EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-02

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039	Contract Period: 09/11/2013 To 07/31/2017 Base Option Period Number: 3	Title of Work Assignment/SF Site Name: SW & GI Analytical Support
Contractor: ABT ASSOCIATES INC.	Specify Section and paragraph of Contract SOW:	

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/08/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		345
Total:		345

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Todd Doley (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1160 FAX Number:
Project Officer Name: Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: Stormwater Economic Analysis Support

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-02

III. Estimated Period of Performance: Date of Issuance to July 31, 2017

IV. Estimated Level of Effort: 345 hours

V. Key EPA Personnel:
Work Assignment Contracting Officer's Representative (WACOR):

Todd Doley
OST/EAD (4303T)
202/566-1160
202/566-1053 (fax)

VI. Background and Purpose:

Under Executive Orders 12866 and 13563, the Environmental Protection Agency (EPA) is required to estimate the potential benefits and costs to society resulting from its regulations. Although EPA does not anticipate issuing a stormwater regulation at this time, nonetheless any future regulation would require estimation of costs and benefits. As such, the purpose of this Work Assignment (WA) is to estimate the total social costs and economic benefits to society from possibly regulating the construction and development industry and expanding Municipal Separate Storm Sewer System (MS4) coverage.

Total social costs are the sum of private (compliance) and external costs. Economic benefits are estimated by characterizing, quantifying and to the extent possible, monetizing the value to society from regulating the construction and development industry. In addition to total social costs, this WA is meant to assess possible financial impacts as a result of possible regulations. Costs and their burden include, but are not limited to: 1) the compliance costs borne by the construction and development industry sector and MS4s, 2) potential external costs and secondary and unforeseen consequences of a rule, 3) the burden/incidence of costs passed to the consumer; and 4) the uncertainty distribution of various costs associated with a rule.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance project plan (QAPP) that will be based on an approved QAPP that will be developed under Task 2 of this work assignment. The QAPP shall describe the procedures for assuring the quality of the primary and secondary economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor will be called upon to build on and continue work performed under previous work assignments 0-02, 1-02, and 2-02. The work performed under this work assignment will not duplicate work conducted under the previous work assignments.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will be accessing and evaluating CBI. As such, the contractor shall adhere to EPA's CBI policy and other procedures as described in the contract clauses (Clauses H.15-H.19 and H.21). The contractor must

maintain CBI security clearance to use CBI information. The contractor will not disclose any CBI to anyone other than EPA without prior written approval from the EPA WACOR. The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in our "Office of Science and Technology Confidential Business Information Application Security Plan" (August 2011) or its successor approved plans.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA Contract-Level Contracting Officer's Representative (CL-COR), and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: The contractor shall not be required to travel under this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in hard copy and in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR.

VIII. Performance Work Statement

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a

revised work plan incorporating the CO's comments, if required.

A weekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables and other potential issues.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.
1b. Weekly Update Call

Task 2 - Quality Assurance

2.1 Background

QAPPs are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis and use of environmental data must have an approved QAPP in place prior to the commencement of the work. Examples of these environmental data operations are provided in Table 2.1 below.

Table 2.1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). However, EPA has determined that the Contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this work assignment. In support of this work assignment, the Contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment.
- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases, letters from industry—as a well as a rationale for when those sources are appropriate and what data available in each will support the project
- The quality objectives needed to ensure the data will support the project objectives, and
- The quality assurance/quality control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Table 1 at the end of this WA demonstrates how the PQAPP addresses QA requirements for this work assignment. The contractor shall fill in staff roles to the Table 1 checklist under A.4 and make any additional detailed notes in the 'explanatory comments' column as requested by the WACOR.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes.
For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable, and this discussion must provide a sufficient level of detail to allow the Sustainable Technology Division (STD) QA Coordinator (or designee) to determine if the QA/QC strategies implemented for the project sufficiently support the intended

use of the data. Upon receipt, the EPA WACOR will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's PQAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report. If the contractor's monthly reports identify potential additional QA requirements, they should be discussed with the WACOR.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/ data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and Supplemental QAPPs (SQAPPs)). The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractor should indicate which results were obtained using the tools (standard operating procedures (SOPs), checklists, and guidelines) that the Contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractors may be requested to prepare pre-dissemination review checklist as described in Appendix B of the Office of Water Quality Management Plan, April, 2015. If this is required, the EPA WACOR will notify the Contractor through written technical direction.

Deliverables and schedule under Task 2

2. **Monthly reports of QA work performed (may be included in the Contractor's monthly progress report).**

Task 3 - Adherence to the Standardized Naming Convention and Version Control

The contractor shall continue to follow the standardized naming convention and version control (SNCVC) for all deliverables associated with the WA. This SNCVC was established under the previous WA in a signed memorandum. This system ensures that deliverables are clearly named and dated and that the sequence of versions of a document is clear.

No deliverables under Task 3

Task 4 – Cost Savings Case Study

Under work assignment 2-02, the contractor began work on a case study of the potential cost savings for states and localities to increase the set of acceptable control practices that can be used to meet existing state stormwater requirements to include stormwater retention practices. The contractor shall develop a report (15-25 pages) that summarizes the data sources and methods used, presents results in a series of tables and graphs, and provides conclusions on how the results could be relevant to state and local officials in charge of stormwater management.

Deliverables and schedule under Task 4.

4.a Draft Stormwater Control Cost-savings Report by October 4, 2016
4.b If additional edits are required the document must be updated within 21 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 5 – Project Prediction Model Report

The contractor shall develop a summary version (20-30 pages) of the project prediction model document delivered under WA 0-02. The report should focus on the objectives for developing the model, the basic structure of the model, and model outputs that have relevance to stormwater management at the national, state, and metropolitan area level.

Deliverables and schedule under Task 5.

5.a Draft Project Prediction Model Report by October 14, 2016
5.b If additional edits are required the document must be updated within 21 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 6 – Support for Office of Water Stormwater Outreach Efforts

EPA anticipates the need to provide additional materials to Office of Water (OW) staff that will be used to prepare outreach materials for the public. The EPA WACOR will need contractual support identifying and preparing these materials for OW staff. In response to technical direction from the EPA WACOR, the contractor shall identify, locate, prepare, and deliver materials relevant to the analyses performed for the Stormwater Rule. All of these materials, which may include spreadsheets, memorandums, and reports, will be existing files and will not require the generation of new files. For planning purposes the contractor assume 6-12 requests for material during this work assignment.

Deliverables and schedule under Task 6.

6. Materials related to analytical work performed for the Stormwater Rule Analysis, contingent upon receiving technical direction from the EPA WACOR.

Appendix

EAD Checklist for WA 3-02 Stormwater Economic Analysis Support, Contract EP-C-13-039, Utilizing Existing Data

The items noted in this checklist are adapted from those elements found in *EPA Requirements for QA Project Plans (QA/R-5)* (EPA, 2001a), but tailored to the use of existing data.

Table 1. EAD Checklist for WA 3-02 Utilizing Existing Data

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
A1. Title & Approval Sheet							
Project title	X		X				PQAPP Page ii
Organization's name	X		X				PQAPP Page ii
Effective date and/or version identifier	X		X				PQAPP Page ii
Dated signature of Organization's project manager	X		X				PQAPP Page ii
Dated signature of Organization's QA manager	X		X				PQAPP Page ii
Other signatures, as needed (e.g., EAD Project Officer, EAD QA Coordinator)	X		X				PQAPP Page ii
Revision History	X		X				PQAPP Page ii
A2. Table of Contents							
Includes sections, figures, tables, references, and appendices	X		X				PQAPP Page iv
Document control information indicated (when required by the EPA Project Manager and QA Manager)		X					PQAPP Page iv
A3. Distribution List							
Includes all individuals who are to implement or otherwise receive the QAPP and identifies their organization	X		X				PQAPP Page iii

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
A4. Project/Task Organization							
Identifies key individuals with their responsibilities (e.g., data users, decision makers, project QA manager, Subcontractors, etc.) and contact info.	X		X				PQA _____ Completed Checklist attached to work plan.
Organization chart shows lines of authority & reporting responsibilities	X		X				PQAPP Section 2.1
Project QA manager position indicates independence from unit collecting/using data	X		X				PQAPP Section 2.1
A5. Problem Definition/Background							
Clearly states problem to be resolved, decision to be made, or hypothesis to be tested	X		X				PQAPP Section 2.2
Identifies project objectives or goals	X		X				Reference PQAPP Table 2.2; also address in Work Plan if needed.
Historical & background information		X					
Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives	X		X				PQAPP Section 2.2
A6. Project/Task Description							
List measurements to be made/data to obtain	X		X				PQAPP section 2.3
Notes special personnel or equipment requirements		X					
Provides work schedule		X					Will be addressed in workplan
A7. Overall Quality Objectives & Criteria							
States overall quality objectives and limits needed to support the project goals and objectives cited in Element A5.	X		X				PQAPP section 2. 4
A8. Special Training Requirements/ Certifications							
Identifies specialized skills, training or certification requirements	X		X				PQAPP section 2.5
Discusses how this training will be provided/the necessary skills will be assured and documented	X		X				PQAPP section 2.5
A9. Project-level Documents & Records							

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
Describes process for distributing the approved QAPP and other planning documents (and updates) to staff	X		X				PQAPP Section 2.6
Identifies final work products that will result from the project	X		X				Will be addressed in workplan
Describes the process for developing, reviewing, approving, and disseminating the final work products and individuals responsible for these processes	X		X				Will be addressed in workplan
B1. Data Needs							
Detailed list/description of the specific data elements needed to support project goals	X		X				Data used for the WA documented in PQAPP Section 3.1.
Description of the scope of the data elements that you need (e.g., data supporting specific treatment options vs. the full range of options, data supporting the entire country vs. a specific geographic region)	X		X				Data used for the WA documented in PQAPP Section 3.1.
If project includes development or update of a project database, QAPP identifies and defines each database field		X					Data used for the WA documented in PQAPP Section 3.1.
B2. Potential Data Sources							
Identifies and describes potential sources of the existing data needed (e.g., photographs, topographical maps, facility or state files, census data, meteorological data, publications, etc.) and the rationale for their use	X		X				Data used for the WA documented in PQAPP Section 3.1. Any new data that will be used for the WA that is not in the current PQAPP will be added in the next revision to the PQAPP.
If literature searches are used, describes the search engines that will be used and key search terms	X		X				Data used for the WA documented in PQAPP Section 3.1.

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
If databases or models will be used, describe the database (or model) in terms of who developed it and operates it and the type of data it contains	X		X				Data used for the WA documented in PQAPP Section 3.1. Any new data that will be used for the WA that is not in the current PQAPP will be added in the next revision to the PQAPP.
For other potential sources, describe the potential sources and rationale for considering or using each one	X		X	---			Data used for the WA documented in PQAPP Section 3.1. Any new data that will be used for the WA that is not in the current PQAPP will be added in the next revision to the PQAPP.
B3. Criteria for Selecting Data Sources							
Identifies each criterion that will be used to determine if the candidate data sources listed in B2 will meet your needs, and how each criterion is defined. (Criteria vary by project; examples include reliability, age, applicability, quantity, format, and others)	X		X				Documented in PQAPP Section 3.1. Any new data criteria that will be used for the WA that is not in the current PQAPP will be added in the next revision to the PQAPP.
Explains rating system used to evaluate source against each criterion	X		X				Documented in PQAPP Section 3.1. Any new data criteria that will be used for the WA that is not in the current PQAPP will be added in the next revision to the PQAPP.
B4. Data Value Selection Approach							
For data sources that meet the criteria identified in B3: Describes the criteria and procedures that will be used to determine which value(s) identified in the acceptable sources are most appropriate for use in the project	X		X				Documented in PQAPP Section 3.1.

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
For data that do not meet these pre-established criteria but are the only data available, explains how the decision to use such data will be made and documented	X		X				Documented in PQAPP Section 3.1.
B5. Resolving Data Gaps							
Describes the process for identifying and addressing data gaps that still exist after candidate data sources have been evaluated and appropriate data values have been identified	X		X				Documented in PQAPP Section 3.1.
Describes the process that will be used to address any new data needs revealed during the data gathering process (i.e., additional data elements not previously considered)	X						Documented in PQAPP Section 3.1.
B6. Data Gathering Documentation and Records							
Describes how results of the source selection and the data value selection will be documented, including any sources or values that were rejected and the rationale for not using them	X		X				Documented in PQAPP Section 3.1.
For data that are deemed acceptable and that will be used, explains how each data element will be associated to its original source citation (i.e., bibliographic information, telephone contact reports, email messages, etc.)	X		X				Documented in PQAPP Section 3.1.

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
C1. Standardization of Data Elements							
Describes the process to ensure that units and other key measures are captured and standardized (or otherwise made comparable) in the database	X		X				Documented in PQAPP Section 3.2.
If the project requires that all fields be standardized to a single set of units (e.g., US dollars for economic data, ug/L for chemical data), identifies the standard units that will be required for each data element	X		X				Documented in PQAPP Section 3.2.
Identifies the procedures for converting data reported in other units to the standardized units, including any rounding or truncating procedures, and procedures for ensuring these conversions are performed correctly	X		X				Documented in PQAPP Section 3.2.
If standardization of data elements is not needed, explains the process for ensuring that data presented in varying units are comparable enough for use in the project and that project staff members and other data users will be able to readily identify differences in units	X		X				Documented in PQAPP Section 3.2.
C2. Data Entry							
Explains the process for manually entering selected data into the project database, who will be responsible for such data entry, and the QC strategies that will be used to ensure that the database accurately and completely captures the data as presented in the original source	X		X				Data entry methods for the WA are documented in PQAPP Section 3.2.

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
C3. Merging or Uploading Electronic Data from Existing Sources							
If data are available electronically and will be uploaded or merged into the project database: describes the procedures that will be followed to ensure that errors are not introduced during the upload/merge process and that the final database reflects the original dataset(s)	X		X				Data entry methods for the WA are documented in PQAPP Section 3.2.
C4. Data Review							
Describes the process for ensuring that the data have been recorded, transmitted, and processed correctly	X		X				Data review for the WA are documented in PQAPP Section 3.2.
C5. Data Storage and Manipulation							
Describes how the existing data will be stored	X		X				Documented in PQAPP Section 3.2.
Describes who will be responsible for access to and maintenance of the stored data	X		X				Documented in PQAPP Section 3.2.
Describes how the existing data will be incorporated with other project data to support the project goal/decision to be made	X		X				Documented in PQAPP Section 3.2.
Describes the QC strategies that will be employed to ensure that the integrity of the data is not compromised during data storage, access/retrieval, updates, or other manipulation	X		X				Documented in PQAPP Section 3.2.

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
D1. Data Quality Verification and Data Quality Reporting							
Describes the process for verifying that the final set of data meets the overall criteria originally specified for the project	X		X				Data quality verification steps for the WA are documented in PQAPP Section 3.3.
Describes how these determinations will be documented and reported.	X		X				Documented in PQAPP Section 3.3.
For data that don't meet the pre-established specifications, explains the process for determining if they are usable and how such decisions will be documented	X		X				Documented in PQAPP Section 3.3.
D2. Use/Analysis of the Existing Data							
Provides details regarding the exact means in which the data will be used to meet project objectives	X		X				Documented in PQAPP Section 3.2.2.
Includes an explanation or list of the information to be calculated and the data elements that will be used to make those calculations	X		X				Documented in PQAPP Section 3.2.2.
Includes applicable calculations and equations (if known) or explanations of how they will be developed.	X		X				Documented in PQAPP Section 3.2.2.
Includes plans for excluding outliers.	X		X				Documented in PQAPP Section 3.2.2.
D3. Methodology Documentation and Conceptual Review							
If exact methodologies for analyzing the data will need to be developed or modified during the course of data analysis, explains the process by which such methodologies will be documented, who is responsible for reviewing/ approving their use, and how the methodologies will be checked to ensure they yield the desired products	X		X				Documented in PQAPP Section 3.2.3.

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
D4. Technical Review of the Data Analysis							
Describes activities that will be used to ensure the data analyses are being implemented as specified and will support project objectives	X		X				Technical review of data analysis for the WA are documented in PQAPP Section 3.3
Explains procedures for identifying and notifying appropriate personnel if changes to the originally planned procedures are warranted, and the process for approving, documenting and implementing such changes	X		X				Technical review of data analysis for the WA are documented in PQAPP Section 3.3
D5. Final Verification of Data Analysis and Reconciliation with User Requirements							
Describes the process for reviewing the final work product to ensure that the work was generated in accordance with the QAPP, and that the work product addresses the overall project goals and objectives	X		X				Final verification of data analysis for the WA are documented in PQAPP Section 3.3
Describes how the results of this assessment will be documented	X		X				Final verification of data analysis for the WA are documented in PQAPP Section 3.3
Describes how any limitations of the data or data analyses that were used to prepare the final work product will be documented and communicated	X		X				Final verification of data analysis for the WA are documented in PQAPP Section 3.3

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-03

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Environmental Impact and Benef

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Paragraphs B.1, C.1, and G

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/12/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		180
Total:		180

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Ashley Allen	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1012 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: ***Environmental Impact and Benefit Assessment of Measures Addressing Stormwater Discharges from Developed Areas***

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-03

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Estimated Level of Effort: 180 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):

Ashley Allen
OST/EAD (4303T)
202/566-1012
202/566-1053 (fax)

VI. Background and Purpose:

Stormwater runoff from developed areas is a significant source of pollutants and other stressors for waters of the United States. Urbanization and the associated increase in impervious surface area fundamentally change watershed hydrology and degrade aquatic ecosystems over time.

EPA developed its existing stormwater regulations as directed under Section 402(p) of the Clean Water Act (CWA). Regulated entities comply with existing regulations through the use of a wide variety of programs and best management practices (BMPs). Under Section 402(p)(6), EPA is authorized to designate additional stormwater discharges to be regulated and to establish a comprehensive program for their management.

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to provide technical support for documentation of an analysis of the environmental impact associated with stormwater discharges from developed areas and of the benefit associated with their reduction. This analysis, conducted under prior WAs, provides both a qualitative description and a quantitative estimate of environmental impacts and benefits. The analysis examines both baseline conditions and incremental changes associated with each of several options for addressing stormwater discharges.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA-approved quality assurance (QA) project plan that was previously developed. The QA project plan describes the procedures for assuring the quality of the primary and secondary environmental data used for this WA.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WAs 0-03, 1-03, and 2-03 under this Contract (EP-C-13-039). The work performed under this work assignment will not duplicate work conducted under the previous work assignments.

Under the previous work assignment(s), Abt Associates performed the following analyses:

- Completed environmental impact and benefits analysis as described above (WAs 0-03 and 1-03).
- Initiated creation of draft documentation of the environmental impact and benefits analysis (WA 2-03).

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract-Level Contracting Officer's Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor will submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor will incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor will adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

A biweekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables, costs, and other potential issues.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.
1b. Biweekly Update Call

Task 2 - Quality Assurance

2.1 Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis, and use of

environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in **Table 2-1** below.

Table 2-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this WA involve gathering, evaluating, analyzing, and otherwise using existing environmental and economic data (also known as "secondary" use of data). EPA has determined that the contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this WA. In support of this WA, the contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this WA such as researching data sources and models, evaluating and processing data, documenting data processing and quality, assembling, evaluating, and implementing model collections; assessment of model results;
- The type of data to be gathered or used under this WA to support the project objectives—including data from search engines, federal databases, and EPA data bases—as well as a rationale for when those databases are appropriate and what data available in each will support the project;
- The quality objectives needed to ensure the data will support the project objectives; and,
- The QA/QC activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Table A-1 in the Appendix to this WA demonstrates how the PQAPP addresses QA requirements for this WA.

The contractor shall fill in staff roles to the Table A-1 checklist under Row A.4 and make any additional detailed notes in the 'explanatory comments' column as requested by the WACOR, when this information differs from the existing PQAPP (*Programmatic Quality Assurance Project Plan (PQAPP) for Economic, Environmental, and Regulatory Analytical and Evaluation Support for Clean Water Regulations* (Contract No. EP-C-13-039), December 21, 2015, Revision 2). When this information does not differ from the existing PQAPP the contractor should simply cite the PQAPP. The contractor shall then include the completed Table A-1 as a separate Appendix A to the work plan upon submittal to EPA. This Appendix A will be a stand-alone document when QA documentation is required to support EPA regulatory activities, therefore the Table A-1 title must include the title of the WA, WA number, contract number, and what projects each covers. The WACOR has provided this information in the title, which the contractor may use to fulfill this requirement.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure that the reports provide enough information to enable a knowledgeable reader to determine whether the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data

quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the contractor under this WA must include a discussion of the QA/QC activities that were performed to support the deliverable. This discussion must provide a sufficient level of detail to allow the Engineering and Analysis Division (EAD) QA Coordinator (or designee) to determine whether the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WACOR will review each applicable report and certify whether the contractor has adhered to the QA requirements documented in the contractor's PQAPP.

The contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this WA. These monthly QA reports shall identify QA activities performed to support implementation of this WA, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the contractor may include this report as a part of the contract-required monthly financial/technical progress report.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis so that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and Supplemental Quality Assurance Project Plans (SQAPPs).) The contractor may claim information in QAPPs as confidential; if the contractor chooses to do so, the contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the contractor should indicate which results were obtained using the tools (SOPs, checklists, and guidelines) that the contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractor may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, March 2015. If this is required, the EPA WACOR will notify the contractor

through written technical direction.

Deliverables and Schedule under Task 2

Deliverable	Projected Schedule Date
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly throughout the WA period of performance

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan that was developed under the Construction and Development WA 0-01 of the contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point under this WA. The EPA WACOR will review the revised memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare the edited SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use the revised SNCVC.

Deliverables and schedule under Task 3

3. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 – Documentation of Quantitative Analyses of Surface Water Effects from Developed Area Stormwater Discharges

Under this task, the contractor shall complete preparation of preliminary documentation describing the methodology for quantifying the surface-water effects of stormwater controls and discussing the outputs of the analysis for the watersheds analyzed under WA 1-03. The documentation shall be prepared to a level sufficient for internal review by US EPA. The documentation will discuss the limitations and uncertainty of the results and the outputs and implications of model sensitivity analyses. In addition, the documentation will describe studies from the published literature in order to provide context for the modeling methodology and results. This literature review will be limited to identifying a select number of studies that address the most novel aspects of the analysis' methodology and results.

EPA anticipates that the documentation will discuss the scenarios analyzed under WA 1-03 and that there will be no need to run and analyze new scenarios in order to produce the documentation requested under this task.

The documentation shall consist of chapter(s) formatted in the same general manner as the draft chapters produced under WA 1-03 for land-based benefits (discussed in Task 5 below). EPA anticipates that the documentation will be less than 100 pages in length, but the contractor shall use their best judgment in determining the appropriate length. The contractors shall use the draft documentation prepared under WA 2-03 as the starting point for preparing documentation under this WA.

Deliverables

4a. Draft Version – 60 days after receipt of technical direction from WACOR
4c. Final Version – 30 days after receipt of technical direction from WACOR

Task 5 – Documentation of Quantitative Analyses of Land-Based Environmental Changes from Use of Best Management Practices for Developed Area Stormwater Discharges

Under this task, the contractor shall revise the draft documentation describing the analysis of land-based environmental changes and benefits which the contractor delivered to EPA and for which the EPA WACOR provided comments under WA 1-03. The documentation shall be prepared to a level sufficient for internal review by EPA. EPA does not anticipate any need to analyze any additional scenarios in order to produce documentation under this task.

Deliverables

5a. Revised Version – 30 days after receipt of technical direction from WACOR

Appendix
EAD Checklist for Projects Utilizing Existing Data

The items noted in this checklist are adapted from those elements found in *EPA Requirements for QA Project Plans (QA/R-5)* (EPA, 2001a), but tailored to the use of existing data.

Table A1. QAPP Elements Applicable to WA 3-03 ("Environmental Impact and Benefit Assessment of Measures Addressing Stormwater Discharges from Developed Areas") of Contract EP-C-13-039 for Projects Utilizing Existing Data

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
A1. Title & Approval Sheet			
Project title			Environmental Impact and Benefit Assessment of Measures Addressing Stormwater Discharges from Developed Areas
Organization's name	X		
Effective date and/or version identifier	X		
Dated signature of Organization's project manager	X		
Dated signature of Organization's QA manager	X		
Other signatures, as needed (e.g., EAD Project Officer, EAD QA Coordinator)	X		
Revision History	X		
A2. Table of Contents			
Includes sections, figures, tables, references, and appendices	X		PQAPP pp. vii-viii
Document control information indicated (when required by the EPA Project Manager and QA Manager)	X		
A3. Distribution List			
Includes all individuals who are to implement or otherwise receive the QAPP and identifies their organization	X		PQAPP p. iv
A4. Project/Task Organization			
Identifies key individuals with their responsibilities (e.g., data users, decision makers, project QA manager, Subcontractors, etc.) and contact info.	X		PQAPP section 2.1 *List specific people identified for the following roles:* *PQA:* *Abt WAM:* *EPA WACOR: Ashley Allen*
Organization chart shows lines of authority & reporting responsibilities	X		PQAPP Section 2.1
Project QA manager position indicates independence from unit collecting/using data	X		PQAPP Section 2.1
A5. Problem Definition/Background			
Clearly states problem to be resolved, decision to be made, or hypothesis to be tested	X		PQAPP Section 2.2 and address in Work Plan.
Identifies project objectives or goals	X		PQAPP Table 2.2 and address in Work Plan.
Historical & background information	X		PQPP Section 2.2 and address in Work Plan.

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives	X		PQAPP Section 2.2 and address in Work Plan.
A6. Project/Task Description			
List measurements to be made/data to obtain	X		PQAPP Section 2.3, and address in Work Plan.
Notes special personnel or equipment requirements	X		PQAPP Section 2.5
Provides work schedule		X	Addressed in Work Plan. No set dates or work sequence.
A7. Overall Quality Objectives & Criteria			
States overall quality objectives and limits needed to support the project goals and objectives cited in A5	X		PQAPP Section 2.4 and address in Work Plan.
A8. Special Training Requirements/ Certifications			
Identifies specialized skills, training or certification requirements	X		PQAPP Section 2.5
Discusses how this training will be provided/the necessary skills will be assured and documented	X		PQAPP Section 2.5
A9. Project-level Documents & Records			
Describes process for distributing the approved QAPP and other planning documents (and updates) to staff	X		PQAPP p. iv and Section 2
Identifies final work products that will result from the project	X		PQAPP Section 2.6 and address in Work Plan.
Describes the process for developing, reviewing, approving, and disseminating the final work products and individuals responsible for these processes	X		PQAPP Section 2.6 and address in Work Plan.
B1. Data Needs			
Detailed list/description of the specific data elements needed to support project goals	X		PQAPP Table 3-1 and address in work plan.
Description of the scope of the data elements that you need (e.g., data supporting specific treatment options vs. the full range of options, data supporting the entire country vs. a specific geographic region)	X		PQAPP Table 3-1 and address in work plan.
If project includes development or update of a project database, QAPP identifies and defines each database field	X		
B2. Potential Data Sources			
Identifies and describes potential sources of the existing data needed (e.g., photographs, topographical maps, facility or state files, census data, meteorological data, publications, etc.) and the rationale for their use	X		PQAPP Section 3.1.2 and address in Work Plan.
If literature searches are used, describes the search engines that will be used and key search terms	X		PQAPP Section 3.1.2
If databases or models will be used, describe the database (or model) in terms of who developed it and operates it and the type of data it contains			PQAPP Section 3.1.2

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
For other potential sources, describe the potential sources & rationale for considering or using each one			PQAPP Section 3.1.2
B3. Criteria for Selecting Data Sources			
Identifies each criterion that will be used to determine if the candidate data sources listed in B2 will meet your needs, and how each criterion is defined. (Criteria vary by project; examples include reliability, age, applicability, quantity, format, and others)	X		PQAPP Section 3.1.3
Explains rating system used to evaluate source against each criterion		X	
B4. Data Value Selection Approach			
For data sources that meet the criteria identified in B3: Describes the criteria and procedures that will be used to determine which value(s) identified in the acceptable sources are most appropriate for use in the project	X		PQAPP Section 3.1.4
For data that do not meet these pre-established criteria but are the only data available, explains how the decision to use such data will be made and documented		X	
B5. Resolving Data Gaps			
Describes the process for identifying and addressing data gaps that still exist after candidate data sources have been evaluated and appropriate data values have been identified	X		PQAPP Section 3.1.5
Describes the process that will be used to address any new data needs revealed during the data gathering process (i.e., additional data elements not previously considered)		X	
B6. Data Gathering Documentation and Records			
Describes how results of the source selection and the data value selection will be documented, including any sources or values that were rejected and the rationale for not using them	X		PQAPP Section 3.1.6 (p. 49) and Section 4.1.1
For data that are deemed acceptable and that will be used, explains how each data element will be associated to its original source citation (i.e., bibliographic information, telephone contact reports, email messages, etc.)	X		PQAPP Section 3.1.6, p. 49
C1. Standardization of Data Elements			
Describes the process to ensure that units and other key measures are captured and standardized (or otherwise made comparable) in the database	X		PQAPP Section 3.2.1
If the project requires that all fields be standardized to a single set of units (e.g., US dollars for economic data, µg/L for chemical data), identifies the standard units that will be required for each data element	X		PQAPP Section 3.2.1

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
Identifies the procedures for converting data reported in other units to the standardized units, including any rounding or truncating procedures, and procedures for ensuring these conversions are performed correctly	X		PQAPP Section 3.2.1
If standardization of data elements is not needed, explains the process for ensuring that data presented in varying units are comparable enough for use in the project and that project staff members and other data users will be able to readily identify differences in units	X		PQAPP Section 3.2.1
C2. Data Entry			
Explains the process for manually entering selected data into the project database, who will be responsible for such data entry, and the QC strategies that will be used to ensure that the database accurately and completely captures the data as presented in the original source	X		PQAPP Section 3.2.2
C3. Merging or Uploading Electronic Data from Existing Sources			
If data are available electronically and will be uploaded or merged into the project database: describes the procedures that will be followed to ensure that errors are not introduced during the upload/merge process and that the final database reflects the original dataset(s)	X		PQAPP Section 3.2.3
C4. Data Review			
Describes the process for ensuring that the data have been recorded, transmitted, and processed correctly	X		PQAPP Section 3.2.4
C5. Data Storage and Manipulation			
Describes how the existing data will be stored	X		PQAPP Section 3.2.5
Describes who will be responsible for access to and maintenance of the stored data	X		PQAPP Section 3.2.5
Describes how the existing data will be incorporated with other project data to support the project goal/decision to be made	X		PQAPP Section 3.2.5
Describes the QC strategies that will be employed to ensure that the integrity of the data is not compromised during data storage, access/retrieval, updates, or other manipulation	X		PQAPP Section 3.2.5
D1. Data Quality Verification and Data Quality Reporting			
Describes the process for verifying that the final set of data meets the overall criteria originally specified for the project	X		PQAPP Section 3.3.1
Describes how these determinations will be documented and reported	X		PQAPP Section 3.3.1
For data that don't meet the pre-established specifications, explains the process for determining if they are usable and how such decisions will be documented	X		PQAPP Section 3.3.1

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
D2. Use/Analysis of the Existing Data			
Provides details regarding the exact means in which the data will be used to meet project objectives	X		PQAPP Section 3.3.2
Includes an explanation or list of the information to be calculated and the data elements that will be used to make those calculations	X		PQAPP Section 3.3.2
Includes applicable calculations and equations (if known) or explanations of how they will be developed	X		PQAPP Section 3.3.2
Includes plans for excluding outliers	X		PQAPP Section 3.3.2
D3. Methodology Documentation and Conceptual Review			
If exact methodologies for analyzing the data will need to be developed or modified during the course of data analysis, explains the process by which such methodologies will be documented, who is responsible for reviewing/ approving their use, and how the methodologies will be checked to ensure they yield the desired products	X		PQAPP Section 3.3.3.
D4. Technical Review of the Data Analysis			
Describes activities that will be used to ensure the data analyses are being implemented as specified and will support project objectives	X		PQAPP Section 3.3.4
Explains procedures for identifying and notifying appropriate personnel if changes to the originally planned procedures are warranted, and the process for approving, documenting and implementing such changes	X		PQAPP Section 3.3.4
D5. Final Verification of Data Analysis and Reconciliation with User Requirements			
Describes the process for reviewing the final work product to ensure that the work was generated in accordance with the QAPP, and that the work product addresses the overall project goals and objectives	X		PQAPP Section 3.3.5
Describes how the results of this assessment will be documented	X		PQAPP Section 3.3.5
Describes how any limitations of the data or data analyses that were used to prepare the final work product will be documented and communicated	X		PQAPP Section 3.3.5

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-04

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	316b Exisiting Facilites rule

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.6, C.1, C.2 and D

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Performance on this Work Assignment shall not begin until August 1, 2016.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:	1,060	
Total:	1,060	

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name James Covington	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1034 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

Contract No. EP-C-13-039
Work Assignment 3-04

I. Title: Implementation and Benefits Activities for the 316(b) Existing Facilities Rule

Contractor: Abt Associates **Contract No.**: EP-C-13-039

II. Work Assignment Number: 3-04

III. Estimated Period of Performance: August 1, 2016 to July 31, 2017

IV. Estimated Level of Effort: **1,060**

V. Key EPA Personnel: Work Assignment Contracting Officer Representative (WACOR):

Work Assignment Contracting Officer Representative (WACOR):
James C. Covington, III
OST/EAD (4303T)
Phone: (202) 566-1034
Fax: (202) 566-1053
Email: **covington.james@epa.gov**

VI. Background and Purpose of this Work Assignment

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to provide contract support for work to be performed under WA 3-04, Implementation and Benefits Activities for the 316(b) Existing Facilities Rule. This work assignment includes support for work begun under WAs 1-04 and 2-04, and follows work completed under WA 0-04, Assessment of the Economic Costs and Impacts and Benefits of the Final 316(b) Existing Facilities Rulemaking, under EPA Contract No. EP-C-13-039. The final 316(b) rule was published in the Federal Register in July 2014. The Engineering and Analysis Division (EAD) is working with the Office of Wastewater Management (OWM), which has primary responsibility for implementing the 316(b) rule, to develop implementation and benefits follow-on activities and tools for use by regulated facilities,

permit writers, States and the Regions.

Examples of implementation activities that will be conducted under this WA include assisting other EPA offices within the Office of Water, such as OWM, in responding to economic-related questions they receive about permits and rule implementation from both permit directors and facilities; developing spreadsheet tools to help facilities and permit writers calculate the costs and benefits of various compliance technology options as required under the rule; developing training materials to help State permit directors implement the rule; and, developing outreach materials to help State permit directors assist facilities in preparing the analyses required under the rule. These are only examples of likely 316(b) implementation activities that will require contractor support. In addition, the work assignment provides for contractor support to address EPA comments on the stated preference survey report, which the contractor prepared under WA 6-05 of EP-C-07-023, and to assist EPA with preparations for the Science Advisory Board (SAB) review or review by other external parties of the survey results.

Under this work assignment, the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA-approved quality assurance (QA) project plan that was based on Task 2 QAPP language. The QA project plan shall describe the procedures for assuring the quality of the primary and existing environmental and economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WAs 0-04, 1-04 and 2-04 under this contract. The work performed under this work assignment shall not duplicate work conducted under the previous work assignments under this contract.

Under the previous work assignments, Abt Associates performed the following analyses, among others:

- Prepared draft cost calculator;
- Prepared draft benefits calculator;
- Prepared draft Stated Preference Survey Report;
- Prepared a compilation of best practices documents for impingement and entrainment (I&E) sampling design and a set of links to multiple data sources for permit writers for incorporation into the online 316(b) implementation user guide.

The tasks, estimated LOE, deliverables and schedule for each task are described below.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will be accessing and evaluating CBI. As such, the contractor shall adhere to EPA's CBI policy and other procedures as described in the contract clauses (Clauses H.15-H19 and H.21). The contractor must maintain CBI security clearance to use CBI information. The contractor shall not disclose any CBI to anyone other than EPA without prior written approval from the EPA

WACOR. The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in our "Office of Science and Technology Confidential Business Information Application Security Plan" (August 2011) or its successor approved plans.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be identified clearly as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR.

Quick Response: Under this Performance Work Statement, the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working calendar days.

Travel: EPA does anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in hard copy and in electronic form using Word and/or Excel/Access, ArcView, or, in special cases, another software program agreed to in advance by EPA. Memos are to be written in a manner that will make them easy to turn into draft chapters for the Final Reports. For deliverables that are in Word or pdf versions of Word documents, and that are intended to be shared with EPA management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether or not decimal places are reported. All final materials, e.g., memos, chapters, etc. are to be prepared only after receipt of written technical direction from the EPA WACOR.

Monthly Progress Reports: The monthly progress reports shall include reporting hours and funds spent under this WA on a task-by-task basis, including at the subtask level (e.g. Task 4.1, Task

4.2, etc.), where applicable.

VIII. Performance Work Statement

Task 1 – Project Management

The contractor shall prepare a work plan 15 calendar days after receipt of work assignment signed by the Contracting Officer (CO). The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the Contract-Level Contracting Officer Representative (CL-COR), and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Deliverables and schedule

1. Work plan due 15 calendar days after receipt of work assignment.

A weekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables, costs and other potential issues.

Task 2 - Quality Assurance (QA)

2.1 Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis, and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in Table 2.1 below.

Table 2.1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output

Table 2.1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). However, EPA has determined that the contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this work assignment. In support of this work assignment, the contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when the contractor is using existing sources of data to perform economic analyses in support of EPA's implementation activities under the final 316(b) rule;
- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases—as

well as a rationale for when those databases are appropriate and what data available in each will support the project;

- The quality objectives needed to ensure the data will support the project objectives; and,
- The Quality Assurance/Quality Control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Table 1 in the Appendix at the end of this WA contains the EAD Checklist for this project, which utilizes existing data. The table demonstrates how the PQAPP addresses QA requirements for this work assignment. The contractor shall use the same PQAPP tables issued in the previous WA 2-04. The contractor shall update, if necessary, and fill in staff roles in the table in the 'explanatory comments' under A.4 and make any additional detailed notes in the explanatory comments column if details of the previous table has changed. The contractor shall then include the completed table as a separate Appendix A to the work plan upon submittal to EPA. This Appendix A should be a stand-alone document if QA documentation is requested. Therefore, the table title must include the title of the WA, WA number, and contract number. The WACOR has provided this information in the title, which the contractor may use to fulfill this requirement.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure that the reports provide enough information to enable a knowledgeable reader to determine whether the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable. This discussion must provide a sufficient level of detail to allow the EAD QA Coordinator (or designee) to determine whether the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WACOR will review each applicable report and

certify whether the contractor has adhered to the QA requirements documented in the contractor's PQAPP.

The contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the contractor may include this report as a part of the contract-required monthly financial/technical progress report.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis so that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and Supplemental QAPPs (SQAPPs.)) The contractor may claim information in QAPPs as confidential; if the contractor chooses to do so, the contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the contractor should indicate which results were obtained using the tools (Standard Operating Procedures (SOPs), checklists, and guidelines) that the contractor designates as confidential so that the EPA WACOR can easily identify the areas that require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractor may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, February 2009. If this is required, the EPA WACOR will notify the contractor through written technical direction.

Deliverables and schedule

1. Monthly reports of QA work performed (may be included in contractor's monthly progress report) due monthly throughout the WA period of performance.

