Appendix A
Quality Control Plan

Mahoning River, Ohio
Sediment and Bank Sampling, Characterization and Distribution Study

Prepared for:

US Army Corps of Engineers
Pittsburgh District
DACW59-02-D-0005
Delivery Order No. 0002

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Prepared by:

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1.0 Background and Objectives

Appendix A of the Project Work Plan (PWP) is the project specific Quality Control Plan (QCP) for conducting the contract specified in river and bank contaminated sediment sampling, testing, distribution and characterization. The purpose of this project specific QCP is to efficiently integrate project quality, safety, schedule and budget management into the production of all project deliverable products and services required as part of this project. It is intended to clearly describe:

- Significant tasks and deliverable products;
- The organization of contributing personnel and firms
- The roles, responsibilities and procedures for product preparation, checking and Independent Technical Review and Quality Assurance Review of each product;
- The methods used to document the production and review processes; and
- Corrective action procedures.

2.0 Project Description.

The project description is presented in the PWP.

3.0 Project Roles and Responsibilities.

Altech is conducting the subject project for the CELRP under contract DACW50-02-D-0005. The scope of work and accepted technical and cost proposal define the project

roles and responsibilities. Figure A-1 is the organization chart for the project. It defines a project position title and association for each key member of the project team. It lists the subcontract firms, describes their general roles and depicts the line of authority for the project. The following is a brief description of the roles and responsibilities and the relevant qualifications each individual that are relevant to their assigned project role(s).

3.1 Firms

3.1.1 Altech Environmental Services, Inc.

Altech personnel will perform most of the technical roles for the project. Altech is responsible for delivering all of the products and services specified in the scope of work as stated in the accepted proposal for the project. This includes safe delivery of all specified products and services on time and within budget. Altech is responsible for maintaining the quality of all products and services, including those provided through subcontract.

3.1.2 Coleman Engineering Company

Coleman Engineering Company is under subcontract to Altech to provide floating plant and sampling support services for the project. Coleman is responsible for providing all sampling equipment, including three john boats and other equipment and materials needed to access bore hole locations and procure continuous core samples at the designated sampling locations. Coleman is also providing operators for each craft who are experienced sediment sampling technicians and an additional support technician

through the duration of the sampling activities. The Coleman Field Manager will be on-site to direct initiation of field sampling activities and provide as needed oversight and trouble shooting relative to the methods of collecting samples.

Coleman Engineering Company (CEC) has extensive experience working on rivers, dams and lakes and has held the U.S. Army Corps of Engineers, Detroit District, Area II contract for 21 consecutive years. In recent years, Altech and CEC have teamed to complete a variety of challenging environmental sediment and bank sampling projects similar in nature to this one in and along a variety of harbors and rivers in Wisconsin and the Upper Peninsula of Michigan.

3.1.3 GPL Laboratory

GPL Laboratory is under subcontract to Altech to provide chemical laboratory analyses and summary chemical data reports in electronic and hard copy format under a subcontract agreement with Altech. The chemical data reports shall include chemical data quality control test results and a case narrative assessment by the laboratory QC Manager identifying any out of control results, and describing the corrective actions implemented and any qualification to use of the data. For ten percent of the analyses, a complete report of QC test results meeting the EM200-1-3 requirements for a definitive data package shall be submitted for Altech and USACE review. Discussions with USACE chemists for which GPL has performed chemical analyses indicated an excellent reputation for technical quality.

3.1.4 DLZ National Laboratory

DLZ National is under subcontract to Altech to provide all geotechnical analyses for the project in their Columbus, Ohio facility. DLZ National is an historic provider of geotechnical laboratory analyses for CELRP and a mentor to Altech under the SBA Mentor/Protégé Program.

3.2 Key Team Members

3.2.1 Senior Project Manager

The Altech Senior Project Manager is Michael J. Saffran, P.E. Mr. Saffran is a Principal Engineer with Altech, and as the Senior Project Manager, he is responsible for quality, safety, schedule, and budget for all products and services in the scope of work. He will either be part of the production team or the ITR leader for each Task under this project. He will serve as the Field Sampling Team Leader during the first phase of the scheduled sampling an analyses. Mr. Saffran has over 20 years of relevant environmental site characterization experience on USACE Civil Works and Military projects.

