

DETAILED STATEMENT OF WORK

Attached to and made a Part of contract No. DACW57-97-D-0004

Task Order No. DY01

Modification No. 005

**Source Water Protection Plan
Lake Belton and Lake Waco, Texas**

December 13, 2002

1.0 Introduction. This Scope of Work (SOW) addresses activities associated with the Bosque and Leon River Watersheds Perchlorate project. Previous tasks in the project have resulted in the development of a “GIS Warehouse”. This SOW has been developed to address the data procurement associated with the “GIS Warehouse” and the extension of administrative tasks necessary to continue this study through the end of 2003. These additional administrative tasks include team meeting attendance and reporting at bi-monthly meetings and monthly updating of the public website. The SOW also addresses the replacement of ‘Task 10 – Lake Belton Fate and Transport Study’ by 2.10 ‘Task 10 – Lake Belton Fate and Transport Study (ADCP)’. This modification “Modification No. 005” is attached to and made a part of Contract No. DACW57-97-D-0004. All tasks will remain the same except as noted in the following task descriptions.

1.1 Period of Performance The tasks described in this SOW shall be completed by December 31, 2003.

2.0 Tasks. As stated above, this SOW continues efforts that were begun under previous authorizations. The numbering for the tasks of this SOW continues the sequence of those authorizations.

2.16 TASK 16. GIS DATA PROCUREMENT AND CONVERSION.

The “Task 1- Determine Applicable Data Themes – Final Report” dated May 2002 prepared by MWH (‘2.6.1 Task 1 – Determine Applicable Data Themes’ of Modification No. 001 of contract no. DACW57-97-D-0004) described the various data themes to be collected for incorporation into the “GIS Warehouse”. The various project team members provided some of the data listed in the report. This task is being modified to add the procurement of the remainder of data; its conversion for upload into the “GIS Warehouse” and the corresponding software required to carry out the conversion. This task is detailed as follows.

2.16.1 GIS Data Procurement. Listed below are the data themes that will be downloaded or purchased by MWH.

Data Themes

Watercourses, Rivers, Streams etc.

Watershed boundaries

Waterbodies, lakes
Roads
Contours
Aerial Photography
Railways
Landmark Polygons
Land Use (Commercial/ Industrial/ Residential etc.)
Census Tracts
Monitoring Locations
Geological Maps (General)
Aquifers (Major and Minor)
Flood Plains
Vegetation

2.16.2 GIS Data Conversion. The data themes procured in 2.16.1 will be converted to upload into the “GIS Warehouse”. The themes will be checked to assure accurate import of the themes and its corresponding data into the geodatabase. These themes will not be converted into SDS format due it’s being background data.

2.16.3 GIS Data Conversion Software. The “User Needs Assessment – Final Report” dated May 2002 prepared by MWH (‘2.6.2 Task 1 – Needs Assessment’ of Modification No. 001 of contract no. DACW57-97-D-0004) detailed the various software and extensions required for this project. This task allows for the purchase of “Mr. Sid Encoder” (ArcGIS extension) to facilitate conversions of aerial photographs into the “Mr. Sid” format for GIS development.

2.1.2 Task 1.2 - DEVELOP & MAINTAIN DEDICATED PUBLIC INFORMATION WEBSITE.

The A-E shall continue to maintain the public information webpage developed under the original scope of work. The site shall be updated monthly for the 12 months January 2003 through December 2003. The A-E shall provide credit for one (1) website update for August 2002 (‘2.1.2 Task 1.2 - Develop & Maintain Dedicated Public Information Website’ of Modification No. 002 of contract no. DACW57-97-D-0004).

2.4 Task 4 – PROJECT REPORTING AND PAYMENT REQUESTS.

A Monthly Progress Report shall be submitted for each month of the contract period. The report shall be sent to the Project Manager on or before the 12th day of the following month. The report shall contain the status, on a percentage basis, of the total amount of work completed. Payment requests shall also be included with the progress report and percent claimed will coincide with the Progress Report. These reports shall be E-mailed to the COE Engineering Manager as electronic Microsoft Word files, to document the status of the study and to report progress made during the reported month. The A-E shall continue to submit Monthly Progress Reports through December 2003.

2.5 MEETINGS.

For estimating purposes, various meetings were specified in the original statement of Work. In addition to those meetings, this contract modification adds six team meetings to be held in either Waco or Fort Worth, on approximately a bi-monthly schedule. When

practical and desirable, these meetings will take place in the afternoon following the Navy's Restoration Advisory Board (RAB) meetings for the Naval Weapons Industrial Reserve Plant. The A-E will provide credit for the time of a Principal and associated charges for one meeting ('2.5 Meetings' of Modification No. 002 of contract no. DACW57-97-D-0004).