Task 3 - Adherence to the Standardized Naming Convention and Version Control

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan which was developed under the Construction and Development WA 0-01 of Contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

Task 4 -- Economics Support for Cost-related 316(b) Implementation Activities

Under this task, the contractor shall provide analytical and technical economics support to EPA for a variety of cost-related 316(b) implementation activities. Examples of these activities include completion of the cost calculator, including user instructions (also called documentation); technical support to develop responses to cost-related questions in EPA's 316(b) implementation Questions & Answers (Q&A) database for permit writers and facilities; and, technical support for implementation – other activities, including testing, outreach, and training in the use of the cost calculator for EPA regions, states and facilities. **This task is a continuation of work in the previous WA (2-04).**

Deliverables and Schedule

4.1a. Final draft cost calculator is due by December 1, 2016, including all draft final documentation. The EPA WACOR will provide written comments on the calculator and draft final documentation.

4.1b. Revised drafts finals are due three weeks after receipt of comments from the EPA WACOR.

4.1c. Final working version of the complete calculator and revised documentation are due after receipt of final comments from the EPA WACOR, but no later than July 31, 2017.

4.2. Technical Support for Implementation – Other Activities (Continued from previous WA)

The contractor shall provide additional cost-related technical support for implementation of the 316(b) rule. The EPA WACOR expects this technical support to fall under three general categories:

4.2.a. Responding to management questions about cost-related implementation issues and preparing briefing and meeting materials which may include, but not be limited to, short briefing documents and PowerPoint presentations. The contractor may also be requested to review analyses conducted by EPA and its contractors, and provide technical review of materials prepared by Agency staff. Examples of deliverables include developing quick turnaround analyses, preparing webinar materials for webinars with permit writers and/or facilities, and developing briefing materials on cost-related issues.

4.2.b. Testing, outreach and training activities using the cost calculator for various audiences, including EPA headquarters and regional staff, State Clean Water Agencies, stakeholders from industry and environmental organizations, and the regulated facilities. Examples of deliverables include outreach and training materials for the calculator, including webinars and tutorials on the use of the calculators.

4.2.c..Prepare responses to economics-related questions from permit writers, facilities, and other stakeholders for the Q&A database which EPA is developing with support from TetraTech, under WA 4-19 of EP-C-11-009. The Q&A database responses may take the form of a brief response of less than one page or may take the form of essays or analyses, no longer than three pages, that give a conceptual background on the issues, describe the methodology for calculations and estimates, and outline the key points from the analyses and their role in permit writers' decisions.

Deliverables and Schedule
4.2a. Draft deliverables are due two weeks after receipt of technical direction from the EPA WACOR. The EPA WACOR will provide written comments. Draft quick turnaround deliverables are due one week after requested by technical direction from the EPA WACOR.
4.2b. Final deliverables incorporating comments from the EPA WACOR are due two weeks after receipt of comments from the EPA WACOR, but no later than July 31, 2017. Final quick turnaround deliverables are due one week after receipt of comments from the EPA WACOR but no later than July 31, 2017.

Task 5 – Technical Support for Benefits-Related Implementation Activities

Under this task, the contractor shall provide analytical and technical economics support to EPA for a variety of 316(b) implementation activities related to benefits issues. Examples of these activities include completion of the benefits calculator, including user instructions (also called documentation); and, technical support for implementation – other activities, including technical support to develop responses to benefits-related questions for EPA's 316(b) implementation Q&A database for permit writers and facilities; and testing, outreach, and training in the use of the benefits calculator for EPA Regions, States and facilities. **This task is a continuation of the previous work in WA 2-04.**

Deliverables and Schedule
5.1a. Draft final benefits calculator is due December 1, 2016, including draft final documentation. The EPA WACOR will provide written comments on the calculator and documentation.
5.1b. Revised drafts are due three weeks after receipt of the comments. EPA expects to provide a second round of comments, with final draft versions due two weeks after receipt of comments.
5.1c. Final working version of the complete calculator and revised documentation are due one month after receipt of final comments from the EPA WACOR, but no later than July 31, 2017.

5.2. Technical Support for Implementation – Other Activities (Continuation of Previous WA)

The contractor shall provide additional benefits-related technical support for implementation of the 316(b) rule. The EPA WACOR expects this technical support to fall under three general categories:

5.2a. Responding to management questions about benefits-related implementation issues and preparing briefing and meeting materials which may include, but not be limited to, short briefing documents and PowerPoint presentations. The contractor may also be requested to review analyses conducted by EPA and its contractors, and provide technical review of materials prepared by Agency staff. Examples of deliverables include developing quick turnaround analyses, preparing webinar materials for webinars with permit writers and/or facilities, and developing briefing materials on cost-related issues.

5.2b. Testing, outreach and training activities using the benefits calculator for various audiences, including EPA headquarters and regional staff, State Clean Water Agencies, stakeholders from industry and environmental organizations, and the regulated facilities. Examples of deliverables include outreach and training materials for the calculator, including webinars and tutorials on the use of the calculators.

5.3c. Prepare responses to benefits-related questions from permit writers, facilities, and other stakeholders for the Q&A database which EPA is developing with support from Tetra Tech, under WA 4-19 of EP-C-11-009. The Q&A database responses may take the form of a brief response of less than one page or may take the form of essays or analyses, no longer than three pages, that give a conceptual background on the issues, describe the methodology for calculations and estimates, and outline the key points from the analyses and their role in permit writers' decisions.

Deliverables and Schedule

5.2a. Draft deliverables are due two weeks after receipt of technical direction from the EPA WACOR. The EPA WACOR will provide written comments. Quick turnaround deliverables are due one week after requested by technical direction from the EPA WACOR.

5.2b. Final deliverables incorporating comments from the EPA WACOR are due two weeks after receipt of comments from the EPA WACOR, but no later than July 31, 2017. Final quick turnaround deliverables are due one week after receipt of comments from the EPA WACOR but no later than July 31, 2017.

SCHEDULE OF DELIVERABLES

Task	Deliverable	Delivery Schedule
Task 1 – Prepare Work Plan		
1	Prepare work plan	Due 15 calendar days after WA receipt.
Task 2 -- Adherence to the Quality Assurance Project Plan		
2	Monthly reports of QA work performed	May be included in monthly progress reports.
Task 3 -- Adherence to the Standardized Naming Convention and Version Control (SNCVC)		
		No deliverable for this task.

Task 4 – Economics Support for Cost-related 16(b) Implementation Activities		
4.1a	Final draft cost calculator, including draft documentation.	December 1, 2016.
4.1b	Final cost calculator and documentation.	Due three weeks after receipt of comments from EPA WACOR. Revised final versions are due two weeks after second set of comments from the WACOR (if provided), but no later than July 31, 2017.
4.1c	Final working version of the complete calculator and revised documentation	Due one month after receipt of final comments from the EPA WACOR, but no later than July 31, 2017.
4.2a	Final technical support deliverables for implementation activities	Due two weeks after receipt of technical direction from the EPA WACOR. Quick turnaround deliverables are due one week after requested by technical direction from the EPA WACOR.
4.2b	Final technical support deliverables incorporating comments from the EPA WACOR	Due two weeks after receipt of comments from the EPA WACOR. Quick turnaround deliverables are due one week after receipt of comments from the EPA WACOR.
Task 5 – Technical Support for Benefits-Related Implementation Activities		
5.1a	Final draft benefits calculator, including draft documentation.	Due one month after receipt of final comments from the EPA WACOR, but no later than July 31, 2017.
5.1b	Final benefits calculator and documentation.	Due three weeks after receipt of comments from EPA WACOR. Revised final versions are due two weeks after second set of comments from the WACOR (if provided) but no later than July 31, 2017.
5.1c	Final working version of the complete calculator and revised documentation	Due one month after receipt of final comments from the EPA WACOR, but no later than July 31, 2017.
5.2a	Final technical support deliverables for implementation activities	Draft deliverables are due two weeks after receipt of written technical direction from the EPA WACOR. Quick turnaround deliverables are due one week after receipt of technical direction from the EPA WACOR.
5.2b	Final technical support deliverables for implementation activities	Final deliverables are due two weeks after receipt of comments from the EPA, but no later than July 31, 2017. Quick turnaround deliverables are due one week after receipt of comments from the EPA WACOR, but no later than July 31, 2017.

Appendix
EAD Checklist for WA 3-04, Implementation and Benefits Activities for the 316(b) Existing Facilities Rule, Contract EP-C-13-039

The items noted in this checklist are adapted from those elements found in *EPA Requirements for QA Project Plans (QA/R-5)* (EPA, 2001a), but tailored to the use of existing data.

Table 1. EAD Checklist for WA 3-04 Utilizing Existing Data

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
itle & Approval Sheet							
ɔject title	X		X				See Checklist for WA 1-04, Implemei and Benefits Activities for the 316(b) ing Facilities Rule, Contract EP-C-13·
ganization's name	X		X				See above
fective date and/or version identifier	X		X				See above
ıted signature of Organization's project ınager	X		X				See above
ıted signature of Organization's QA ınager	X		X				See above
her signatures, as needed (e.g., EAD ɔject Officer, EAD QA Coordinator)	X		X				See above
·vision History	X		X				See above
ıble of Contents							
:ludes sections, figures, tables, references, d appendices	X		X				See Checklist for WA 1-04, Implemei and Benefits Activities for the 316(b) ing Facilities Rule, Contract EP-C-13·
ɔcument control information indicated hen required by the EPA Project Manager d QA Manager)		X					See above
istribution List							
:ludes all individuals who are to implement otherwise receive the QAPP and identifies :ir organization	X		X				See Checklist for WA 1-04, Implemei and Benefits Activities for the 316(b) ing Facilities Rule, Contract EP-C-13·
·oject/Task Organization							
ɜntifies key individuals with their ;ponsibilities (e.g., data users, decision ıkers, project QA manager, Subcontractors, :.) and contact info.	X		X				PQA _____ Completed Checklist attached to work
ganization chart shows lines of authority & ɔorting responsibilities	X		X				See Checklist for WA 1-04, Implemei and Benefits Activities for the 316(b) ing Facilities Rule, Contract EP-C-13·
ɔject QA manager position indicates lependence from unit collecting/using data	X		X				See above
·oblem Definition/Background							
ɜarly states problem to be resolved, cision to be made, or hypothesis to be ·ted	X		X				See Checklist for WA 1-04, Implemei and Benefits Activities for the 316(b) ing Facilities Rule, Contract EP-C-13·

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
ntifies project objectives or goals	X		X				See above
storical & background information		X					See above
tes applicable technical, regulatory, or ogram-specific quality standards, criteria, or jectives	X		X				See above
oject/Task Description							
st measurements to be made/data to obtain	X		X				See Checklist for WA 1-04, Implemei and Benefits Activities for the 316(b) ing Facilities Rule, Contract EP-C-13·
tes special personnel or equipment quirements		X					See above
ovides work schedule		X					See above
verall Quality Objectives & Criteria							
ates overall quality objectives and limits eded to support the project goals and jectives cited in Element A5.	X		X				See Checklist for WA 1-04, Implemei and Benefits Activities for the 316(b) ing Facilities Rule, Contract EP-C-13·
ecial Training Requirements/ ertifications							
ntifies specialized skills, training or tification requirements	X		X				See Checklist for WA 1-04, Implemei and Benefits Activities for the 316(b) ing Facilities Rule, Contract EP-C-13·
scusses how this training will be ovided/the necessary skills will be assured d documented	X		X				See above
oject-level Documents & Records							
scribes process for distributing the proved QAPP and other planning cuments (and updates) to staff	X		X				See Checklist for WA 1-04, Implemei and Benefits Activities for the 316(b) ing Facilities Rule, Contract EP-C-13·
ntifies final work products that will result m the project	X		X				See above
scribes the process for developing, viewing, approving, and disseminating the al work products and individuals sponsible for these processes	X		X				See above
ata Needs							
etailed list/description of the specific data ements needed to support project goals	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
escription of the scope of the data ements that you need (e.g., data upporting specific treatment options vs. the ll range of options, data supporting the ntire country vs. a specific geographic gion)	X		X				See above
project includes development or update of project database, QAPP identifies and efines each database field		X					See above

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
'otential Data Sources							
lentifies and describes potential sources of ıe existing data needed (e.g., photographs, ›pographical maps, facility or state files, ensus data, meteorological data, ublications, etc.) and the rationale for their se	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
' literature searches are used, describes the earch engines that will be used and key earch terms	X		X				See above
' databases or models will be used, escribe the database (or model) in terms of 'ho developed it and operates it and the 'pe of data it contains	X		X				See above
or other potential sources, describe the otential sources and rationale for onsidering or using each one	X		X				See above
:riteria for Selecting Data Sources							
lentifies each criterion that will be used to etermine if the candidate data sources sted in B2 will meet your needs, and how ıch criterion is defined. (Criteria vary by roject; examples include reliability, age, pplicability, quantity, format, and others)	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
xplains rating system used to evaluate ›urce against each criterion	X		X				See above
)ata Value Selection Approach							
or data sources that meet the criteria lentified in B3: Describes the criteria and rocedures that will be used to determine 'hich value(s) identified in the acceptable ›urces are most appropriate for use in the roject	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
or data that do not meet these pre-stablished criteria but are the only data vailable, explains how the decision to use ıch data will be made and documented	X		X				See above
:esolving Data Gaps							
'escribes the process for identifying and ldressing data gaps that still exist after ındidate data sources have been evaluated ıd appropriate data values have been lentified	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
'escribes the process that will be used to ldress any new data needs revealed during ıe data gathering process (i.e., additional ata elements not previously considered)	X						See above

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
)ata Gathering Documentation and :ecords							
·escribes how results of the source :lection and the data value selection will : documented, including any sources or ılues that were rejected and the rationale ›r not using them	X		X				See above
or data that are deemed acceptable and that ·ill be used, explains how each data ement will be associated to its original ›urce citation (i.e., bibliographic ıformation, telephone contact reports, nail messages, etc.)	X		X				See above

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
tandardization of Data Elements							
escribes the process to ensure that units ıd other key measures are captured and andardized (or otherwise made ɔmparable) in the database	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
the project requires that all fields be andardized to a single set of units (e.g., S dollars for economic data, ug/L for ıemical data), identifies the standard units ıat will be required for each data element	X		X				See above
lentifies the procedures for converting data ;ported in other units to the standardized ıits, including any rounding or truncating rocedures, and procedures for ensuring ıese conversions are performed correctly	X		X				See above
standardization of data elements is not eeded, explains the process for ensuring ıat data presented in varying units are ɔmparable enough for use in the project ıd that project staff members and other ata users will be able to readily identify ifferences in units	X		X				See above
ata Entry							
xplains the process for manually entering elected data into the project database, who ill be responsible for such data entry, and ıe QC strategies that will be used to ensure ıat the database accurately and completely aptures the data as presented in the original ɔurce	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
Merging or Uploading Electronic Data om Existing Sources							
data are available electronically and will e uploaded or merged into the project atabase: describes the procedures that will e followed to ensure that errors are not ıtroduced during the upload/merge process ıd that the final database reflects the riginal dataset(s)	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
ata Review							
Describes the process for ensuring that the data have been recorded, transmitted, and processed correctly	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
ata Storage and Manipulation							
Describes how the existing data will be stored	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
Describes who will be responsible for access to and maintenance of the stored data	X		X				See above
Describes how the existing data will be incorporated with other project data to support the project goal/decision to be made	X		X				See above
Describes the QC strategies that will be employed to ensure that the integrity of the data is not compromised during data storage, access/retrieval, updates, or other manipulation	X		X				See above

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
)ata Quality Verification and Data)uality Reporting							
'escribes the process for verifying that the nal set of data meets the overall criteria riginally specified for the project	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
'escribes how these determinations will be ocumented and reported.	X		X				See above
or data that don't meet the pre-established ecifications, explains the process for etermining if they are usable and how such ecisions will be documented	X		X				See above
Ise/Analysis of the Existing Data							
rovides details regarding the exact means which the data will be used to meet roject objectives	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
ncludes an explanation or list of the nformation to be calculated and the data lements that will be used to make those alculations	X		X				See above
ncludes applicable calculations and quations (if known) or explanations of ow they will be developed.	X		X				See above
ncludes plans for excluding outliers.	X		X				See above
Methodology Documentation and onceptual Review							
exact methodologies for analyzing the ata will need to be developed or modified uring the course of data analysis, explains e process by which such methodologies ill be documented, who is responsible for eviewing/ approving their use, and how the ethodologies will be checked to ensure ey yield the desired products	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
'echnical Review of the Data Analysis							
)escribes activities that will be used to nsure the data analyses are being nplemented as specified and will support roject objectives	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
xplains procedures for identifying and otifying appropriate personnel if changes) the originally planned procedures are 'arranted, and the process for approving, ocumenting and implementing such hanges	X		X				See above
'inal Verification of Data Analysis and econciliation with User Requirements							
'escribes the process for reviewing the nal work product to ensure that the work as generated in accordance with the 'APP, and that the work product addresses ıe overall project goals and objectives	X		X				See Checklist for WA 1-04, Implementation and Benefits Activit the 316(b) Existing Facilities Rule, Contract EP-C-13-039
'escribes how the results of this assessment ill be documented	X		X				See above
'escribes how any limitations of the data or ata analyses that were used to prepare the nal work product will be documented and ɔmmunicated	X		X				See above

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-04

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	316b Implementation

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW:

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Changing WACOR

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		1,060
This Action:		0
Total:		1,060

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Wendy Hoffman	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-8794 FAX Number: 202-566-1053
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

WORK ASSIGNMENT 3-04

AMENDMENT 1

I. **Title:** Economic Support for the 316b Implementation Work

Contractor: Abt Associates **Contract No.**: EP-C-13-039

II. **Work Assignment Number:** 3-04

III. **Estimated Period of Performance:** Upon issuance to July 31, 2017

IV. **Estimated Level of Effort:** 0 additional hours

V. **Key EPA Personnel:**
Work Assignment Contracting Officer Representative (WACOR):

Wendy Hoffman
U.S. EPA/OW/OST/EAD (4303T)
1200 Pennsylvania Ave., N.W.
Washington, DC 20460
Phone: 202-564-8794
Fax: 202-566-1053
Email: Hoffman.wendy@epa.gov

Alternate Work Assignment Contracting Officer Representative:

James C. Covington, III
U.S. EPA/OW/OST/EAD (4303T)
1200 Pennsylvania Ave., N.W.
Washington, DC 20460
Phone: 202-566-1034
Fax: 202-566-1053
Email: covington.james@epa.gov

VI. Purpose of this Amendment

The purpose of this amendment is to change the WACOR from James C. Covington and making him the Alt and making Wendy Hoffman the WACOR. No other changes are being made to the WA.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-05

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2017
Base Option Period Number 3

Title of Work Assignment/SF Site Name: Steam Econ and Litigation supp

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A-2

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Performance on this Work Assignment shall not begin until August 1, 2016.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		300
Total:		300

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name James Covington	(Signature)	(Date)	Branch/Mail Code:
			Phone Number: 202-566-1034
			FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code:
			Phone Number: 202-566-1044
			FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code:
			Phone Number:
			FAX Number:
Contracting Official Name Tammy Adams	(Signature)	(Date)	Branch/Mail Code:
			Phone Number: 513-487-2030
			FAX Number: 513-487-2545

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-05

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2017
Base Option Period Number 3

Title of Work Assignment/SF Site Name: Steam Econ and Litigation supp

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A-2

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Performance on this Work Assignment shall not begin until August 1, 2016.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		300
Total:		300

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name James Covington	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1034 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: Steam Electric Economic and Litigation Support.

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-05

III. Estimated Period of Performance: August 1, 2016 through July 31, 2017

IV. Estimated Level of Effort: 300

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):
James C. Covington, III
OST/EAD (4303T)
202/566-1034
202/566-1053 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to support the Steam Electric project with litigation and economic support.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan was developed for this work. The QA project plan shall describe the procedures for assuring the quality of the primary and secondary economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under this Contract, EP-C-13-039. The work performed under this work assignment shall not duplicate work conducted under the previous work assignments. **This work assignment is a continuation of the previous WA (2-05).**

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will be accessing and evaluating CBI. As such, the contractor shall adhere to EPA's CBI policy and other procedures as described in the contract clauses (Clauses H.15-H19 and H.21). The contractor must maintain CBI security clearance to use CBI information. The contractor will not disclose any CBI to anyone other than EPA without prior written approval from the EPA WACOR. The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor will manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in our "Office of Science and Technology Confidential Business Information Application Security Plan" (August 2011) or its successor approved plans.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract-Level Contracting Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel:
EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word

or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days after receipt of work assignment signed by the Contracting Officer (CO). The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Deliverables and schedule under Task 1

1a. Workplan within 15 calendar days of receipt of work assignment.

Task 2 - Quality Assurance

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis, and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in **Table 2-1** below.

Table 2-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation

Table 2-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039 This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment may involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). However, EPA has determined that the Contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this work assignment. In support of this work assignment, the Contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when using existing sources of data to perform economic analyses in support of the Steam Electric Industry Guidelines.

- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases—as a well as a rationale for when those databases are appropriate and what data available in each will support the project

- The quality objectives needed to ensure the data will support the project objectives, and

- The Quality Assurance/Quality Control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to

their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable, and this discussion must provide a sufficient level of detail to allow the EAD QA Coordinator (or designee) to determine if the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the WACOR will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's PQAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/ data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and Supplemental (SQAPPs.)) The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractors should indicate which results were obtained using the tools (Standard Operation Procedures', checklists, and guidelines) that the Contractor designates as confidential

so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the Contractors may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, February 2009. If this is required, the EPA WACOR shall notify the Contractor through written technical direction.

2.5 Task 2 QA Deliverables

Deliverable	Projected Schedule Date
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly throughout the WA period of performance

Table 2-2. Justification for Use of Existing PQAPP as the Sole Quality Documentation for Projects that Rely on Existing Data for the Steam Electric Economic and Litigation support.

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
A1. Title & Approval Sheet			
Project title	X		Steam Electric Economic and Litigation support
Organization's name	X		Abt Associates
Effective date and/or version identifier	X		Page ii of PQAPP
Dated signature of Organization's project manager	X		Page ii of PQAPP
Dated signature of Organization's QA manager	X		Page ii of PQAPP
Other signatures, as needed (e.g., EAD Project Officer, EAD QA Coordinator)	X		Page ii of PQAPP
Revision History	X		Page ii of PQAPP
A2. Table of Contents			
Includes sections, figures, tables, references, and appendices	X		Page v of PQAPP
Document control information indicated (when required by the EPA Project Manager and QA Manager)	X		Page v of PQAPP
A3. Distribution List			
Includes all individuals who are to implement or otherwise receive the QAPP and identifies their organization	X		2.1 pages 5-7 of PQAPP
A4. Project/Task Organization			
Identifies key individuals with their responsibilities (e.g., data users, decision makers, project QA manager, Subcontractors, etc.) and contact info.	X		Reference PQAPP section 2.1 on page 5. Referencing table 2.1 and descriptions on page 7 of PQAPPOST WACOR: James C. Covington, III
Organization chart shows lines of authority & reporting responsibilities	X		Reference PQAPP section 2.1 for overall picture
Project QA manager position indicates independence from unit collecting/using data	X		Reference PQAPP section 2.1 for overall picture
A5. Problem Definition/Background			
Clearly states problem to be resolved, decision to be made, or hypothesis to be tested	X		PQAPP Section 2.2 – goal of program is to conduct economic analyses for ELGs See PQAPP table 2-2: cost-benefit and economic impact analysis, industry profiles, collection /preparation of reports, review and analysis of public comments, legislative and litigation support, database development and management,. Also see WA
Identifies project objectives or goals	X		See WA
Historical & background information			
Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives	X		Section 2.2 – goal of program is to conduct economic analyses for ELGs. See table 2-2 for specific analyses
A6. Project/Task Description			
List measurements to be made/data to obtain	X		Section 2.3 PQAPP
Notes special personnel or equipment requirements		x	
Provides work schedule		x	

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
A7. Overall Quality Objectives & Criteria			
States overall quality objectives and limits needed to support the project goals and objectives cited in A5	X		See 2.3 of PQAPP
A8. Special Training Requirements/ Certifications			
Identifies specialized skills, training or certification requirements	X		See 2.5 of PQAPP
Discusses how this training will be provided/the necessary skills will be assured and documented	X		See 2.5 of PQAPP
A9. Project-level Documents & Records			
Describes process for distributing the approved QAPP and other planning documents (and updates) to staff	X		See section 2 of PQAPP
Identifies final work products that will result from the project	X		Section 2.6 of PQAPP
Describes the process for developing, reviewing, approving, and disseminating the final work products and individuals responsible for these processes	X		Appendix A of PQAPP
B1. Data Needs			
Detailed list/description of the specific data elements needed to support project goals	X		See Table 3-1 of PQAPP headings: Company Financial Data,, & Other Industry Data, & valuation and Economic Impact: including specifically:, US Census Bureau, EIA, RMS
Description of the scope of the data elements that you need (e.g., data supporting specific treatment options vs. the full range of options, data supporting the entire country vs. a specific geographic region)	X		See Table 3-1 of PQAPP headings: Company Financial Data,, & Other Industry Data, & valuation and Economic Impact: including specifically:, US Census Bureau, EIA, RMS
If project includes development or update of a project database, QAPP identifies and defines each database field		x	
B2. Potential Data Sources			
Identifies and describes potential sources of the existing data needed (e.g., photographs, topographical maps, facility or state files, census data, meteorological data, publications, etc.) and the rationale for their use	X		See Table 3.1 of PQAPP
If literature searches are used, describes the search engines that will be used and key search terms	X		See Table 3.1 of PQAPP
If databases or models will be used, describe the database (or model) in terms of who developed it and operates it and the type of data it contains	X		See table 3.2 of PQAPP
For other potential sources, describe the potential sources & rationale for considering or using each one		x	

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
B3. Criteria for Selecting Data Sources			
Identifies each criterion that will be used to determine if the candidate data sources listed in B2 will meet your needs, and how each criterion is defined. (Criteria vary by project; examples include reliability, age, applicability, quantity, format, and others)	X		PQAPP 3.1.3 Criteria for Selecting Data Sources
Explains rating system used to evaluate source against each criterion		x	
B4. Data Value Selection Approach			
For data sources that meet the criteria identified in B3: Describes the criteria and procedures that will be used to determine which value(s) identified in the acceptable sources are most appropriate for use in the project	X		Section 3.1.4 of PQAPP
For data that do not meet these pre-established criteria but are the only data available, explains how the decision to use such data will be made and documented		x	
B5. Resolving Data Gaps			
Describes the process for identifying and addressing data gaps that still exist after candidate data sources have been evaluated and appropriate data values have been identified	X		Section 3.1.5 of PQAPP
Describes the process that will be used to address any new data needs revealed during the data gathering process (i.e., additional data elements not previously considered)		x	
B6. Data Gathering Documentation and Records			
Describes how results of the source selection and the data value selection will be documented, including any sources or values that were rejected and the rationale for not using them	X		See Section 3.1.6
For data that are deemed acceptable and that will be used, explains how each data element will be associated to its original source citation (i.e., bibliographic information, telephone contact reports, email messages, etc.)	X		See Section 3.1.6
C1. Standardization of Data Elements			
Describes the process to ensure that units and other key measures are captured and standardized (or otherwise made comparable) in the database	X		See Section 3.2.1

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
If the project requires that all fields be standardized to a single set of units (e.g., US dollars for economic data, µg/L for chemical data), identifies the standard units that will be required for each data element	X		See Section 3.2.1
Identifies the procedures for converting data reported in other units to the standardized units, including any rounding or truncating procedures, and procedures for ensuring these conversions are performed correctly	X		See Section 3.2.1
If standardization of data elements is not needed, explains the process for ensuring that data presented in varying units are comparable enough for use in the project and that project staff members and other data users will be able to readily identify differences in units	X		See Section 3.2.1
C2. Data Entry			
Explains the process for manually entering selected data into the project database, who will be responsible for such data entry, and the QC strategies that will be used to ensure that the database accurately and completely captures the data as presented in the original source	X		See Section 3.2.2
C3. Merging or Uploading Electronic Data from Existing Sources			
If data are available electronically and will be uploaded or merged into the project database: describes the procedures that will be followed to ensure that errors are not introduced during the upload/merge process and that the final database reflects the original dataset(s)	X		See Section 3.2.3
C4. Data Review			
Describes the process for ensuring that the data have been recorded, transmitted, and processed correctly	X		See Section 3.2.4
C5. Data Storage and Manipulation			
Describes how the existing data will be stored	X		See Section 3.2.5
Describes who will be responsible for access to and maintenance of the stored data	X		See Section 3.2.5
Describes how the existing data will be incorporated with other project data to support the project goal/decision to be made	X		See Section 3.2.5

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
Describes the QC strategies that will be employed to ensure that the integrity of the data is not compromised during data storage, access/retrieval, updates, or other manipulation	X		See Section 3.2.5
D1. Data Quality Verification and Data Quality Reporting			
Describes the process for verifying that the final set of data meets the overall criteria originally specified for the project	X		Section 3.3.1
Describes how these determinations will be documented and reported	X		Section 3.3.1
For data that don't meet the pre-established specifications, explains the process for determining if they are usable and how such decisions will be documented	X		Section 3.3.1
D2. Use/Analysis of the Existing Data			
Provides details regarding the exact means in which the data will be used to meet project objectives	X		Section 3.3.2
Includes an explanation or list of the information to be calculated and the data elements that will be used to make those calculations	X		Section 3.3.2
Includes applicable calculations and equations (if known) or explanations of how they will be developed	X		Section 3.3.2
Includes plans for excluding outliers	X		Section 3.3.2
D3. Methodology Documentation and Conceptual Review			
If exact methodologies for analyzing the data will need to be developed or modified during the course of data analysis, explains the process by which such methodologies will be documented, who is responsible for reviewing/ approving their use, and how the methodologies will be checked to ensure they yield the desired products	X		Section 3.2.3
D4. Technical Review of the Data Analysis			
Describes activities that will be used to ensure the data analyses are being implemented as specified and will support project objectives	X		Section 3.3.4
Explains procedures for identifying and notifying appropriate personnel if changes to the originally planned procedures are warranted, and the process for approving, documenting and implementing such changes	X		Section 3.3.4

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
D5. Final Verification of Data Analysis and Reconciliation with User Requirements			
Describes the process for reviewing the final work product to ensure that the work was generated in accordance with the QAPP, and that the work product addresses the overall project goals and objectives	X		Section 3.3.5
Describes how the results of this assessment will be documented	X		Section 3.3.5
Describes how any limitations of the data or data analyses that were used to prepare the final work product will be documented and communicated	X		Section 3.3.5

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan that was developed under the Construction and Development WA 0-01 of the contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point under this WA. The EPA WACOR will review the revised memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare the edited SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use the revised SNCVC.

Deliverables and schedule under Task 3
3a. SNCVC memorandum within 7 calendar days, if requested.
3b. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 – Provide Technical Support for Economic Cost and Impacts-Related Potential Litigation and Post-Promulgation Issues

The contractor shall provide technical support for economics issues, including costs and impacts related to the Economic Analysis, to address economics issues that may arise during potential litigation post-promulgation, as requested by the EPA WACOR. Deliverables may take the form of written responses to questions from the EPA WACOR arising during litigation about the economic benefits work conducted for the rulemaking; the preparation of memos and briefing materials including "one-pager" memos and PowerPoint presentations; additional analyses on topics provided by the EPA WACOR, and other written materials as requested by the EPA WACOR through written technical direction.

The EPA WACOR anticipates that between five and ten requests for support will be made, and that 50 percent of the requests will require quick turn-around. The contractor shall submit draft deliverable materials to the EPA WACOR for review and comment. The contractor shall incorporate the EPA WACOR's comments and produce final versions of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule under Task 4
Task 4 Draft deliverables and due dates To Be Determined (TBD) by written technical direction.
Task 4 Final deliverable due dates TBD by written technical direction.

Task 5 Provide Technical Support for Economic Benefits-related Potential Litigation and Post-Promulgation Issues
The contractor shall provide economics support to address issues related to the economic benefits work, including the stated preference survey, that arise during potential litigation post-promulgation, as requested by the EPA WACOR. Deliverables may take the form of written responses to questions from the EPA WACOR arising during litigation about the economic benefits work conducted for the rulemaking; the preparation of memos and briefing materials including "one-pager" memos and PowerPoint presentations; additional analyses on topics provided by the EPA WACOR, and other written materials as requested by the EPA WACOR through written technical direction.

The EPA WACOR is anticipating that between five and ten requests for support will be made, and that 50 percent of the requests will require quick turn-around. The contractor shall submit draft deliverable materials to the EPA WACOR for review and comment. The contractor shall incorporate the EPA WACOR's comments and produce final versions of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule under Task 5
Task 5 Draft deliverables and due dates TBD initially by written technical direction.
Task 5 Final deliverable due dates TBD initially or written technical direction.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-07

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Enhancements to WMOST

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A2.1,A2.2,A2.3,A3,A6,B1,C1,C7,D1,D2,G

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Performance on this Work Assignment shall not begin until August 1, 2016.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		1,409
Total:		1,409

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Naomi Detenbeck	(Signature)	(Date)	Branch/Mail Code: Phone Number: 401-782-3162 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: ENHANCEMENTS TO THE WATERSHED MANAGEMENT OPTIMIZATION SUPPORT TOOL (WMOST)

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-07

III. Estimated Period of Performance: August 1, 2016 through July 31, 2017

IV. Estimated Level of Effort: 1409

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Naomi Detenbeck
US EPA Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, RI 02882
401/782-3162
401/782-3030 (fax)

Alternate Work Assignment Contracting Officer Representative (Alt WACOR):

Marilyn ten Brink
US EPA Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, RI 02882
401/782-3078
401/782-3030 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to update the EPA-supported Watershed Management Optimization Support Tool (WMOST v. 1, v. 2 and v. 2.1; US EPA 2013a,b; 2015, 2016) for use in Integrated Planning (http://water.epa.gov/infrastructure/greeninfrastructure/upload/memointegratedmunicipalplans.p

df) and Integrated Water Resources Management (IWRM; Zoltay 2007, Zoltay et al. 2010). The WMOST tool currently focuses on water quantity goals: maintaining minimum flows adequate to support aquatic life use, reducing flooding risks and costs, and meeting human water demands (US EPA 2013a, b; 2015, 2016). WMOST is designed to be a user-friendly decision support tool to allow communities to evaluate and optimize the relative costs and benefits of water resource management options, including implementation of green infrastructure stormwater best management practices (BMPs), land conservation, low impact development (LID), water re-use, aquifer storage and recovery, and repair of existing infrastructure to fix infiltration/inflow problems. The tool has been demonstrated with pilot studies (upper Ipswich, Danvers/Middleton, Halifax, Massachusetts (MA)).

WMOST will be modified to add 1) a water quality module to evaluate the effect and cost-effectiveness of watershed management options (including the use of green infrastructure stormwater BMPs) on reduction of nutrient loads and concentrations, 2) a combined sewer overflow (CSO) module to evaluate the effect and cost effectiveness of management options on reduction or elimination of CSOs, and 3) a climate change module to facilitate comparison of optimal solutions across climate change scenarios and to support robust decision-making. The WMOST software is a contract deliverable and is being provided to EPA with "unlimited rights," as that term is defined in FAR 52.227-14(a) (1987). The new modules will be evaluated through application to one or more case studies.

The first goal of this work assignment is to complete a water quality module for inclusion in WMOST version 3. WMOST versions 1 and 2 allowed users to optimize selection of water management options to meet minimum and maximum flow targets in the most cost-effective fashion subject to user-specified constraints. Version 3 of WMOST will be designed to include a water quality module to allow users to manage for water-quality based targets as well as water quantity-based targets. The initial water quality module will focus on management of targets for annual loading of nutrients, suspended sediment, and heavy metals to meet total maximum daily load (TMDL) and permit requirements. Subsequent versions of WMOST will be refined to allow the user to specify water quality targets for finer time steps to support water quality standards. Options will be explored to evaluate options to expand application of the water quality module to other regions of the country. The first option builds off of functionality built into the stormwater BMP module of WMOST version 2 which interacts with the EPA System for Stormwater Treatment and Analysis (SUSTAIN) tool ((http://www2.epa.gov/water-research/system-urban-stormwater-treatment-and-analysis-integration-sustain) to calculate to estimate water balance modifications associated with stormwater BMP practices. EPA Region 1 is currently building an optimization application called "Opti-Tool" which will provide default inputs to the SUSTAIN tool suitable for New England municipalities, including loading time series for land generated using the EPA Stormwater Management Model (SWMM) model and historic climate records for Boston, MA, BMP design specifications, BMP performance metrics, and annual loading coefficients for nitrogen, phosphorus, sediment, and zinc associated with specific land-use classes in New England. Those inputs have been provided for incorporation into WMOST. The first option will be designed so that users can update default New England settings to values appropriate for other EPA Regions, including the use of SUSTAIN- or SWMM-generated hydrograph and pollutographs for developed land. The contractor should

assess whether it would be more efficient to generate a set of regional time series of SUSTAIN- or SWMM-generated hydrographs and pollutographs for the user to apply as default inputs. Options for expanding the water quality module include generation of loading time series for other regions of the country using SWMM with regionally-calibrated build-up/wash-off curves based on information in the National Urban Runoff Program databases (US EPA 2005) and expansion of available BMP parameters calibrated for different regions of the country.

EPA intends to add functionality to WMOST to allow the user to establish targets for minimizing or eliminating sewer overflows using a strategy consistent with the Combined Sewer Overflow (CSO) Green Long-Term Control Plan (LTCP) Template for Small Communities (termed the *Green LTCP-EZ Template*). The Green LTCP-EZ Template is a planning tool for small communities that are required to develop an LTCP to address CSOs. The Green LTCP-EZ Template provides a framework for organizing and completing an LTCP that builds on existing controls, including the use of both green and conventional gray infrastructures to assist in the elimination or control of CSOs in accordance with the federal Clean Water Act (CWA).

In May 2007, U.S. EPA developed a planning tool (LTCP-EZ) for small CSO communities to design long-term CSO control plans using the conventional gray CSO controls. The original LTCP-EZ Template is available at www.epa.gov/npdes/cso. The Green LTCP-EZ Template is an updated version of the original, in that it adds several "green" infrastructure practices such as green roofs, vegetated swales, bioretention basins, pervious pavements, rain barrels, in conjunction with conventional gray CSO control to develop a CSO long-term control plan. The Green LTCP-EZ can be used for communities who want to assess the potential for green infrastructure controls. Schedule 4 – CSO VOLUME provides a process for assessing CSO control needs under the *presumption approach* of the CSO Control Policy. It allows the permittee or other user to estimate a target volume of combined sewage that needs to be stored, treated, or eliminated. Schedules 5A and 5B– CSO RUNOFF, NETWORK AND Wastewater Treatment Plant (WWTP) CONTROLS enable the permittee to evaluate the ability of a number of widely used green infrastructure runoff controls and pipe network CSO controls to meet the reduction target. FORM GREEN LTCP-EZ and its schedules are available in hard copy format or as computer-based spreadsheets.

EPA also plans to add functionality to WMOST to allow users to evaluate the effect of management options under various climate change scenarios to support robust decision-making. Robust decision-making (RDM) "is a new approach that can incorporate uncertain scientific and socioeconomic information into water quality implementation plans. RDM differs from many of the analytic approaches currently used by USEPA in that it employs a "backward" analysis. Rather than beginning with an agreed upon set of assumptions about the future, RDM begins with a proposed plan or plans, uses analytics to stress-test them over many futures, and concisely summarizes the conditions in which each plan will work well or poorly. RDM adopts an "exploratory modeling" approach that uses simulation models not as tools for prediction, but simply as a means to map assumptions onto consequences without necessarily privileging one assumption over another. RDM can significantly enhance the value of simulation models initially

designed for predictive analysis by running them over many plausible paths into the future in order to identify vulnerabilities of proposed strategies and potential robust responses."[1]

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan that will be based on Task 2 QAPP language. The QA project plan shall describe the procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WA 6-32 and 5-32 under the Contract EP-C-07-023, and work assignments 1-07 and 2-07 under the current Contract EP-C-13-039. The work performed under this work assignment will not duplicate work conducted under the previous work assignments.