3.2.2 Technical Support Team Engineers

Senior Level Civil Engineers Ralph Mills and Larry Curry each have more than 35 years of relevant engineering experience, most with the Corps of Engineers on civil works projects. They are scheduled to contribute to production of each of the deliverable products specified in Tasks 1, 5, 6, 7, 8, and 9. One may be a primary and/or contributing

author for incremental components of the deliverable products specified in Tasks 1, 5, 6 and 7 and 8.

Staff Civil Engineer Richard Conforti, PE. is responsible for Health and Safety Management and as needed technical and field sampling activity support, including leading an individual field sampling crew or serving as Alternate Field Sampling Team Leader. As such, he could be responsible for overseeing documentation of field sampling activities, field classification of soils according to the Unified Soil Classification System (USCS) and packaging, labeling and readying all samples for transport to the respective laboratories. He has over 8 years of directly applicable experience implementing and overseeing environmental sampling projects.

Junior Environmental Engineers Mariah Hope, E.I.T. and Arinze Nwamba may provide field sampling support, including leading an individual field sampling crew. As such, each could be responsible for documentation of field sampling activities, field classification of soils according to the USCS and packaging, labeling and readying all samples for transport to the respective laboratories. Mr. Nwamba performed a prepared by role on the site safety and health plan. Both junior engineers have more than three years of directly applicable experience performing environmental sampling and may contribute to products and services under all tasks.

3.2.3 Technical Support Team Geologists

Staff Geologist Mark Cruickshank will serve as the Field Sampling Team (FST) Leader and the Site Safety and Health Manager for part of the field sampling activities conducted for the project. As such, he is responsible for directing the operations of all personnel involved in sampling specified in Appendix B, the Sampling and Analysis Plan (SAP). He will also lead one sampling crew, being responsible for documentation of field sampling activities, field classification of soils according to the Unified Soil Classification System (USCS) and packaging, labeling and readying all samples for transport to the respective laboratories. Mr. Cruickshank has over 7 years of relevant professional experience as a geologist. He has extensive soil and groundwater sampling experience, using a Geoprobe ® drill rig and manual techniques for samples collection, and employing the USCS for describing soil conditions.

Melissa Cruickshank and John Bochenek are Junior Geologists who will lead individual field sampling crews. As such they will be responsible for documentation of field sampling activities, field classification of soils according to the USCS and packaging, labeling and readying all samples for transport to the respective laboratories as specified in the SAP. Either may be part of the production team for Tasks 1,5, 6 and 7. Together with the Junior Engineers they will lead field individual field crews. They may contribute to various aspects of boring log preparation in Task 6, preparation of text components and compilation of data into tables and preparation of figures depicting site conditions and characterization results in Task 5 and 8.

Ms. Melissa Cruickshank has three year experience as a geologist. Her areas of expertise include remedial investigations, environmental assessments, technical writing, soil and groundwater sampling, and mine geology. Her previous soil sampling experience involves using a Geoprobe ® drill rig for sampling collection and logging soils with the USGS. Mr. Bochenek has a degree in Biology, but most of his three years of professional experience have been in the collection and classification of soil and sediment samples for environmental investigations.

3.2.4 Miscellaneous Technical Support

3.2.4.1 Chemists

Altech Senior Chemist Roy Dane is responsible for Quality Assurance Project Plan and independent chemical data quality assessment preparation or review. He will perform either a prepared by or checked by roles for these components of Tasks 1, 5 and 8. Mr. Dane is a degreed chemist with over 20 years of directly relevant environmental consulting experience acquiring chemical data of the quality needed to assess potential human health and ecological risks.

The Altech Senior Chemist will work closely with the laboratory QC Manager, Ms. Debbie Griffith, a chemist with GPL in the incremental production and timely reporting of chemical analysis results meeting the quality criteria specified in the SAP. The GPL Laboratory QC Manager, is responsible for review of the analytical data as produced and to prepare a laboratory validation report. In that report, she is responsible for assessing

internal laboratory QC procedures, denoting any deviations from the methods and criteria prescribed in the SAP, and assuring that corrective actions are implemented as specified in the SAP and the laboratory method specific Standard Operating Procedures.

3.2.4.2 Technicians and Computer Aided Design Drafting (CADD)

CADD Operators Jerry Carr and Mike Weaver will lead or manage production of Task 7, developing cross-sections and profiles of subsurface conditions, and the graphics portion, including boring location sampling plans for Task 8, the Summary Report. Mr. Carr is a retired employee of the Louisville District of the Corps of Engineers with more than 30 years experience related to survey and mapping components of Corps Civil Works and Military projects. Mr. Weaver has more than 35 years of applied experience in surveying and mapping. He primarily has performed CADD for Altech, but as a former employee of the Louisville District of the Corps of Engineers, has 32 years experience performing and supervising all aspects of the survey and mapping components of Corps Civil Works and Military projects.