2.10 Task 10 – LAKE BELTON FATE AND TRANSPORT STUDY.

This task (2.10 Task 10 – Lake Belton Fate and Transport Study of Modification No. 003 of contract no. DACW57-97-D-0004) will be deleted. The A-E will provide credit for this task.

2.10 Task 10 – LAKE BELTON FATE AND TRANSPORT STUDY (ADCP).

The objective of the Lake Belton ADCP survey is to obtain current, depth, and Differential Geographical Positioning System (DGPS) data in order to identify general flow patterns within the lake and determine if deep-water currents could provide a preferential flow path for perchlorate that may be entering the lake. This information will be used collectively with data generated from other Bosque and Leon River Watersheds Study activities to refine the conceptual understanding of perchlorate transport within Lake Belton and the Leon River watershed.

For this study, an ADCP will be attached to a boat and used to determine current velocity along twenty-one (21) transects across Lake Belton. The combined length of all transects is approximately nine (9) miles. The total distance to be traveled (one way), along the length of the lake, in order to survey all transects is approximately twenty-five (25) miles.

The A-E shall supply two (2) capable and experienced staff members, all ADCP equipment, a laptop computer, and all other support equipment necessary to complete an ADCP survey at twenty-one (21) transects across Lake Belton. Brazos River Authority (BRA) personnel will accompany the A-E during all field activities. The A-E shall provide and operate DGPS equipment to be used in conjunction with the ADCP equipment. In addition, the A-E shall supply multi-beam sonar equipment in order to obtain a depth profile at each transect.

The A-E shall mobilize the necessary personnel and equipment to perform an ADCP survey. Procedures to be followed in the field, including the frequency for recording readings, shall conform to industry standards and be capable of meeting the project objectives stated above. The surveys will be completed on a seasonal basis (winter, spring, summer, and fall). Each survey event will be completed within a maximum of 5 working days. Each survey will consist of twenty-one (21) transects ranging in depth from ten (10) to one hundred (100) feet. The proposed locations of the transects are based on providing an approximately even distribution along the length of the lake. Three (3) transects are located adjacent to the Bell County, Blue Bonnet, and City of Gatesville water intake structures. The beginning and end point coordinates, length, and maximum depth for all ADCP transects are included in Table 1.

Each transect will be completed in order to obtain current, depth, and DGPS data. The A-E shall record current, depth, and DGPS data in sufficient detail so as to be able to graphically represent the findings on figures and base maps. An ADCP pre-run will be

performed at the beginning of each field day to verify that all equipment is functioning properly. The locations of the transects may be changed based on field conditions or observations, but the DGPS coordinates for both the starting and end points of each transect will be recorded. During each seasonal event, a single transect will be repeated three times as a Quality Assurance/Quality Control (QA/QC) measure. All other transects will be surveyed once each season. Resurveying individual transects due to error or poor quality data is not included.

TABLE 1

Transect Identification	Length (Feet)	Maximum Depth (Feet)	Starting Point Northing	Starting Point Easting	Endpoint Northing	Endpoint Easting
1	3031	100	3442350.449	644719.910	3443239.830	644969.668
2	6612	90	3444893.477	643339.650	3444683.173	641335.193
3	3904	80	3447055.321	641123.631	3446050.404	640486.163
4	3434	50	3447930.005	637756.245	3446944.709	637403.265
5	1960	20	3449758.048	635739.980	3449202.198	635521.441
6	2388	80	3446453.964	642863.757	3445875.011	643304.864
7	2311	80	3446352.508	644841.380	3446036.649	645471.035
8	2323	60	3447452.923	642238.700	3447797.805	642857.239
9	1837	60	3448933.667	643160.885	3448375.108	643198.372
10	1624	50	3448927.005	644874.541	3448432.182	644857.179
11	2786	40	3450075.790	645303.179	3450839.476	645674.702
12	1654	30	3450108.527	642390.555	3450169.794	642890.902
13	2667	20	3453006.285	641864.687	3452760.387	642639.374
14	2356	10	3453378.216	641670.510	3453990.541	642045.473
15	2195	20	3453801.708	643578.318	3453725.591	644243.076
16	2721	20	3455598.858	645344.966	3455151.640	646043.315
17	1555	10	3457738.010	646160.036	3457862.898	646617.347
18	1114	10	3460652.033	645156.126	3460500.191	645459.811
19	1748	50	3448563.934	642314.420	3448958.253	642672.5932
20	697	50	3448597.236	646237.0467	3448726.641	646405.6654
21	911	10	3456400.949	647293.4636	3456615.23	647116.9965
Total Length (Feet)	49828					