References cited in Background

Medina, D., E. Monfils, and Z. Baccala, (2011), "Quantifying the Benefits of Green Infrastructure for Floodplain Management," *Proceedings of the EWRI World Environmental and Water Resources Congress*, Palm Springs, California.

U.S. EPA. 2005. The National Stormwater Quality Database, Version 1.1 A Compilation and Analysis of NPDES Stormwater Monitoring Information. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

U.S. EPA. 2013a. Watershed Management Optimization Support Tool (WMOST) v1: Theoretical Documentation. US EPA Office of Research and Development, Washington, DC, EPA/600/R-13/151, 2013.

U.S. EPA. 2013b. Watershed Management Optimization Support Tool (WMOST) v1: User Manual and Case Study Examples. US EPA Office of Research and Development, Washington, DC, EPA/600/R-13/174, 2013.

Zoltay, V.I. 2007. Integrated watershed management modeling: Optimal decision making for natural and human components. M.S. Thesis, Tufts Univ., Medford, MA.

Zoltay, V.I., R.M. Vogel, P.H. Kirshen, and K.S. Westphal. 2010. Integrated watershed management modeling: Generic optimization model applied to the Ipswich River Basin. Journal of Water Resources Planning and Management.

Under the previous work assignment(s), Abt Associates performed the following analyses:

- Development of WMOST v1 with associated theoretical documentation, user guide, and case study reports

1 http://www.rand.org/pubs/research_reports/RR720.html

- Support for WMOST v1 workshop at EPA Region 1 in Chelmsford
- Development of WMOST v2 with associated theoretical documentation, user guide and case study reports
- Development of WMOST v2.1 with associated documentation of corrected program bugs
- Development of training material for workshop held at EPA Region 1 on June 8
- Draft technical memoranda describing approach to new water quality module
- Draft (untested) version of water quality module with associated loadings database for New England
- Draft technical memorandum describing approach to new hydrology pre-processor
- Draft hydrology pre-processor
- Draft climate screening interface tool
- Draft technical memorandum describing approach to new climate change scenario comparison module
- Draft technical memorandum describing approach to expanding access to pre-processed data for hydrology module

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract-Level Contracting Officer Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Workplan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel:
The contractor shall be required to travel under this work assignment for a training workshop and stakeholder meetings in New England. Travel may be to participate with EPA in on site data collection, in meetings with trade associations, and to meet with EPA to discuss methodology and other important issues associated with the project. A request for approval for any travel directly chargeable to this work assignment must be submitted and approved by the CL-COR before travel begins.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcMap, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement (PWS)

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Workplan

The contractor shall prepare a workplan within 15 calendar days of receipt of the WA. The workplan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the workplan. However, only the CO can approve/disapprove, suggest revisions, or change the workplan. Official revisions will be given to the contractor by the Contracting Officer. The contractor shall prepare a revised workplan incorporating the Contracting Officer's comments, if required.
A biweekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables, costs, and other potential issues.

Deliverables and schedule under Task 1

1a. Workplan within 15 calendar days of receipt of work assignment.

Task 2 - Quality Assurance (Contract PWS Section G)

An existing Quality Assurance Project Plan (QAPP), which was developed under WA 1-07 to describe the development of WMOST v.2, shall be updated as needed to cover the updated

activities of the current work assignment. The contractor shall adhere to the QAPP which documents how quality assurance and quality control will be applied to the collection and use of environmental and economic data under this work assignment. The QAPP assures that any results obtained are of the type and quality needed and expected under this work assignment. The QAPP addresses the collection and use of wastewater sampling data, facility questionnaire data, any models to be used, secondary data (including the acceptance criteria), any new database management requirements and any other relevant work that might affect the quality of the data. The QAPP describes the controls to ensure high-quality data entry. The text of the QAPP also explicitly identifies tools that the contractor shall use in the project to document reproducibility and traceability, such as standard operating procedures (SOPs), checklists, and guidelines. Tools should be provided as attachments to the QAPP.

The contractor shall document QA activities in any major deliverable. Work conducted under a QAPP must be included in progress reports at least monthly unless otherwise requested by the EPA WACOR and include QA performed, problems encountered, deviations from the QAPP and corrective actions taken.

The EPA WACOR will review the revised QAPP and then provide the contractor with written notification of approval or edits that need to be made through written technical direction. The contractor shall prepare the edited QAPP incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall adhere to the revised QAPP.

Deliverables and schedule under Task 2

2a. Revised QAPP within 14 calendar days of EPA WACOR technical direction.
2b. If additional edits are required QAPP must be updated within 5 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.
2c. At a minimum report monthly on QA work within the monthly progress report.

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan that was developed under the Construction and Development WA 0-01 of the contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point under this WA. The EPA WACOR will review the revised memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare the edited SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use the revised SNCVC.

Deliverables and schedule under Task 3

3a. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 – Case study application of WMOST v.3 beta (Contract PWS Section B)
The contractor shall apply the WMOST v.3 beta version with water quality and climate change scenario modules to a pilot study involving the communities of Halifax and Brockton in the Taunton River watershed in Massachusetts. The contractor shall interact with the communities identified by US EPA to identify and compile data required for the case study and to identify scenarios of interest to be evaluated for the communities. EPA will set up the scoping and demonstration meetings with communities (see Task 5 below). EPA shall obtain the input and output data files (e.g., unit runoff and infiltration rate time series, baseflow recession coefficient) from the United States Geological Survey (USGS) Hydrologic Simulation Program in Fortran (HSPF) model for the Taunton River for WMOST input. EPA will provide HSPF model files (Barbero and Sorenson 2012) for the portion of the Taunton River watershed of interest based on 1) an historic period of record encompassing wet and dry climate extremes and 2) for future climate scenarios (based on results provided through interagency agreements with USGS), and 3) Soil and Water Assessment Tool (SWAT) input files generated using climate change projections for the adjacent New England Coastal Basins for EPA's Twenty Watershed Study (US EPA 2013). The contractor shall apply the WMOST v.3 beta version with water quality modules to the pilot study involving the communities of Halifax and Brockton in the Taunton River watershed in Massachusetts. The contractor shall interact with the communities to identify and compile additional data requirements needed for the water quality modelling components of WMOST.

Deliverables and schedule under Task 4 (due dates listed or modified by written technical direction).

4a. Draft documentation of additional data sources for Taunton River community pilot case study for WMOST v.3 (water quality components) (August 31, 2016)
4b. If additional edits are required the draft documentation of data sources for Halifax community pilot case study for WMOST v3 will be revised within 7 calendar days of receipt of written comments from the EPA WACOR, at technical direction of EPA WACOR.
4c. WMOST v3 populated with Halifax case study data and results of baseline calibration run with accompanying technical memo describing model inputs, outputs and assumptions (October 31, 2016)
4d. If additional edits are required the WMOST v3 file with Halifax case study data will be revised within 14 calendar days of receipt of written comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 5 – Stakeholder meetings (Contract PWS Sections B, D)

EPA shall be responsible for any preliminary meetings necessary to explain and to establish approaches and water quality targets for the modified case study and to provide updates on development of the water quality module. The contractor shall prepare an oral presentation for

stakeholders presenting the results of applying WMOST v.3 and the associated water quality module to the Monponsett Ponds case study.

Deliverables and schedule under Task 5 (due dates listed or modified by written technical direction).

5a. Participation in discussion of scenarios of interest to WMOST stakeholders in pilot communitie(s).
5b. Draft Powerpoint presentation of WMOST v3 case study results to stakeholders within 7 calendar days of written technical direction of WACOR.
5c. If additional edits are required the draft case study presentation shall be updated within 5 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.
5d. Oral presentation of WMOST v3 case study results to stakeholders within 7 days of written technical direction of WACOR. This deliverable may be delayed based on scheduling of stakeholder meetings beyond the control of the EPA WACOR.

Task 6 – Update of WMOST theoretical documentation and user guide with water quality, climate change, and CSO modules and case study results (Contract PWS Sections A, B, C1)

The final tool formatted for use with MS EXCEL 2013 and 2016 will be provided along with a set of updated instructions on how to apply WMOST v.3. The contractor and EPA agree that the software that is developed under the work assignment (WMOST v.3), including the original software developed by Viktoria Zoltay which is being modified and incorporated into the WMOST versions, is a contract deliverable and is being provided to EPA with "unlimited rights," as that term is defined in FAR 52.227-14(a) (1987). The contractor shall provide updates for both the existing theoretical documentation for WMOST (US EPA 2015a) and the existing user manual (US EPA 2016) and provide copies in both Word and pdf formats as deliverables. The theoretical documentation and user manual shall also be provided with unlimited rights. The contractor shall revise the theoretical documentation and user guide in response to EPA and reviewer comments. In the past, case studies have been published as an appendix to the user guide. For subsequent versions, EPA may publish these as a separate report to avoid delays in release of the user guide.

Deliverables and schedule under Task 6 (due dates listed or modified by written technical direction).

6.a. Draft updated WMOST v.3. documentation (both theoretical documentation and user guide sections) including corrections to version 2 documentation embodied in version 2.1, water quality modules, hydrology pre-processor tool, and climate scenario comparison module (October 31, 2016).
6.b. If additional edits are required the revised WMOST v.3 documentation shall be updated within 14 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR. Initial comments will be provided by the EPA WACOR upon receipt of the draft products and then again after the Office of Research and Development

(ORD) peer review comments have been received.
6.c. Draft updated documentation and user guide for CSO module (November 30, 2016)
6.d. If additional edits are required the revised CSO module documentation shall be updated within 14 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR. Initial comments will be provided by the EPA WACOR upon receipt of the draft products and then again after the ORD peer review comments have been received.

Task 7 -- Addition of simple water quality module to WMOST v.2 (Contract PWS Sections A,B)

The contractor shall explore options for addition of modules to WMOST v.2 to incorporate water quality goals for lakes and streams or rivers. New modules will be tested as part of the Halifax-Brockton pilot study (Task 4 above). Annual or growing season nutrient targets for lakes and ponds will be evaluated based on simple Vollenweider-type loading models, with annual or seasonal loads based on loading coefficients associated with Hydrologic Response Units (HRUs), supplemented by nutrient movements associated with interbasin transfers and estimated reductions in loads associated with stormwater BMPs.

The draft output for Task 7a was completed during Option Period 2. Effect of best management practices on achieving nutrient targets were evaluated through use of loading coefficients, loading time series, build-up/wash-off coefficients, and BMP performance characteristics generated by EPA Region 1 in support of their Opti-Tool application. The Opti-Tool is under development through a contract with TetraTech with support from EPA Region 1 and scheduled to be released in July 2016. The Opti-Tool is an Excel-spreadsheet based tool designed to provide an optimized BMP performance plan for municipal and consulting decision-makers charged with developing sound and affordable stormwater/nutrient management plans. The spreadsheet tool will provide the ability to evaluate options for the best mix of structural and nonstructural BMPs, including low impact development (LID) and green infrastructure (GI) practices in a particular geographic area. Key BMP simulation and optimization routines are being incorporated from EPA's System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN) model (http://www.epa.gov/water-research/system-urban-stormwater-treatment-and-analysis-integration-sustain/) into a user-friendly spreadsheet tool format. The tool will incorporate existing data and stormwater BMP performance curves for total phosphorus, total nitrogen, total suspended solids, and zinc from EPA Region 1. The Opti-Tool will provide time series of flow and concentration that will be compatible with EPA Region 1's current estimates of total phosphorus (TP) and total nitrogen (TN) annual export loads and event-mean concentrations for the pollutants and region of interest from the National Urban Runoff database.

Task 7a. Water quality module development and mass balance quality assurance/quality control (QA/QC)

The contractor shall create a water quality module for WMOST which allows users to establish management targets for either annual loads or concentrations of pollutants. The initial focus will

be on annual loading targets. The first option to be developed builds off of functionality built into the stormwater BMP module of WMOST version 2 which interacts with the EPA SUSTAIN tool to estimate water balance modifications associated with stormwater BMP practices. EPA Region 1 has supported development of an application called "Opti-Tool" which provides the following default inputs to SUSTAIN suitable for New England municipalities: 1) loading time series for developed land generated using the EPA Stormwater Management Model (SWMM) model and historic climate records for Boston, MA, 2) BMP design specifications, 3) BMP performance metrics, and 4) annual loading coefficients for nitrogen, phosphorus, sediment, and zinc associated with specific land-use classes in New England. EPA has made those inputs available for incorporation into WMOST. The first option shall be designed so that users can update default New England settings to values appropriate for other EPA Regions.

The contractor shall design and change the WMOST Excel interface and Visual Basic for Applications (VBA) coding to incorporate loading data, and code equations describing new optimization set-up for water quality. The contractor shall perform a mass balance quality assurance based on both flows and loadings to test recoding for the new nonlinear solver.

Task 7b. Development of a loadings data base for New England (completed during Option Period 2)

Task 7c. Options to expand the geographic extent of application of the water quality module beyond New England

The contractor shall evaluate options to facilitate the application of the water quality module to other regions beyond New England. One option is to develop regionally-calibrated build-up/washoff coefficients to be used in conjunction with SUSTAIN or SWMM simulations to generate water quality loading time series (Butcher 2003). A second option is to develop additional loading databases, e.g., for the Chesapeake Bay watershed based on the Chesapeake Bay HSPF model. A third option is to expand the library of BMPs and regional BMP performance parameters available to use with SUSTAIN/SWMM algorithms. The contractor shall design the module to allow the user to import alternate loading datasets. Enhancements to the initial water quality module should be coordinated with needs identified for WMOST case studies (Tasks 4 and 12).

Deliverables and schedule under Task 7 (due dates listed or modified by written technical direction).

7a. Technical memo reporting results of QA Mass Balance testing for water quality module (September 30, 2016)

7b. If additional edits are required the revised WMOST v.3 tool shall be updated within 14 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR. Initial edit requests will be based on EPA WACOR review but additional edits may be required based on peer review process of next release of WMOST v. 3.

7c. Draft technical memo with approaches for enhancing water quality module – including additional loading databases, additional SUSTAIN/SWMM simulation runs with regionally calibrated build-up/wash-off coefficients, and additional regional BMP parameter sets for SWMM simulations (September 30, 2016)

7d. Revised technical memo with approach for enhancing water quality module for expanded geographic application (Within 2 weeks of receipt of comments by EPA WACOR).

7e. Draft enhanced water quality module incorporating EPA-approved approaches (within one month of receiving written technical direction of EPA WACOR)

7f. Final enhanced water quality module incorporating EPA-approved approaches (within two weeks of receiving feedback from EPA WACOR)

<u>References included under Task 7</u>

Butcher, J.B., 2003. Buildup, Washoff, and Event Mean Concentrations. Journal of the American Water Resources Association (JAWRA) 39(6):1521-1528.

Moore, R B., C M. Johnston, R A. Smith, and B Milstead, 2011. Source and Delivery of Nutrients to Receiving Waters in the Northeastern and Mid-Atlantic Regions of the United States. Journal of the American Water Resources Association (JAWRA) 47(5):965-990.

US EPA 1997 Compendium of Tools for Watershed Assessment and TMDL Development. US EPA Office of Water, Washington, DC. EPA841-B-97-006.

U.S. EPA. 2005. The National Stormwater Quality Database, Version 1.1 A Compilation and Analysis of NPDES Stormwater Monitoring Information. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

Task 8 – Enhancement of automated hydrologic time series capability in WMOST v.2 and development of climate screening interface for use with WMOST v.2 (due dates listed or modified by written technical direction). (Contract PWS Sections A, B)

Building on the work performed under Task 4 of WA 2-07, the contractor shall create a pre-processor to facilitate efficient addition of hydrologic model outputs into WMOST. Under this WA, work shall focus on the ability to import model results from HSPF and from SWAT, the two watershed modeling systems used in EPA's 20 Watershed project.[2] The contractor shall design and implement a pre-processor that reads output files generated at a daily or hourly time step from SWAT and/or HSPF and makes the necessary data conversions to produce a WMOST hydrology data set. It is possible that some users will have access to model outputs generated at a daily time step but will wish to use the stormwater hydrology module within WMOST, for which hourly time steps are most appropriate. The pre-processor shall include options to disaggregate model output at a daily time step to time series at an hourly time step resolution. Model output

2 http://cfpub.epa.gov/ncea/global/recordisplay.cfm?deid=256912

from two specific SWAT and HSPF models drawn from the larger 20 Watersheds collection of models – the New England SWAT model and the Susquehanna HSPF model – shall be added to the WMOST data library using the preprocessors developed under this task, including baseline runs and two climate change scenarios for each model. (Land-use scenarios will not be included at this stage.) EPA will provide input on which two climate change scenarios to include for each model.

The existing Watershed Data Management (WDM) files generated for the 20 Watersheds Study did not include all of the data required for WMOST hydrology databases, i.e., time series were not saved for individual Hydrologic Response Units (HRUs) and time series were saved as daily rather than hourly resolution. To enable incorporation of hourly time series by HRU, the contractor shall rerun the existing New England SWAT and Susquehanna HSPF models (based on existing calibrations) configured to allow the HRU-specific time series to be saved at an hourly time step. To facilitate future use of model output in the WMOST water quality module under development, the contractor shall also save loading time series for nitrogen, phosphorus, and total suspended solids. EPA will provide all model input data files required. To accommodate space constraints in EPA's Science Inventory (in which WMOST products are released to the public), EPA will also develop an alternative strategy for providing pre-processed model output files to prospective users using EPA's existing Estuary Data Mapper (EDM) application (www2.epa.gov/edm) for environmental data retrieval over the internet. EDM provides a virtual portal for downloading time series as shapefiles (with accompanying tab-delimited text file) based on a user-specified query based on location and time interval of interest. EDM can also be used to generate a Representational State Transfer (REST) url that will retrieve the equivalent dataset without using the visual interface.

Only HSPF model outputs have been incorporated into the WMOST data library to date. Typically HSPF models are based on 10-20 HRUs within a given subbasin based on unique combinations of land-use and soils. In contrast, SWAT models are typically calibrated with more finely defined HRUs (e.g., land-use, soils, and slope) so a given model may have hundreds or thousands of HRUs defined. The large number of unique HRUs in SWAT models will be unmanageable. In consultation with the WACOR, the contractor shall propose an approach for reducing the number of SWAT HRUs to a manageable set (e.g., a number of HRUs comparable to the number of HRUs in an HSPF model). For example, this could include aggregating HRUs to comparable combinations of land-use and soils. The ability to aggregate model outputs across HRUs shall also be included as an option in the pre-processor.

In the future, EPA intends to include additional output from the full collection of HSPF and SWAT results from ORD's 20 Watersheds project, with an exploration of the feasibility of incorporating other similar output data from studies carried out by USGS, the Bureau of Reclamation, and others as a follow-on step. Overall, building this capability will allow WMOST to leverage the growing archive watershed of climate impacts assessments, performed using the leading hydrology models, and developed for other purposes, for decision analytic applications requiring consideration of a wide range of climate scenarios (e.g., Robust Decision Making-style analyses[3]).

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3 http://www.rand.org/pubs/research_reports/RR720.html

In addition, the contractor shall develop, in close consultation with ORD technical experts, a preliminary, experimental version of a 'climate screening interface' for WMOST that would facilitate the production of a series of WMOST runs that span a range of climate futures. This interface would allow the user to specify a sequence of runs that would create a range of WMOST outputs corresponding to different climate/hydrology futures, driven by the kinds of archived hydrologic model results described above. Another key aspect of this capability would be to facilitate display of results from said sequence of runs in a way that would allow the user to develop insight into climate impacts on their system of interest, e.g., the impacts of climate change on the performance of a specific BMP under multiple scenarios of future climate change. This functionality would entail running multiple climate scenarios from either the WMOST dataset or user-supplied datasets of runoff, recharge, precipitation, and temperature time series with a fixed set of management options rather than optimizing management solutions for each climate scenario. The fixed set of management options would be specified by the user either based on the user's preference or based on an initial optimization run for baseline conditions.

Finally, the contractor shall apply the enhanced hydrologic model inputs and climate screening capabilities, driven by HSPF/SWAT outputs from the 20 Watersheds project, in one or more case studies for which WMOST simulations are already planned (e.g., as per Task 4 above). The purpose of this case study work would be to demonstrate the applicability of the enhanced WMOST model for 'stress testing' specific BMPs across a range of plausible future climate conditions.

Deliverables and schedule under Task 8 (due dates listed or modified by written technical direction).

The following deliverables are anticipated for Option Period 3 of this work assignment:
8a. Draft updated WMOST v.2.2 tool with enhanced hydrology module capabilities including HSPF and SWAT model preprocessors (August 31, 2016).
8b. WMOST v2.2 tool with climate screening interface revised in response to EPA internal review comments (August 31, 2016)
8c. Case study application WMOST files with results (September 30, 2016)
8d. Revised case study application files in response to EPA internal review comments (October 31, 2016)

Task 9 Test compatibility of WMOST with MS Office Excel 2016 and update as needed

The contractor shall test compatibility of WMOST v3 modules and subsequent versions for compatibility with MS Office Excel 2016 (pending US EPA planned upgrades in October 2016 and technical direction from the WACOR) using case study data from previous analyses performed with MS Excel 2013. Errors, resolution of errors related to code changes in Excel Visual Basic, and effects on backward compatibility (to Excel 2013) shall be reported to EPA. WMOST v3 and associated case study files shall be updated to be compatible with MS Excel 2016.

Deliverables and schedule under Task 9 (due dates listed or modified by written technical direction).

9a. Memo documenting compatibility testing of WMOST v 2.2 and v3 with MS Excel 2016 (Coincident with delivery of WMOST v3).

Task 10. Data Library Enhancements to Hydrology and Flood Module (Contract PWS Sections A,B)

Functionality of the existing Hydrology module will be extended to allow incorporation of Hydrological Simulation Program (HSPF) and (possibly) Soil and Water Assessment Tool (SWAT) model outputs to be made available for download through US EPA's Estuary Data Mapper application (www2.epa.gov/edm). These will include current and historic runoff and recharge time series for New England HSPF models already in the WMOST v2 Supplemental Files, current and historic runoff and recharge time series from two additional New England HSPF models: Charles River watershed and Farmington sub-basin from the CT Watershed Model, 2-4 future climate scenario time series for each of the New England HSPF models (to be developed through an interagency agreement with USGS), and current/historic model outputs from the USGS/EPA Chesapeake Bay Watershed Model 6.1 (beta). Options for including ancillary hydrology model data needed as WMOST inputs shall be assessed: Groundwater recession coefficients (Interflow Recession Parameter (IRC) and Active Groundwater Recession Constant (AGWRC)), Infiltration Parameter (INFILT), Interflow (INTFW), and Effective Impervious Area, normally available from the HSPF model User Control Input (UCI) files. In addition, best options for making geospatial information for HRU distributions available for use in WMOST will be assessed. For example, ancillary hydrology model parameters and HRU distributions could either be made available through EPA's EDM application for download or included as Supplemental Files packaged with WMOST. Currently, downloads of shapefiles by the user using EDM include an associated tab-delimited ASCII file with attributes (e.g., time series). Finally, options for delivering and importing pre-processed flooding risk curve tables should be assessed.

Deliverables and schedule under Task 10 (due dates listed or modified by written technical direction).

10a. Modified hydrology module to allow import of hydrology time series files downloaded via EPA Estuary Data Mapper application (September 30, 2016)
10b. Modified flooding module to allow import of pre-processed flooding cost curves (September 30, 2016)

Task 11. WMOST workshop (Contract PWS Section D)

Training materials for WMOST v2 were produced and presented at a one-day workshop which was held at US EPA Region 1 in Boston, with a concurrent session at University of Rhode Island – Kingston on June 8, 2016. The lectures associated with this workshop are being recorded by EPA for future dissemination and use. Transcripts of the videos from the workshop shall be produced using automated software and subsequently edited for accuracy. Final scripts will be

provided in .srt format so that videos can be posted on EPA's YouTube account for access by EPA web sites.

EPA has received approval for a proposal to present workshop materials (or a reduced subset) at a pre-conference workshop at the International Low Impact Development Conference (August 29-31, 2016) in Portland, Maine. This event is contingent on sufficient registration by participants. Because the workshop registrations and room arrangements will be handled by the conference organizers we do not anticipate additional preparation for this workshop by the contractor.

EPA currently requires the completion of EPA Form 5170 with signed approvals for EPA-sponsored conferences for which combined EPA expenses on conference support and associated travel will exceed $20,000. Given the location of this workshop, EPA does not anticipate that the $20K threshold will be exceeded for the August training workshop, however, if the contactor determines that the cost will exceed the $20,000 it shall stop work until it receives approval from the EPA CO.

Deliverables and schedule under Task 11 (due dates listed or modified by written technical direction).

11a. Automated creation of transcript from recorded videos from WMOST training workshop held on July 8 with subsequent manual edits and conversion to .srt caption file (September 30, 2016)
11b. WMOST training workshop presentation at International Low Impact Development Conference in Portland, ME (August 29, 2016)

Task 12. Sewer Overflow Module (Contract PWS Sections A, B)

The goal of this task is to create a new Combined Sewer Overflow (CSO) Reduction module for WMOST designed to be compatible with EPA's LTCP-EZ[4] template calculations. The Green LTCP-EZ Template consists of FORM GREEN LTCP-EZ and related schedules and instructions. It provides a starting place and a framework for small communities to organize and analyze basic information that is central to effective CSO control planning. Schedule 4 – CSO VOLUME provides a process for assessing CSO control needs under the *presumption approach* of the CSO Control Policy. It allows the permittee or other user (the term *permittee* will be used throughout this document, but the term should be interpreted to include any users of the Green LTCP-EZ Template) to estimate a target volume of combined sewage that needs to be stored, treated, or eliminated. Schedules 5A and 5B– CSO RUNOFF, NETWORK AND WWTP CONTROLS enable the permittee to evaluate the ability of a number of widely used green infrastructure runoff controls and pipe network CSO controls to meet the reduction target. FORM GREEN LTCP-EZ and its schedules are available in hard copy format or as computer-based spreadsheets. The contractor shall produce a module which either directly imports information from the applicable portions of the FORM GREEN LTCP-EZ schedules or which reproduces the calculations used to establish CSO control needs under the presumption approach of the CSO control policy, the

4 http://www.epa.gov/green-infrastructure/epas-green-long-term-control-ez-template

estimation of a target volume of combined sewage that needs to be stored, treated, or eliminated, and the ability of a number of widely used green infrastructure runoff controls and pipe network CSO controls to meet the reduction target. The contractor shall add these CSO control options to the suite of available management options in WMOST and shall add the capability of including CSO reduction targets as a constraint in WMOST.

Deliverables and schedule under Task 12 (due dates listed or modified by written technical direction)

12a. Technical memo outlining approach for CSO module (August 31, 2016)

12b. Revised technical memo outlining approach for CSO module (Within 2 weeks following receipt of EPA comments from EPA WACOR)

12c. Draft CSO module (October 31, 2016)

12d. Revised CSO module (Within 2 weeks following receipt of EPA comments from EPA WACOR)

Task 13. Additional WMOST Case Studies (Contract PWS Sections B, D)

The contractor shall provide up to 367 hours of technical support for additional WMOST case studies which may include a combination of water quantity- and water quality related goalsSupport shall include providing overviews of WMOST functionality to stakeholders, assisting stakeholders with problem formulation, evaluating sources of input data for WMOST case studies, potential modifications to existing WMOST modules to facilitate use of regional datasets (e.g., BMP parameters for California), assistance in setting up WMOST optimization runs, and interpretation of results. Based on initial discussions with stakeholders, EPA anticipates that one or more case studies will be identified from the following or other sources:

1) Chesapeake Bay community – Maryland Department of Environment (MDE) is interested in evaluating the utility and compatibility of WMOST to support the Phase II Watershed Implementation Plans which in turn support the Chesapeake Bay Total Maximum Daily Load (TMDL) process. MDE is working on identifying a suitable community to serve as a case study. Chesapeake Bay Program Office has provided hydrology time series data from the Chesapeake Bay Watershed Model v. 6 to serve as inputs to WMOST version 2.

2) Campus-Community Partnerships – EPA has had preliminary discussions with representatives of California academic institutions interested in applying EPA tools as part of the Campus-Community Partnerships for Sustainability Program. California State University at Fullerton has expressed interest in applying WMOST in development of their stormwater management plan. This work could be coordinated with the LID Sizing Tool for California's Phase II permit (http://www.owp.csus.edu/research/software-tools.php). Developers of the LID Sizing Tool for California have created a series of input parameters for SWMM suitable for describing performance of stormwater BMPs across the state of

California.

3) Region 7 Communities – Region 7 has expressed interest in exploring the application of WMOST to promote community resilience in the face of drought.

4) Making a Visible Difference (MVD) Communities – EPA-Office of Research and Development has discussed the possibility of providing support to one of the MVD communities identified by the EPA Regions for targeted support. In particular, EPA Region 3 has 5 MVD communities with an interest in green infrastructure solutions: Dover, DE, Huntington, WV, Newport News, VA, Norfolk, VA, Reading, PA and EPA Region 6 has one MVD community, Brownsville, TX, which has expressed interest.

5) Expansion of WMOST application to entire Taunton River watershed (moving from headwater basins downstream) through collaboration with Southern New England Coastal Watershed Restoration (SNECWR) grantees

Deliverables and schedule under Task 13 (due dates listed or modified by written technical direction)

13a. Provide overviews of WMOST functionality to stakeholders (within 2 weeks following technical direction by EPA WACOR)

13b. Participate in conference calls or AdobeConnect webinars set up by EPA with stakeholders to discuss problem formulation process for setting up WMOST case studies (within 2 weeks following technical direction by EPA WACOR)

13c. Provide assistance and guidance to stakeholders in setting up case studies with WMOST v2 and/or WMOST v3 beta during EPA-scheduled conference calls (to be determined (TBD) based on technical direction from EPA WACOR)

13d. Provide assistance with WMOST optimization runs for case studies (TBD based on technical direction from EPA WACOR)

13e. Provide assistance with interpretation of WMOST output for case studies in the form of technical memo (TBD based on technical direction from EPA WACOR)

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-07

☐ Other ☒ Amendment Number: 000001

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2017
Base Option Period Number 3

Title of Work Assignment/SF Site Name: Enhancements to WMOST

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: PWS sections A2.1,A2.2,A2.3,A3,A6,B1,C1,C7,D1,D2,G

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 10/05/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		1,409
This Action:		823
Total:		2,232

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Naomi Detenbeck	(Signature)	(Date)	Branch/Mail Code:
			Phone Number: 401-782-3162
			FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code:
			Phone Number: 202-566-1044
			FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code:
			Phone Number:
			FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code:
			Phone Number: 513-487-2030
			FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: ENHANCEMENTS TO THE WATERSHED MANAGEMENT OPTIMIZATION SUPPORT TOOL (WMOST)

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-07 Amendment 1

III. Estimated Period of Performance: Date of issuance through July 31, 2017

IV. Estimated Level of Effort: 823

V. Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):

Naomi Detenbeck
US EPA Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, RI 02882
401/782-3162
401/782-3030 (fax)

Alternate Work Assignment Contracting Officer's Representative (Alt WACOR):

Marilyn ten Brink
US EPA Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, RI 02882
401/782-3078
401/782-3030 (fax)

This amendment increases the level of technical support on Task 13. Task 13 has been revised as follows.

Please provide a revised cost estimate within 15 calendar days of receipt of the work assignment (WA) Amendment 1. A work plan is not required.

Task 13. Additional WMOST Case Studies – updated (Contract PWS Sections B, D)

This amendment increases the level of technical support for case studies by 823 hours from the original level of 367 hours. The contractor shall provide up to 1190 hours of technical support for additional WMOST case studies which may include a combination of water quantity- and water quality related goals. Support shall include providing overviews of WMOST functionality to stakeholders, assisting stakeholders with problem formulation, evaluating sources of input data for

WMOST case studies, potential modifications to existing WMOST modules to facilitate use of regional datasets (e.g., addition of new BMPs to stormwater BMP module), assistance in setting up WMOST optimization runs, and interpretation of results. Based on initial discussions with stakeholders, EPA anticipates that one or more case studies will be identified from the following or other sources:

1) Community in Mystic River, CT watershed or associated with Pioneer Valley Planning Commission region in Massachusetts – This case study will provide an opportunity to test the new CSO module. Work will be coordinated with ongoing work in these communities on collaborative learning, regional planning and training.

2) Chesapeake Bay community – Maryland Department of Environment (MDE) is interested in evaluating the utility and compatibility of WMOST to support the Phase II Watershed Implementation Plans which in turn support the Chesapeake Bay Total Maximum Daily Load (TMDL) process. MDE is working on identifying a suitable community to serve as a case study. Chesapeake Bay Program Office has provided hydrology time series data from the Chesapeake Bay Watershed Model v. 6 to serve as inputs to WMOST version 2.

3) Region 7 Communities – Region 7 has expressed interest in exploring the application of WMOST to promote community resilience in the face of drought and to evaluate the cost-effectiveness of BMPs in a mixed land-use subwatershed of the Middle Kansas River under varying climate conditions.

4) Making a Visible Difference (MVD) Communities – EPA-Office of Research and Development has discussed the possibility of providing support to one of the MVD communities identified by the EPA Regions for targeted support. In particular, EPA Region 3 has 5 MVD communities with an interest in green infrastructure solutions: Dover, DE, Huntington, WV, Newport News, VA, Norfolk, VA, Reading, PA and EPA Region 6 has one MVD community, Brownsville, TX, which has expressed interest.

5) Expansion of WMOST application to three HUC12s in the Taunton River watershed (moving from headwater basins downstream) through collaboration with Southern New England Coastal Watershed Restoration (SNECWR) grantees.

Deliverables and schedule under Task 13 (due dates listed or modified by written technical direction)

13a. Provide overviews of WMOST functionality to stakeholders (within 2 weeks following technical direction by EPA WACOR)

13b. Participate in conference calls or AdobeConnect webinars set up by EPA with stakeholders to discuss problem formulation process for setting up WMOST case studies (within 2 weeks following technical direction by EPA WACOR)

13c. Provide assistance and guidance to stakeholders in setting up case studies with

WMOST v2 and/or WMOST v3 beta during EPA-scheduled conference calls (to be determined (TBD) based on technical direction from EPA WACOR)

13d. Provide assistance with WMOST optimization runs for case studies (TBD based on technical direction from EPA WACOR)

13e. Provide assistance with interpretation of WMOST output for case studies in the form of technical memo (TBD based on technical direction from EPA WACOR)

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-07

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Enhancements to WMOST

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	Sections A2.1,A2.2,A2.3,A3,A6,B1,C1,C7,D1,D2,G

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 12/08/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		2,232
This Action:		1,351
Total:		3,583

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Naomi Detenbeck	(Signature)	(Date)	Branch/Mail Code: Phone Number: 401-782-3162 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: ENHANCEMENTS TO THE WATERSHED MANAGEMENT OPTIMIZATION SUPPORT TOOL (WMOST)

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-07 Amendment 2

III. Estimated Period of Performance: From date of issuance through July 31, 2017

IV. Estimated Level of Effort: 1351 additional hours (320 of these are no-cost)

V. Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):

Naomi Detenbeck
US EPA Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, RI 02882
401/782-3162
401/782-3030 (fax)

Alternate Work Assignment Contracting Officer's Representative (Alt WACOR):

Marilyn ten Brink
US EPA Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, RI 02882
401/782-3078
401/782-3030 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to update the EPA-supported Watershed Management Optimization Support Tool (WMOST v. 1, v. 2, v. 2.1 and v. 3; US EPA 2013a,b; 2015, 2016) for use in Integrated Planning (http://water.epa.gov/infrastructure/greeninfrastructure/upload/memointegratedmunicipalplans.p

df) and Integrated Water Resources Management (IWRM; Zoltay 2007, Zoltay et al. 2010).

The purpose of this amendment is to add resources to existing task 8 (climate tools) and task 13 (case studies).

Under Tasks 8 and 13, EPA plans to add functionality to WMOST to allow users to evaluate the effect of management options under various climate change scenarios to support robust decision-making. The WMOST software is a contract deliverable and is being provided to EPA with "unlimited rights," as that term is defined in FAR 52.227-14(a) (1987). Under a robust decision-making (RDM) approach, the outcome of a prescribed management strategy can be "stress-tested" against various climate change scenarios to determine under what potential future climates it will fail. The prescribed management strategy could be a predetermined choice such as a Watershed Implementation Plan to meet Total Maximum Daily Load (TMDL) requirements, or it could be an optimal suite of management options determined by a tool such as WMOST to meet management targets and constraints at least cost under the current climate regime. The following sequence of operations is envisioned in a standardized RDM protocol:

Determine optimum least-cost management solution to meet management targets and constraints given current climate or Identify pre-determined management solution for RDM testing

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Identify range of climate change scenarios for testing

a) Choose delta (Δ) Temperature (Temp) and Δ Precipitation (Prec) values based on biplot of predicted Δ Temp vs. Δ Prec from Coupled Model Intercomparison Project Phase 5 (CMIP5) climate change model runs for selected emission scenario including average or median and points along bounding envelope
b) Subsample space inside bounding envelope of biplot of Δ Temp x Δ Prec to generate a set of delta values to use to modify existing precipitation and temperature time series

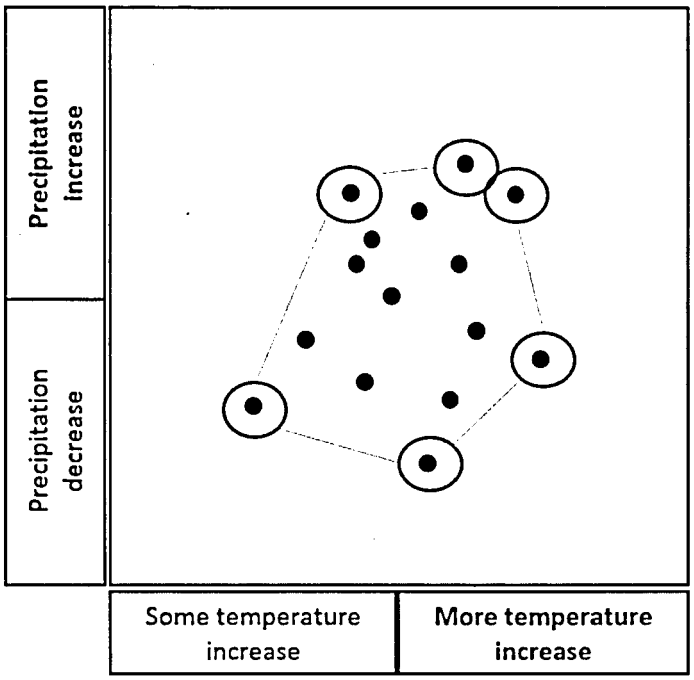

Figure 1. A theoretical scatterplot showing a range of projections for precipitation and temperature. Black dots are individual climate change projections. The outermost projections are circled in green, and make up a boundary encapsulating the entire range of the ensemble. This can be a quick and useful method for making robust selections of ensemble members.

Generate multiple input time series (unit runoff and recharge, loads) based on climate change scenarios

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Run multiple simulations in WMOST with fixed management regime using generated input time series

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Identify combinations of Δ Temp x Δ Prec at which prescribed management regime does not meet specified targets/constraints at which prescribed management regime does not meet specified targets/constraints. End of stress-testing phase.

Generate new strategies that might perform better under climate futures: Run WMOST in optimization mode at minimum Δ Temp x Δ Prec points at which prescribed initial solution failed

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Identify differences in initial prescribed management option and new solutions at failure points to define management option gradients

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Sensitivity analysis: Run WMOST in simulation mode along combined gradient of management options and climate change scenarios (from initial point to failure points) to determine most robust solution

A number of additional functions are required to facilitate routine application of the RDM protocol using WMOST:

1) Running batch simulations of Storm Water Management Model (SWMM) to generate multiple input time series for WMOST (If water quality loads are available from prior Hydrological Simulation Program – Fortran (HSPF) or Soil and Water Assessment Tool (SWAT) models, proceed with item 2.)
2) Running batch simulations of a chosen WMOST management scenario with multiple time series inputs representing different climate regimes
3) Sensitivity analysis of WMOST solutions to varying management inputs along climate gradients

In addition, the RDM process using these functions needs to be tested using existing case studies.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan (QAPP) that will be based on Task 2 QAPP language. The QAPP shall describe the procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WA 6-32 and 5-32 under the Contract EP-C-07-023, and work assignments 1-07 and 2-07 under the current Contract EP-C-13-039. The work performed under this work assignment will not duplicate work conducted under the previous work assignments.