Ms. Amy Brown and Ms. Mary O'Hagan are Junior technicians providing support for all tasks in the scope of work, including CADD. Ms. Brown has a Bachelor's degree in Environmental Science and has over 3 years of environmental consulting experience. Ms. O'Hagan has provided miscellaneous technical support for over five years at Altech.

3.2.5 Independent Technical Review Roles and Responsibilities

The Altech QC Manager for this project is Dr. Aloysius A. Aguwa. He has a Ph.D. in Environmental Engineering, and he has led the technical review and steering committee reviews of technical submittals at some of the most complex Superfund assessment and cleanup projects in the Nation for over ten years. Dr. Aguwa has a dual role on the project. One role is to review project documentation to verify that the QC process was implemented as described here. The other role is to conduct an ITR of each project deliverable product prior to submittal to CELRP.

The QC Manager will document the results of his ITR by way of marked up copies of the product reviewed and/or through detailed written comments that are signed and dated. The Senior Project Manager is responsible for documenting the resolution to the comments and revising the deliverable product accordingly prior to submittal to CELRP. Altech will maintain a second cover sheet for each product delivered to CELRP, which includes the signature of the QC Manager, the preparer and the checker.

Mr. Ian Kerr, a staff geologist with Altech will also serve on the ITR Team for this project. Mr. Kerr has extensive experience in planning, implementing and reporting the results of sediment characterization projects for Altech. He will serve as a technical consultant to the QC Manager, providing ITR of the products under Tasks 1 and 8.

3.2.6 Quality Assurance (QA) Review

At two major junctures of project development, coordination meetings will be held to facilitate QA review of the most significant project deliverable products. The first will occur after submittal of the draft project plans, and the second will occur after receipt of a valid laboratory data report and prior to submission of a final report. The Altech Senior Project Manager and support staff will prepare a summary presentation of the project plan submittals and the investigation results in the respective meetings to aid input and review by the CELRP QA review team.

The Technical Manager is Patience Nwanna, and she will lead the QA review process. Carmen Rozzi is the CELRP Project Manager and will assist in the QA review. Both CELRP managers are senior member of the CELRP and have managed numerous environmental investigations for projects. She will employ an interdisciplinary team of CELRP and/or other Corps of Engineers personnel to conduct the QA review in accord with Corps of Engineers requirements. This multi-disciplined team is designed to provide a QA level of review of all significant areas of the project.

The Technical Manager will compile the review comments from the QA review process and submit them using the USACE Dr. Checks system. Within Dr. Checks, Altech shall provide a written response to each comment, resolving that comment, and then make all appropriate revisions to the affected products. The QA review comments and the responses will be maintained in the project QC records for submission with the Final Report

4.0 Quality Control Procedure

The Altech Senior Project Manager will either prepare or review each deliverable product required for the project. One member from the technical support team will share responsibility with the Altech Senior Project Manager by preparing or reviewing every component of every deliverable product required for the project. These two individuals work closely and routinely consult on all significant matters related to the deliverable item or service throughout the production process. The checker helps identify questions and inconsistencies, and the producer and checker systematically resolve the issues as a team. The cover page of each Draft and Final document or deliverable item as detailed in the next section, must be signed and dated by the individuals assigned responsibility for preparing and checking the document. This simple process combines maximum flexibility with a systematic means of building quality into each incremental step of the production process.

Independent Technical Review (ITR) is a review by a qualified person or team, not affiliated with the development of a project/product, for the purpose of confirming the proper application of clearly established criteria, regulations, laws, codes, principles and professional procedures. ITR is conducted after the individuals' assigned responsibility for preparing and checking the document have signed the cover of the particular project deliverable product. Independent technical review is accomplished by a highly qualified and experienced senior engineer, scientist, or team thereof who were not involved in the production process. All independent technical review comments are documented and

resolved prior to submission of the product to the customer. All ITR comments and resolutions are documented and maintained for the project record.

5.0 Work Breakdown Structure Schedule of Deliverables.

A summary of the Work Breakdown Structure, including all deliverable products, and the schedule for delivery is presented below. Figure A-2 provides a graphical depiction of the schedule.

