, is it designated as a vendor by your agency for the program?	x		

Part C: Conclusion..

Based on your analysis of the responses to Parts A and/or B, and discussions with appropriate agency personnel, indicate your evaluation of the nonstate organization for this contract: (Check One) Recipient or Vendor x Note that it is possible to have a contractual agreement with a nonstate organization under Chapter 287, Florida Statutes, and still consider the nonstate organization a recipient under the Florida Single Audit Act.

Comments:

Part C: Questions/New Projects..

If you have questions regarding the evaluation of a nonstate organization or if you determined that the nonstate organization is a recipient and the projects has not been assigned a CSFA number, contact the Executive Office of the Governor, Office of Policy and Budget, at 487-1880.