References cited in Background

U.S. EPA. 2013a. Watershed Management Optimization Support Tool (WMOST) v1: Theoretical Documentation. US EPA Office of Research and Development, Washington, DC, EPA/600/R-13/151, 2013.

U.S. EPA. 2013b. Watershed Management Optimization Support Tool (WMOST) v1: User Manual and Case Study Examples. US EPA Office of Research and Development, Washington, DC, EPA/600/R-13/174, 2013.

U.S. EPA. 2015. Watershed Management Optimization Support Tool (WMOST) v2: Theoretical Documentation. US EPA Office of Research and Development, Washington, DC, EPA/600/R-15/058.

U.S. EPA. 2016. Watershed Management Optimization Support Tool (WMOST) v2: User Manual and Case Study Examples. US EPA Office of Research and Development, Washington, DC, EPA/600/R-15/059.

Zoltay, V.I. 2007. Integrated watershed management modeling: Optimal decision making for

natural and human components. M.S. Thesis, Tufts Univ., Medford, MA.

Zoltay, V.I., R.M. Vogel, P.H. Kirshen, and K.S. Westphal. 2010. Integrated watershed management modeling: Generic optimization model applied to the Ipswich River Basin. Journal of Water Resources Planning and Management.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the WA. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the Contracting Officer (CO) will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the Contracting Officer's comments, if required.

A biweekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables, costs, and other potential issues.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.

Task 8 – Enhancement of automated hydrologic time series capability in WMOST v.2 and development of climate screening interface for use with WMOST v.2 (due dates listed or modified by written technical direction). (Contract PWS Sections A, B)

This task is being amended to add additional items:

The contractor shall develop a tool to run batch simulations of SWMM to generate multiple input time series for WMOST, including recharge, runoff, and water quality loads (nitrogen, phosphorus, suspended solids, zinc). The contractor and EPA agree that the software that is developed under the work assignment (WMOST v.1-3 and associated tools), including the original software developed by Viktoria Zoltay which is being modified and incorporated into the WMOST versions, is a contract deliverable and is being provided to EPA with "unlimited rights," as that term is defined in FAR 52.227-14(a) (1987).

Additional deliverables and schedule under Task 8 (due dates listed or modified by written technical direction)

8e. Draft technical memo on approach for automating time series tool in batch mode – 5 working days after work plan approval

8f. Final technical memo on approach for automating time series tool in batch mode – 5 working days after receipt of comments by EPA regarding draft memo

8g. Add capability to run previously developed automated time series tool in batch mode – 45 days after EPA approval of final technical memo
8h. Draft Technical memo describing approach for tool to run batch simulations of SWMM – December 29, 2016
8i. Final Technical memo describing approach for tool to run batch simulations of SWMM – 5 working days after receipt of EPA comments
8j. Draft module/tool to run batch simulations of SWMM with documentation – February 15, 2017
8k. Final module/tool to run batch simulations of SWMM with documentation including documented original code– February 28, 2017

Task 13. Additional WMOST Case Studies – updated (Contract PWS Sections B, D)

The original task is being revised to add no-cost hours for the case studies. In addition, new tasks have been added beyond what was in Amendment 1.

This amendment increases the level of technical support for case studies by 733 cost hours plus 320 no-cost hours (total of 1053 hours) from the previous level of 1190 hours. The additional no-cost hours are based on a re-assessment of the types of effort required for processing data and implementing model changes for the original case studies. The previous work required relatively greater involvement of mid-level staff and programmers to complete tasks cost-effectively as compared to original budget assumptions.

The contractor shall add functionality to WMOST to support an RDM case study, including:
1) Enabling batch simulation runs with multiple time series inputs, and
2) Enabling batch simulation runs to perform sensitivity analyses.

The contractor and EPA agree that the software that is developed under the work assignment (WMOST v.1-3), including the original software developed by Viktoria Zoltay which is being modified and incorporated into the WMOST versions, is a contract deliverable and is being provided to EPA with "unlimited rights," as that term is defined in FAR 52.227-14(a) (1987). Finally, the contractor shall provide up to 200 hours of technical support to demonstrate climate change modules described under Task 8 and above using one or more of the existing Taunton River watershed case studies (Monponsett Ponds, Wading River/ThreeMile River/Mill River) or one of the impoundments in the Patuxent River watershed that has a phosphorus TMDL (e.g., Rocky Gorge Reservoir, Triadelphia Reservoir).

Additional deliverables and schedule under Task 13 (due dates listed or modified by written technical direction)

13f. Draft Technical memo addressing approach for batch simulation runs (items 1 and 2 above) – 10 working days after technical direction of WACOR

13g. Final Technical memo addressing approach for batch simulation runs – 5 working days after receipt of EPA comments

13h. Draft module/tool to enable batch simulation runs with multiple time series inputs with documentation– 20 working days after final technical memo approval

13i. Final module/tool to enable batch simulation runs with multiple time series inputs with documentation including documented code – 10 working days after receipt of EPA comments

13j. Draft Technical memo addressing approach for sensitivity analysis tool – 10 working days after technical direction of WACOR

13k. Final Technical memo addressing approach for sensitivity analysis tool – 5 working days after receipt of EPA comments

13l. Draft module/tool to perform sensitivity analyses with documentation– 20 working days after final technical memo approval

13m. Final module/tool to perform sensitivity analyses with documentation including documented code – 10 working days after receipt of EPA comments

13n. Draft technical report section describing demonstration of RDM tools to one or more of the case studies listed above – June 30, 2017

13o. Final technical report section describing demonstration of RDM tools to one or more of the case studies listed above – July 14, 2017

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-07

☐ Other ☒ Amendment Number: 000003

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2018
Base Option Period Number 3

Title of Work Assignment/SF Site Name: WA3-07 Refinement of WMOST

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A2.1,As2.2,A2.3,A3,A6,B1,C1,C7,D1,D2,G

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 12/08/2016 To 07/31/2017

Comments:
Amendment 3 to WA 3-07 to add 200 no-cost hours plus cost hours for case studies and co-benefits module

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2018	Cost/Fee:	LOE:	3,583
This Action:			754
Total:			4,337

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Naomi Detenbeck	(Signature)	(Date)	Branch/Mail Code:
		Phone Number: 401-782-3162
		FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code:
		Phone Number: 202-566-1044
		FAX Number:
Other Agency Official Name: Nicholas Bisher	(Signature)	(Date)	Branch/Mail Code:
		Phone Number:
		FAX Number:
Contracting Official Name: Noelle Mills	(Signature)	(Date)	Branch/Mail Code:
		Phone Number: 513-487-2171
		FAX Number:

WORK ASSIGNMENT

I. Title: ENHANCEMENTS TO THE WATERSHED MANAGEMENT OPTIMIZATION SUPPORT TOOL (WMOST)

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-07 Amendment 3

III. Estimated Period of Performance: From date of issuance through July 31, 2017

IV. Estimated Level of Effort: 754 additional hours (200 of these are no-cost)

V. Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):

Naomi Detenbeck
US EPA Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, RI 02882
401/782-3162
401/782-3030 (fax)

Alternate Work Assignment Contracting Officer's Representative (Alt WACOR):

Marilyn ten Brink
US EPA Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, RI 02882
401/782-3078
401/782-3030 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to update the EPA-supported Watershed Management Optimization Support Tool (WMOST v. 1, v. 2, v. 2.1 and v. 3; US EPA 2013a,b; 2015, 2016) for use in Integrated Planning (http://water.epa.gov/infrastructure/greeninfrastructure/upload/memointegratedmunicipalplans.p

df) and Integrated Water Resources Management (IWRM; Zoltay 2007, Zoltay et al. 2010).

The purpose of this amendment is to add no cost hours to existing task 8 (climate tools) and to add hours and associated costs to existing task 13 (case studies) and resources to a new task 14 (co-benefits module). The purpose of the co-benefits module is to provide users with the ability to track and report co-benefits associated with natural and constructed green infrastructure as supplemental information associated with optimum management strategies, as well as the option to including the value of co-benefits in costs as part of the objective function to be minimized in WMOST. Although some information on constructed green infrastructure co-benefits is incorporated in existing decision-support tools (e.g., CNT 2010), much of the information is based on a small number of site-specific studies, and many existing co- benefit values (e.g., US EPA EnviroAtlas, www.epa.gov/enviroatlas/enviroatlas-dynamic-data-matrix) have not yet been incorporated.

Under this WA the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan (QAPP) that will be based on Task 2 QAPP language. The QAPP shall describe the procedures for assuring the quality of the primary and secondary environmental and economic data used for this WA.

In carrying out the tasks specified in this WA, the contractor may be called upon to build upon and continue work performed under WAs 6-32 and 5-32 under the Contract EP-C-07-023, as well as WAs 1-07 and 2-07 under the current Contract EP-C-13-039. The work performed under this WA will not duplicate work conducted under the previous WAs.

References cited in Background

Center for Neighborhood Technology (CNT) and American Rivers. 2010. The Value of Green Infrastructure: A Guide to Recognizing its Environmental and Social Benefits. greenvalues.cnt.org.

U.S. EPA. 2013a. Watershed Management Optimization Support Tool (WMOST) v1: Theoretical Documentation. US EPA Office of Research and Development, Washington, DC, EPA/600/R-13/151, 2013.

U.S. EPA. 2013b. Watershed Management Optimization Support Tool (WMOST) v1: User Manual and Case Study Examples. US EPA Office of Research and Development, Washington, DC, EPA/600/R-13/174, 2013.

U.S. EPA. 2015. Watershed Management Optimization Support Tool (WMOST) v2: Theoretical Documentation. US EPA Office of Research and Development, Washington, DC, EPA/600/R-15/058.

U.S. EPA. 2016. Watershed Management Optimization Support Tool (WMOST) v2: User Manual and Case Study Examples. US EPA Office of Research and Development, Washington, DC, EPA/600/R-15/059.

Zoltay, V.I. 2007. Integrated watershed management modeling: Optimal decision making for natural and human components. M.S. Thesis, Tufts Univ., Medford, MA.

Zoltay, V.I., R.M. Vogel, P.H. Kirshen, and K.S. Westphal. 2010. Integrated watershed management modeling: Generic optimization model applied to the Ipswich River Basin. Journal of Water Resources Planning and Management.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the WA. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the Contracting Officer (CO) will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the Contracting Officer's comments, if required.

A biweekly update call with the EPA WACOR will be required for this WA to discuss progress on deliverables, costs, and other potential issues.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.

Task 8 – Enhancement of automated hydrologic time series capability in WMOST v.2 and development of climate screening interface for use with WMOST v.2 (due dates listed or modified by written technical direction). (Contract PWS Sections A, B)

This task is being amended to add 200 no-cost hours. The additional no-cost hours are based on a re-assessment of the types of effort required for planning and implementing model changes. The previous work required relatively greater involvement of mid-level staff and programmers to complete tasks cost-effectively as compared to original budget assumptions.

The contractor and EPA agree that the software that is developed under the WA (WMOST v.1-3 and associated tools), including the original software developed by Viktoria Zoltay which is being modified and incorporated into the WMOST versions, is a contract deliverable and is being provided to EPA with "unlimited rights," as that term is defined in FAR 52.227-14(a) (1987).

No additional deliverables under Task 8

Task 13. Additional WMOST Case Studies – updated (Contract PWS Sections B, D)

This amendment increases the level of technical support for case studies by 363 cost hours from the previous level of 1053 hours. The additional hours are required to continue refining WMOST v.3 to meet case study needs and to test new functionality (e.g., new case study BMPs added to BMP module).

No additional deliverables under Task 13

Task 14 – Co-benefits module (Contract PWS Sections A, B)

The contractor shall develop a co-benefits module for WMOST. Initial classes of co-benefits to be accommodated include:

1) Co-benefits associated with Hydrologic Response Unit (HRU) area
2) Co-benefits associated with best management practice (BMP) area and type
3) Cumulative environmental quality co-benefits
    a. Avoided water quality (WQ) treatment costs
    b. Avoided dredging costs
    c. Avoided costs associated with combined sewer overflow (CSO) event frequency, e.g., beach closures, shellfish bed closures, hospital visits for gastrointestinal illness
    d. WQ societal value (Water Quality Index (WQI) approach)
    e. Property value enhancements associated with green space

The co-benefits module shall be designed in a flexible fashion so that quantitative information related to co-benefits can be easily added and updated in the future. This could include accessing data from a separate stand-alone dataset to be downloaded from the WMOST web site and which can be periodically updated and/or by accessing spatially-explicit data from a remote server via web queries. The co-benefits module shall be designed to allow the user to choose between 1) tracking and reporting co-benefits as supplemental information associated with optimum management strategies, and 2) including value of co-benefits in costs as part of the objective function to be minimized. Examples of existing background data on co-benefits that could be included in cost-benefit calculations in the future are listed in the attached table (Cobenefits.xlsx).

During the current option period, the contractor shall develop the framework for the co-benefits module. EPA anticipates adding resources in a future option period for modifying WMOST code to update the user interface, provide mechanisms for co-benefit data inputs, calculate the value of co-benefits, and include co-benefits as an offset to total costs as part of the objective function to be minimized. Future changes could also include the addition of a green roof BMP to the suite of management options included in WMOST because many identified co-benefits are associated with green roofs.

Deliverables and schedule under Task 14 (due dates listed or modified by written technical direction)

14a. Draft technical memo on approach for co-benefits module – June 23, 2017
14b. Revised technical memo on approach for co-benefits module incorporating EPA review comments – July 24, 2017

References for Task 14 (and associated Cobenefits.xlsx table)

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EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-09

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	OW Benefits Support

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section 2, paragraph 2

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/04/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		2,750
Total:		2,750

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Todd Doley	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1160 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

PERFORMANCE WORK STATEMENT

I. Title: Revisions to OW Benefits Analysis Methods and Models

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-09

III. Estimated Period of Performance: Date of Issuance to July 31, 2017

IV. Estimated Level of Effort: 2,750 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):	Todd Doley OW/OST 202/566-1160
Alternate WACOR:	Michael Trombley OW/WPS 202/ 564-3906

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA or Agency) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines or ELGs) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to provide technical support to EPA in completing its response to industry petitions. The contractor has begun to revise the economic analysis with new engineering cost estimates which have been revised based on comments EPA received. The contractor is also making significant changes to methodologies the previous contractor used, as well as correcting data entry errors in the spreadsheets underlying the analysis.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance project plan (QAPP) that was based on Task 2 QAPP language.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR

when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts shall clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA Contract-Level Contracting Officer's Representative (CL-COR), and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: The contractor shall not be required to travel under this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters shall be provided in hard copy and in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR.

VIII. Performance Work Statement

Task 1 - Prepare Work plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment signed by the CO. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

The contractor shall include the completed Table 1 as a separate Appendix A to the work plan upon submittal to EPA (See task 2 below). This Appendix A should be a stand-alone document if quality assurance (QA) documentation is requested, therefore the Table 1 title must include the title of the WA, WA number, contract number, and what projects each covers. The WACOR has provided this information in the title, which the contractor may use to fulfill this requirement. If the contractor's review of this WA and Table identifies potential additional requirements, they shall be discussed with the WACOR.

A weekly update call with the EPA WACOR shall be required for this work assignment to discuss progress on deliverables and other potential issues.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.

1b. Weekly Update Call.

Task 2 - Quality Assurance

2.1 Background

QAPPs are required under the Agency's Quality Assurance Policy CIO- 2105, formerly EPA Order 5360.1A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis and use of environmental data must have an approved QAPP in place prior to the commencement of the work. Examples of these environmental data operations are provided in Table 2.1 below.

Table 2.1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model,

the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). However, EPA has determined that the Contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this work assignment. In support of this work assignment, the Contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment.
- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases, letters from industry—as a well as a rationale for when those sources are appropriate and what data available in each will support the project
- The quality objectives needed to ensure the data will support the project objectives, and
- The quality assurance and quality control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Table 1 at the end of this WA demonstrates how the PQAPP addresses QA requirements for this work assignment. The contractor shall fill in staff roles to the Table 1 checklist under A.4 and make any additional detailed notes in the 'explanatory comments' column as requested by the WACOR.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes.

For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and quality assurance/quality control (QA/QC) practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures

documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable. Upon receipt, the EPA WACOR will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's PQAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report. If the contractor's monthly reports identify potential additional QA requirements, they shall be discussed with the WACOR.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and Supplemental QAPPS (SQAPPs).) The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractor should indicate which results were obtained using the tools (standard operating procedures (SOPs), checklists, and guidelines) that the Contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractors may be requested to prepare pre-dissemination review checklist as described in Appendix B of the Office of Water Quality Management Plan, April, 2015. If this is required, the EPA WACOR will notify the Contractor through written technical direction.

Deliverables and schedule under Task 2

2. **Monthly reports of QA work performed (may be included in the Contractor's monthly progress report).**

Task 3 - Adherence to the Standardized Naming Convention and Version Control

The contractor shall continue to follow the standardized naming convention and version control (SNCVC) for all deliverables associated with the WA. This SNCVC was established under the previous WA in a signed memorandum. This system ensures that deliverables are clearly named and dated and that the sequence of versions of a document is clear.

No deliverables under Task 3

Task 4 – Perform Assessment of Bayesian Alternative to Standard Statistical Approach for Meta-analysis

The contractor shall take the meta-regression model that incorporates distance decay, developed under the previous work assignment (WA 2-09) of this contract, and update it so that there is a Bayesian version. The contractor shall deliver a memorandum (4-8 pages) that presents the model results. Using this distance decay Bayesian model and the Bayesian model MRM2-Sb developed under WA 2-09 the contractor shall perform a benefit transfer application for the 20 watersheds modeled for the stormwater benefits analysis under WA 2-09. The contractor shall deliver a memorandum (5-10 pages) that compares the Bayesian model results to those derived using the classical statistical approach.

Deliverables and schedule under Task 4

4a. Distance Decay Bayesian Model Memorandum should be delivered September 2, 2016.
4b. If required, a revised Distance Decay Bayesian Model memorandum within 7 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.
4c. Bayesian Model Benefit Transfer Application Results and Comparison Memorandum should be delivered September 30, 2016.
4d. If required, a revised Bayesian Model Benefit Transfer Application Results and Comparison memorandum within 7 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 5 – Meta-analysis Documentation

The contractor shall synthesize material from the earlier meta-analysis peer review report, the Steam Electric Effluent Limitation Guideline (ELG) Benefits Analysis documentation, and work performed under WA 2-09 to write three documents. The first document shall provide recommendations for researchers planning and implementing stated preference surveys on how they can collect and present their results in a manner that will improve the agency's ability to incorporate the results into future versions of the meta-analysis. This memorandum (5-10 pages) shall focus specifically on the process of incorporating existing research data into the meta-analysis. Secondly, the contractor shall write a memorandum (5-10 pages) that explains how the above mentioned research has advanced the agency's ability to perform benefit transfer applications and what the most outstanding issues that remain are. Finally, the contractor shall develop a draft Meta-analysis Report intended for submission to the EPA Scientific Advisory Board, Environmental Economics Advisory Committee for review.

Deliverables and schedule under Task 5

5a. Recommendations for Stated Preference Analyses to Facilitate Incorporation into Meta-analysis Memorandum should be delivered by October 7, 2016.
5b. If required, a revised Recommendations for Stated Preference Analyses to Facilitate Incorporation into Meta-analysis memorandum within 7 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.
5c. Benefits Transfer Advancements and Remaining Issues Memorandum should be delivered by November 14 2016.
5d. If required, a revised Benefits Transfer Advancements and Remaining Issues memorandum within 7 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.
5e. Draft Meta-analysis Report should be delivered by December 16, 2016.
5f. If required, a revised Meta-analysis Report within 14 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 6 – Develop Calibration and Validation Approaches for the Water Quality Index (WQI)

Limited attention has been spent on calibrating the index and validating the scores against other metrics of water quality. This task continues work begun under previous work assignment 2-09 on assessing data sources that could be used for calibration and validation efforts, and possibly for the construction of new indices. The task also covers development and testing of calibration/validation approaches.

There are numerous data sources that could be utilized to inform the design of the index, calibrate parameters, and/or verify the validity of the index. The contractor shall perform an assessment of potential data sources that could be used for validating and/or calibrating the WQI. Data sets to consider for assessment are those that measure presence of pollutant parameters in water, indicators of potential impairment (secci depth, biological indices), or frequency of occurrence for or numbers of impairment events (beach closures, fish consumption advisories, harmful algal blooms (HABs), etc.). Examples of data sources are the US Geological Surveys National Water Quality Assessment (NAWQA) and/or EPA National Aquatic Resource Surveys (NARS) databases, which could be used to identify "reference" sites minimally affected by anthropogenic pollution sources, and the 305(b) database which could be used for comparison with WQI scores. Under WA 2-09, the contractor delivered a data assessment memorandum (5-10 pages) that characterized the scope, scale, and reliability of various datasets, and provided a description of the way each data set could be used including a list of potential pros and cons. After the most appropriate data sources have been identified, the contractor shall develop calibration and/or validation approaches that rely on these data sets. The contractor shall then use these approaches to perform an assessment of the existing WQI. The contractor shall write a report (10-20 pages) that explains the approaches, presents the results, and provides recommendations.

Deliverables and schedule under Task 6

6a. A revised Data Assessment Memorandum within 14 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.
6b. Calibration/Validation Report should be delivered by September 23, 2016.

6c. If required, a revised Calibration/Validation report within 14 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 7 – Design Prototypes for Alternative Water Quality Indices

The contractor shall develop one or more prototypes for new alternative indices. The alternative indices are meant to be conceptual exercises rather than readily usable products. Ideally, they could be considered straw men that provide a future panel of experts something to respond to. Prototype development shall begin in two phases: assessing index design concepts; and the development of parameter sets along with subindex curves and weights. For each phase, the contractors shall produce a memorandum that provides alternatives to the current WQI approach. Based on review of the memorandums, the EPA WACOR will provide the contractor with technical direction on which options to proceed with for developing and testing.

The design phase focuses on addressing questions regarding what the index is meant to measure. What is the appropriate scale for minimum, maximum, and interim values? What are the benefit relevant indicators (BRI) that the index is meant to represent, and how are these BRI reflected in the scale? Similarly, what are the linking indicators (Boyd et al., 2014) that the index is meant to represent and how are these reflected? How would the index represent chronic versus acute impacts? How might the indices be responsive to a large set of pollutants, while also not diminishing the effects of the more prominent pollutants? How does the index reflect probability of occurrence of events such as harmful algal blooms? A good example of the types of alternative designs the contractor should consider is the Canadian Council of Ministers of the Environment (CCME) three dimensional index. The contractor shall write a memorandum (5-10 pages) describing possible designs for indices, identifying the pros and cons of each design.

The second phase focuses on the selection of parameters, development of subindices, and consideration of different weighting/aggregating schemes. Since the design of the index can influence each of these processes, phase two is not independent of phase one. However, the contractor can begin work on this second phase even before the completion of the first phase, using the design of the current index as a starting point. The contractor shall write a memorandum (5-10 pages) that outlines approaches for using the empirical data described in Task 6 above, to test different approaches for selecting parameters and deriving subindices. In the memorandum, the contractor shall describe various statistical techniques such as exploratory factor analysis, cluster analysis, fuzzy logic, etc., that could be used to identify parameters that best explain overall water and habitat quality. In addition, the contractor shall consider possible approaches for accounting for relationships among the parameters.

Boyd, James, Paul Ringold, Alan Krupnick, Robert J. Johnston, Matthew A. Weber and Kim Hall. 2014. "Ecosystem Services Indicators: Improving the Linkage between Biophysical and Economic Analyses," International Review of Environmental and Resource Economics, 2014, 8: 359–443.

Deliverables and schedule under Task 7

7a. Memorandum on Index Design Alternatives by November 21, 2016.
7b. If required, a revised Index Design Alternatives memorandum within 14 calendar days of

receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.
7c. Memorandum on Empirical Approaches by January 13, 2017.
7d. If required, a revised Empirical Approaches memorandum within 14 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 8 – WQI Documentation
The contractor shall revise the draft WQI Report, delivered under WA 2-09, to include the results of the calibration/validation work done under Task 6 and the development of the prototypes work under Task 7. The report is meant to provide both EPA staff and external experts the critical background needed to participate in a future workshop on Revising the WQI. The report shall identify potential modifications that could reasonably be considered in the short-term (1-5 years) and those that would require a longer time horizon (5> years).

Deliverables and schedule under Task 8

8a. Revised WQI Report should be delivered within 21 calendar days of receipt of technical direction from EPA WACOR to begin revising the report.
8b. If required, a revised report within 7 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 9 – WQI Workshop Planning
EPA anticipates holding a future workshop to discuss WQI research topics with external environmental scientists, economists, and policy experts. To hold this workshop EPA will need support for identifying experts to attend the meetings; developing agendas and overseeing travel, meeting space, and lodging arrangements. The EPA WACOR does not expect to hold the workshop during the option period for this work assignment. However, the EPA WACOR does expect to need help identifying participants and developing a draft agenda.

Deliverables and schedule under Task 9

9a. Within 4 weeks of receiving technical direction from the EPA WACOR, the contractor shall work with the EPA WACOR and EPA staff to develop a list of potential experts to consider inviting to participate.
9b. Within 6 weeks of receiving technical direction from the EPA WACOR, the contractor shall develop a draft workshop agenda.

Task 10 – General Methodological and Analytical Support for Benefits Valuation Analyses

The EPA WACOR also anticipates the need for the contractor to produce three or four additional memoranda each approximately 5 pages in length. These memoranda would address specific issues that may arise during both the meta-analyses and WQI work described in Tasks 4-9 above. The specific content and deliverable dates will be provided to the contractor by the EPA WACOR through written technical direction, when the need for a memorandum arises.

Deliverables and schedule under Task 10

10. Additional deliverables (3-4 memorandums) as needed at technical direction of EPA WACOR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-11

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	OWOW Geospatial Support

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: C.1, C.7, D.1, D.2, E.7

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/31/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		794
Total:		794

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Tommy Dewald	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1178 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: OWOW Geospatial Support

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-11

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Estimated Level of Effort: 794

V. Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):	Thomas G. Dewald OWOW/AWPD (4503T) 202/566-1178 202/566-1437 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA or Agency) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

The purpose of this Work Assignment (WA) is to provide for the continuing support and application of the Office of Water's surface water geospatial framework, known as NHDPlus (National Hydrography Dataset Plus) (The contract Performance Work Statement section E.7), to EPA and the larger water resources community. The NHDPlus framework enables improved display and analysis (upstream/downstream) of environmental data for most facets of the EPA Water Program, including wastewater management, water quality assessments and impairments. The framework is comprised of the national digital stream network and the local drainage area (catchments) for each stream segment, which allows any water-related environmental data that are either on the network (such as permitted dischargers or monitoring sites) or on the landscape (such as land cover and soil type) to be related – to better identify and understand the implications of existing and potential pollution sources. NHDPlus stream flow volume and velocity attributes associated with the stream network also make dilution modeling for pollutants possible. These collective capabilities support both the CWA and the Safe Drinking Water Act (SDWA).

This WA will accommodate technical support and outreach for NHDPlus geospatial data and tools that work with the data. All activities are within the scope of the contracts PWS sections C, D and E as noted on the individual tasks.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance project plan (QAPP) that will be based on Task 2 QAPP language. The QAPP shall describe the procedures for assuring the quality of the primary and secondary environmental data used for this work assignment.

The work performed under this work assignment will not duplicate work conducted under the previous work assignments.

VII. General Requirements of the Work Assignment and Schedule

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Work plan budget has been depleted.

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The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

The contractor shall manage projects in accordance with the industry standard project management practices such as the Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK) or PRojects IN Controlled Environments Version 2.0 (PRINCE2). The contractor shall develop appropriate project management artifacts including:

- Work plan
- Baseline schedule and any updated schedules
- Work breakdown structure
- Risk Management Plan
- Quality Assurance Plan

All final versions of these project management artifacts shall be stored in Enterprise Project Management Environment (EPM) or a similar project management (PM) tool unless otherwise requested by the WACOR.

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The contractor shall check in all source code to the EPA Office of Water's Team Foundation Server (TFS) or other EPA approved code repository environment (as requested by the WACOR) and link all code packages to appropriate test cases which are also to be stored in TFS.

Task 1 - Prepare Work Plan and Other Project Management Artifacts

The contractor shall prepare a work plan and other project management artifacts within the specified number of calendar days of receipt of the work assignment. The work plan shall

outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR, and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required. See task 2 below for quality assurance document requirements. Updates will be made to these project management documents by the Contractor, as required, to keep them current. In addition, a monthly project management meeting and a weekly update meeting with the EPA WACOR will be required to discuss progress and plan on deliverables, costs, and other potential issues for this work assignment. Financial and progress reports showing planned and actual expenses and estimated completion will be provided monthly.

Deliverables and schedule under Task 1

1a. Workplan within 15 calendar days of receipt of this WA.
1b. Baseline schedule and any updated schedules within 20 business days of receipt of this WA.
1c. Work Breakdown Structure (or equivalent) within 20 business days of receipt of this WA.
1d. Risk Management Plan within 20 business days of receipt of this WA.
1e. Project management meetings once a month.
1f. Financial and Progress Reports once a month.
1g. Project team meetings once a week.

Task 2 - Quality Assurance

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis and use of environmental data must have an approved QAPP prior to the commencement of the work. The contract includes the Quality Assurance Surveillance Plan.

QA Project Plan Requirements

EPA policy requires that an *approved* QAPP be in place before any work begins that involves the collection, generation, evaluation, analysis or use of environmental data. The work to be performed by the Contractor under this work assignment involves such activities; in order to comply with this requirement:

- The contractor shall prepare and submit a QAPP documenting how quality assurance (QA) and quality control (QC) will be applied to the generation, collection, evaluation, analysis and use of environmental data within 15 days after submittal of the work plan.
- EPA will review the submitted QAPP and provide the Contractor with written approval or comments within 15 days of receiving the Contractor's submission.
- The Contractor shall revise the submitted QAPP within 10 days of receipt, unless otherwise instructed by the EPA WACOR.

- Under no circumstances shall field sampling or laboratory analysis activities be conducted prior to receipt of an approved work plan.

The contractor shall write the QAPP using the active voice. The QAPP shall address the **generation** (including field studies, laboratory studies, and modeling output), **collection** (including surveys, literature searches, and third party data), **evaluation** (including data inspection, review, assessment, and validation), **analysis** (including statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models) **and use of data** to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, methods, criteria, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs). Examples of data include, but are not limited to, wastewater sample analysis results, flow measurements or data, facility or economic questionnaire data, economic data, use of models, secondary data (including sources and the acceptance criteria), any software and database management requirements and any other relevant work that might affect the quality of the data. Note that QAPPs are also required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. For example, when existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model, how it will be used, and how the model output will be evaluated to ensure it meets the overall quality objectives for the project. However, development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

The QAPP shall provide enough detail to clearly describe objectives of the project supported by the work assignment; the type of data to be collected, generated, or used under this work assignment to support the project objectives; the quality objectives needed to ensure that these will support the project objectives; and the quality assurance and quality control activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed. The QAPP shall include specific performance criteria and measures that will be used to verify that data generated, collected or used in this work assignment meet those criteria. If a database or other electronic tool (e.g., model, spreadsheet, etc) will be created for the project, the QAPP must describe how the database or electronic tool will be documented (e.g., data element dictionary, user manual, Standard Operating Procedures (SOP), or other means appropriate for the project), the controls to ensure accurate data entry (when data from another source are manually entered into the database), data transfer (when data are transferred from one electronic medium to another), or data merging (when data from multiple databases or electronic media are merged into a single database). The text of the QAPP also must explicitly reference tools, such as SOPs, checklists, and guidelines that the contractor will use in the project to document data quality. The QAPP must include the tools as attachments for EPA's review, and acceptance.

When preparing the QAPP, the Contractor shall address the following general questions applicable to all QAPPs. These questions may be directly addressed within the format of the QAPP to the maximum extent possible, and/or may be addressed in a separate section or

addendum to the QMP.

General Questions Applicable to all QAPPs that support all projects

- What is the objective/goal of this effort?
- What are the roles and responsibilities of staff who will support this project, and how to they relate to the specific key steps
- What training and competency requirements are necessary for key personnel that will support the project?
- If models will be used to support the project, what are these models, why have they been selected, and how will they be validated, documented and used?
- What are the SOPs, tools and checklists that will be used?

Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version will be included in the public docket for the applicable rulemaking (or other docket or record), and the unsanitized version will be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP must be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractors should indicate which results were obtained using the tools (SOPs, checklists, and guidelines) that the Contractor designates as confidential so that the EPA WACOR can easily identify the areas that will require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the Contractors may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, February 2009. If this is required, the EPA WACOR will notify the Contractor through written technical direction.

Additional QA Documentation Required

In addition to the QAPP requirements described above, all major deliverables (e.g., Technical

Support Documents, Study Reports, Study Plans, etc.) produced by the Contractor under this work assignments must include a discussion of the QA/QC activities that were or will be performed to support the deliverable. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies that were employed to control and document the quality of data generated and used.

The contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the contractor may include this as a part of the contract-required monthly financial/technical progress report.

Deliverables and schedule under Task 2

2a. Revised existing QA Plan (developed under WA 1-11) to reflect additional work in Tasks 4-5 within 15 days after submittal of the Contractor's work plan.
2b. If required by EPA WACOR, contractor shall revise plan within 10 days of receipt of comments from the EPA WACOR, unless otherwise requested by the EPA WACOR.
2c. Monthly reports of QA work performed (may be included in the Contractor's monthly progress report.)

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall prepare and submit a memorandum that proposes a standardized naming convention and version control (SNCVC) for all deliverables associated with the WA. This system will ensure that deliverables are clearly named and dated and that the sequence of versions of a document is clear. The EPA WACOR will review the memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare a revised SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use this standardized convention for all deliverables associated with the work assignment(s). The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point during the WA.

Deliverables and schedule under Task 3

3a. SNCVC memorandum within 7 calendar days of work plan approval.
3b. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 – Provide NHDPlus Technical Support (Contract PWS Sections C.1, C.7, E.7)

The Contractor shall provide NHDPlus technical support and consultation to users, including trouble-shooting and applications consultation, over the phone, by email and face-to-face. The

Contractor shall produce a log of these activities that includes number of user consultations as well as user name, organization and application (when applicable). It is expected that there will be approximately 3-5 technical consultations per day, 1 NHDPlus team call per week, and 1 NHD Technical Advisory call per week.

Deliverables and schedule under Task 4

4a. Technical support and consultation (ongoing)
4b. Technical support and consultation log, (due the 1st day of each month)

Task 5 – Provide NHDPlus Training and Outreach (Contract PWS Sections D.1, D.2, E.7)

The Contractor shall prepare materials for and conduct NHDPlus-related presentations and training at meetings, workshops, conferences, as requested by the EPA WACOR. It is expected that there will be approximately 2-4 presentations and training sessions per year.

The Contractor shall maintain and enhance the content of the NHDPlus Web site as a mechanism for distributing NHDPlus-related documents and data. The NHDPlus Web site is accessible through the EPA domain and should be referenced from the United States Geological Survey (USGS) NHD Web site (nhd.usgs.gov). Web site content will be specified and approved in advance of release by the EPA WACOR.

Deliverables and schedule under Task 5

5a. Presentations and training with materials, due as requested by the EPA WACOR including:
- **5a.1 Recorded NHDPlus Advanced User training (7/31/17)**
- **5b. NHDPlus Web Site**
- **5b.1 Operations and maintenance (ongoing)**
- **5b.2 Enhancement, due as requested by the EPA WACOR**

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-11

☐ Other ☒ Amendment Number: 000001

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2017
Base Option Period Number 3

Title of Work Assignment/SF Site Name: OWOW Geospatial Support

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: C.1, C.7, D.1, D.2, E.7

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 09/26/2016 To 07/31/2017

Comments:
The Performance Work Statement (PWS) has been revised. Please provide a work plan per the attached PWS.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
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Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		794
This Action:		-196
Total:		598

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Tommy Dewald	(Signature)	(Date)	Branch/Mail Code:
		Phone Number: 202-566-1178
		FAX Number:
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WORK ASSIGNMENT

I. Title: OWOW Geospatial Support

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-11, Amendment 1

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Estimated Level of Effort: 598

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Work Assignment Contracting Officer Representative (WACOR):	Thomas G. Dewald OWOW/AWPD (4503T) 202/566-1178 202/566-1437 (fax)

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- Under no circumstances shall field sampling or laboratory analysis activities be conducted prior to receipt of an approved work plan.

The contractor shall write the QAPP using the active voice. The QAPP shall address the **generation** (including field studies, laboratory studies, and modeling output), **collection** (including surveys, literature searches, and third party data), **evaluation** (including data inspection, review, assessment, and validation), **analysis** (including statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models) **and use of data** to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, methods, criteria, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs). Examples of data include, but are not limited to, wastewater sample analysis results, flow measurements or data, facility or economic questionnaire data, economic data, use of models, secondary data (including sources and the acceptance criteria), any software and database management requirements and any other relevant work that might affect the quality of the data. Note that QAPPs are also required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. For example, when existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model, how it will be used, and how the model output will be evaluated to ensure it meets the overall quality objectives for the project. However, development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

The QAPP shall provide enough detail to clearly describe objectives of the project supported by the work assignment; the type of data to be collected, generated, or used under this work assignment to support the project objectives; the quality objectives needed to ensure that these will support the project objectives; and the quality assurance and quality control activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed. The QAPP shall include specific performance criteria and measures that will be used to verify that data generated, collected or used in this work assignment meet those criteria. If a database or other electronic tool (e.g., model, spreadsheet, etc) will be created for the project, the QAPP must describe how the database or electronic tool will be documented (e.g., data element dictionary, user manual, SOP, or other means appropriate for the project), the controls to ensure accurate data entry (when data from another source are manually entered into the database), data transfer (when data are transferred from one electronic medium to another), or data merging (when data from multiple databases or electronic media are merged into a single database). The text of the QAPP also must explicitly reference tools, such as standard operating procedures (SOPs), checklists, and guidelines that the contractor will use in the project to document data quality. The QAPP must include the tools as attachments for EPA's review, and acceptance.

When preparing the QAPP, the Contractor shall address the following general questions

applicable to all QAPPs. These questions may be directly addressed within the format of the QAPP to the maximum extent possible, and/or may be addressed in a separate section or addendum to the quality management plan (QMP).

General Questions Applicable to all QAPPs that support all projects

- What is the objective/goal of this effort?
- What are the roles and responsibilities of staff who will support this project, and how to they relate to the specific key steps
- What training and competency requirements are necessary for key personnel that will support the project?
- If models will be used to support the project, what are these models, why have they been selected, and how will they be validated, documented and used?
- What are the SOPs, tools and checklists that will be used?

Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version will be included in the public docket for the applicable rulemaking (or other docket or record), and the unsanitized version will be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP must be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractors should indicate which results were obtained using the tools (SOPs, checklists, and guidelines) that the Contractor designates as confidential so that the EPA WACOR can easily identify the areas that will require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the Contractors may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, February 2009. If this is required, the EPA WACOR will notify the Contractor through written technical direction.

