

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE	PAGE OF PAGES
			J	1 5
2. AMENDMENT/MODIFICATION NO. 0001	3. EFFECTIVE DATE 24-Apr-2003	4. REQUISITION/PURCHASE REQ. NO. W22W9K-3057-5450		5. PROJECT NO.(If applicable)
6. ISSUED BY USA ENGINEER DISTRICT, LOUISVILLE ATTN: CELRL-CT 600 DR. MARTIN LUTHER KING PLACE ROOM 821 LOUISVILLE KY 40202	CODE DACW27	7. ADMINISTERED BY (If other than item 6) CIVIL/OPS/ENVIRONMENTAL TEAM 600 DR. M. L. KING, JR. PL. RM 821 ATTN: YONG FOSTON LOUISVILLE KY 40202-2230		CODE DACW27
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)			<input checked="" type="checkbox"/> 9A. AMENDMENT OF SOLICITATION NO. DACW27-03-T-0049	
			<input checked="" type="checkbox"/> 9B. DATED (SEE ITEM 11) 17-Apr-2003	
			10A. MOD. OF CONTRACT/ORDER NO.	
			10B. DATED (SEE ITEM 13)	
CODE	FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS				
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input checked="" type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.				
12. ACCOUNTING AND APPROPRIATION DATA (If required)				
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.				
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.				
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).				
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:				
D. OTHER (Specify type of modification and authority)				
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.				
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) The Solicitation for the enumeration, identification, and characterization of benthic macroinvertebrates is amended as follows: a. Enclosed is the revised scope of work dated 24 April 2003. b. Contractor shall acknowledge amendment #0001 as stated i				
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.				
15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)		
		TEL: _____ EMAIL: _____		
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED	
_____ (Signature of person authorized to sign)		BY _____ (Signature of Contracting Officer)	24-Apr-2003	

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE

The following have been added by full text:

AMENDMENT NUMBER 0001

Macroinvertebrate Monitoring Project**Scope of Work**

REVISED April 24, 2003

Description

The Contractor will be responsible for the enumeration, identification **to species level**, and characterization of benthic macroinvertebrates, calculation of specified metrics, and report preparation for **approximately 57** composite benthic macroinvertebrate samples collected annually from inflows and tailwaters of 20 reservoirs in the Louisville District over a base year (Y2003) and optional (as determined by the Government) 4 years.

Duties

The Contractor will be responsible for sorting macroinvertebrates from other materials in composite macroinvertebrate samples prior to analysis. Each composite sample is composed of 4 replicate Surber sample collections, for a total sample area of 0.37 m². Each sample will be formalin fixed and stored in 70% ethanol with sufficient Bengal Red to produce a light pink stain.

The Contractor will present specified data in terms of species density and relative abundance for each sample site, for each sample date, for each substrate type for which samples are submitted. **Each and every organism in a sample will be examined and individually** identified according to Phylum, Class, Order, Family, Genus, and **Species levels** with the exception that subsamples within the family Chironomidae may be used upon approval by the Government, **i.e., of the total of the Chironomids in a sample, a subsample portion (see Methods below) may be used to identify representative organisms to species level the results of which may be used to estimate chironomid species relative abundance for the sample as a whole.** Oligochaetes may be treated in like manner to the treatment of chironomids as just described.

The Contractor will prepare a final report to include, at a minimum, description of study objective, sample site locations, dates of sample collection, methods for sample collection and identification, taxonomic references, collector ID, community metrics as described below, copies of chain of custody sheets and copies of laboratory data sheets.

The Contractor and the Louisville District office will discuss all details of sample analysis to the full understanding and satisfaction of both parties throughout the contract period.

Safety

Contractor safety procedures relevant to work associated with this contract must be provided to the Government as part of the bid process. Personnel and laboratory safety issues should be addressed regarding the handling of samples with M3 fixative material.

Methods

The Contractor must use methods used for analysis of macroinvertebrate samples for this contract as has been used for most recent analysis of benthic macroinvertebrate samples as performed for the Louisville District to maintain consistency.

All organisms are to be removed from each sample for analysis with the exception of the dipteran family Chironomidae (midges) and aquatic worms (Class Oligochaeta).

For midges and aquatic worms, a 150-specimen, random subsample is to be removed from each sample **to be used for species identification. Methods for subsampling should be based on** methods described in *Rapid Bioassessment Protocols for Use in Streams and Rivers - Benthic Macroinvertebrates and Fish* (EPA/440/4-89/001). The portion of sample sorted for midges/worms is to be recorded and used to estimate total midge/worm **species abundance for the sample as a whole.**

Data Presentation

Data will be presented to the Government POC as an Excel spreadsheet for each sample set in electronic format to be sent by email. The data will be organized in the manner designated by the Government through discussion with the Contractor prior to onset of sample analysis.