Task 1 Project Work Plan **4/7 to 5/30**

- Project Work Plan PWP
- Project Specific QCP
- Sampling and Analysis Plan
- Field Sampling Plan
- Quality Assurance Project Plan
- Site Safety and Health Plan

Task 2 Field Sampling and Coring **5/27 to 7/7**

Task 3 Investigation Derived Waste **5/27 to 7/31**

Task 4 Chemical and Geotechnical Lab Analyses **6/3 to 7/25**

Task 5 Organization of Data **7/1 to 8/17 Draft due 8/4**

Task 6 Depict Subsurface Conditions **6/2 to 8/17 Draft due 8/4**

Task 7 X-Sections and Profiles of Subsurface Cond. **6/17/ to 9/6 Draft due 8/4**

Task 8 Summary Report (Including ITR) **6/7 to 10/30 Draft due 9/16**

Task 9 Five Meetings **4/17, 5/14, 6/17, 8/5, 9/12**

6.0 Budget and Cost Control.

The final contract amount is based on an incremental accounting of all significant project activities. Budgeting and cost control are key elements to successful completion of the subject project, and a Microsoft™ Excel spreadsheet has been developed based on the negotiated Task Order to plan, track and control project expenditures. An electronic spreadsheet with the listed items and negotiated unit rates is used to record actual expenditures of labor, equipment and materials as they are accrued on a weekly basis. On a monthly basis, beginning at the end of the first full month after the Notice to Proceed, the accrued project expenditures are totaled and summarized in the spreadsheet. Altech will submit all requests for payment based on this tracking system monthly (before the 28th calendar day of each month), using Engineering Form 93. A monthly status report, which summarizes all pertinent contract information, the work accomplished during the month that is being invoiced and any outstanding issues or concerns, will accompany each monthly invoice. The status report will also include an updated schedule, which clearly depicts planned versus actual progress.

7.0 Project QC Documentation and Corrective Actions

The Altech Quality Management System is designed to minimize the need for corrective actions by emphasizing proper planning, communication and oversight. However, there are many unknowns and variables inherent in environmental projects, which require the

use of assumptions and estimates during the planning stages. Consequently, the project specific QCP must provide a mechanism to not only track progress, but to alter course and make corrections when appropriate.

7.1 Monthly Status Reports

The primary means of monitoring safety, quality, schedule and budget issues shall be through the submission of monthly status reports to CELRP. The attachment to the QCP, provides the repository for compilation and tracking all issues identified in each monthly status report.

7.2 Corrective Action Process

As needed, corrective actions may occur at several levels on the subject project. The first level occurs due to the tandem relationship established between the producer and the checker for each significant deliverable product. The signatures of both on the draft and final documents indicates that all internal issues and questions have been corrected and/or resolved to the satisfaction of at least two qualified and experienced individuals.

During production, if unforeseen circumstances occur that could result in any significant impact to accomplishment of the project objectives, the Senior Project Manager will notify the CELRP Technical Manager verbally and in writing. Based on the input and discussion with the CELRP Technical Manager, the Senior Project Manager will document the resolution in a memo to record. While significant changes in anticipated