Additional QA Documentation Required

In addition to the QAPP requirements described above, all major deliverables (e.g., Technical Support Documents, Study Reports, Study Plans, etc.) produced by the Contractor under this work assignments must include a discussion of the QA/QC activities that were or will be performed to support the deliverable. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies that were employed to control and document the quality of data generated and used.

The contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the contractor may include this as a part of the contract-required monthly financial/technical progress report.

Deliverables and schedule under Task 2

2a. Revised existing QAPP (developed under WA 1-11) to reflect additional work in Tasks 4-5 within 15 days after submittal of the Contractor's work plan.
2b. If required by EPA WACOR, contractor shall revise plan within 10 days of receipt of comments from the EPA WACOR, unless otherwise requested by the EPA WACOR
2c. Monthly reports of QA work performed (may be included in the Contractor's monthly progress report.)

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall prepare and submit a memorandum that proposes a standardized naming convention and version control (SNCVC) for all deliverables associated with the WA. This system will ensure that deliverables are clearly named and dated and that the sequence of versions of a document is clear. The EPA WACOR will review the memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare a revised SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use this standardized convention for all deliverables associated with the work assignment(s). The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point during the WA.

Deliverables and schedule under Task 3

3a. SNCVC memorandum within 7 calendar days of workplan approval.
3b. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 – Provide NHDPlus Technical Planning (Sections C.1, C.7, E.7)

The Contractor shall provide NHDPlus technical planning support for the next version of NHDPlus, including identifying and preparing required ingredient data, testing the most current NHDPlus build/refresh tools, producing core and ancillary data and metadata products, migrating current application tools, revising data product distribution processes, and updating user documentation and training materials.

Deliverables and schedule under Task 4

4a. Draft NHDPlus Version 3 Technical Planning Document (12/15/16)
4b. Final NHDPlus Version 3 Technical Planning Document (1/31/17)

Task 5 – Provide NHDPlus Training and Outreach (Sections D.1, D.2, E.7)

The Contractor shall prepare materials for and conduct NHDPlus-related presentations and training at meetings, workshops, conferences, as requested by the EPA WACOR. It is expected that there will be approximately 2-4 presentations and training sessions per year.

The Contractor shall maintain and enhance the content of the NHDPlus Web site as a mechanism for distributing NHDPlus-related documents and data. The NHDPlus Web site is accessible through the EPA domain and should be referenced from the United States Geological Survey (USGS) NHD Web site (nhd.usgs.gov). Web site content will be specified and approved in advance of release by the EPA WACOR.

Deliverables and schedule under Task 5

5a. Presentations and training with materials, due as requested by the EPA WACOR including:
- **5a.1 Recorded NHDPlus Advanced User training (7/31/17)**
- **5a.2 Transcripts for NHDPlus Workshop Presentations (11/30/16)**

5b. NHDPlus Web Site
- **5b.1 Operations and maintenance (ongoing)**
- **5b.2 Enhancement, due as requested by the EPA WACOR**

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-13

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Alaska Seafood ELG Econ Suppor

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section VI, para. 1,2, 3

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Performance on this Work Assignment shall not begin until August 1, 2016.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		510
Total:		510

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Todd Doley (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1160 FAX Number:
Project Officer Name Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams TAMMY ADAMS Digitally signed by TAMMY ADAMS DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=TAMMY ADAMS, dnQualifier=0000018417 Date: 2016.07.28 16:15:36 -04'00' (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

Contract: EP-C-13-039
Work Assignment: 3-13

I. **Title:** Economic Support for EPA Response to Industry Petition on ELGs for Non-Remote Alaskan Seafood Processors

Contractor: Abt Associates **Contract No.**: EP-C-13-039

II. **Work Assignment Number:** 3-13

III. **Estimated Period of Performance:** August 1, 2016 to July 31, 2017

IV. **Estimated Level of Effort:** 510 hours

V. **Key EPA Personnel:**
Work Assignment Contracting Officers Representative (WACOR):

Todd Doley
U.S. EPA/OW/OST/EAD (4303T)
EPA West, Room 6233Z
1200 Pennsylvania Ave., N.W.
Washington, DC 20460
Phone: 202-566_1160
Fax: 202-566-1053
Email: doley.todd@epa.gov

Alternate Work Assignment Contracting Officers Representative (Alt WACOR):

Wendy Hoffman
U.S. EPA/OW/OST/EAD (4303T)
EPA West, Room 6233S
1200 Pennsylvania Ave., N.W.
Washington, DC 20460
Phone: 202-564-8794
Fax: 202-566-1053
Email: hoffman.wendy@epa.gov

VI. Background and Purpose:

In 1980, the Environmental Protection Agency (EPA or Agency) received an industry petition requesting that EPA suspend effluent guideline regulations (ELGs) applicable to seafood processors in "non-remote"

locations in Alaska, and a second petition for changes in the regulations by rulemaking. In a Federal Register notice dated January 20, 1981, EPA published a proposed response which denied the first petition and maintained the status of four of five locations (Anchorage, Cordova, Ketchikan and Petersburg) as "non-remote" processing centers. The proposed response granted the petition for Juneau, thus changing the status of that location to "remote." The proposed response also indicated that the earlier suspension of the regulations would remain in effect until EPA issued a final response to the petition. The Agency never completed a final response to this petition.

In 2010, EPA began the process leading to a final decision to amend the regulations. The Agency sent questionnaires to owners and operators of seafood processing facilities in Anchorage, Cordova, Juneau, Petersburg, Dutch Harbor, Ketchikan and the Kenai Peninsula. EPA conducted supporting analyses to update the 1981 proposal and published information gathered recently from the questionnaires and other publicly available sources. These data relate to the Alaskan seafood subcategories of the Seafood Processing Effluent Guidelines at 40 CFR Part 408.

The data show a significant impact associated with near-shore discharges of seafood waste in locations where EPA suspended the "non-remote" requirements. The primary concern with these discharges is the formation and persistence of fish waste piles which cover large areas of the seafloor and contain large quantities of solids that negatively affect receiving water quality. These piles range in area from less than an acre to tens of acres, and from relatively thin coverage of the bottom, up to many feet thick. Even a thin layer of waste smothers benthic communities, and the piles deplete dissolved oxygen and cause other harmful impacts on the aquatic ecosystem. In some cases, large waste piles do not dissipate, even with flushing from tides and strong channel currents. Where discharges have stopped, fish waste piles and their effects can remain for 10 years or longer.

EPA published a Notice of Data Availability (NODA) in the Federal Register on November 7, 2013, which provided preliminary results of analyses of the updated data discussed above, and indications of how these results might be reflected in revised regulations which EPA plans to promulgate as its final response to the industry petitions. In particular, the NODA indicated that EPA may reinstate the originally promulgated ELGs based on screening technology for all non-remote locations. EPA also solicited public comment on possibly extending the definition of non-remote to additional locations, including Dutch Harbor, Sitka, the Kenai Peninsula, and possibly others that have similar characteristics such as Naknek.

The public comment period for the NODA closed on March 7, 2014. In addition to the final response to the petition, EPA will respond to all the comments it received during the public comment period. EPA also may promulgate in final form amended ELGs applicable to certain Alaskan seafood processing discharges.

The 1972 Clean Water Act (CWA) directs EPA to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to provide technical support to EPA in

completing its response to the industry petitions. This support includes preparing responses to the comments EPA received on economic issues in the recently published NODA, and updating economic analyses prepared by a different contractor under Contract 68-C-02-095. The contractor has begun to revise the economic analysis with new engineering cost estimates which have been revised based on comments EPA received. The contractor is also making significant changes to methodologies the previous contractor used, as well as correcting data entry errors in the spreadsheets underlying the analysis.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan that was based on Task 2 QAPP language. The QAPP shall describe the procedures for assuring the quality of the primary and existing economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WAs 0-13, 1-13, and 2-13 under this contract and various WAs under EPA Contract 68-C-02-095 with another contractor.

Under the previous work assignments, Abt Associates performed the following analyses, among others:

- Began drafting the *Cost and Economic Impact Analysis for Alaska Seafood Processing Regulation* based on the earlier *Report to the Record Costs and Impact Analysis for Alaska Seafood Processors (Facilities and Firms)* originally prepared under Contract 68-C-02-095.
- Prepared numerous memos on economic analysis methodology issues, such as industry employment trends and the effects of seasonality on the cost and impact analyses.

Work performed under this work assignment shall not duplicate any work previously performed under WAs 0-13, 1-13, and 2-13 under this contract.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will be accessing and evaluating confidential business information (CBI). The contractor shall adhere to EPA's CBI policy and other procedures as described in the contract clauses (Clauses H.15-H19 and H.21). The contractor must maintain CBI security clearance to use CBI information. The contractor shall not disclose any CBI to anyone other than EPA without prior written approval provided by the EPA WACOR. The contractor shall, at all times, adhere to CBI procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in our "Office of Science and Technology Confidential Business Information Application Security Plan" (August 2011) or its successor approved plans.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be identified clearly as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts shall clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR.

Quick Response: Under this Performance Work Statement, the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working calendar days.

Travel: EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters shall be provided in hard copy and in electronic form using Word and/or Excel/Access or, in special cases, another software program agreed to in advance by EPA. For deliverables that are in Word or pdf versions of Word documents, and that are intended to be shared with EPA management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether or not decimal places are reported. All final materials, e.g., memos, comment response essays, chapters, etc. are to be prepared only after receiving written technical direction provided by the EPA WACOR.

Monthly Progress Reports: The monthly progress reports shall include reporting hours and funds spent under this WA on a task-by-task basis.

VIII. Performance Work Statement

Task 1 - Prepare Work Plan

Estimated LOE hours: 20 hours

The contractor shall prepare a work plan within 15 calendar days after receipt of the work assignment signed by the Contracting Officer. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the Contract Level Contracting Officer Representative (CL-COR) and the Contracting Officer (CO) will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

The contractor shall include the completed Table 1 as a separate Appendix A to the workplan upon submittal to EPA (See task 2 below). This Appendix A should be a stand-alone document if QA documentation is requested, therefore the Table 1 title must include the title of the WA, WA number, contract number, and what projects each covers. The WACOR has provided this information in the title, which the contractor may use to fulfill this requirement. If the contractor's review of this WA and Table identifies potential additional requirements, they should be discussed with the WACOR.

Deliverables and schedule

1. Work plan is due 15 calendar days after receipt of work assignment.

Task 2 – Prepare Quality Assurance Project Plan

Estimated LOE for Task 2: 20 hours

Task 2 - Quality Assurance

2.1 Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis and use of environmental data must have an approved QAPP in place prior to the commencement of the work. Examples of these environmental data operations are provided in Table 2.1 below.

Table 2.1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). However, EPA has determined that the Contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this work assignment. In support of this work assignment, the Contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment.
- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases, letters from industry—as a well as a rationale for when those sources are appropriate and what data available in each will support the project
- The quality objectives needed to ensure the data will support the project objectives, and
- The quality assurance and quality control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Table 1 at the end of this WA demonstrates how the PQAPP addresses QA requirements for this work assignment. The contractor shall fill in staff roles to the Table 1 checklist under A.4 and make any additional detailed notes in the 'explanatory comments' column as requested by the WACOR.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes.

For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable. Upon receipt, the EPA WACOR will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's PQAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report. If the contractor's monthly reports identify potential additional QA requirements, they should be discussed with the WACOR.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and Supplemental QAPPS (SQAPPs).) The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractor should indicate which results were obtained using the tools (standard operating procedures (SOPs), checklists, and guidelines) that the Contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractors may be requested to prepare pre-dissemination review checklist as described in Appendix B of the Office of Water Quality Management Plan, April, 2015. If this is required, the EPA WACOR will notify the Contractor through written technical direction.

Deliverables and schedule under Task 2

2. **Monthly reports of QA work performed (may be included in the Contractor's monthly progress report).**

Task 3 - Adherence to the Standardized Naming Convention and Version Control

Estimated LOE hours: 0 hours

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan which was developed under the Construction and Development WA 0-01 of Contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

Task 4 – Economic Cost and Impact Analytical Support

Estimated LOE hours: 225 hours

4.1 Completion of Economic Analysis

Under this sub-task, the contractor shall finish writing the *Cost and Economic Impact Analysis for Alaska Seafood Processing Regulation* begun under the previous WA 2-13. The final draft of economic analysis shall be provided to the EPA WACOR for an initial review. Once the EPA WACOR completes the initial review of the draft final document and provides revisions and/or comments to the contractor, the contractor shall incorporate the changes into the final document. All comments will be provided to the contractor through written technical direction by the EPA WACOR.

The contractor shall prepare CBI and non-CBI versions of the final economic analysis. All CBI shall be handled in accordance with the General Requirements of the Work Assignment and Schedule section of the PWS described in Section VII above.

4.2 Completion of Responses to Comments

Under this sub-task, the contractor shall provide support in drafting responses to public comments on the NODA that pertain to the financial cost or economic impacts associated with the rulemaking. The contractor shall prepare draft comment responses for the EPA WACOR to review. Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials, incorporating the EPA WACOR's comments. Work under this task shall not duplicate any work performed under any other task of this WA.

Deliverables and schedule

4.1a. Final draft economic analysis, is due September 30, 2016. The EPA WACOR will provide written comments on the draft.
4.1b. Final economic analysis is due two weeks after receipt of comments from the EPA WACOR, but no later than July 31, 2017.
4.2a. Final draft of responses to comments, is due October 31, 2016. The EPA WACOR will provide written comments on the draft.
4.2b. Final responses to comments is due two weeks after receipt of comments from the EPA WACOR, but no later than July 31, 2017.

Task 5 – Provide Technical Support for Rulemaking Activities

Estimated LOE hours: 225 hours

The contractor shall provide technical support related to economic cost and impacts assessment activities associated with the final petition response. This support may include responding to management questions about economic issues and preparing memorandums and spreadsheets, as well as tables and charts suitable for presentations. Under this WA, the contractor shall assist the WACOR in assembling and uploading rulemaking docket materials, and archiving rulemaking project files. EPA expects the number of projects to be between four and six. For the purpose of costing, the contractor should assume that two of these requests will require quick responses.

The contractor shall prepare draft materials, including comment responses, for the EPA WACOR to review. Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments. Work under this task shall not duplicate any work performed under any other task of this WA.

Deliverables and schedule
Task 5a. Response to comment drafts are due three weeks after receipt of written technical direction from the WACOR. Draft quick response deliverables are due one week after receipt of written technical direction from the EPA WACOR. All other draft deliverables are due two weeks after receipt of written technical direction from the EPA WACOR.
Task 5b. All final deliverables are due two weeks after the contractor receives comments from the EPA WACOR, but no later than July 31, 2017.

Task 6 – Provide up-date material for the EAD ELG Database

Estimated LOE hours: 20 hours

After the completion of the rulemaking package, including the rule preamble and economic and benefits documents, the contractor shall submit to the EPA WACOR information and data to complete the ELG Database template (the template shall be provided by the EPA WACOR) for the Alaska Seafood Processors ELG final rule analysis. This information will be stored in Engineering and Analysis Division's (EAD's) ELG Database. This task shall take no more than 20 hours to complete.

Deliverables and schedule
6. ELG Database template due 21 calendar days after signature by the Administrator. The contractor will be notified of the signature date by the EPA WACOR.

EAD Checklist for WA 3-13 Economic Support for EPA Response to Industry Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contract EP-C-13-039, Utilizing Existing Data

The items noted in this checklist are adapted from those elements found in *EPA Requirements for QA Project Plans (QA/R-5)* (EPA, 2001a), but tailored to the use of existing data.

Table 1. EAD Checklist for WA 3-13 Utilizing Existing Data

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
itle & Approval Sheet							
oject title	X		X				
ganization's name	X		X				
fective date and/or version identifier	X		X				
ited signature of Organization's project inager	X		X				
ited signature of Organization's QA inager	X		X				
her signatures, as needed (e.g., EAD oject Officer, EAD QA Coordinator)	X		X				
vision History	X		X				
able of Contents							
cludes sections, figures, tables, references, d appendices	X		X				
ocument control information indicated hen required by the EPA Project Manager d QA Manager)		X					
istribution List							
cludes all individuals who are to implement otherwise receive the QAPP and identifies ir organization	X		X				
oject/Task Organization							
entifies key individuals with their sponsibilities (e.g., data users, decision akers, project QA manager, Subcontractors, .) and contact info.	X		X				PQA _____ Completed Checklist attached to work
ganization chart shows lines of authority & porting responsibilities	X		X				
oject QA manager position indicates dependence from unit collecting/using data	X		X				
oblem Definition/Background							
early states problem to be resolved, cision to be made, or hypothesis to be ted	X		X				
entifies project objectives or goals	X		X				
storical & background information		X					
tes applicable technical, regulatory, or ogram-specific quality standards, criteria, or jectives	X		X				
oject/Task Description							
st measurements to be made/data to obtain	X		X				

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
›tes special personnel or equipment ɟuirements		X					
ɔvides work schedule		X					
verall Quality Objectives & Criteria							
ıtes overall quality objectives and limits eded to support the project goals and jectives cited in Element A5.	X		X				
ɔecial Training Requirements/ ertifications							
entifies specialized skills, training or rtification requirements	X		X				
scusses how this training will be ɔvided/the necessary skills will be assured d documented	X		X				
roject-level Documents & Records							
scribes process for distributing the proved QAPP and other planning cuments (and updates) to staff	X		X				
entifies final work products that will result ım the project	X		X				
scribes the process for developing, viewing, approving, and disseminating the al work products and individuals sponsible for these processes	X		X				
Data Needs							
etailed list/description of the specific data ements needed to support project goals	X		X				
escription of the scope of the data ements that you need (e.g., data ıpporting specific treatment options vs. the ıll range of options, data supporting the ıtire country vs. a specific geographic egion)	X		X				
project includes development or update of project database, QAPP identifies and efines each database field		X					
otential Data Sources							
dentifies and describes potential sources of ıe existing data needed (e.g., photographs, ɔpographical maps, facility or state files, ensus data, meteorological data, ublications, etc.) and the rationale for their se	X		X				
literature searches are used, describes the earch engines that will be used and key earch terms	X		X				
databases or models will be used, escribe the database (or model) in terms of ho developed it and operates it and the pe of data it contains	X		X				
or other potential sources, describe the otential sources and rationale for onsidering or using each one	X		X				

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
:riteria for Selecting Data Sources							
lentifies each criterion that will be used to etermine if the candidate data sources sted in B2 will meet your needs, and how ıch criterion is defined. (Criteria vary by :oject; examples include reliability, age, ɔplicability, quantity, format, and others)	X		X				
xplains rating system used to evaluate ɔurce against each criterion	X		X				
ɔata Value Selection Approach							
or data sources that meet the criteria lentified in B3: Describes the criteria and :ocedures that will be used to determine hich value(s) identified in the acceptable ɔurces are most appropriate for use in the :oject	X		X				
or data that do not meet these pre-ıtablished criteria but are the only data vailable, explains how the decision to use ıch data will be made and documented	X		X				
ɛesolving Data Gaps							
'escribes the process for identifying and ıddressing data gaps that still exist after ınndidate data sources have been evaluated ıd appropriate data values have been lentified	X		X				
'escribes the process that will be used to ıddress any new data needs revealed during ıe data gathering process (i.e., additional ıta elements not previously considered)	X						
ɔata Gathering Documentation and ɛecords							
'escribes how results of the source :lection and the data value selection will ɛ documented, including any sources or ılues that were rejected and the rationale ɔr not using them	X		X				
or data that are deemed acceptable and that ill be used, explains how each data ement will be associated to its original ɔurce citation (i.e., bibliographic ıformation, telephone contact reports, nail messages, etc.)	X		X				

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
tandardization of Data Elements							
escribes the process to ensure that units nd other key measures are captured and andardized (or otherwise made omparable) in the database	X		X				See Checklist for WA 1-13, Econom Support for EPA Response to Industi Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contra C-13-039
the project requires that all fields be andardized to a single set of units (e.g., S dollars for economic data, ug/L for nemical data), identifies the standard units at will be required for each data element	X		X				See above
lentifies the procedures for converting data ported in other units to the standardized nits, including any rounding or truncating rocedures, and procedures for ensuring ese conversions are performed correctly	X		X				See above
standardization of data elements is not eeded, explains the process for ensuring at data presented in varying units are omparable enough for use in the project nd that project staff members and other ata users will be able to readily identify ifferences in units	X		X				See above
Data Entry							
xplains the process for manually entering elected data into the project database, who ill be responsible for such data entry, and e QC strategies that will be used to ensure at the database accurately and completely aptures the data as presented in the original ource	X		X				See Checklist for WA 1-13, Econom Support for EPA Response to Industi Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contra C-13-039
Merging or Uploading Electronic Data om Existing Sources							
data are available electronically and will e uploaded or merged into the project atabase: describes the procedures that will e followed to ensure that errors are not troduced during the upload/merge process nd that the final database reflects the riginal dataset(s)	X		X				See Checklist for WA 1-13, Econom Support for EPA Response to Industi Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contra C-13-039
Data Review							
Describes the process for ensuring that the data have been recorded, transmitted, and processed correctly	X		X				See Checklist for WA 1-13, Econom Support for EPA Response to Industi Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contra C-13-039
Data Storage and Manipulation							
Describes how the existing data will be stored	X		X				See Checklist for WA 1-13, Econom Support for EPA Response to Industi Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contra C-13-039

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
Describes who will be responsible for access to and maintenance of the stored data	X		X				See above
Describes how the existing data will be incorporated with other project data to support the project goal/decision to be made	X		X				See above
Describes the QC strategies that will be employed to ensure that the integrity of the data is not compromised during data storage, access/retrieval, updates, or other manipulation	X		X				See above

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
)ata Quality Verification and Data)uality Reporting							
'escribes the process for verifying that the nal set of data meets the overall criteria :iginally specified for the project	X		X				See Checklist for WA 1-13, Econom Support for EPA Response to Industı Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contra(C-13-039
'escribes how these determinations will be ɔcumented and reported.	X		X				See above
or data that don't meet the pre-established ɔecifications, explains the process for ɜtermining if they are usable and how such ɜcisions will be documented	X		X				See above
Jse/Analysis of the Existing Data							
rovides details regarding the exact means ı which the data will be used to meet roject objectives	X		X				See Checklist for WA 1-13, Econom Support for EPA Response to Industı Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contra(C-13-039
ıcludes an explanation or list of the ıformation to be calculated and the data lements that will be used to make those ılculations	X		X				See above
ıcludes applicable calculations and quations (if known) or explanations of ow they will be developed.	X		X				See above
ıcludes plans for excluding outliers.	X		X				See above
Methodology Documentation and onceptual Review							
exact methodologies for analyzing the ata will need to be developed or modified uring the course of data analysis, explains ıe process by which such methodologies 'ill be documented, who is responsible for ɜviewing/ approving their use, and how the ıethodologies will be checked to ensure ıey yield the desired products	X		X				See Checklist for WA 1-13, Econom Support for EPA Response to Industı Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contra(C-13-039

QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
'echnical Review of the Data Analysis							
'escribes activities that will be used to nsure the data analyses are being nplemented as specified and will support roject objectives	X		X				See Checklist for WA 1-13, Econom Support for EPA Response to Industı Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contra C-13-039
xplains procedures for identifying and otifying appropriate personnel if changes ı the originally planned procedures are 'arranted, and the process for approving, ocumenting and implementing such hanges	X		X				See above
'inal Verification of Data Analysis and .econciliation with User Requirements							
'escribes the process for reviewing the nal work product to ensure that the work 'as generated in accordance with the 'APP, and that the work product addresses ıe overall project goals and objectives	X		X				See Checklist for WA 1-13, Econom Support for EPA Response to Industı Petition on ELGs for Non-Remote Alaskan Seafood Processors, Contra C-13-039
'escribes how the results of this assessment ill be documented	X		X				See above
'escribes how any limitations of the data or ata analyses that were used to prepare the nal work product will be documented and ɔmmunicated	X		X				See above

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-13

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Alaska Seafood ELG Econ Suppor

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	Section VI, para. 1,2, 3

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/16/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		510
This Action:		60
Total:		570

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Todd Doley	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1160 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name Nicholas Bisher	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

WORK ASSIGNMENT AMENDMENT

I. **Title:** Economic Support for EPA Response to Industry Petition on ELGs for Non-Remote Alaskan Seafood Processors

Contractor: Abt Associates, Inc. **Contract No.:** EP-C-13-039

II. **Work Assignment Number:** 3-13 / Amendment 1

III. **Estimated Period of Performance:** Date of Issuance to July 31, 2017

IV. **Estimated Level of Effort for Amendment:** 60 hours

V. **Key EPA Personnel:**

Work Assignment Contracting Officer Representative (WACOR):

Todd Doley
U.S. EPA/OW/OST/EAD (4303T)
EPA West, Room 6233Z
1200 Pennsylvania Ave., N.W.
Washington, DC 20460
Phone: 202-566_1160
Fax: 202-566-1053
Email: doley.todd@epa.gov

Alternate WACOR:

Wendy Hoffman
U.S. EPA/OW/OST/EAD (4303T)
EPA West, Room 6233S
1200 Pennsylvania Ave., N.W.
Washington, DC 20460
Phone: 202-564-8794
Fax: 202-566-1053
Email: hoffman.wendy@epa.gov

VI. Purpose

The purpose of this amendment is to clarify anticipated levels of effort and expenditure under Task 4, Subtask 4.1 and Subtask 4.2. A detailed description of this amendment to the work assignment follows.

This amendment provides for an increase in the total level of effort under the work assignment at no additional cost.

Task 4 – Economic Cost and Impact Analytical Support

4.1 Completion of Economic Analysis
Under this sub-task, the contractor shall finish preparing CBI and non-CBI draft versions of the Cost and Economic Impact Analysis for Alaska Seafood Processing Regulation. The contractor shall incorporate edits from the EPAWACOR as needed. All comments will be provided to the contractor through written technical direction by the EPA WACOR. All CBI shall be handled in accordance with the General Requirements of the Work Assignment and Schedule section of the PWS described in Section VIII in WA3-13.
4.2 Completion of Responses to Comments
Under this sub-task, the contractor shall complete the drafting of responses to public comments on the NODA that pertain to the financial cost or economic impacts associated with the rulemaking. Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule

4.1a. Final draft economic analysis, is due March 24, 2017. The EPA WACOR will provide written comments on the draft.

4.1b. Final economic analysis is due two weeks after receipt of comments from the EPA WACOR, but no later than July 31, 2017.

4.2a. Final draft of responses to comments, is due March 31, 2017. The EPA WACOR will provide written comments on the draft.

4.2b. Final responses to comments is due two weeks after receipt of comments from the EPA WACOR, but no later than July 31, 2017.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-15

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	2017 Emissions Inventory Confe

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: D-2, Training and Logistical Support

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/26/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017 Cost/Fee: LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: Cost/Fee LOE:

Cumulative Approved: Cost/Fee LOE:

Work Assignment Manager Name Kim Paylor	(Signature) (Date)	Branch/Mail Code: Phone Number: 919-541-5474 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

PERFORMANCE WORK STATEMENT

TITLE: Emission Inventory Conference for 2017

Contract No.: EP-C-13-039 **Contractor:** Abt

Work Assignment No.: 3-15

THE WORK ASSIGNMENT INCLUDES HOURS FOR PREPARATION OF THE WORKPLAN/COST ESTIMATE AND HOURS TO BEGIN THE WORK ASSIGNMENT. THE CONTRACTOR SHALL PROPOSE THE HOURS NECESSARY TO COMPLETE ALL TASKS. NO PREVIOUSLY PERFORMED WORK SHALL BE DUPLICATED.

WORK ASSIGNMENT COR (WACOR)
Kim D. Paylor
OAQPS/AQAD/EIAG
US Environmental Protection Agency
RTP, NC 27711
Telephone: 919-541-5474

ALTERNATE WACOR
Rhonda Thompson
OAQPS/AQAD/EIAG
US Environmental Protection Agency
RTP, NC 27711
Telephone: 919-541-5538

BACKGROUND:

The Emissions Inventory Conference (EIC) is a biennial event intended to 1) apprise participants of developments in emissions inventory techniques, latest science, available data and policy implicants, and 2) share experiences and insight among emissions inventory professionals from federal/state/local and international regulatory agencies, Native American governments, industry and academia.

The EIC provides a major, comprehensive and in-person forum for substantive interaction among emission inventory professionals across regulatory agencies and affected entities, industry, and academia. Emission inventory issues are of vital importance for any organization that relies on air quality modeling, because emissions data are one of the critical inputs to air quality models. Without emission inventories, air quality forecasts and assessments could not be done. Participants from other federal agencies involved with air quality and climate issues rely on this conference for exchanging the latest developments in emissions estimation and fostering discussions across international, federal, regional, state, and other programmatic boundaries. Thus, a number of agencies with a stake in emissions data and air quality modeling (such as National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), National Laboratories, and the US Forest Service) typically send participants.

Additionally, the Environmental Protection Agency (EPA) requires emissions reporting by state and local agencies through the Air Emissions Reporting Requirements Rule as described in 40 CFR Part 51; the EIC is EPA's principle customer-focused outreach effort to those agencies responsible for submitting data to EPA. The timing of the conference is also fortuitous as state agency reporting to EPA for the 2017 National Emissions Inventory is due by the end of calendar year 2018. Thus the summer 2017 conference timing will allow EPA to provide training to states air agency staff well in advance to support their efforts. It's important to note that participation by EPA Regional Office staff responsible for reviewing the state/local/tribal-provided emissions data for State Implementation Plans is likewise critical to meeting the intended purpose of this conference. Also, the EIC includes other in-person training on inventory preparation and use that is not available in

any other forum.

The Conference has an average attendance of 350 people. In the past, we have alternated the conference site between the east coast, central US and west coast locations. For 2017, the east coast location is the next rotation. The conference typically starts on Monday morning and concludes by Friday afternoon, with a Poster Session held on Tuesday evening from 6-8 pm. The 2017 Conference is planned to be held between April and June.

STATEMENT OF WORK

The WACOR is authorized to provide technical direction in accordance with the terms of the contract. The following are the tasks the Contractor shall perform:

Task No. 1

The Contractor shall prepare a Work Plan, Cost Estimate and Monthly Progress Report in accordance with the terms and conditions of this contract.

*** This is a continuation of PWS 2-15. ***

Task No. 2

The contractor shall provide the following conference planning/coordination support:

Prior to the conference, the Contractor shall re-activate and maintain the on-line registration site that was developed for the 2015 EIC. The online registration website shall be accessible according to EPA standards/guidelines and accessible through the EPA conference website. The online registration website will be activated 16 weeks prior to the conference and remain open until 2 weeks prior to the beginning of the Conference. The electronic registration form shall contain the following: Name, Affiliation, Address, Country, Phone Number, E-mail address, and choice of training courses. Registration information shall be kept in an Access database and accessible to the WACOR upon request. Upon completion of the conference the contractor shall provide a report of all conference attendees.

a. The online registration page will include:

(1) PDF versions of the conference agenda;
(2) Logistical Fact Sheet (which includes information on the conference location) hotel room reservations, driving directions, ground transportation options, and registration.

b. The Contractor shall prepare name tags for all conference attendees prior to and at the conference site. A form should be made available for those registering at the conference site to complete so that the information can later be entered into the database for accountability.

c. Upon request by the WACOR, the contractor shall provide ongoing liaison support with a private facility regarding poster boards; the hotel for conference planning requirements, overnight room reservations, meeting room requirements (see attached) and registration. Receipt and storage of conference materials shall be available one week prior to the conference. Return shipment service shall be available. Shipment of items shall be by freight or parcel paid by government accounts. Shipment of materials will be the responsibility of the WACOR.

d. The Contractor shall prepare to send two (2) representatives to the Conference to support the WACOR, staff the registration desk, coordinate with hotel on meeting room setup, audio visual equipment, poster board and vendor exhibit hall setup. The Contractor shall prepare for representatives to be available at the registration desk Sunday from 12:00pm – 5:00pm, Monday through Thursday 8:00am – 4:00pm and Friday 8:00am – 12:00pm. (Times are subject to change) The Contractor shall prepare for representatives to be available via phone for pre-conference review, prior to the start of the conference to review the Banquet Event Orders (BEO) with hotel staff and WACOR. The Contractor shall prepare for representatives to arrive on the morning of (date to be determined via Technical Direction) to meet with the hotel staff to provide ongoing liaison support and staff registration desk.

Task No. 3

Schedule of Deliverables

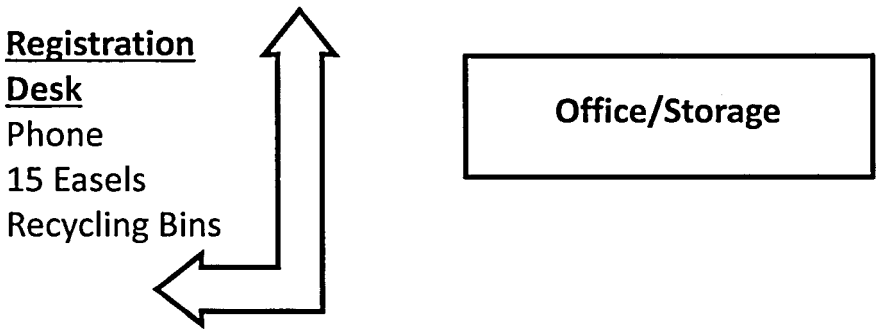
Task	Deliverable	Delivery Schedule
1	Cost Estimate	Within 20 days of receipt of PWS
2	Project Management	Ongoing through July 31, 2017
2	Registration Website Support	Ongoing through July 31, 2017
2	Conference Support	Ongoing through July 31, 2017

Attachment

The meeting space format shall be designed according:

Pre-Conference Day

Sunday - 12:00pm - 5:00pm



Pre-Conference

a. *Registration table with phone for incoming calls only*
   Conference materials to be delivered to registration by noon
   Pre-registration for attendees from 1:00pm – 5:00pm
   Registration desk to remain open throughout conference

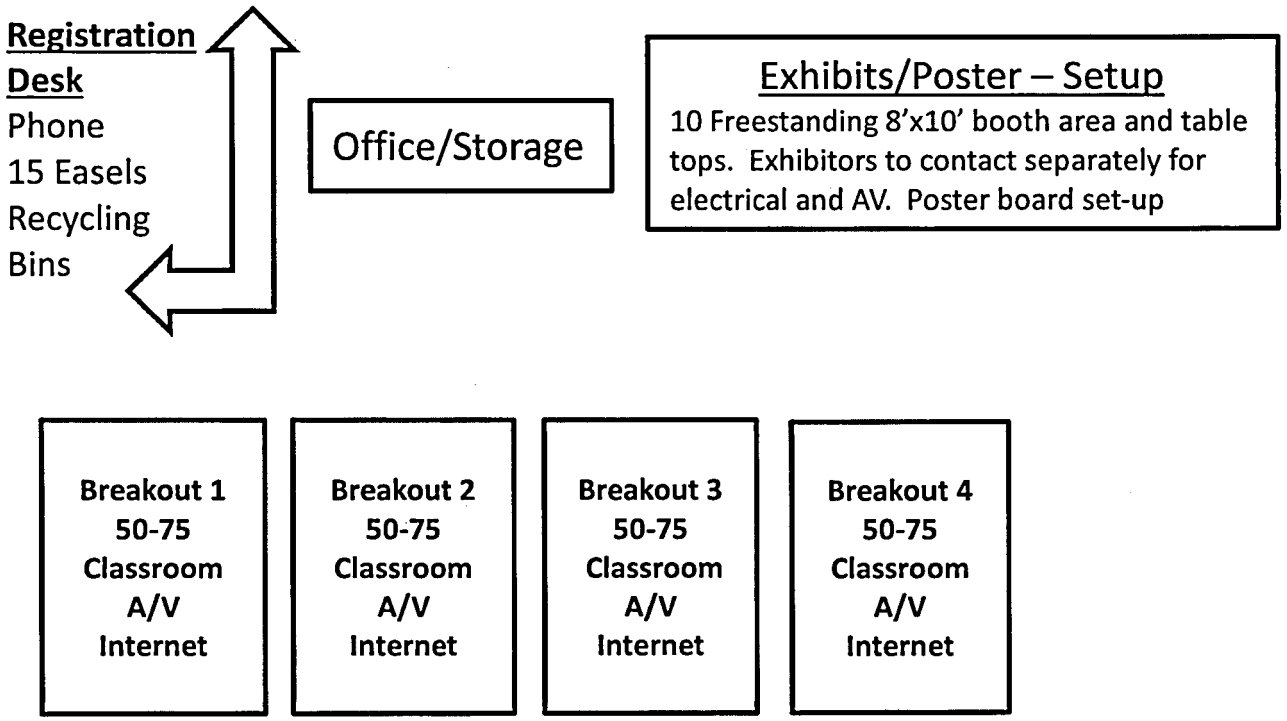
b. *Storage room/office*

c. *15 tripod easels*

d. *Provide recycling bins for paper and aluminum cans throughout conference area*

DAY 1 – Training

Monday 8:00am – 5:00pm



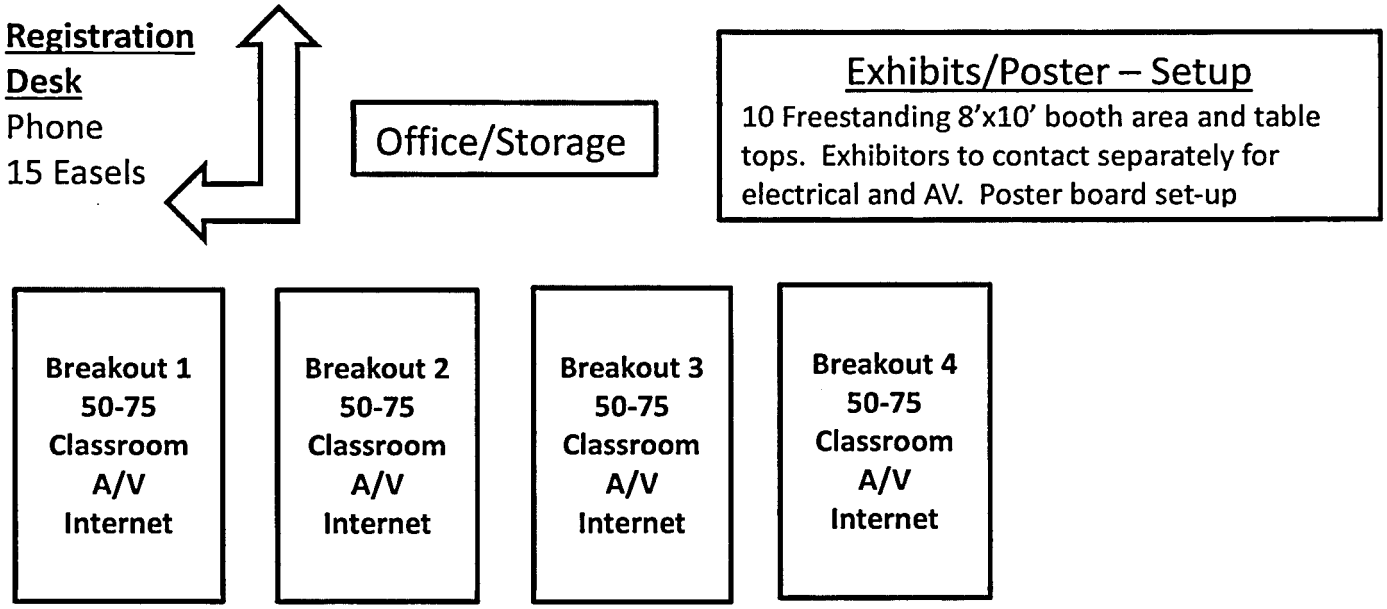
Day 1 (All Day)

a. *4 Breakout Rooms (Training)*
Classroom for 50-75
Podium, head table w/chairs on riser for two individuals
A/V cart, LCD projector, and screen
Wireless microphone (optional)
Electrical drop, if not included in A/V
Power strips with a minimum of four outlets per table
Flip chart with paper and markers
Internet access

b. Exhibitor and Poster Set up
Approximately 10 8'x10' mix of freestanding booth areas and table tops (number may change depending on Exhibitors)
Facility to provide one table, 2 chairs, wastebasket to each booth
Exhibitors to contract separately for electric and audio/visual
No pipe and draping
Set-up will be afternoon prior to conference start
15-25 4'x8' freestanding cloth poster boards (outside contractor)