Report Presentation

An electronic version and 2 hardcopies of the report will be submitted to the Government upon completion of all sample analyses. The report is to be inclusive of all benthic macroinvertebrate data for all samples collected by the Louisville District in Year 2002.

The report is to include information on species density and relative abundance for each sample site, for each sample date, for each substrate type for which samples are submitted. Each organism in any sample will be identified according to Phylum, Class, Order, Family, Genus, and Species with the exception that subsamples within the family Chironomidae may be used. The Contractor will identify each specimen with respect to life stage, e.g., pupa, larva, or adult. References are to be included.

The report format is to include an introduction describing sampling stations, methods of identification and enumeration, and community metrics.

Metrics to be described for each site, for each date, for each substrate type by the Contractor include:

- Total Number of Individuals
- Total Number of Taxa
- Species Relative Abundance
- % Dominant Taxa¹
- % Contribution of Dominant Taxa²
- Modified Hilsenhoff Biotic Index³
- Shannon-Wiener Index⁴
- Number and % of Ephemeroptera Taxa
- Number and % of Plecoptera Taxa
- Number and % of Trichoptera Taxa
- Number and % of EPT Taxa (Ephemeroptera, Plecoptera, and Trichoptera)
- Number and % of Dipteran Taxa
- Number and % Chironomid Taxa
- Number and % of Tanytarsini Taxa
- Number and % of Orthocladiinae Taxa
- Percentage of Cricotopus Plus Chironomus Abundance to Total Chironomidae
- Number and % of Dipteran Taxa Minus Tanytarsini Taxa and Other Non-insect Composition
- Ratio of EPT to Chironomid Abundances

Percent Tolerant Organisms⁵

Classification as to feeding group (scraper, filterer, gatherer/collector, shredder).

NOTE:

¹ % abundance for each of the 5 most abundant taxa.

² % Contribution of Dominant Taxa (PCD₅) - The sum of the relative abundance percentages of the 5 most dominant taxa.

³ Modified Hilsenhoff Biotic Index (HBI) - this index shall be for both the species and family level depending on State. For sites sampled in the State of Kentucky, use tolerance values developed by North Carolina Division of Environmental Management, reference: 'A biotic index for the southeastern United States: derivation and list of tolerance values, with criteria for assigning water-quality ratings' by David R. Lenat (NOTE: performed on the species level). For sites sampled in the States of Indiana and Ohio, use tolerance values from Hilsenhoff, 1988, to family level. The formula for calculation is as follows:

$$HBI = \frac{\sum n_i \times a_i}{N}$$

where:

n_i = number of individuals within a species and/or family,

a_i = tolerance value of the species and/or family,

N = total number of organisms in the sample.

⁴ Shannon-Wiener Index (H), a measure of general diversity and composition, calculated as follows:

$$H = - \sum p_i \log p_i$$

where:

p_i = the proportion of the total number of individuals occurring in species i ,

or $p_i = n_i/N$ (see above).

⁵ Percent Tolerant Organisms -

Values for this metric are based upon the percentage of individuals considered pollution tolerant as compiled by the Ohio EPA (*Rapid Bioassessment Protocols for Use in Streams and Rivers - Benthic Macroinvertebrates and Fish* (EPA/440/4-89/001). The list includes organisms predominant in areas of severe disturbance for this state. Apply the same to Kentucky and Indiana.

Results of the macroinvertebrate identifications and metric analyses will be organized in the final report according to major basin groupings and all together in one master taxonomic list. Major basin groupings are as follow:

Green River

Nolin River Lake (NRR)
Barren River Lake (BRR)
Green River Lake (GRR)
Rough River Lake (RRR)

Upper Wabash

Salamonie Lake (SRR)
J. Edward Roush Lake (HTR)
Mississinewa Lake (MSR)
Brookville Lake (BVR)

Middle Wabash

Monroe Lake (MNR)
C. M. Harden Lake (CHL)
Cagles Mill Lake (CMR)
Patoka Lake (PRR)

Miami River

Caesar Creek Lake (CCR)
W. H. Harsha Lake (EFR)
West Fork Lake (WFR)
C. J. Brown Reservoir (CMR)

Upper Kentucky

Buckhorn Lake (BHR)
Carr Creek Lake (CFK)
Cave Run Lake (CVR)
Taylorsville Lake (TAR)

All taxonomic references and references for methods of enumeration will be provided by the Contractor to the Government in the final report. Voucher specimens for all taxonomic identifications will be provided by the Contractor to the Louisville District office upon request.

Completion Date

All work with respect to this contract is to be completed by 30 September 2003.

(End of Summary of Changes)