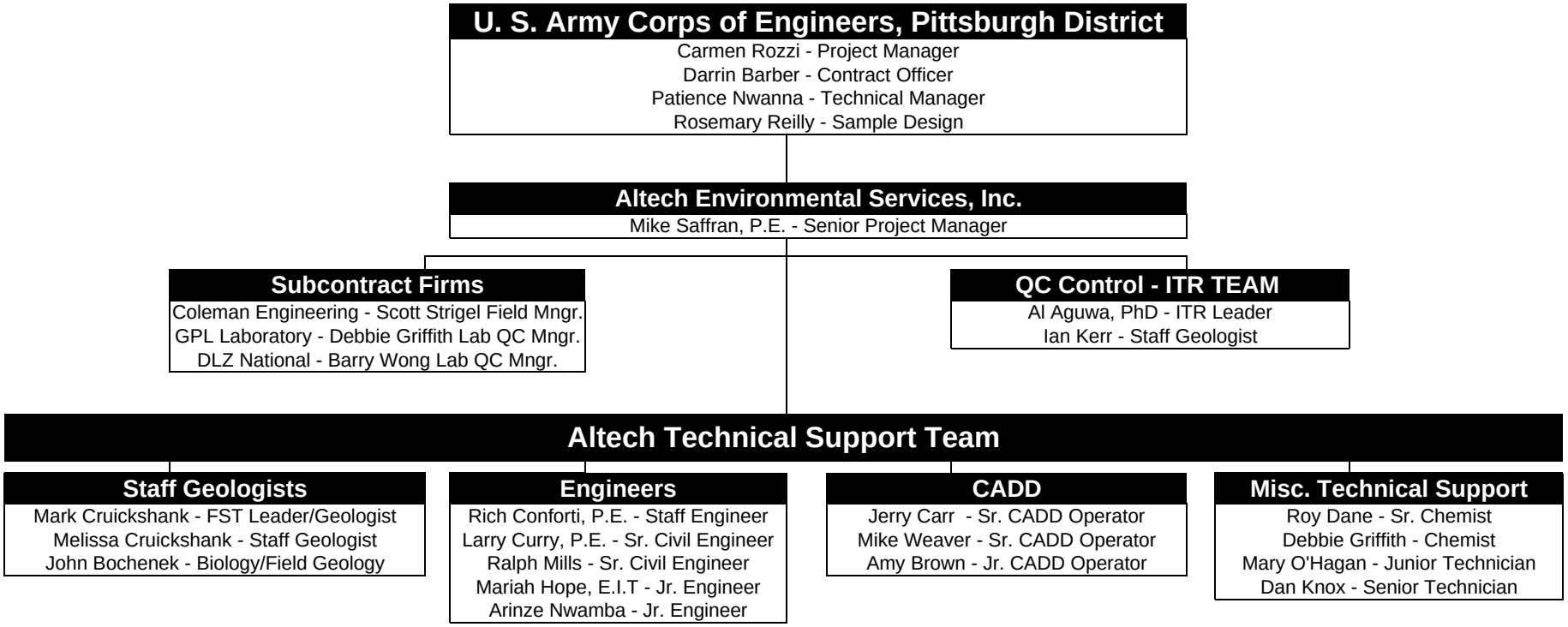
site conditions could result in other means of resolution, such as a modification to the contract, a primary intent of this QCP is to prevent and minimize modifications.

A second level of corrective action occurs through the reviews conducted by the QC Manager. The QC Manager must verify that each product has a prepared by and checked by signature prior to submittal to CELRP. The QC Manager also performs random review of specific components of the deliverable products to verify conformance with the Altech Quality Management System and good science and engineering practice. Any significant failures to conform to these criteria are identified by the QC Manager, and the Senior Project Manager is responsible for resolving the issues to the satisfaction of the QC Manager prior to submittal of the project deliverable to CELRP.

A third level of corrective action occurs through the ITR and QA review processes. This formal review, comment and comment resolution process provides a mechanism to identify issues, reach resolution and document the circumstances and actions taken. An initial technical review meeting is scheduled under Task 9 to assure proper planning, design and documentation of the investigation plan prior to implementation of the field sampling and laboratory analyses portions of the project. A second technical review meeting is intended to present the results of the investigation and preliminary conclusions by the Altech team. These technical reviews are intended to assure that the field and laboratory work are performed and documented as planned. The comments, response to comments and revision of the Draft Report will assure that needed corrections are identified and that actions taken to implement corrective actions are acceptable.