DAY 2 – Training

Tuesday 8:00am – 12:00pm



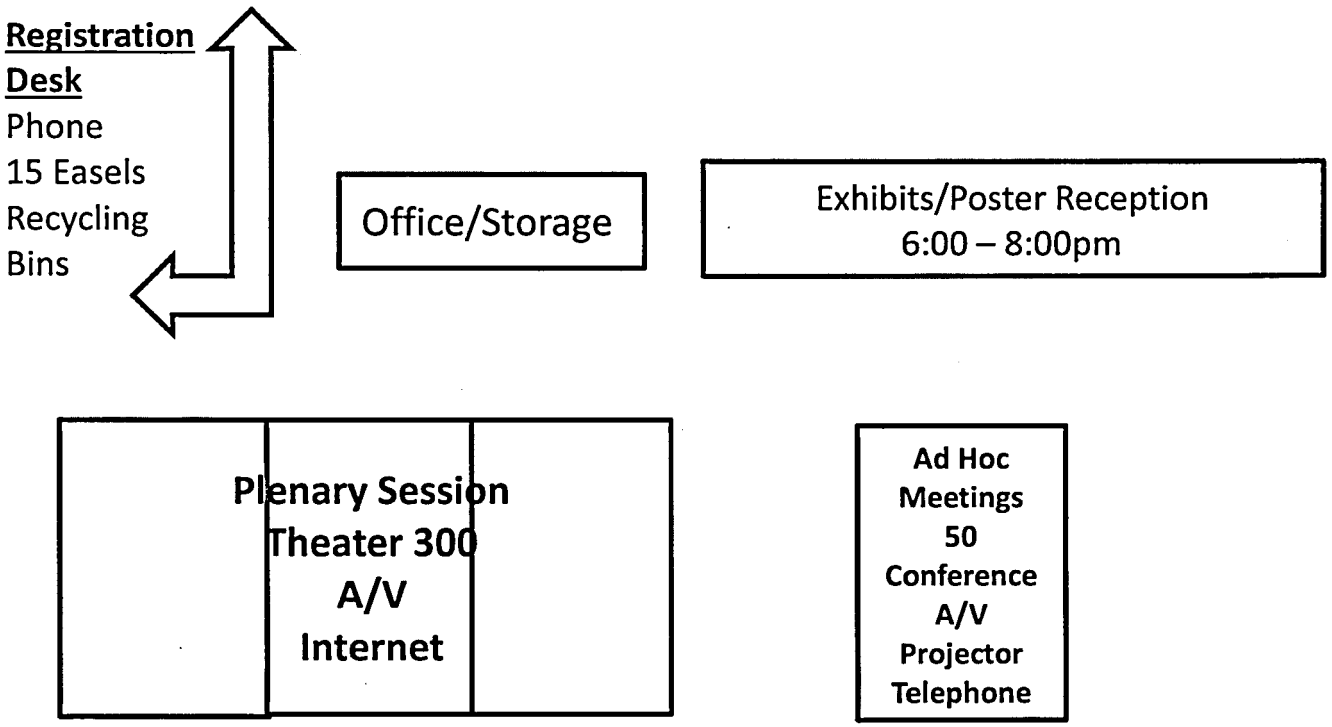
Day 2 (AM)

a. *4 Breakout Rooms (Training)*
Classroom for 50-75
Podium, head table w/chairs on riser for two individuals
A/V cart, LCD projector, and screen
Wireless microphone (optional)
Electrical drop, if not included in A/V
Power strips with a minimum of four outlets per table
Flip chart with paper and markers
Internet access

b. *Exhibitor and Poster Set up*
Approximately 10 8'x10' mix of freestanding booth areas and table tops (number may change depending on Exhibitors)
Facility to provide one table, 2 chairs, wastebasket to each booth
Exhibitors to contract separately for electric and audio/visual
No pipe and draping
Set-up will be afternoon prior to conference start
15-25 4'x8' freestanding cloth poster boards (outside contractor)

DAY 2 (PM) – Plenary Session

Tuesday - 1:00pm – 5:00pm



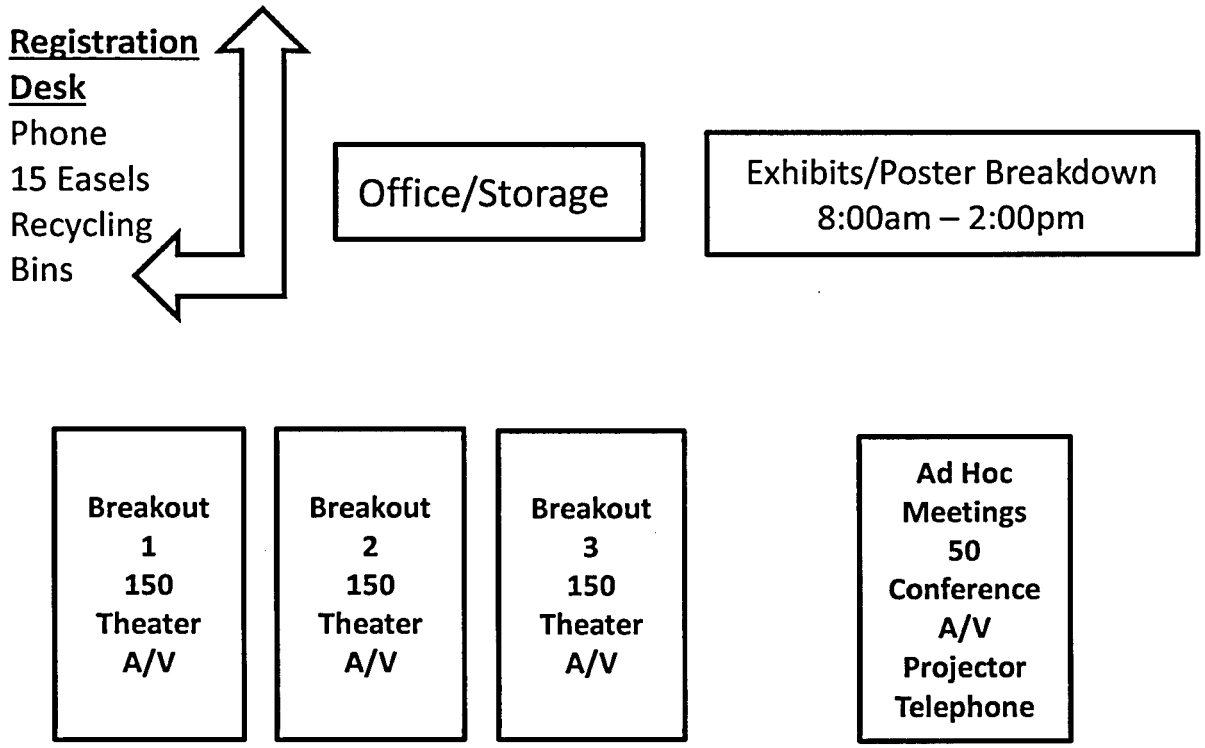
Day 2 (PM)

a. *Plenary Session*
   Theater seating for 300/350
   Podium, head table w/chairs on riser for 10 individuals
   A/V cart, LCD projector, 2 screens (if appropriate for room)
   Wireless microphone
   Sound mixer
   Electrical drop, if not included as part of A/V
   Internet access

b. *Ad Hoc Meeting space available each day for conference*
   Conference seating for 45/50
   Projector Screen
   Electrical drop
   Telephone to receive incoming phone calls
   Room should remain open until 7:00pm

DAY 3 (All Day) – General Session

Wednesday – 8:00am - 5:00pm



Day 3 (All Day)

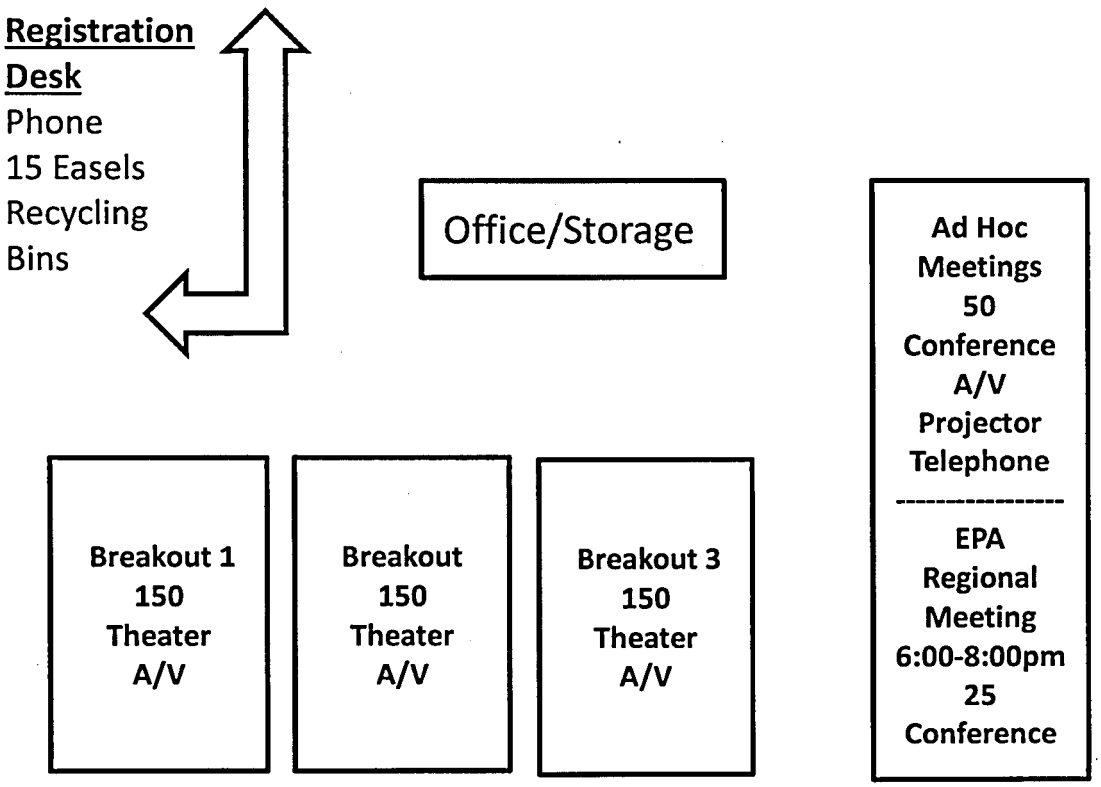
a. *3 Breakout rooms (Converted from Plenary Session)*
   Theater seating for 150 each
   Podium, head table w/chairs on riser for 2 individuals
   A/V cart, LCD projector, screen appropriate for room size
   Wireless microphone
   Electrical drop, if not included as part of A/V
   A/V equipment from morning Plenary Session may be re-used for breakouts

b. *Ad Hoc Meetings (continues)*

c. *Exhibitors/Posters session breakdown after lunch, must be completed by 2:00pm*

DAY 4 (All Day) – General Session

Thursday - 8:00am – 5:00pm



Day 4 (All Day)

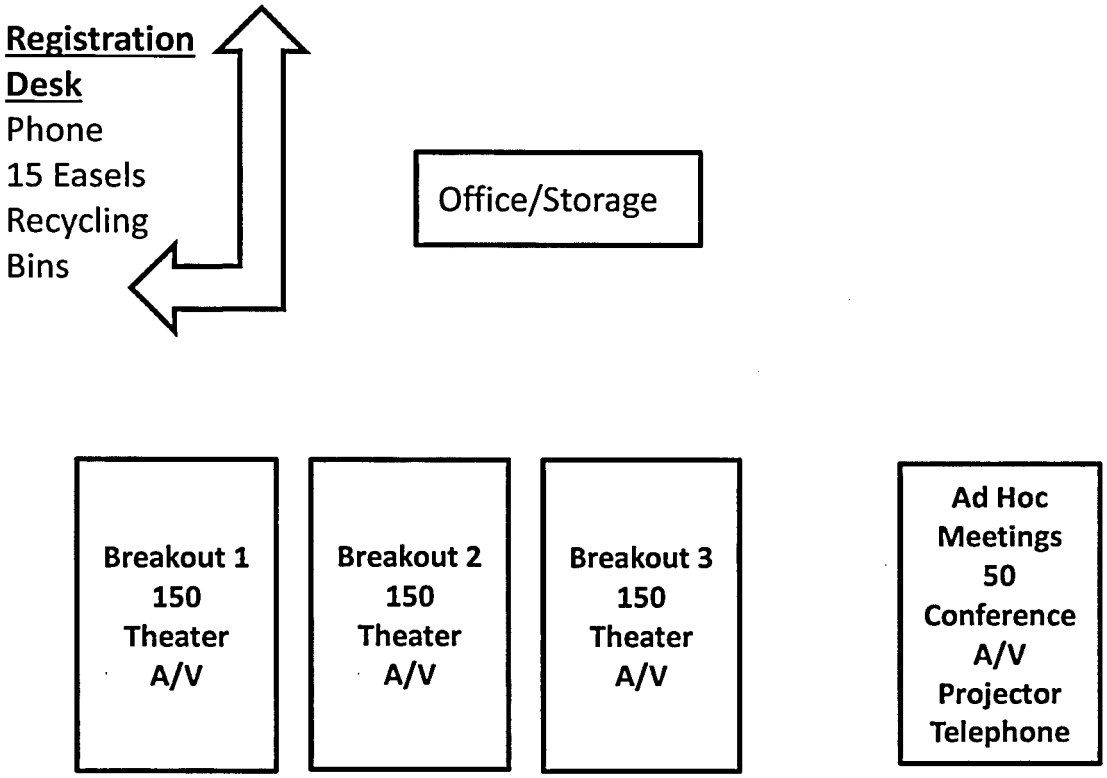
a. *3 Breakout rooms*
   Theater seating for 150 each
   Podium, head table w/chairs on riser for 2 individuals
   A/V cart, LCD projector, screen appropriate for room size
   Wireless microphone
   Electrical drop, if not included as part of A/V

b. *Ad Hocs meetings continues*

c. *Regional Meeting - Working dinner for 25 EPA personnel 6:00pm – 8:00pm*

DAY 5 (AM) – General Session

Friday - 8:00am – 12:00pm



V Day 5 until 12:00 Noon

a. *3 Breakout rooms*
   Theater seating for 150 each
   Podium, head table w/chairs on riser for 2 individuals
   A/V cart, LCD projector, screen appropriate for room size
   Wireless microphone
   Electrical drop, if not included as part of A/V
   A/V equipment from morning Plenary Session may be re-used for breakouts

b. *Ad Hocs meetings continues*

c. *Registration desk closes – conference concluded*

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-18

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039	Contract Period: 09/11/2013 To 07/31/2017 Base Option Period Number: 3	Title of Work Assignment/SF Site Name: Benefits Analysis Tools & Meth
Contractor: ABT ASSOCIATES INC.	Specify Section and paragraph of Contract SOW: A.2.2, A.6, B.6, C	

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/15/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017	Cost/Fee:	LOE: 0
This Action:		1,771
Total:		1,771

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Joel Corona (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-0006 FAX Number:
Project Officer Name: Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: Benefits Analysis Tools and Methodologies

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-18

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Estimated Level of Effort: 1771 hours

V. Key EPA Personnel:

Work Assignment Contract Officers Representative (WACOR):

Joel Corona
OW/IO/WPS (4101M)
202/564-0006
202/564-0500 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA or Agency) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines (ELGs)) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to support the development of tools that can be used to provide such estimates. For example, the Hydrologic and Water Quality System (HAWQS) is designed in such a way to assist in national level water quality modeling, useful in the context of benefits analysis for rule-making.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance project plan (QAPP) that will be developed under Task 2 of this work assignment. The QAPP shall describe the procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WAs 1-18 and 2-18 under this Contract EP-C-13-039. The work performed under this work assignment will not duplicate work conducted under the previous work assignments, but will cover tasks not completed under WA 2-18 (for

example, tasks that were delayed because the HAWQS modeling system was not ready for Abt to use).

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract Level Contracting Officers Representative (CL-COR) when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement (PWS) the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters shall be provided in hard copy and in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos shall be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan (30 hours estimated LOE)

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

A biweekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables, costs, and other potential issues.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.
1b. Biweekly Update Call.

Task 2 - Quality Assurance (31 hours estimated LOE)

2.a Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis and use of environmental data must have an approved QAPP in place prior to the commencement of the work. Examples of these environmental data operations are provided in **Table 2-1** below.

Table 2-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction and data manipulation

Table 2-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.b Quality Assurance (QA) Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP would need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis or use of environmental data.

The activities in this work assignment involve the collection, generation, evaluation, analysis or use of environmental data. Therefore, the Contractor must prepare a supplemental QAPP (SQAPP) that describes specific QA strategies that will be used when performing environmental data operations to support the objectives of this work assignment. The supplemental QAPP shall provide enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when using and generating primary environmental data through water quality modeling, as well as other data-related activities as they should arise.
- The type of data to be collected, generated, and used under this work assignment to support the project objectives— including data from search engines, federal databases, EPA data bases— as a well as a rationale for when those databases are appropriate and what data available in each will support the project
- The quality objectives needed to ensure the data will support the project objectives; and
- The quality assurance/quality control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

The Contractor's PQAPP covered these areas in general, and in some cases was sufficient to support the needs of this project. In other cases, an SQAPP is needed to provide additional detail not found in the PQAPP. The Contractor shall prepare and submit an SQAPP, consistent with the PQAPP and SQAPPs for other similar projects, that addresses these additional areas and submit the SQAPP to EPA for approval after developing the design for the HAWQS baseline described

under subtask 4B. The Contractor also shall use an active voice when writing the SQAPP.

2.c Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure that the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting this project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable, and this discussion must provide a sufficient level of detail to allow the Engineering and Analysis Division (EAD) QA Coordinator (or designee) to determine if the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WACOR will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's SQAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report.

2.d QAPP Schedule

Within 15 days after submittal of the HAWQS baseline run described in subtask 4B, the Contractor shall prepare and submit an SQAPP that addresses primary data related to this project.

- All activities performed under this work assignment prior to submission and approval of the SQAPP must comply with the QA/QC strategies documented in the Contractor's approved PQAPP.
- Any and all deviations from the PQAPP must be documented in the SQAPP that is submitted to EPA for approval.
- EPA will review the submitted SQAPP and provide the Contractor with written approval or comments within 15 days of receiving the Contractor's submission.

- The Contractor shall revise the submitted SQAPP within 10 days of receipt, unless otherwise instructed by the EPA WACOR.
- If the SQAPP is not fully approved (signed) within 50 days after submission of the SQAPP, the Contractor must stop performing any activities that that involve the collection, generation, evaluation, analysis or use of environmental data, unless explicit written permission to continue doing so is provided by the EPA WACOR.

2.e Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and SQAPPs.) The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractor should indicate which results were obtained using the tools (standard operating procedures (SOPs), checklists, and guidelines) that the Contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the Contractors may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, February 2009. If this is required, the EPA WACOR will notify the Contractor through written technical direction.

2.f QA Deliverables

Deliverable	Projected Schedule Date
Supplemental QAPP	Within 15 days after submittal of subtask 4B deliverable
Revised SQAPP reflecting EPA comments, if needed	Within 10 days of receipt of EPA comments on initial submission
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly throughout the WA period of performance

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum (5 hours estimated LOE)

The contractor shall prepare and submit a memorandum that proposes a standardized naming convention and version control (SNCVC) for all deliverables associated with the WA. This system will ensure that deliverables are clearly named and dated and that the sequence of versions of a document is clear. The EPA WACOR will review the memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare a revised SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor will use this standardized convention for all deliverables associated with the work assignment(s). The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point during the WA.

Deliverables and schedule under Task 3

3a. SNCVC memorandum within 7 calendar days of work plan approval.
3b. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 - Provide Technical Support for the Hydrologic and Water Quality System (HAWQS) (830 hours estimated LOE)

The contractor shall provide technical support related to the Hydrologic and Water Quality System (HAWQS). HAWQS has been developed in partnership with the United States Department of Agriculture and Texas A & M University. HAWQS is currently undergoing calibration and validation, and will subsequently be externally peer reviewed. This will conclude the development of the core HAWQS model. In the future, EPA may be interested in additional post-processing modules or other user-friendly enhancements.

Subtask 4A
Under this subtask, and by written technical direction, the contractor shall prepare 3-5 technical memoranda, requirements analyses, feasibility analyses, or other such technical or user-aimed documents. Examples *could* include:

- Options for different calibration/validation approaches for HAWQS
- Lessons learned on how using HAWQS has resulted in time and/or resource efficiencies.
- Further recommendations on how to apply a meta model framework to HAWQS (as initially addressed in EPA Contract EP-C-07-023, Work Assignment 5-39)

Subtask 4B
Under this subtask, the contractor shall provide technical support in developing a national baseline run or set of regional runs for HAWQS in such a way to be of most use to future HAWQS users. This subtask will include identifying variables and time periods of interest, as

well as other issues that may affect the feasibility of conducting a national baseline run.

Subtask 4C
Under this subtask, subsequent to the review of deliverables under Subtask 4B, and by technical direction by EPA, the contractor shall conduct a national baseline run (or its equivalent) using HAWQS.

In addition, contractor support may include responding to management questions about economic issues, preparing briefing and meeting materials (which may include but are not limited to short briefing documents and PowerPoint presentations). The contractors may also be requested to participate in and/or conduct briefings, assisting Agency economists in their review of analyses conducted by EPA and its contractors, and providing technical review of materials prepared by Agency staff.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule under Task 4

4a. Draft deliverables and due dates to be determined by written technical direction.
4b. Final deliverable due dates to be determined by written technical direction.

Task 5 - Provide Technical Support for Benefits Analysis Methodologies (185 hours estimated LOE)

The contractor shall provide technical support related to environmental assessment, and economic cost and benefit assessment issues associated with benefit cost analysis. EPA is interested in advancing the Agency's ability to conduct benefits analysis related to water quality improvements. In addition to work planned in WAs 1-20, 2-20, 2-35, 3-20, and 3-35 of this contract (in support of EPA cross-office benefits work), EPA is interested in related and unrelated methodological questions. Under this task, the contractor shall provide technical support in the form of 2-3 technical memoranda or other documents to support methodological improvements in EPA's ability to conduct benefits analysis.

Examples of topics *could* include:

- Approaches to conducting a retrospective benefit-cost analysis of the CWA.
- Identification of coverage gaps (geography, waterbody type, water quality level, water quality change, etc.) in existing stated preference work and recommendations on how to resolve existing issues

Such support may also include responding to management questions about economic issues,

preparing briefing and meeting materials (which may include but are not limited to short briefing documents and PowerPoint presentations). The contractors may also be directed to participate in and/or conduct briefings, assisting Agency economists in their review of analyses conducted by EPA and its contractors, and providing technical review of materials prepared by Agency staff.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule under Task 5

5a. Draft deliverables and due dates to be determined by written technical direction.
5b. Final deliverable due dates to be determined by written technical direction.

Task 6 - Provide Technical Support for the Trash Free Waters Initiative (345 hours estimated LOE)

In support of the Trash Free Waters Initiative, EPA has need for quantitative analysis of marine debris impacts. The program has identified a need for a "national number for marine trash abatement" and, in pursuit of that goal, EPA is interested both in existing economic literature and the potential for additional research pursuant to aquatic trash.

Subtask 6A
Under this subtask, and in consultation with the WACOR, the contractor shall provide a comprehensive review of existing literature on topics relating to the prevention, capture, and management of debris destined for marine environments.

Subtask 6B
Under this subtask, subsequent to review of deliverables under Subtask 6A and pending technical direction from the WACOR, the contractor shall develop summary tables and a discussion of the options for explicitly linking aquatic trash abatement or prevention to economic benefits in order to inform the work of the Trash Free Waters Program. This discussion shall include a synthesis of best current practices available and possible future directions (keeping in mind the goal of supporting improved benefit-cost analyses for Marine Trash Abatement). Based on the literature search, the contractor shall also identify the surface water benefit categories most important/most valuable to people. The contractor shall specifically focus on the limitation of the existing literature and data with respect to national considerations.

Subtask 6C
Under this subtask, and subject to written technical direction, the contractor shall provide additional technical support for the Trash Free Waters Program in the form of 1-2 technical memoranda or other similar documents of varying length.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval. Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule under Task 6

6a. Draft deliverables and due dates to be determined by written technical direction.
6b. Final deliverable due dates to be determined by written technical direction.

Task 7 - Provide Technical Support for Economics related to Harmful Algal Blooms (HABs) (345 hours estimated LOE)

Harmful algal blooms (HABs) are a threat to public and social health of communities across the nation. This task will complement and build on extensive research by EPA and others in this area, by providing technical support related to the economic impacts of HABs. For example, **HABS and Hypoxia: An Interagency Report** recommends evaluating the socioeconomic impact of HABs and hypoxia, and the costs of mitigation, among other actions. EPA may need specific support if undertaking this recommendation. Under this task, the contractor shall provide technical support related to the economics of HABs in the form of 2-3 technical memoranda or other documents of varying length.

These *may* include:

- Comprehensive review of the literature related to the economic impacts of HABs
- Technical memorandum on methodological approaches to measuring the economic impacts of HABs, including differentiating between approaches more appropriate at local, regional, and national scales

The contractor shall prepare draft deliverable material for EPA WACOR review and approval. Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule under Task 7

7a. Draft deliverables and due dates to be determined by written technical direction.
7b. Final deliverable due dates to be determined by written technical direction.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-18

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Benefits Analysis Tools & Meth

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A.2.2, A.6, B.6, C

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 09/20/2016 To 07/31/2017

Comments:
Adding Alternate WACOR, therefore, a zero-cost amendment. A work plan is not required.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017 Cost/Fee: LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: Cost/Fee LOE:

Cumulative Approved: Cost/Fee LOE:

Work Assignment Manager Name Joel Corona (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-0006 FAX Number:	
Project Officer Name Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:	
Contracting Official Name Tammy Adams (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545	

WORK ASSIGNMENT

I. Title: Benefits Analysis Tools and Methodologies

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-18, Amendment 1

III. Estimated Period of Performance: Amendment approval through July 31, 2017

IV. Estimated Level of Effort: 0 hours

V. Key EPA Personnel:

Work Assignment Contract Officer Representative (WACOR):

Joel Corona
OW/IO/WPS (4101M)
202/564-0006
202/564-0500 (fax)

Alternate Work Assignment Contracting Officer Representative (Alt WACOR):

Michael Trombley
OW/IO/WPS (4101M)
(202) 564-3906

VI. Purpose:

This amendment adds Michael Trombley as the Alternate Work Assignment Contracting Officer Representative. All tasks and level of effort remain unchanged.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-20

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Analytic Support for EPA Cross

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Paragraphs B.1, C.1, and G

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Performance on this Work Assignment shall not begin until August 1, 2016. Meeting/Conference is authorized; however, this consent does not constitute a determination of the allowability of cost incurred.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		2,480
Total:		2,480

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Joel Corona	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-0006 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT
PERFORMANCE WORK STATEMENT

I. Title: Analytical Support for EPA Cross Office Water Benefits Work

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-20

III. Estimated Period of Performance: August 1, 2016 through July 31, 2017

IV. Estimated Level of Effort: 2480 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):
Joel Corona
OW/IO/WPS (MC-4101M)
(202) 564-0006

Alternate Work Assignment Contracting Officer Representative (WACOR):
Ashley Allen
OW/OST/EAD (4303T)
(202) 566-1012

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA) to develop national water quality-based regulations for surface waters of the United States (US) and technology-based regulations for categories of industries that discharge pollutants directly to surface waters. Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to support EPA's efforts to improve its ability to monetize the benefits associated with these regulatory actions.

EPA wants to add to the body of existing valuation research as well as improve upon methodologies for translating policy decisions and the resulting estimates of water quality improvements into environmental services and ultimately monetized benefits. As part of this effort, EPA anticipates performing one or more revealed preference analyses. These analyses will either be recreational demand studies, hedonic property value studies or both. EPA also intends to do a comprehensive assessment of existing water quality models with regards to how well they address EPA's current and anticipated water quality modeling needs. The assessment will account for each model's temporal and spatial prediction scale, scope or water types modeled, output parameters, and potential for interoperability with Office of Water's (OW) water quality modeling platform

Hydrologic and Water Quality System (HAWQS).

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved project quality assurance project plan (PQAPP). The PQAPP describes the procedures for assuring the quality of the secondary environmental and economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor will continue and build upon work performed under WA 1-20 and WA 2-20 under Contract EP-C-13-039. The work performed under this work assignment will not duplicate work conducted under these previous work assignments.

Under the previous work assignments, Abt Associates performed the following tasks:

- Identifying and assembling surface water quality data sets to support case studies of the relationships between property values and surface water quality;
- Identifying and assembling information on available surface water quality models with potential utility for national and regional-scale environmental impact analyses;
- Identifying and assembling property transaction and property attribute data sets to support case studies of the relationships between property values and surface water quality;
- Writing a memo that describes potential approaches for using available information to create a methodology for assessing surface water quality effects on property values at a national scale;
- Writing a memo that describes potential approaches for using available information to create a methodology for assessing surface water quality effects on recreational use values at a large regional or national scale;
- Identifying and commissioning a group of subject matter experts to develop papers on various issues related to economic benefits transfer analyses;
- Initiating efforts to plan and support a workshop on economic benefits transfer issues;
- Developing design and planning memos, collecting existing data sets, and developing other preliminary products in support of a platform for facilitating estimation of benefits from surface water quality improvements at the national scale.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor is not expected to be accessing and evaluating CBI. However, if such a need arises, the contractor shall adhere to EPA's CBI policy and other procedures as described in the contract clauses (Clauses H.15-H19 and H.21). The contractor must maintain CBI security clearance to use CBI information. The contractor shall not disclose any CBI to anyone other than EPA without prior written approval from the EPA WACOR. The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents

developed under this work assignment in accordance with the procedures set forth in our "Office of Science and Technology Confidential Business Information Application Security Plan" (August 2011) or its successor approved plans.

Budget Reporting: The contractor under this work assignment shall report to the EPA WACOR and Contract Level Contracting Officer Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: The contractor shall be required to travel under this work assignment. Travel may be to participate with EPA in on site data collection, in meetings with trade associations, and to meet with EPA to discuss methodology and other important issues associated with the project. A request for approval for any travel directly chargeable to this work assignment must be submitted and approved by the CL-COR before travel begins.

Conferences and Workshops: The contractor shall immediately alert the EPA WACOR to any anticipated event under the work assignment which may result in incurring an estimated $20,000 or more cost, funded by EPA, specific to that event, meeting, training, retreat, seminar, symposium, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, including all outlays for conference preparation, AV and rental of venue costs, promotional items, supplies, etc. The EPA WACOR will then prepare for approval the internal paperwork for the event and will provide it to the CO. The CO will advise the contractor when appropriate signatures have been obtained and they are authorized to incur cost. At that point, effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment signed by the CO. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

A weekly update call with the EPA WACOR will be required for this WA to discuss progress on deliverables and other potential issues.

Deliverables and Schedule under Task 1

1a. Workplan within 15 calendar days of receipt of WA.

1b. If required, revised workplan within 7 calendar days of receipt of comments from the Contracting Officer.

Task 2 - Quality Assurance (QA)

2.1 Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis, and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in **Table 1-1** below.

Table 1-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this WA involve gathering, evaluating, analyzing, and otherwise using existing environmental and economic data (also known as "secondary" use of data). EPA has determined that the contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this WA. In support of this WA, the contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this WA such as researching data sources and models, evaluating and processing data, documenting data processing and quality, assembling, evaluating, and implementing model collections; assessment of model results;
- The type of data to be gathered or used under this WA to support the project objectives—including data from search engines, federal databases, and EPA data bases—as well as a

rationale for when those databases are appropriate and what data available in each will support the project;

- The quality objectives needed to ensure the data will support the project objectives; and,
- The quality assurance/quality control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Table A-1 in the Appendix to this WA demonstrates how the PQAPP addresses QA requirements for this WA.

The contractor shall fill in staff roles to the Table A-1 checklist under Row A.4 and make any additional detailed notes in the 'explanatory comments' column as requested by the WACOR, when this information differs from the existing PQAPP (*Programmatic Quality Assurance Project Plan (PQAPP) for Economic, Environmental, and Regulatory Analytical and Evaluation Support for Clean Water Regulations* (Contract No. EP-C-13-039), December 21, 2015, Revision 2). When this information does not differ from the existing PQAPP the contractor should simply cite the PQAPP. The contractor shall then include the completed Table A-1 as a separate Appendix A to the work plan upon submittal to EPA. This Appendix A will be a stand-alone document when QA documentation is required to support EPA regulatory activities, therefore, the Table A-1 title must include the title of the WA, WA number, contract number, and what projects each covers. The WACOR has provided this information in the title, which the contractor may use to fulfill this requirement.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure that the reports provide enough information to enable a knowledgeable reader to determine whether the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the contractor under this WA must include a discussion of the QA/QC activities that were performed to support the deliverable. This discussion

must provide a sufficient level of detail to allow the Engineering and Analysis Division (EAD) QA Coordinator (or designee) to determine whether the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WACOR will review each applicable report and certify whether the contractor has adhered to the QA requirements documented in the contractor's PQAPP.

The contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this WA. These monthly QA reports shall identify QA activities performed to support implementation of this WA, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the contractor may include this report as a part of the contract-required monthly financial/technical progress report.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis so that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and SQAPPs.) The contractor may claim information in QAPPs as confidential; if the contractor chooses to do so, the contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the contractor should indicate which results were obtained using the tools (Standard Operating Procedures (SOPs), checklists, and guidelines) that the contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractor may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, March 2015. If this is required, the EPA WACOR will notify the contractor through written technical direction.

Deliverables and Schedule under Task 2

Deliverable	Projected Schedule Date
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly throughout the WA period of performance

Task 3 - Adherence to the Standardized Naming Convention and Version Control

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan that was developed under the Construction and Development WA 0-01 of contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point under this WA. The EPA WACOR will review the revised memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare the edited SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use the revised SNCVC.

Deliverables and Schedule under Task 3

3a. Revised SNCVC memorandum within 3 calendar days of EPA WACOR technical direction.

3b. If additional edits are required the memorandum must be updated within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 – Planning for National Water Quality Benefits Platform

EPA is in the process of developing a software platform to facilitate and enhance the estimation of the benefits of surface water quality improvement. Under the previous WA 2-20 this work was divided between Task 13, which covered the planning work, and Task 14, which covered the actual development work. The development work covered under this work assignment is based on the planning work performed under the previous WA 2-20, and will result in the first working version of the model. Task 4 under this work assignment will cover the planning of future changes and updates to this first version. Specifically, the contractor shall undertake the following activities:

-Organize and facilitate meetings with EPA staff to discuss planning and design issues (minimum of one meeting per month) for version two of the model. In addition, EPA anticipates that up to six contractor staff will need to travel to Washington DC for a one day meeting to discuss planning for future versions of the National Water Quality Benefits Framework with EPA staff and managers.

-As requested through technical direction from EPA, develop additional memos, briefing materials, planning documents, and/or other summary materials in order to provide

information and options for EPA staff on issues relevant to future platform development. Development of these materials could require review and collection of existing literature and data sets. At this time, EPA anticipates requesting up to 5 documents.

Deliverables and Schedule under Task 4

4a. Draft memos, briefing materials, planning documents, or other summary materials, each document delivered to EPA within 30 days of receiving technical direction from EPA WACOR.

4b. Revised memos, briefing materials, planning documents, or other summary materials, each document delivered to EPA within 15 days of receiving technical direction from EPA WACOR.

Task 5 – National Water Quality Benefits Platform Development

Under this task, the contractor shall continue work begun under WA 2-20 on developing an initial version of a model that calculates economic benefits associated with improvements in water quality. This initial version of the model will not include water quality modeling components, but will be able to use outputs from existing water quality models, such as the Soil and Water Assessment Tool (SWAT) or HAWQS. The EPA WACOR anticipates that this initial version of the model will be a desktop application, although the storage of large data sets and computationally intensive calculations may need to be done externally, such as operations executed via a web-link.

The specific model elements to be addressed by the contractor under this task are provided in the three tables below. The table rows represent the five principal modules that are expected to comprise the model, while the table columns separate the elements of each module into inputs, functionality, and interface elements. Note that not all cells are filled, since some modules, such as Linking Populations to Waterbodies, may not require external inputs or display capabilities for this initial version. The contractor shall develop deliverable versions of the model so that it incorporates the elements specified in the deliverable table, progressing from Table 1 through Table 3 and culminating into what will become a final "version one" of the model. Some of the model elements in the first table were completed or at least initiated by the contractor under WA 2-20. Under this WA the contractor shall incorporate changes requested by the EPA WACOR to those model elements completed or initiated under the previous WA. The EPA WACOR will provide a description of the required changes through written technical direction to the contractor. The first deliverable under this WA shall be a version of the model that incorporates the elements contained in the Deliverable Table 2, any remaining Table 1 elements not completed under the previous WA, and the required changes provided through the said technical direction. Similarly, the EPA WACOR will then review the deliverable provided according to Table 2 and provide further written technical direction on any changes that are necessary. The contractor shall then deliver a version of the model that incorporates the elements contained in the Table 3, as well as the required changes based on the previous deliverable.

For each deliverable, the contractor shall deliver an executable file of the model that runs

on the Windows operating system. For each of the external data elements listed in the Input column of the deliverable table, the contractor shall deliver the data inputs or provide a way to access and work with this data from the Internet using the model interface. The contractor shall deliver a brief set of instructions (1-2 pages) for using the model with each deliverable as well.

After the EPA WACOR has reviewed and determined that the elements from the three tables have been sufficiently incorporated into the model, the WACOR will provide the contractor with technical direction to finalize version 1.0 of the model. To finalize version 1.0 the contractor shall conduct a thorough review of the model code and deliver a report identifying any issues found and what changes to the code or data sets were made to address them. Before beginning the review the contractor shall submit a testing and code review plan (1-2 pages) to the WACOR. Throughout the model development process the contractor shall document the model code with annotations and comments to facilitate eventual review. As final deliverable for this task, the contractor shall deliver the annotated model code with version 1.0 of the model, as well as a User's Manual (10-20 pages) for the model.

So that the EPA WACOR and platform sub-group can sufficiently assess progress and provide feedback during the development work for each deliverable, the contractor shall deliver 5 demonstrations, one for each module, using Adobe Connect. Each demonstration shall take approximately 30 minutes and focus on the module and how it fits within the larger model. The EPA WACOR anticipates there will be a need for 10-15 demonstrations under this WA. These demonstrations will primarily be for the platform sub-group and WACOR (5 people), but the contractor should anticipate that 3-4 of these demonstrations might be for the larger steering committee (16-18 people). For each deliverable, the contractor shall discuss with EPA deviations from the specifications provided in Table 2 or Table 3 that may be necessary to accomplish the model objectives. If agreed, the EPA WACOR will then issue written technical direction, as needed, to modify elements. The EPA WACOR and contractor shall discuss the schedule for the demonstrations, and the specific dates and times for each demonstration will be provided to the contractor by the EPA WACOR though written technical direction.

Deliverables and Schedule under Task 5

5a. The contractor shall participate in a weekly meeting with EPA to go over the progression of the development work and to discuss any deviation that may be necessary to the elements contained in Tables 1-3 to meet the model objectives and, if needed, changes in the deliverable dates.

5b. The contractor shall deliver 5 module demonstrations of the work to incorporate Table 2 elements using Adobe Connect or similar Web-facilitated meeting platform. The timing for these demonstrations shall be provided through written technical direction from the EPA WACOR.

5c. The contractor shall deliver an executable file, data sets, raw code, and set of instructions for the version of the model based on Table 2, within six weeks of receiving the work assignment unless the delivery date is extended by the WACOR through technical direction.

5d. The contractor shall deliver 5 module demonstrations of the work to incorporate Table 3 elements using Adobe Connect or similar Web-facilitated meeting platform. The timing for these demonstrations shall be provided through written technical direction from the EPA WACOR.

5e. The contractor shall deliver an executable file, data sets, raw code, and set of instructions for the version of the model based on Table 3, within 12 weeks of receiving the work assignment unless the delivery date is extended by the WACOR through technical direction.

5f. The contractor shall deliver a testing and code review plan within two weeks of delivering the Table 3 version of the model.

5g. The contractor shall deliver a code review report within two weeks of receiving technical direction from the WACOR, or another deadline specified by the WACOR through technical direction.

5h. The contractor shall deliver an executable file, data sets, annotated code, and user's manual for the final "version 1.0" of the model, within 4 weeks of delivering the code review report unless the delivery date is extended by the WACOR through technical direction.

Task 5 - Deliverable Table 1

Modules	Inputs	Functionality	Interface
Characterize water bodies and water quality	GIS layers for waters and associated watersheds, preferably at the HUC 12 scale for this deliverable. Can be limited to a region of the country (e.g. Chesapeake Bay Watershed) for this deliverable. The model shall allow for the import of water quality parameter data to estimate baseline conditions. The baseline should represent a specific year or a multi-year average using the same set of years. For this deliverable, use annual average values for suspended solids, nitrogen, phosphorus, fecal coliform, DO, and BOD as the water quality inputs.	Allow for the selection of a set of waters to be analyzed based on pre-established boundaries, such as watersheds or state borders. Allow the baseline conditions for these waters to be changed to represent a policy scenario. This could be a numeric or percentage change in baseline parameter measurements.	Display the waterbodies under consideration with GIS based framework.
Characterize the economic endpoints		Choose an economic endpoint for each water body under consideration from a suite of possible ways to value water quality. For this deliverable, allow for the use of either a single parameter or multiple parameters in the form of an index. For this deliverable the single parameter should be water clarity, and the index should be the version used for the Construction & Development ELG. Calculate the change in the valuation endpoint for all rivers and streams in the area of study using the baseline and policy scenario water quality parameters	
Characterize the population	Allow for the import of socio-economic parameters for the relevant population from an external dataset. For this deliverable, this can be limited to the parameters of: population, households, and income; and at the scale of county, census tract, and census block group.	Allow for the selection of the unit of observation for the population (e.g., census tract, zip code, census block, county, state, etc.)	Display the relevant population for the area in the GIS framework. This population may be more extensive (geographically speaking) than the stream network being modeled.
Linking the population to the water		Link the population unit of observation (e.g., zip code) to the water bodies under consideration for	

Modules	Inputs	Functionality	Interface
bodies		valuation. For this deliverable, the population and water bodies in the same geographical area are linked (e.g., the population within a state values the waters in that same state).	
Valuation		User should be able to choose from a suite of valuation approaches. For this deliverable, allow users to set a fixed willingness to pay (WTP) value used by all individuals or households for changes in the economic endpoint of linked water bodies. Allow for this fixed WTP value to be based on a per unit change for the economic endpoint (e.g. one point change on the WQI) or for the linked water meeting or exceeding a threshold value.	Display the valuation of the policy scenario in tabular or spreadsheet form.

Task 5 - Deliverable Table 2

Modules	Input Availability	Functional Capabilities	Interface
Characterize water bodies and water quality		Allow for the selection of a set of waters to be analyzed based on drawing a polygon or by defining a centroid and radius for a circle. Allow the user to select individual waters through the GIS interface, and then to change the baseline conditions for these specific waters to reflect a policy scenario.	Display the baseline and policy scenario water quality conditions in the GIS framework using a color scheme or bar graphs.
Characterize the economic endpoints			Display the baseline and policy scenario valuation endpoint in the GIS framework using a color scheme or bar graphs.
Characterize the population	Allow for the import of socio-economic parameters for analyzing environmental justice concerns For this deliverable this can be limited to the proportion of households below the poverty line, the proportion of minorities, and children. The scale should include the three geographic units in deliverable one, but also include zip codes and census blocks.		Display the demographic characteristics of the relevant population in the GIS framework using a color scheme or bar graphs.
Linking the population to the water bodies		For this deliverable, allow for linking the units of observation for population to all the waters within a radius (e.g. 100 miles) that is set by the users.	
Valuation		User should be able to choose from a suite of valuation approaches, one of which should be a WTP function based on a study or meta-analysis. For this deliverable, the function should be based on MRM2-S from the Steam Electric ELG.	Display the valuation of the policy scenario in both the GIS framework using a color scheme or bar graphs.

Task 5 – Deliverable Table 3

Modules	Input Availability	Functional Capabilities	Interface
Characterize water bodies and water quality	Waterbodies and associated watersheds for the contiguous 48 states at HUC 12 scale. NHD medium resolution scale, if sufficiently available for the 48 states.	Allow the change in baseline conditions for waters due to a policy scenario to be represented based on an external dataset, such as HAWQS modeling results. Allow simulation of a transition period for policy implementation (i.e. gradual change from baseline to policy option over multiple time steps.) Allow for alternative time steps (seasonal, monthly, etc.)	
Characterize the economic endpoints		For this deliverable, add the option of using a threshold based on some water quality criteria (e.g. a "designated use criteria," a "Human Health Water Quality Criteria," an "Aquatic Life Ambient Water Quality Criteria," etc.) to represent the water quality economic endpoint.	
Characterize the population			
Linking the population to the water bodies		For this deliverable, allow for linking the relevant population units to all the waters being analyzed.	
Valuation		For this deliverable, the user should be able to specify a function which includes four different types of parameters. 1) Socio-economic characteristics (e.g., income, age, etc.). 2) Characteristics of the water body (e.g., length of the reach, river or lake, etc.). 3) The number of different waterbodies affected. 4) Distance to the waterbody. The user should have the ability to set: a minimum and maximum distance, outside of which no valuation is applied; and a distance decay parameter which can be multiplied or exponentiated to the distance to diminish the willingness to pay value as distance increases.	

Task 6 – Benefits Transfer Papers

EPA is investigating approaches to improving the quality of benefits transfer techniques. Under the previous WAs 1-20 and 2-20, the contractor initiated effort on this task by assisting in recruiting a senior scholar to help with the development of a series of papers on benefits transfer issues. The contractor also assisted in recruiting and commissioning a group of leading scholars to develop a series of papers on benefits transfer issues. The scholars developed paper outlines and initiated work on developing complete papers under WA 2-20. Under this WA, the scholars shall produce final versions of their papers. The contractor shall provide copies of the final version of each paper to the EPA WACOR.

Deliverables and Schedule under Task 6

6. Provide copies of the final version of all papers to the EPA WACOR by November 9, 2016.

Task 7 – Workshop Support

Under WA 2-20, the contractor began assisting EPA in making arrangements for a workshop on Approaches to Benefits Transfer, which will occur in December 2016. The contractor assisted EPA with recruiting a senior scholar to chair the workshop. The contractor also assisted EPA in engaging and recruiting leading scholars to report on their own and others' research and to speak to benefits transfer issues for practitioners. The contractor also worked with EPA in identifying five other leading scholars who will serve as discussants of benefits transfer issues at the workshop.

Under this WA the contractor shall assist EPA in identifying and making arrangements for 8 - 12 additional experts to serve as panelists for discussions at the workshop. The contractor shall also assist EPA in conducting the workshop at which experts will present papers and all workshop participants will discuss approaches to benefits transfer.

Under this task, the contractor shall provide planning support for the workshop. Approximately 65 participants (including the Chair, paper authors, discussants, expert panelists, and EPA staff) will attend the workshop in person. Under WA 2-20, the contractor assisted EPA in identifying an appropriate venue for the conference. The contractor shall ensure that the meeting location has the appropriate audio/video capabilities or that alternate arrangements can be made (e.g., bringing in equipment). The contractor shall make all necessary arrangements to secure a hotel room block for all invited experts at the government rate in close proximity to the workshop location. The contractor shall also make arrangements to provide for the travel expenses of invited expert workshop participants.

The contractor shall develop a registration process to organize the list and pertinent details of invited experts and EPA attendees. The contractor shall develop the invitee list through consultation with the EPA WACOR. The EPA WACOR shall provide a list of EPA invitees to the contractor. The contractor shall issue invitations to all invitees and keep a list of responses received. The contractor shall utilize an approved online registration platform to track invitees. Registration will be tracked and reported to the EPA WACOR on a weekly basis. If an invitee does not respond within 2 weeks of receiving the invitations, the contractor shall send a reminder email to the invitee. If the invitee does not respond within a week of receiving the reminder email, the contractor shall rescind the invitation. If vacancies arise as a result of some invitees being unable to attend, the EPA WACOR may ask the contractor to extend and track additional invitations. Additional invitees will be identified through consultation with

the EPA WACOR.

The contractor shall develop and/or prepare all necessary materials prior to the workshop, such as nametags, copies of the agenda, and other handouts. The contractor shall consult with the EPA WACOR on the content of the agenda and other materials to be provided to workshop participants and incorporate any comments from the EPA WACOR prior to finalizing and producing copies of the materials.

The contractor shall provide all on-site logistical support required for conducting the workshop at the selected venue. The contractor shall organize and execute the workshop registration process and provide for the distribution of the workshop agenda and other workshop materials. The contractor shall facilitate execution of the meeting based on the meeting agenda. The contractor shall support documentation of the workshop by measures such as providing note takers with sufficient subject matter expertise and arranging for audio recording as backup. The contractor shall provide support for the use of audio/visual equipment, including ascertaining its functionality before the workshop begins on each workshop day. The contractor shall assist in participants' use of the meeting facility including use of the audio/video equipment. If directed by the EPA WACOR, the contractor shall also set up and manage telephonic and/or internet connections for EPA employees to attend remotely.

The contractor shall also support workshop follow-up activities such as providing copies of the presentations, a list of attendees, and potentially other materials to meeting participants. The contractor shall develop a compilation of the proceedings using notes, recordings, and other documentation to document expert presentations, points of discussion, and outcomes achieved including any action items for future consultation. The contractor shall provide a draft version of the compilation to the EPA WACOR for review and comments. The contractor shall incorporate comments from the EPA WACOR in the final version of the compilation.

Deliverables and Schedule under Task 7

7a. Set up and activate workshop invitation material on an approved online registration platform and issue initial invitations by September 12, 2016. Issue additional invitations based on written technical direction from the EPA WACOR.

7b. Provide weekly reports to EPA on workshop invitation response status.

7c. Provide final list of workshop participants to EPA by November 21, 2016.

7d. Provide to EPA draft versions of agenda and any other materials to be provided to workshop participants by November 14, 2016.

7e. Provide to EPA final versions of agenda and any other materials to be provided to workshop participants by November 28, 2016.

7f. Based on written technical direction from EPA WACOR, arrange for telephonic and/or internet workshop access and provide access instructions to EPA by November 28, 2016.

7g. Provide to EPA a draft version of workshop compilation by January 9, 2017.

7h. Provide to EPA a final version of workshop compilation within 14 days of receipt of EPA comments on draft version.

Task 8 – Methodological and Analytical Support for Benefits Valuation Analyses

The EPA WACOR also anticipates the need for the contractor to produce up to 5 written memoranda, each approximately 10 - 30 pages in length. These memoranda would address specific issues that may arise during the development of the benefits valuation methodologies. The specific content and deliverable dates will be provided to the contractor by the EPA WACOR through written technical direction when the need for a memorandum arises.

Deliverables and Schedule under Task 8

8. Written memoranda as specified through written technical direction from EPA WACOR.

Task 9 – Subgroup Meeting Summaries

The EPA WACOR also anticipates that the contractor shall meet with the each of the subgroups (hedonic property value, recreational demand, water quality data and modeling, and workshops) by telephone on a regular basis. The contractor shall take meeting notes for each of these calls and produce a summary of topics discussed, concerns raised, conclusions made, and next steps agreed to. The contractor shall deliver these meeting summaries to the subgroup members as well as to the EPA WACOR and Alternate EPA WACOR within seven calendar days of each meeting.

Deliverables and Schedule under Task 9

9. Meeting Summaries delivered to subgroup members, EPA WACOR, and Alternate EPA WACOR within 7 business days of each subgroup meeting.

Appendix
EAD Checklist for Projects Utilizing Existing Data

The items noted in this checklist are adapted from those elements found in *EPA Requirements for QA Project Plans (QA/R-5)* (EPA, 2001a), but tailored to the use of existing data.

Table A1. QAPP Elements Applicable to WA 3-20 ("Analytical Support for EPA Cross Office Water Benefits Work") of Contract EP-C-13-039 for Projects Utilizing Existing Data

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
A1. Title & Approval Sheet			
Project title			Analytical Support for EPA Cross Office Water Benefits Work
Organization's name	X		
Effective date and/or version identifier	X		
Dated signature of Organization's project manager	X		
Dated signature of Organization's QA manager	X		
Other signatures, as needed (e.g., EAD Project Officer, EAD QA Coordinator)	X		
Revision History	X		
A2. Table of Contents			
Includes sections, figures, tables, references, and appendices	X		PQAPP pp. vii-viii
Document control information indicated (when required by the EPA Project Manager and QA Manager)	X		
A3. Distribution List			
Includes all individuals who are to implement or otherwise receive the QAPP and identifies their organization	X		PQAPP p. iv
A4. Project/Task Organization			
Identifies key individuals with their responsibilities (e.g., data users, decision makers, project QA manager, Subcontractors, etc.) and contact info.	X		PQAPP section 2.1 *List specific people identified for the following roles:* *PQA:* *Abt WAM:* *EPA WACOR: Michael Trombley*
Organization chart shows lines of authority & reporting responsibilities	X		PQAPP Section 2.1
Project QA manager position indicates independence from unit collecting/using data	X		PQAPP Section 2.1
A5. Problem Definition/Background			
Clearly states problem to be resolved, decision to be made, or hypothesis to be tested	X		PQAPP Section 2.2 and address in Work Plan.
Identifies project objectives or goals	X		PQAPP Table 2.2 and address in Work Plan.
Historical & background information	X		PQPP Section 2.2 and address in Work Plan.

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives	X		PQAPP Section 2.2 and address in Work Plan.
A6. Project/Task Description			
List measurements to be made/data to obtain	X		PQAPP Section 2.3, and address in Work Plan.
Notes special personnel or equipment requirements	X		PQAPP Section 2.5
Provides work schedule		X	Addressed in Work Plan. No set dates or work sequence.
A7. Overall Quality Objectives & Criteria			
States overall quality objectives and limits needed to support the project goals and objectives cited in A5	X		PQAPP Section 2.4 and address in Work Plan.
A8. Special Training Requirements/ Certifications			
Identifies specialized skills, training or certification requirements	X		PQAPP Section 2.5
Discusses how this training will be provided/the necessary skills will be assured and documented	X		PQAPP Section 2.5
A9. Project-level Documents & Records			
Describes process for distributing the approved QAPP and other planning documents (and updates) to staff	X		PQAPP p. iv and Section 2
Identifies final work products that will result from the project	X		PQAPP Section 2.6 and address in Work Plan.
Describes the process for developing, reviewing, approving, and disseminating the final work products and individuals responsible for these processes	X		PQAPP Section 2.6 and address in Work Plan.
B1. Data Needs			
Detailed list/description of the specific data elements needed to support project goals	X		PQAPP Table 3-1 and address in work plan.
Description of the scope of the data elements that you need (e.g., data supporting specific treatment options vs. the full range of options, data supporting the entire country vs. a specific geographic region)	X		PQAPP Table 3-1 and address in work plan.
If project includes development or update of a project database, QAPP identifies and defines each database field	X		
B2. Potential Data Sources			
Identifies and describes potential sources of the existing data needed (e.g., photographs, topographical maps, facility or state files, census data, meteorological data, publications, etc.) and the rationale for their use	X		PQAPP Section 3.1.2 and address in Work Plan.
If literature searches are used, describes the search engines that will be used and key search terms	X		PQAPP Section 3.1.2

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
If databases or models will be used, describe the database (or model) in terms of who developed it and operates it and the type of data it contains			PQAPP Section 3.1.2
For other potential sources, describe the potential sources & rationale for considering or using each one			PQAPP Section 3.1.2
B3. Criteria for Selecting Data Sources			
Identifies each criterion that will be used to determine if the candidate data sources listed in B2 will meet your needs, and how each criterion is defined. (Criteria vary by project; examples include reliability, age, applicability, quantity, format, and others)	X		PQAPP Section 3.1.3
Explains rating system used to evaluate source against each criterion		X	
B4. Data Value Selection Approach			
For data sources that meet the criteria identified in B3: Describes the criteria and procedures that will be used to determine which value(s) identified in the acceptable sources are most appropriate for use in the project	X		PQAPP Section 3.1.4
For data that do not meet these pre-established criteria but are the only data available, explains how the decision to use such data will be made and documented		X	
B5. Resolving Data Gaps			
Describes the process for identifying and addressing data gaps that still exist after candidate data sources have been evaluated and appropriate data values have been identified	X		PQAPP Section 3.1.5
Describes the process that will be used to address any new data needs revealed during the data gathering process (i.e., additional data elements not previously considered)		X	
B6. Data Gathering Documentation and Records			
Describes how results of the source selection and the data value selection will be documented, including any sources or values that were rejected and the rationale for not using them	X		PQAPP Section 3.1.6 (p. 49) and Section 4.1.1
For data that are deemed acceptable and that will be used, explains how each data element will be associated to its original source citation (i.e., bibliographic information, telephone contact reports, email messages, etc.)	X		PQAPP Section 3.1.6, p. 49
C1. Standardization of Data Elements			
Describes the process to ensure that units and other key measures are captured and standardized (or otherwise made comparable) in the database	X		PQAPP Section 3.2.1

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
If the project requires that all fields be standardized to a single set of units (e.g., US dollars for economic data, µg/L for chemical data), identifies the standard units that will be required for each data element	X		PQAPP Section 3.2.1
Identifies the procedures for converting data reported in other units to the standardized units, including any rounding or truncating procedures, and procedures for ensuring these conversions are performed correctly	X		PQAPP Section 3.2.1
If standardization of data elements is not needed, explains the process for ensuring that data presented in varying units are comparable enough for use in the project and that project staff members and other data users will be able to readily identify differences in units	X		PQAPP Section 3.2.1
C2. Data Entry			
Explains the process for manually entering selected data into the project database, who will be responsible for such data entry, and the QC strategies that will be used to ensure that the database accurately and completely captures the data as presented in the original source	X		PQAPP Section 3.2.2
C3. Merging or Uploading Electronic Data from Existing Sources			
If data are available electronically and will be uploaded or merged into the project database: describes the procedures that will be followed to ensure that errors are not introduced during the upload/merge process and that the final database reflects the original dataset(s)	X		PQAPP Section 3.2.3
C4. Data Review			
Describes the process for ensuring that the data have been recorded, transmitted, and processed correctly	X		PQAPP Section 3.2.4
C5. Data Storage and Manipulation			
Describes how the existing data will be stored	X		PQAPP Section 3.2.5
Describes who will be responsible for access to and maintenance of the stored data	X		PQAPP Section 3.2.5
Describes how the existing data will be incorporated with other project data to support the project goal/decision to be made	X		PQAPP Section 3.2.5
Describes the QC strategies that will be employed to ensure that the integrity of the data is not compromised during data storage, access/retrieval, updates, or other manipulation	X		PQAPP Section 3.2.5
D1. Data Quality Verification and Data Quality Reporting			
Describes the process for verifying that the final set of data meets the overall criteria originally specified for the project	X		PQAPP Section 3.3.1

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
Describes how these determinations will be documented and reported	X		PQAPP Section 3.3.1
For data that don't meet the pre-established specifications, explains the process for determining if they are usable and how such decisions will be documented	X		PQAPP Section 3.3.1
D2. Use/Analysis of the Existing Data			
Provides details regarding the exact means in which the data will be used to meet project objectives	X		PQAPP Section 3.3.2
Includes an explanation or list of the information to be calculated and the data elements that will be used to make those calculations	X		PQAPP Section 3.3.2
Includes applicable calculations and equations (if known) or explanations of how they will be developed	X		PQAPP Section 3.3.2
Includes plans for excluding outliers	X		PQAPP Section 3.3.2
D3. Methodology Documentation and Conceptual Review			
If exact methodologies for analyzing the data will need to be developed or modified during the course of data analysis, explains the process by which such methodologies will be documented, who is responsible for reviewing/ approving their use, and how the methodologies will be checked to ensure they yield the desired products	X		PQAPP Section 3.3.3.
D4. Technical Review of the Data Analysis			
Describes activities that will be used to ensure the data analyses are being implemented as specified and will support project objectives	X		PQAPP Section 3.3.4
Explains procedures for identifying and notifying appropriate personnel if changes to the originally planned procedures are warranted, and the process for approving, documenting and implementing such changes	X		PQAPP Section 3.3.4
D5. Final Verification of Data Analysis and Reconciliation with User Requirements			
Describes the process for reviewing the final work product to ensure that the work was generated in accordance with the QAPP, and that the work product addresses the overall project goals and objectives	X		PQAPP Section 3.3.5
Describes how the results of this assessment will be documented	X		PQAPP Section 3.3.5
Describes how any limitations of the data or data analyses that were used to prepare the final work product will be documented and communicated	X		PQAPP Section 3.3.5

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-20

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Analytic Support for EPA Cross

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	Paragraphs B.1, C.1, and G

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/03/2016 To 07/31/2017

Comments:
This amendment changes the Primary WACOR. A work plan is not required.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017 Cost/Fee: LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: Cost/Fee LOE:

Cumulative Approved: Cost/Fee LOE:

Work Assignment Manager Name Michael Trombley	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-3906 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT AMENDMENT

I. **Title:** Analytic Support for EPA Cross Office Water Benefits Work

Contractor: Abt Associates, Inc. **Contract No.:** EP-C-13-039

II. **Work Assignment Number:** 3-20 / Amendment 1

III. **Estimated Period of Performance:** Amendment Approval to July 31, 2016

IV. **Estimated Level of Effort for Amendment:** 0 hours

V. **Purpose**

The purpose of this amendment is to change the Work Assignment Contracting Officers Representative (WACOR) from Joel Corona to Michael Trombley. Ashley Allen will continue to serve as the Alternate WACOR.

Contact information for Michael Trombley is as follows:

Michael Trombley
OW/IO/WPS (4101M)
(202) 564-3906

This amendment changes neither the level of effort nor the total cost of the work assignment. All tasks remain unchanged.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-20

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Analytic Support for EPA Cross

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	Section 7

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 12/08/2016 To 07/31/2017

Comments:
The purpose of this amendment is to specify the type of internet workshop access which is going to be utilized during the workshop and provide clarity as to the nature of on-site support provided by Abt Associates, Inc.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017 Cost/Fee: LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: Cost/Fee LOE:

Cumulative Approved: Cost/Fee LOE:

Work Assignment Manager Name Michael Trombley	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-3906 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-20

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Analytic Support for EPA Cross

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	Section 7

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 12/08/2016 To 07/31/2017

Comments:
The purpose of this amendment is to specify the type of internet workshop access which is going to be utilized during the workshop and provide clarity as to the nature of on-site support provided by Abt Associates, Inc.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017 Cost/Fee: LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: Cost/Fee LOE:

Cumulative Approved: Cost/Fee LOE:

Work Assignment Manager Name Michael Trombley	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-3906 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT AMENDMENT

I. **Title:** Analytic Support for EPA Cross Office Water Benefits Work

Contractor: Abt Associates, Inc. **Contract No.:** EP-C-13-039

II. **Work Assignment Number:** 3-20 / Amendment 2

III. **Estimated Period of Performance:** Amendment Approval to July 31, 2017

IV. **Estimated Level of Effort for Amendment:** 0 hours

V. **Purpose**

The purpose of this amendment is to specify the type of internet workshop access which is going to be utilized during the workshop and provide clarity as to the nature of on-site support provided by Abt Associates, Inc.

The contractor shall not provide note takers for the on-site meeting. The contractor shall provide on-site logistic support for registration and other aspects of facilitating the meeting and participants' use of the meeting facilities as described in the original work plan.

The contractor shall also arrange for webinar-type access to the workshop for remote attendees and shall record the meeting proceedings in electronic format using capabilities in the webinar software.

This amendment changes neither the level of effort nor the total cost of the work assignment.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-20

☐ Other ☒ Amendment Number: 000003

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Analytic Support for EPA

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: 5

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Increasing the ceiling for LOE by 300 hours. No cost change.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		2,480
This Action:		300
Total:		2,780

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Michael Trombley	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-3906 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-22

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Economics Support for Dental

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section VI, paragraphs 1, 2, and 3

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Performance on this Work Assignment shall not begin until August 1, 2016.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		310
Total:		310

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Karen Milam	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1915 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

Contract No.: EP-C-13-039
Work Assignment: 3-22

I. Title: Economics Support for the Dental Amalgam Effluent Limitations Guidelines and Standards (ELG) Rulemaking

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-22

III. Estimated Period of Performance: August 1, 2016 to July 31, 2017

IV. Estimated Level of Effort: 310 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):
Karen Milam
OST/EAD (4303T)
Phone: (202) 566-1915
Fax: (202) 566-1053
Email: milam.karen@epa.gov

Alternate Work Assignment Contracting Officer Representative (WACOR):
Damon Highsmith
OST/EAD (4303T)
Phone: (202) 566-2504
Fax: (202) 566-1053
Email: highsmith.damon@epa.gov

VI. Background and Purpose:

The Environmental Protection Agency (EPA) Administrator signed the proposed Dental Amalgam ELG on Sept. 23, 2014, to require dental facilities to reduce discharges of mercury to the environment. According to the National Association of Clean Water Agencies (NACWA), dental facilities are the main source of mercury discharges that enter state and municipal wastewater treatment plants (publicly owned treatment works (POTWs)). A study funded by the American Dental Association (ADA) estimated in 2003 that dental offices accounted for 50 percent of mercury entering POTWs. In addition, EPA estimates that approximately 160,000 dentists work in more than 120,000 dental offices that use or remove amalgam in the United States, almost all of which discharge their wastewater exclusively to POTWs. EPA further estimates that dentists discharge approximately 4.4 tons of mercury each year to POTWs, many of which are working towards reducing discharges of mercury to their facilities.

Mercury is a human health concern because it is a persistent bioaccumulative toxic element. Mercury-containing amalgam waste enters the environment when new fillings are placed or old mercury-containing

fillings are drilled out and waste amalgam materials that are flushed into chair-side drains enter the wastewater stream. A portion of the waste amalgam particles that reach the sewer system settles out in the sewers, and a portion is carried to POTWs. The physical processes used in POTWs remove about 90 percent of the mercury received in wastewater. The mercury removed from wastewater then resides in the biosolids or sewage sludge generated during primary and secondary treatment processes.

EPA conducted a study of this industry as part of its 2006 Effluent Guidelines Plan. The Health Services Industry Detailed Study Report for Dental Amalgam (EPA-821-R-08-014) was completed in August 2008 (see http://water.epa.gov/lawsregs/lawsguidance/cwa/304m/upload/2008_09_08_guide_304m_2008_hsi-dental-200809.pdf.). The 2008 study included a profile of the industry, information on the types and effectiveness of amalgam separators available, information on mercury discharges from dental offices and information on existing state and local amalgam separator requirements. The agency focused its technology assessment in the proposed rule on amalgam separators.

The 1972 Clean Water Act (CWA) directs EPA to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

The purpose of this work assignment (WA) is to provide continued economics and rulemaking support for completion of the Final Dental Amalgam ELG rule. EPA expects to finalize the rule in December 2016. The rulemaking schedule was extended beyond the previously expected signature date of fall 2015 in part because EPA received significant public comments on the proposed rule. These comments will require EPA to revisit numerous significant aspects of the rule, which in turn will require revisions to the economic analysis and related sections of the preamble for the final rule.

Under this work assignment, the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA-approved quality assurance (QA) project plan that was based on Task 2 QAPP language. The QAPP shall describe the procedures for assuring the quality of the primary and existing economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor shall build upon and continue work the contractor performed under WA 1-22 and 2-22 of this contract and WA 3-05 Task 7, and WA 4-05, of Contract EP-C-07-023. The work performed under this work assignment shall not duplicate work conducted under the previous work assignments.

Under the previous work assignment(s), Abt Associates performed the following analyses, among others:

- Drafted economic impacts and cost-effectiveness chapters with underlying analyses in the proposed rule TEDD (Technical and Economic Development Document) (EPA-821-R-14-006).
- Updated the analyses for the economic impacts and cost-effectiveness for the final rule under WA 2-22.
- Drafted economic impacts and cost-effectiveness sections of the preamble for the proposed rule.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will be accessing and evaluating CBI. As such, the contractor shall adhere to EPA's CBI policy and procedures as described in the contract clauses (Clauses H.15-H19 and H.21). The contractor must maintain CBI security clearance to use CBI information. The contractor shall not disclose any CBI to anyone other than EPA without prior written approval from the EPA WACOR. The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in the "Office of Science and Technology Confidential Business Information Application Security Plan" (August 2011) or its successor approved plans.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be identified clearly as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR.

Quick Response: Under this Performance Work Statement, the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one week.

Travel: EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in hard copy and in electronic form using Word and/or Excel/Access, ArcView, or, in special cases, another software program agreed to in advance by EPA. Memos are to be written in a manner that will make them easy to turn into draft chapters for the Final Reports. For deliverables that are in Word or pdf versions of Word documents, and that are intended to be shared with EPA management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether or not decimal places are reported. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR.

Monthly Progress Reports: The monthly progress reports shall include a reporting of hours and funds spent under this WA on a task-by-task basis.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan

Estimated Total LOE for Task 1: 20 hours

The contractor shall prepare a work plan within 15 calendar days after receipt of the work assignment signed by the Contracting Officer (CO). The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the Contract Level Contracting Officer Representative (CL-COR) and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Deliverables and schedule

1. Work plan within 15 calendar days after receipt of work assignment.

A weekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables, costs, and other issues.

Task 2 - Quality Assurance (QA)

Estimated Total LOE for Task 2: 20 hours

2.1 Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis, and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in Table 2.1 below.

Table 2.1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a

Table 2.1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
	different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). However, EPA has determined that the contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this work assignment. In support of this work assignment, the contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when the contractor is using existing sources of data to perform economic analyses in support of EPA's implementation activities under the final 316(b) rule;
- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases—as well as a

rationale for when those databases are appropriate and what data available in each will support the project;

- The quality objectives needed to ensure the data will support the project objectives; and,
- The Quality Assurance/Quality Control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Table 1 in the Appendix at the end of this WA contains the EAD Checklist for this project, which utilizes existing data. The table demonstrates how the PQAPP addresses QA requirements for this work assignment. The contractor shall fill in staff roles in the table in the 'explanatory comments' under A.4 and make any additional detailed notes in the explanatory comments column as requested by the WACOR. The contractor shall then include the completed table as a separate Appendix A to the work plan upon submittal to EPA. This Appendix A should be a stand-alone document if QA documentation is requested. Therefore, the table title must include the title of the WA, WA number, and contract number. The WACOR has provided this information in the title, which the contractor may use to fulfill this requirement.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure that the reports provide enough information to enable a knowledgeable reader to determine whether the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable. This discussion must provide a sufficient level of detail to allow the Engineering and Analysis Division (EAD) QA Coordinator (or designee) to determine whether the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WACOR will review each applicable report and certify whether the contractor has adhered to the QA requirements documented in the contractor's PQAPP.

The contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the contractor may include this report as a part of the contract-required monthly financial/technical progress report.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis so that the information could be substantially reproduced. To support compliance with these data transparency/ data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and SQAPPs.) The contractor may claim information in QAPPs as confidential; if the contractor chooses to do so, the contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the contractor should indicate which results were obtained using the tools (SOPs, checklists, and guidelines) that the contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractor may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, February 2009. If this is required, the EPA WACOR shall notify the contractor through written technical direction.

Deliverables and schedule

1. Monthly reports of QA work performed (may be included in contractor's monthly progress report) due monthly throughout the WA period of performance.

Task 3 - Adherence to the Standardized Naming Convention and Version Control

Estimated Total LOE for Task 3: 0 hours

The contractor shall follow the SNCVC memorandum prepared under WA 1-04 of this contract, which describes a standardized naming convention and version control (SNCVC) for all deliverables associated with the WA. This system will ensure that deliverables are clearly named and dated and that the sequence of versions of a document is clear.

Task 4 – Economic Cost and Impact Analytical Support

Under this task, the contractor shall revise and finalize the economic impacts and cost-effectiveness chapters for the final rule Technical and Economic Development Document (TEDD); review and prepare responses to public comments EPA received on the proposed rule; conduct new analyses based on comments and data received from the public; and provide general technical support in response to inquiries from EPA management. The contractor may also be tasked with providing technical and rulemaking support on environmental assessment-related issues as needed.

Estimated Total LOE for Task 4: 250 hours

4.1 Completion of Sections 10 and 12 of the final rule TEDD and related preamble sections

The contractor shall finalize Section 10: Economic Impacts for the Dental Industry, and Section 12, Cost-Effectiveness Analysis of the TEDD (Technical and Economic Development Document) which the contractor prepared under WA 3-05, and Task 7 of 4-05 under Contract No. EP- C-07-023, with updated numbers from the analyses updated under WA 2-22. Note: The EPA WACOR will include comment bubbles in the TEDD directing the contractor where to update numbers and explanation for analysis changes. The contractor shall also update the corresponding sections of the preamble for the final rule (Sections XI and XIII) and shall update the Statutory and Executive Orders Section XVII of the final rule preamble, including the Regulatory Flexibility Act section, also in line with updated analyses performed in WA 2-22. Again, the EPA WACOR will include comment bubbles in the preamble of where to update the numbers and explanation for analysis changes.

Revisions to the technical data may occur at several stages of the review process including: review of public comments, EPA Office of Water Management review, Agency workgroup members review, or Office of Management and Budget (OMB) review. Revisions may have to be made after each subsequent level of review. All comments will be provided to the contractor through written technical direction by the EPA WACOR. The contractor should expect two sets of significant revisions. After each set of significant revisions, the contractor shall submit draft materials to the EPA WACOR for review. The contractor shall include a description of the QA measures taken in completing this task.

The work shall adhere to the approved PQAPP for the work assignment and include a description of the QA measures that were followed.

Deliverables and schedule

4.1a. Revised drafts of Sections 10 and 12 of the final TEDD are due August 12th, and the corresponding revised sections of the preamble for the final rule, including Section XVII of the preamble, are due August 19th, or may be changed with receipt of technical direction from the EPA WACOR.

4.1b. Final drafts of Sections 10 and 12 of the final TEDD, and the corresponding revised sections of the preamble for the final rule, including Section XVII of the preamble, are due one week after receipt of comments from the EPA WACOR, but no later than September 15, 2016.

4.2 Provide Technical Support for Dental Amalgam Rulemaking Activities

The contractor shall provide technical support for Dental Amalgam rulemaking activities. Such support will be based on technical direction given by the EPA WACOR and may include responding to management questions about economic or environmental issues and preparing briefing and meeting

materials. These materials may include, but are not limited to, short briefing documents and PowerPoint presentations. The contractor may also be requested to participate in and/or conduct briefings, assist Agency economists in their review of analyses conducted by EPA and its contractors, provide technical review of materials prepared for the rulemaking by Agency staff, and assist in the development of the rulemaking record. Although a precise number of technical support tasks cannot be given at this time, EPA expects the number to be between three and six. For the purpose of estimating work plan costs, assume that two may be "quick response" deliverables. Deliverables may include environmental assessment-related technical support activities as requested by the EPA WACOR in the technical direction issued.

The contractor shall prepare draft deliverable materials for the EPA WACOR's review and approval. Once the EPA WACOR reviews the draft materials and provides comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule
4.2a. Draft deliverables are due two weeks after receipt of technical direction from the EPA WACOR. Quick response draft deliverables are due one week after receipt of technical direction from the EPA WACOR.
4.2b. Final deliverables are due one week after receipt of comments from the EPA WACOR, but no later than July 31, 2017.

Task 5 – Provide up-date material for the EAD ELG Database

Estimated LOE hours: 20 hours

After the completion of the rulemaking package, including the rule preamble and TEDD, the contractor shall submit to the EPA WACOR information and data to complete the ELG Database template (the template shall be provided by the EPA WACOR) for the Dental Amalgam ELG final rule analysis. This information will be stored in EAD's ELG Database. This task shall take no more than 20 hours to complete.

Deliverables and schedule
5. ELG Database template is due 21 calendar days after signature by the Administrator.

Total Estimated LOE is 310 hours.

SCHEDULE OF DELIVERABLES

Task	Deliverable	Delivery Schedule
Task 1 – Prepare Work Plan		
1	Prepare work plan	Due within 15 calendar days after WA receipt.
Task 2 - Quality Assurance		

Task	Deliverable	Delivery Schedule
2	Monthly reports of QA work performed	Throughout the WA period of performance; to be included in monthly progress reports.
Task 3 - Adherence to the Standardized Naming Convention and Version Control (SNCVC)		
3	Adhere to SNCVC memorandum	No deliverable under this Task.
Task 4– Economic Cost and Impact Analytical Support		
4.1a	Revised drafts of Sections 10 and 12 of the final rule TEDD and related preamble sections, including Section XVII.	Due August 12th COB for the TEDD. Due August 19, 2016 for related preamble sections, including Section XVII.
4.1b	Final drafts of Sections 10 and 12 of the final rule TEDD and related preamble sections, including Section XVII.	Due one week after receipt of comments from the EPA WACOR but not later than September 15, 2016.
4.2a.	Draft technical support deliverables	Due two weeks after receipt of written technical direction from the EPA WACOR. Quick turnaround deliverables are due one week after receipt of technical direction from the EPA WACOR.
4.2b	Final technical support deliverables	Due one week after receipt of comments from the EPA WACOR, but not later than July 31, 2017.
Task 5 - Provide up-date material for the EAD ELG Database		
5	ELG Database template	Due 21 calendar days after signature by the Administrator.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-29

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	TRI Community Engagement Outre

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: D1, D2

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/08/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017 Cost/Fee: LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: Cost/Fee LOE:

Cumulative Approved: Cost/Fee LOE:

Work Assignment Manager Name Shelley Fudge (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-0674 FAX Number:	
Project Officer Name Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:	
Contracting Official Name Tammy Adams (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545	

PERFORMANCE WORK STATEMENT
FOR WORK ASSIGNMENT 3-29

I. Title: TRI Community Engagement Outreach and Education Products

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-29

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):
Shelley Fudge
OCSPP/OPPT/TRIPD/COB (7410M)
202-566-0674

V. Background and Purpose:

The Environmental Protection Agency's (EPA's) Office of Environmental Information (OEI) participates in multi-media program activities conducted by EPA offices under other environmental and administrative statutes, such as the Emergency Planning and Community Right-to-Know Act (EPCRA) and the Pollution Prevention Act (PPA). Examples of these activities include performing multi-media analysis and identifying pollution prevention opportunities particularly as they relate to management priorities such as environmental justice. The Toxics Release Inventory (TRI) tracks the management of certain toxic chemicals that may pose a threat to human health and the environment.

TRI provides information on releases of chemicals to water, as well as air and land. The information submitted by facilities is compiled by EPA and supports informed decision-making by industry, government, non-governmental organizations and the public by providing data to assess changes in the amount and type of emissions released to the environment. As part of the TRI program, EPA holds a National Training Conference on the Toxics Release Inventory and Environmental Conditions in Communities, which is the primary outreach event for the program and key to the implementation of the TRI program. The conference includes sessions on TRI data and tools, results of analyses using TRI data, and information on conditions and trends in ecological and human health, including environmental justice communities and children's health.