Figure A-1
Sediment Characterization for Mahoning River, Ohio Feasibility Study

Organization Chart



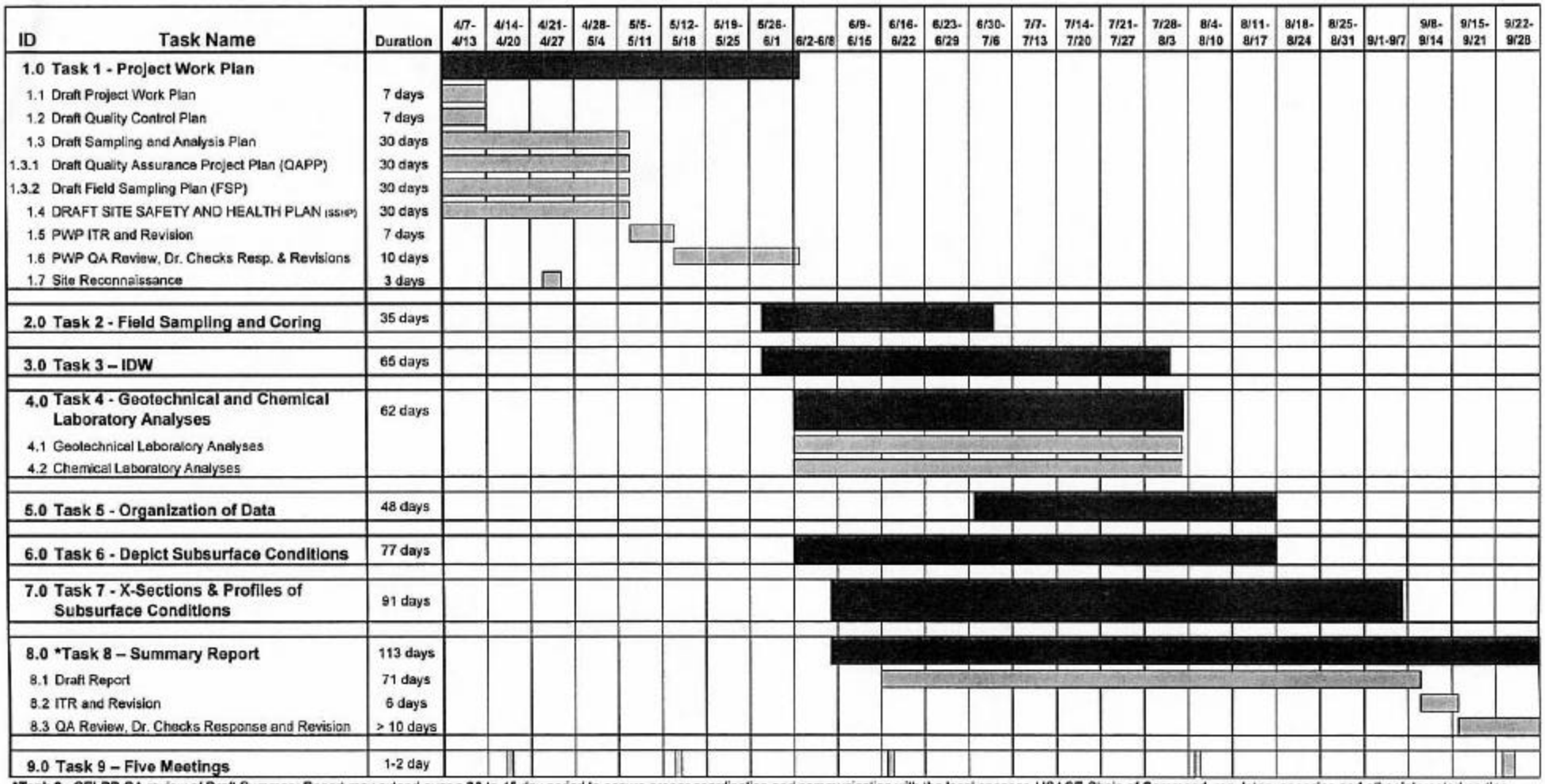
Subcontract Firm Roles:

Coleman Engineering Company - Provide all field sample acquisition equipment and support materials, including three john boats and operators and other sample acquisition support.

GPL Laboratory - All chemical analyses, sample containers, electronic and hard copy reports of analyses results and chemical data quality control.

DLZ Laboratory - All geotechnical analyses and electronic and hard copy reports of analysis results.

Figure A-2 - Work Breakdown Structure of Tasks and Project Schedule for In-River and Bank Contaminated Sediment Sampling, Testing, Distribution and Characterization Mahoning River, Ohio



*Task 8 - CELRP QA review of Draft Summary Report may extend over a 30 to 45 day period to assure proper coordination and communication with the local sponsor, USACE Chain of Command, regulatory agencies and other interested parties.

ACTEC

FigA-2 ScheduleAppA.xls

Monthly Status Reports

Monthly Status Report
Mahoning River Contaminated Sediment Characterization
Altech Environmental Services, Inc.

General Information

Contract Number - DACW59-02-D-0005
Task Order No. - 0002
Contractor Project Manager - Michael J. Saffran, P.E. (502) 585-9500
Reporting Period - April 2003

Coordination Issues

Issues requiring District response/resolution - None

Issues requiring Contractor response/resolution - none

Personnel Changes - None

Project Schedule Updates

Activities conducted this period - Field reconnaissance and preparation of Project Work Plan (PWP), complete Draft PWP on schedule for submittal May 2, 2003

Updated Schedule - (See Attached - Schedule from PWP)

Potential delays - Potential for Memorial Day Holiday to effect field sampling schedule. Optimum date to begin field sampling is May 12, 2003, which allows for approximately 50% completion of scheduled sampling prior to holiday.

Proposed changes to schedule - None

Authorized changes to schedule - None

Budget Status

Estimate of costs incurred during period - $31,176 (Invoice enclosed)

Cumulative estimate total costs to date - $31,176 (See enclosed monthly budget schedule)