The purpose of this Work Amendment (WA) and longer-term objectives associated with this WA is to provide support for the development of a variety of products that increase and improve TRI community engagement communication, outreach and education objectives. These objectives are intended to assist a variety of TRI data users, particularly community-scale audiences, as well as community leaders and other data intermediaries who assist community-based data users, in accessing, using and understanding TRI and other environmental resources and analytical products. Other audiences for these products are TRI regional and state coordinators, and other regional and staff, tribal community leaders and agency staff, as well as staff from other EPA Headquarters' program offices.

The completion of the projects listed below, as well as the schedule for completing the listed milestones will depend upon collaborative efforts with other staff in the Toxic Release Inventory Program Division (TRIPD) staff and OEI that are necessary to complete the project requirements, as well as upon gaining management approval for implementation of proposed project products.

VI. General Requirements of the Work Assignment and Schedule

Budget Reporting: The contractor shall report to the EPA WACOR and Contract level Contracting Officer's Representative (CL-COR) when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts shall clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement (PWS) the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in hard copy and in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which shall make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR.

VII. Performance Work Statement

The EPA WACOR shall review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1: Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days after receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO shall review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions shall be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Task 2: TRI Community Risk Communication Fact Sheet and one or more other outreach materials designed for a community-based audience

The contractor shall provide support for the development of a new TRI community-oriented risk (i.e., hazard impacts) communication fact sheet, which shall be no longer than two-pages when printed in hardcopy. This task may include development of other similar community-oriented fact sheets and/or other similar resources, and/or associated improvements to the TRI Risk webpage. Resource materials shall be made available in both electronic online format and in a hardcopy "handout" format. These resource materials shall be visually appealing, with graphics and charts that are easy to understand and decipher both in electronic online, as well as hardcopy formats, in color, as well as in black and white. Depending upon the anticipated need based upon feedback provided by EPA Headquarters and Regional staff, the contractor may also be tasked with translating the TRI community-oriented risk communication fact sheet into Spanish and/or another foreign language.

Task 3: TRI Tribal Community Engagement Assistance

The contractor shall provide support for the development of a TRI Tribal Action Plan and one or more new information resources and/or improvements to the TRI for Tribes webpage, which would be associated with implementation of the TRI Tribal Action Plan (depending upon outcome of post-TRI National Conference half day meeting with management and staff representatives from EPA Regions, states and tribes managers, as well as approval by TRI management of developing Tribal resources as a component of implementing the TRI Tribal action plan). The TRI Tribal Action Plan, improvements to the TRI for Tribes webpage and additional new resources are expected to increase access, understanding and use of TRI data for Tribal communities. Examples of new resources include TRI Tribal-related fact sheets, guides, brochures, slide presentations, training materials, videos, website/online resources, etc. Any such resources shall be made available in electronic online format, and in a hardcopy "handout" format, and would need to be visually appealing, with graphics and charts that are easy to understand and decipher in both formats in color and in black and white. Depending upon the recommendations in the plan of action and/or upon the anticipated need based upon feedback provided by EPA Headquarters and Regional staff, the contractor may also be tasked with translating one or more resource materials into one or more languages other than English.

Task 4: Enhancements to "TRI for Communities" Webpage and One-Stop-Shopping "TRI for Communities" Interface on TRI Homepage

The contractor shall provide support for the development of revisions to the current "TRI for Communities" webpage (accessible from EPA's TRI website), and a new "one-stop shopping" interface on the TRI website homepage that is tailored to a community-based audience.

This project does not entail the development of new software application tools, nor does it require the development of new databases or models, or the collection of any new data. The product shall incorporate and link to information from existing EPA tools and data sources, as well as other related publicly available environmental tools and data sources. It shall provide links to several publicly available EPA databases and other relevant information.

The project is expected to result in improvements to EPA's TRI website in order to increase access, understanding and use of TRI data for community-based TRI data users. It will combine the best elements of various current existing online TRI data tools and provides a "one-stop shopping" approach to address communities' priority areas of interest.

No single existing online TRI data tool includes all of the best community-targeted data and there are so many different TRI data tools to choose from that they confuse community-based data users, which discourages them from using TRI. The proposed changes are based upon input collected through the TRI Program Division's multi-year TRI Community Engagement Pilots Project Initiative.

This proposal may be implemented in stages rather than in one full implementation phase. The newly designed "TRI for Communities" interface is expected to include: a) an electronically automated "TRI Community Snapshot" feature *(accessed by specifying an address, zip code, city or county)*, which displays a map of all the TRI facilities located in the designated location, various charts and graphs that provide information about the top TRI releasing facilities, TRI trends over the past 10 years, and contextual data about the percentage of carcinogenic vs. non-carcinogenic chemicals released in a given community; b) an easier to access initial visual search interface for finding information about a specific TRI facility -- with key data about the facility's release trends, compliance record, and health effects data for each of the chemicals released at the chosen facility; and c) an improved, easy to access TRI health effects interface with TRI community-wide health effects data, as well as facility-level health effects data. The new interface is expected to emphasize easy to understand visuals and include the types of maps, charts and graphs that community-based leaders and members have identified as most useful to them. In addition, the contractor will develop a variety of ways that community-based data users can produce high quality hardcopies that display key community-tailored data that are easy to customize and print in both color and black and white. Depending upon the anticipated need based upon feedback provided by EPA Headquarters and Regional staff, the contractor may also be tasked with providing a Spanish translation version of TRI Community Analysis Interface that would be posted with the English version electronically on the TRI website.

This task also requires contractor support for developing a variety of sections and possibly subpages for a revised "TRI for Communities" webpage. The project is expected to include: a) content to provide information about how the TRI program supports community engagement, and in particular, environmental justice communities' access, understanding and use of TRI data;

b) links to and contextual content about all relevant TRI online and hardcopy resources; and c) links to and contextual content about all relevant EPA and non-EPA Federal, state and local online and hardcopy resources.

Note that this task may require a phased implementation strategy rather than full implementation at one specific point in time. Adjustments may need to be made to the initial design plan and overall project proposal, depending upon various information technology (IT) project requirements that could affect project development for these proposed improvements to the TRI for Communities webpage and to an improved community-based data access interface for the TRI homepage.

The contractor may also be requested to provide support for the development of a poster to display at the 2016 TRI National Training Conference scheduled to take place in October 2016, about the revised TRI for Communities Webpage and new TRI homepage interface for accessing TRI data that is tailored to a community-based audience.

The contractor shall not work on this task until it receives authorization via Technical Direction from the EPA WACOR.

Task 5: TRI Data Uses by Communities

The contractor shall provide support for the development of one or more new information resources related to development of a project that identifies those communities that have used TRI data and describes how they have used such data. The project will include: a) conducting research to identify TRI communities that have used TRI data to improve the public health and environmental sustainability of their local geographic areas; b) scheduling phone call interviews as deemed necessary with various community-based leaders, representatives of community grassroots organizations and environmental groups, as well as other community leaders, and preparing notes from phone call interviews; and c) development of an internal EPA report. It may also include development of a report made publicly available on the Agency's TRI website, as well as publicly posted "highlights" on the TRI website homepage banner of the best examples of TRI data uses by communities. If the report is publicly posted on the TRI website, the contractor may also be tasked with translating it into one or more languages other than English. The contractor shall not work on this task until it receives authorization via Technical Direction from the EPA WACOR.

Task 6: TRI Guide for Community Leaders

The contractor shall provide support for the development of a new TRI guide for community leaders. The guide is intended to be used as a training manual for such leaders, who can serve as intermediaries to train community members in how to access, understand and use TRI data. The guide may be produced in the form of a short pamphlet or brochure (although other creative formats may also acceptable but must be approved by the WACOR), and it may include examples of "success stories" about TRI release reductions, P2 improvements, etc. and/or other methods of conveying various uses of TRI data that would resonate for a community-oriented audience. The guide shall be made available online on EPA's TRI website, as well as in hardcopy, and must be visually appealing, with graphics and charts that are easy to understand and decipher in both color and in black and white – online and in hardcopy. Depending upon the anticipated need based upon feedback provided by EPA Headquarters and Regional staff, the

contractor may also be tasked with translating the TRI guide for community leaders into Spanish and/or another foreign language. The contractor shall not work on this task until it receives authorization via Technical Direction from the EPA WACOR.

DELIVERABLE SCHEDULE

TASKS	ASSIGNMENTS	DUE DATE
1	Prepare work plan.	15 calendar days after receipt of work assignment
3	Develop strategy for developing TRI Tribal Action Plan.	November 3, 2016
5	Conduct research and schedule phone interviews for TRI Data Uses by Communities. *(If authorized to start this task via Technical Direction from the EPA WACOR.)*	November 10, 2016
5	Develop draft version of TRI Data Uses by Communities internal report. *(If authorized via Technical Direction from the EPA WACOR.)*	November 17, 2016
3	Develop draft TRI Tribal Action Plan.	December 1, 2016
2	Develop draft version of TRI Community Risk Communication Fact Sheet for management review/ approval.	December 9, 2016
4	Develop strategy for first phase of improved "TRI for Communities Webpage" and revisions to TRI homepage interface. *(If authorized to start this task via Technical Direction from the EPA WACOR.)*	December 15, 2016
5	Complete final version of TRI Data Uses by Communities internal report for management approval.	January 6, 2017
3	Complete final TRI Tribal Action Plan for management review/approval.	January 12, 2017
4	Begin first phase proposal for revised "TRI for Communities" and TRI homepage interface for community data access for management approval. *(If authorized via Technical Direction from the EPA WACOR.)*	January 20, 2017
2	Complete final version of TRI Community Risk Communication Fact Sheet and associated improvements to the TRI Risk webpage for management approval.	February 2, 2017

5	Develop draft version of TRI Data Uses by Communities report for posting on TRI website and/or TRI website banner "highlights." *(If authorized via Technical Direction from the EPA WACOR.)*	February 17, 2017
3	Develop draft version of improvements to TRI for Tribes Website and/or a new TRI for Tribes resource material(s). *(If authorized via Technical Direction from the EPA WACOR.)*	March 3, 2017
5	Complete final version of TRI Data Uses by Communities report for posting on TRI website and/or TRI website banner "highlights" for management approval.	March 23, 2017
4	Complete first phase implementation of revised "TRI for Communities" webpage and homepage interface development process.	April 7, 2017
4	Develop strategy for 2nd phase of improved "TRI for Communities Webpage" and revisions to TRI homepage interface. *(If authorized via Technical Direction from the EPA WACOR.)*	April 20, 2017
6	Develop draft TRI Guide for Community Leaders for management review/approval. *(If authorized to start this task via Technical Direction from the EPA WACOR.)*	April 28, 2017
4	Begin 2nd phase of revised "TRI for Communities" and TRI" webpage and homepage interface for management approval. *(If authorized via Technical Direction from the EPA WACOR.)*	May 15, 2017
3	Complete the final version of improvements to TRI for Tribes website and/or a new TRI for Tribes resource Material(s).	May 23, 2017
6	Develop draft TRI Guide for Community Leaders for management review/approval. *(If authorized to start this task via Technical Direction from the EPA WACOR.)*	June 9, 2017
4	Complete 2nd phase of revised "TRI for Communities" and TRI" webpage and homepage interface for management approval.	July 13, 2017
6	Complete final version of "TRI Guide for Community Leaders" for management approval.	July 28, 2017

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-31

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Reg Dev and Transparency Tools

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section III (C., Technical Assistance; C.1 + C.7)

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/03/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		1,127
Total:		1,127

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Caryn Muellerleile	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-2855 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. **Title:** EPA Regulatory Development and Regulation Transparency Tools

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. **Work Assignment Number:** 3-31

III. **Estimated Period of Performance:** Date of Issuance through July 31, 2017

IV. **Estimated Level of Effort:** 1,127 hours

V. **Key EPA Personnel:**

Work Assignment Contracting Officers Representative (WACOR):
Caryn Muellerleile
OA/OP/ORPM/RMD (1803A)
202/564-2855
202/564-8601 (fax)

Alternate Work Assignment Contracting Officers Representative:
Darryl Adams
OA/OP/ORPM/RMD (1803A)
202/564-6569
202/564-8601 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

The Office of Regulatory Policy and Management (ORPM) in the EPA's Office of Policy provides support and guidance on EPA's Action Development Process (ADP), used in the development of agency regulations and other substantial cross-cutting actions, such as CWA general permits and guidance documents. Because rule development such a primary focus of EPA activity, the ADP has existed for over 25 years to achieve the timeliest, most efficient, and most effective method for rule development. The process was designed for agency professionals to develop rules based on sound scientific, economic, legal, and policy analyses. The ADP serves as a framework to ensure issues are addressed during appropriate rule development stages. The ADP is also used to evaluate the needs of a variety of external stakeholders, including small

businesses, States, municipalities, tribes, children, older adults, minority and low-income populations.

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to provide ongoing and new support for a series of regulatory tools for use by all EPA rulewriters that include database and Web-based informational and educational materials, during the months of August 2016 to July 2017. These tools are intended to help regulatory analysts throughout the Agency, regulated entities, and other non-EPA stakeholders understand EPA's regulatory process and requirements. These informational and educational websites and databases include information about the CWA, updates on regulations written under authority of the CWA, and descriptions of EPA's obligations under a number of statutes and Executive Orders (EOs), including EOs 12866 and 13563. The contractor shall assist the ORPM in developing and maintaining these website and database related tools.

Under this work assignment, the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan. Because this work assignment requires the contractor to collect or use environmental or economic data, a Quality Assurance Project Plan (QAPP) is required. The QAPP shall describe the procedures for assuring the quality of the primary and secondary environmental and/or economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WA 2-31 of this contract and WAs #3-61, 4-61, and 4-81 under Contract EP-W-11-003. The work performed under this work assignment will not duplicate work conducted under the previously listed work assignments, nor any tasks completed under Contracts EP-C-07-023 or EP-D-08-100.

Under the previous work assignments, Abt Associates performed the following tasks:

- Designed and/or redesigned and assisted in maintaining the following public-facing and Intranet web areas:
    - Laws & Regulations (https://www.epa.gov/laws-regulations).
    - Regulatory Development and Retrospective Review Tracker (http://www.epa.gov/regdarrt/).
    - Actions Initiated by Month (https://www.epa.gov/laws-regulations/actions-initiated-month).
    - Small Entities and Rulemaking public site (https://www.epa.gov/reg-flex).
    - Intranet "Action Development Process Library" site (http://intranet.epa.gov/adplibrary/index.htm).
- Developed and/or assisted in maintaining the following EPA regulatory databases, in Lotus Notes/Domino, Oracle, and/or Java design environments:
    - ADP TRACKER (file name: ADP.nsf).
    - ADP Directory (file name: ADP_Names.nsf).
    - ADP Feedback & Support (file name: ADP_Feedback.nsf).
    - ADP Reporting (file name: ADPTR with access through

https://javaintranet.epa.gov/ADPTracker), in beta form.
- Regulatory Gateway Web Site (file name: RuleGate.nsf).
- Federal Register (FR) Dailies (file name: Frdaily.nsf)

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor shall be accessing and evaluating CBI. As such, the contractor shall adhere to EPA's CBI policy and other procedures as described in the contract clauses (Clauses H.15-H19 and H.21). The contractor must maintain CBI security clearance to use CBI information. The contractor shall not disclose any CBI to anyone other than EPA without prior written approval from the EPA WACOR. The contractor shall at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in our "Office of Science and Technology Confidential Business Information Application Security Plan" (August 2011) or its successor approved plans.

Budget Reporting: The contractor must also report to the EPA WACOR when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA Contract Level Contracting Officer Representative (CL-COR), and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: EPA anticipates a small need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment. Contractor employees located in the Cambridge, MA location may need to coordinate travel to meet with EPA WACOR in Washington, DC and/or provide training or additional assistance to EPA employees.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the Contracting Officer. The contractor shall prepare a revised work plan incorporating the Contracting Officer's comments, if required.

Deliverables and schedule under Task 1

1. Work plan within 15 calendar days of receipt of work assignment.

Task 2 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall prepare and submit a memorandum that proposes a standardized naming convention and version control (SNCVC) for all deliverables associated with the WA. This system will ensure that deliverables are clearly named and dated and that the sequence of versions of a document is clear. The EPA WACOR will review the memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare a revised SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use this standardized convention for all deliverables associated with the work assignment(s). The EPA WACOR may request through written technical direction the contractor amend the SNCVC memorandum at any point during the WA.

Deliverables and schedule under Task 2

2a. SNCVC memorandum within 7 calendar days of work plan approval.
2b. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 3 - Revise the beta ADP Reporting database in Oracle/Java for production launch and provide operations and maintenance of ADP TRACKER and relational databases in Lotus Notes [Section III (C., Technical Assistance; C.1. Collection/Preparation of Reports and C.7. Database Development and Management) of Contract EP-C-13-039 Performance Work Statement (PWS)]

The ADP Reporting database and related ADP TRACKER databases (including FR Dailies) provide agency staff, management, and external stakeholders with the most comprehensive data and up-to-date information on EPA's rulemakings. The contractor shall use feedback compiled during beta testing of the ADP Reporting database to complete its design work for full production launch. Related Lotus Notes and Domino databases shall be regularly reviewed for any operating and maintenance issues, including the expanded use of electronic signature functions for **Federal Register** documents. These relational databases maintained and utilized by ORPM include ADP TRACKER, ADP Directory, ADP Feedback and Support, ADP Archive, FR Dailies, etc.

With technical guidance from EPA, the contractor shall develop new code, as needed, to enable these ADP systems to perform regulatory workflows as requested for ORPM. Additional design work may be necessary with the addition of new modules into the suite of ADP databases. This task includes continuing to assist EPA with common development tasks, including creating and maintaining regulatory database reports.

Deliverables and schedule under Task 3

3a. The beta ADP Reporting database, as developed under previously referenced contracts, shall be modified based on beta tester feedback and further WACOR specification. This database shall meet all application deployment checklist (ADC) specifications for development and production application hosting at EPA's National Computing Center (NCC).

3b. The contractor shall troubleshoot technical issues with the ADP TRACKER databases with the technical guidance of EPA.

3c. The contractor shall provide assistance with common development tasks, including customizable regulatory database reports, as requested by the EPA WACOR.

Task 4 - Create or revise training materials and user manuals [Section III (C., Technical Assistance; C.1. Collection/Preparation of Reports) of Contract EP-C-13-039 PWS]

The contractor shall provide new or revised training materials and/or user guides as requested by

the EPA WACOR. These subject areas, among others, include:

- Rule development procedure(s)
- Rule tracking data capture and input
- Task description for users with different roles or responsibilities
- Function of workflow processes
- Generating regulatory reports

The contractor shall support EPA developing user manuals and other help documents at the request of the WACOR in written technical direction. The contractor shall answer or aid in resolving technical issues related to learning the various regulatory databases, writing help documents and assisting with training of users.

Deliverables and schedule under Task 4

4a. The contractor shall develop and deliver regulation development training guides or materials, as requested, for EPA trainers within 40 work days of the WACOR's request.

4b. The contractor shall draft or revise user guides for the regulation tracking databases described in section VI above. The Contractor shall continue to draft or revise user guides as requested by WACOR for new ADP database features developed under Task 3 above.

4c. The contractor shall recommend changes to the user guides and/or other resource documents to support changes executed under Task 3. The WACOR will approve recommended changes.

Task 5 – Refine and update EPA's rulemaking statistics [Section III (C., Technical Assistance; C.1. Collection/Preparation of Reports) of Contract EP-C-13-039 PWS]

EPA receives a number of queries from Congress, the press, and other interested parties about its volume of rulemaking activity. Under past work assignments, the contractor was tasked with launching a public internet website about EPA's annual regulatory activity, including regulations from the Office of Water. The Regulatory Statistics or "Reg Stat" website was later removed due to a number of discovered data inaccuracies. Under this WA, the contractor shall work with the WACOR to review the EPA rulemaking data for calendar years 2006-2012, categorize the information for inclusion or exclusion, and develop statistics for internal use from subsequent calendar years using revised inclusion criteria.

The activities in this task involve gathering, evaluating, analyzing, or otherwise using existing environmental data (also known as "secondary" use of data). Therefore, the contractor must prepare a Quality Assurance Project Plan (QAPP) that describes specific Quality Assurance (QA) strategies that will be used when performing environmental data operations to support the objectives of this work assignment. The contractor shall write the QAPP using active voice, and shall ensure the QAPP provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered related to statistics about EPA's rulemaking pace.

- The type of data to be collected, generated, and used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases—as a well as a rationale for when those databases are appropriate and what data available in each will support the project.
- The quality objectives needed to ensure the data will support the project objectives, and
- The Quality Assurance and Quality Control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Deliverables and schedule under Task 5

5a. Within 15 days after submittal of the work plan, the contractor shall prepare and submit a QAPP. EPA will review the submitted QAPP and provide the contractor with written approval or comments within 15 days of receiving the Contractor's submission.

5b. If EPA requests changes, the contractor shall revise the submitted QAPP within 10 days of receipt EPA comments, unless otherwise instructed by the EPA WACOR.

5c. Review and compile accurate EPA regulatory statistical data compiled for calendar years 2006-2012 and create criteria for data inclusion or exclusion.

5d. Using new criteria, compile statistical data from regulatory data sources (including internal and external) for calendar years 2013-present.

5e. Review the ADP Reporting database tool for mechanisms to accurately capture future regulatory statistical data without relying on external data sources (e.g., the Government Printing Office or LexisNexis®).

Task 6 – Maintain existing regulatory internal and external web resources
[Section III (E2. Contract Activity Information and Technology Requirements) of Contract EP-C-13-039 PWS]

ORPM maintains several external and internal websites that relate to regulatory analysis and development. When tasked, the contractor shall revise the following sites in a manner that complies with all EPA Web Standards and practices and that does not conflict with EPA staff who may also be posting on the same sites using Drupal or other EPA-approved web content management systems. Should the contractor produce graphics for the sites, the contractor shall provide source files to the WACOR as well as the final versions of the graphics. Should the contractor post Portable Document Format (PDF) documents to the sites, the contractor shall ensure the PDFs are compliant with Section 508 of the American with Disabilities Act. The contractor may assist ORPM in maintaining the following sites:

- **Laws and Regulations** (http://www.epa.gov/laws-regulations) – The public-facing Laws & Regulations site provides the public with general information about EPA's regulatory process

and the governing environmental and administrative statutes. It also serves as a portal to regulatory information related to specific regulations, topics and sectors. It currently resides on the "Laws & Regulations" area of EPA's Drupal web content management system. The contractor shall provide maintenance on the site, as requested by the WACOR, including:
  - Checking for and correcting broken links quarterly.
  - Updating text, revising graphics, or adding new features.

- **Actions Initiated by Month** (http://www.epa.gov/laws-regulations/actions-initiated-month) – The public-facing "Actions Initiated By Month" website contains monthly information about regulatory activity begun in EPA's primary rule writing offices. It contains more frequent updates to the public about new rulemaking activity than the agency's Semiannual Regulatory Agenda. The site resides on the "Laws & Regulations" area of EPA's Drupal web content management system. The contractor shall provide moderate maintenance on this site, as requested by the WACOR, including monthly updates to the page's content.

- **Small Entities and Rulemaking website** (http://www.epa.gov/reg-flex/) – The Regulatory Flexibility for Small Entities public website provides a portal to the Small Business Enforcement and Fairness Act (SBREFA) Panels conducted by the EPA's primary rule writing offices. The site resides on the "Regulatory Flexibility for Small Entities" area of EPA's Drupal web content management system. The contractor shall provide maintenance on the site, as requested by the WACOR.

- **Regulatory Development and Retrospective Review website** (http://www.epa.gov/regdarrt/) and associated Lotus Notes database – The Regulatory Development and Retrospective Review Tracker is a portal to the priority rulemakings produced by EPA's primary rule writing offices. The site is dynamically generated from a Lotus Notes database on the EPAHUB2 server (file name: RuleGate.nsf). The contractor shall provide moderate maintenance on Reg DaRRT.

- **ADP Library and Training Intranet** (http://intranet.epa.gov/adplibrary/) – ORPM's ADP Library Intranet site provides EPA's rule writers with templates, guidance, and self-paced training. The contractor shall provide moderate maintenance on this Intranet site, which resides on the "actiondp" on EPA's Time Sharing Services Management System (TSSMS). The contractor shall provide maintenance on the site as requested by the WACOR.

- **Action Development Process – Rulewriting at EPA** (https://usepa.sharepoint.com/sites/OA_Community/adp_at_epa/SitePages/Home.aspx) – ORPM's SharePoint community site for rule writing tools that relate to the Action Development Process or that fall outside of the ADP in the broader rule development realm. The contractor shall provide development and maintenance on the site as requested by the WACOR.

Deliverables and schedule under Task 6

6a. In accordance with One EPA Web directives, the contractor shall review internal and

external Web content for errors, as well as reviewing relative site server statistics.

6b. The contractor shall provide to the WACOR a report on broken links and recommend a corrected URL at the close of each quarterly review period.

6c. Within 7 days of approval from WACOR, make all broken link corrections from the reports emanating from 6a and 6b.

6d. Other deliverables required for Task 6 will be provided in technical direction from the WACOR. The contractor shall provide a schedule for these additional deliverables within 10 calendar days after receipt of technical direction.

Summary of Deliverables and Dates:

The contractor shall provide the following specific deliverables to the EPA WACOR. All electronic documents shall be prepared in a format that is compatible with EPA software (e.g., MS Word, PDF, HTML).

	DELIVERABLE	FORM AND QUANTITY	SCHEDULE
TASK 1	**1a.** Work plan.	One document delivered in electronic format.	Within 15 calendar days of receipt of work assignment.
TASK 2	**2a.** Standardized naming convention and version control (SNCVC) memorandum	One document delivered in electronic format.	Within 7 calendar days of work plan approval.
	2b. If required, revised memorandum, at technical direction of EPA WACOR.	As requested by WACOR in written technical direction.	Within 3 calendar days of receipt of comments from the EPA WACOR.
TASK 3	**3a.** The beta ADP Reporting database, as developed under previously referenced contracts, shall be modified based on beta tester feedback and further WACOR specification.	Varied, as requested by WACOR in written technical direction.	As requested by the WACOR in written technical direction.
	3b. The contractor troubleshoot technical issues with the ADP TRACKER databases with the technical guidance of EPA.	Varied, as requested by WACOR in written technical direction.	As requested by the WACOR in written technical direction.

	3c. The contractor shall provide assistance with common development tasks, including customizable regulatory database reports, as requested by EPA WACOR.	Varied, as requested by WACOR in written technical direction.	As requested by the WACOR in written technical direction.
TASK 4	**4a.** The contractor shall develop and deliver regulation development training guides or materials.	Varied, as requested by WACOR in written technical direction.	Within 40 work days of the WACOR's request.
	4b. The contractor shall draft or revise user guides for the regulation tracking databases.	Primarily as Microsoft Word Portable Document Format (PDF) documents, but may vary, as requested by WACOR in written technical direction.	Within 30 work days of the WACOR's request.
	4c. The contractor shall recommend revisions to existing user guides and/or other resource documents.	Primarily as Microsoft Word or Portable Document Format (PDF) documents, but may vary, as requested by WACOR in written technical direction.	The WACOR will approve recommended changes.
TASK 5	**5a.** Draft Quality Assurance Project Plan (QAPP).	One document delivered in electronic format.	Within 15 calendar days after submittal of the workplan.
	5b. Revised QAPP.	One document delivered in electronic format.	Within ten days of receipt of comments from the Contracting Officer, if required.
	5c. Review and compile accurate EPA regulatory statistical data compiled for calendar years 2006-2012 and create criteria for data inclusion or exclusion.	Primarily as Microsoft Excel table documents, but may vary, as requested by WACOR in written technical direction.	As requested by the WACOR in written technical direction.
	5d. Compile statistical data from regulatory data sources for calendar years 2013-present.	Primarily as Microsoft Excel table documents, but may vary, as requested by WACOR in written technical direction.	As requested by the WACOR in written technical direction.

	5e. Modify the ADP Reporting database to capture future regulatory statistical data without relying on external data sources.	Varied, as requested by WACOR in written technical direction.	As requested by the WACOR in written technical direction.
TASK 6	**6a.** Following One EPA Web directives, the contractor shall review internal and external content for errors, as well as reviewing relative site server statistics.	Varied, as requested by WACOR in written technical direction.	Quarterly.
	6b. The contractor provide to the WACOR a report on broken links and recommend a corrected URL.	Varied, as requested by WACOR in written technical direction.	Quarterly.
	6c. Make all broken link corrections from the reports resulting from 6a and 6b.	As requested by WACOR in written technical direction.	Within 7 days of approval from WACOR.
	6d. Other deliverables required for Task 6 will be provided in technical direction from the WACOR.	Varied, as requested by WACOR in written technical direction.	As requested by the WACOR in written technical direction.

WORK ASSIGNMENT

I. Title: Perchlorate Rulemaking and SafeWater Model Support

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-32

III. Estimated Period of Performance: August 1, 2016 through July 31, 2017

IV. Estimated Level of Effort: 5590 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Erik Helm
OGWDW/SRMD (4607M)
202/566-1049
202/564-3758 (fax)
Helm.erik@epa.gov

VI. Background and Purpose:

Perchlorate

Perchlorate is an inorganic ion (ClO4-) occurring primarily as a salt. Perchlorate occurs naturally in calcium carbonate deposits in arid regions (e.g., parts of the western US) and via atmospheric processes. People are exposed to perchlorate through both food and drinking water. Perchlorate interferes with the thyroid gland by inhibiting iodide uptake. Reduced iodide uptake by the thyroid impacts the amount of thyroid hormones produced. Thyroid hormones are critical for normal growth and development. Poor iodide uptake and subsequent impairment of thyroid function in pregnant women are linked to delayed development and decreased learning capacity in infants and children.

On February 11, 2011 (76 FR 7762), the Environmental Protection Agency (EPA) announced its decision to regulate perchlorate based on its finding that perchlorate meets the Safe Drinking Water Act's (SDWA) three criteria for regulating a contaminant:

- Perchlorate may have adverse health effects,
- There is a substantial likelihood that perchlorate occurs with frequency at levels of health concern in public water systems, and
- There is a meaningful opportunity to reduce risk through a drinking water regulation.

In accordance with SDWA, the Agency requested EPA's Science Advisory Board (SAB) to review how to consider available data in deriving a Maximum Contaminant Level Goal (MCLG). The MCLG is a non-enforceable goal defined under the SDWA as "the level at which no known or anticipated adverse effects on the health of persons occur and which allows an

adequate margin of safety." for a perchlorate National Primary Drinking Water Regulation. The SAB released its final report on May 29, 2013 and recommended that EPA "derive a perchlorate MCLG that addresses sensitive life stages through physiologically-based pharmacokinetic/pharmacodynamic (PBPK/PD) modeling."

Food and Drug Administration (FDA) and EPA scientists developed a PBPK/PD model to determine under what conditions of iodine nutrition and exposure to perchlorate across sensitive lifestages would experience low serum free and total thyroxine (hypothyroxinemia).

EPA began the process of deriving a perchlorate MCLG by linking model output to information from literature to account for adverse health outcomes under WA 4-96 of Abt Contract EP-W-11-003 and WA 2-32 of Abt Contract EP-C-13-039. Under this work assignment the contractor shall continue to assist EPA in the development of the Perchlorate MCLG (not duplicating any work previously completed under WA 4-96 of contract EP-W-11-003 or WA 2-32 of contract EP-C-13-039) and the benefits and costs of the Perchlorate Rulemaking. In order to estimate the costs and benefits of the rule the contractor shall update EPA's SafeWater modeling system (developed and updated under several previous contracts and work assignment ending with WA 2-32 of contract EP-C-13-039 – no previous work shall be duplicated under this WA) to include the dose response information that will be developed along with the Perchlorate MCLG calculations.

Lead and Copper Rule Long Term Rule Revision

Under the Safe Drinking Water Act (SDWA) EPA sets public health goals and enforceable standards for drinking water quality. The Lead and Copper Rule (LCR) is a treatment technique rule. Instead of setting a maximum contaminant level (MCL) for lead or copper, the rule requires public water systems (PWSs) to take certain actions to minimize lead and copper in drinking water, to reduce water corrosivity and prevent the leaching of these metals from the premise plumbing and drinking water distribution system components and when that isn't enough, to remove lead service lines.

EPA is currently in the process of evaluating potential changes to the existing lead and copper rule. These regulatory changes may consist of modifications to the tiering criteria for lead and copper sampling sites, changes to requirements for lead service line replacement, changes and/or additions to existing corrosion control treatments, modifications to existing water quality parameters, public education requirements, and the determination of a health based lead tap sample threshold of concern referred to as the Household Action Level.

Under WA 2-32, an initial set of analyses was performed to calculate the drinking water concentration of lead resulting in the defined increase in the probability of elevated blood lead levels. Several iterations of this approach have been used with varying input parameters to investigate a health-based household action level. A number of additional analyses and approaches may be required based on changing regulatory requirements and EPA comments.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan that will be based on Task 2 quality assurance project plan (QAPP) language. The

QAPP shall describe the procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract Level Contracting Officer Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Workplan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: The contractor shall be required to travel under this work assignment. Travel may be to participate with EPA in on site data collection, in meetings with trade associations, and to meet with EPA to discuss methodology and other important issues associated with the project. A request for approval for any travel directly chargeable to this work assignment must be submitted and approved by the CL-COR before travel begins.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of

varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

Quality Assurance: Tasks 3 through 5 in this Work Assignment (WA) require the use of secondary data. Consistent with the Agency's Quality Assurance (QA) requirements, the contractor must prepare a complete Project Specific Quality Assurance Project Plan (PQAPP), to assure the quality of the data used under this WA. The contractor shall use the Project Specific Quality Assurance Project Plan (PQAPP) completed under task 2 of WA 2-32 for this purpose. The QA requirements must be addressed in the work plan and monthly progress reports as specified under Task 1, below.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Workplan

The contractor shall prepare a workplan within 15 calendar days of receipt of the work assignment. The workplan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. In addition, the workplan shall include the requirement that all electronic and information technology (EIT) and all EIT deliverables be Section 508 compliant in accordance with the policies referenced at http://www.epa.gov/accessibility/. The contractor shall use the Project Specific Quality Assurance Project Plan (PQAPP) completed under task 2 of WA 2-32, and ensure the quality of secondary data used to complete tasks 3 through 5.

The EPA WACOR, the CL-COR and the CO will review the workplan. However, only the CO can approve/disapprove, suggest revisions, or change the workplan. Official revisions will be given to the contractor by the Contracting Officer. The contractor shall prepare a revised workplan incorporating the Contracting Officer's comments, if required.

A weekly update call with the EPA WACOR and a monthly progress report will be required for this work assignment to discuss progress on deliverables, costs, and other potential issues.

The Monthly Progress Report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. Monthly reports must include a table with the invoice LOE and costs` broken out by the tasks.

Deliverables and schedule under Task 1

1.a. Workplan within 15 calendar days of receipt of work assignment.

Task 2 - Quality Assurance

Tasks 3 through 5 in this work assignment require the use of secondary data. Collection, use, and analysis of data will be identical to the procedures described in the Project Specific Quality Assurance Project Plan (PQAPP), completed under task 2 of WA 2-32, consistent with the Agency's Quality Assurance requirements. EPA has determined that this approved PQAPP is appropriate for the tasks outlined in this Performance Work Statement. The work described for Tasks 3, 4, and 5 in this work assignment are covered by Task 2 in the original PQAPP (WA 2-32). Based on this determination, the contractor is not required to modify the approved PQAPP for this action. The project specific QA requirements must be addressed in the work plan and monthly progress reports as specified under Task 1.

Deliverables and schedule under Task 2

None.

Task 3 – Perchlorate Rule

Task 3.1 – Development of an MCLG for the Perchlorate Rule

The contractor shall complete the development of the MCLG by linking PBPK/PD model outputs to adverse health outcome information developed as part of the literature review that was conducted under WA 4-96 of Contract EP-W-11-003 and WA 2-32 of contract EP-C-13-039. Under this work assignment, the contractor shall produce a memorandum assessing the variation in thyroid hormone levels throughout pregnancy and at what stages thyroid hormones insufficiency has the largest impact on fetus and childhood neurological development.

Based on the PBPK/PD model data, the literature review of health effect information, and the results of the assessment of thyroid hormone variability and effect in pregnancy, the contractor shall develop a memorandum characterizing a "meta-analysis" type approach for setting the MCLG. Once the EPA WACOR has commented on the approach for calculating the MCLG, the contractor shall develop a report documenting the complete MCLG development process.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

For planning purposes, assume that there will be three drafts of the MCLG report prior to the

final report.

Deliverables and schedule under Task 3.1

3.1.a. Drafts of the MCLG report due date to be determined (TBD) by written technical direction.
3.1.b. Final Drafts of all MCLG development documents due dates TBD by written technical direction.

Task 3.2 – Development of new health and economic impact assessment methodologies for the Perchlorate Proposed Rule

The contractor shall update the Perchlorate Notice of Proposed Rulemaking (NPRM) analyses completed under Contract EP-C-07-023, WAs 5-20 and 6-20. This work is to be done in preparation for the development of chapters of the technical support document (TSD) for the economic costs, impacts, and benefits of the proposed rulemaking (Task 3.4).

It may be necessary to make significant changes to the existing methodology or databases, and explore new types of analysis (i.e. changes to the economic benefits of the proposed rule that result from the development of the MCLG (Task 3.1 above). These changes may require major updates to the SafeWater model and or other health and economic analysis methodologies previously developed in WA 5-20 and 6-20. The exact nature and timing of these changes cannot be foreseen at this time. Making significant changes to existing methodology or databases or exploration of new lines of inquiry will follow the process outlined below:

(1) The EPA WACOR will issue written technical direction to produce a short memorandum, table, or PowerPoint outlining the details of the new analysis required. The length of the document is expected to be less than 5 pages unless otherwise specified in the technical direction.

(2) Once the EPA WACOR has reviewed the document and a determination is made as to whether to move forward with the changes to existing methods or data or conduct a new analysis (which would give additional insight into and not supplant the more general goals of the economic analysis outlined in this work assignment), the EPA WACOR will give written technical direction to the contractor on how to proceed. If it is decided that new work should be conducted then the technical direction will include any EPA changes to the contractor's proposed approach and specific deadlines for completion of the work.

Although a precise number of these potential significant changes to the existing NPRM methodology or databases, and/or explorations of new types of analysis cannot be given at this time, EPA expects that 3 significant changes to the existing methodology or databases, and new types of analysis will be required. The general time frame for the new analysis "scoping" deliverables will be on the order of 7 days after issuance of technical direction.

Under this task, the contractor shall conduct potential rule option assessments that will be used by EPA to determine the three to five primary regulatory options to be presented in the final economic TSD (Task 3.4). These scoping option assessment results should be reported to the EPA in tabular form, without a significant amount of written explanation and interpretation around the analysis results, unless otherwise requested by the EPA WACOR in written technical direction. The EPA WACOR will issue written technical direction specifying the options to be assessed and the completion date. The options to be assessed will be developed over time as part of the Agency's option selection, final agency review, and interagency review processes leading up to the proposed rule signature date. New options or changes to existing options may result from changes in the technical data, engineering analysis, and/or economic assessment methodology and, comments from Office of Water (OW) management, agency workgroup members, other federal agencies and Office of Management and Budget (OMB). Although a precise number of these option assessments cannot be given at this time, EPA expects the number to be between 5 and 10. For the purpose of estimating workplan costs assume that 25% of the option assessments will require turn around on the order of 7 days, the remaining 75% may be "quick response" deliverables particularly as we move through the Agency and Inter-agency review process.

Once the EPA WACOR reviews an option assessment, changes in the scope or methodology may be communicated through technical direction. The technical direction will also include a due date for the updated option assessment.

Deliverables and schedule under Task 3.2

3.2.a. Methodology and Data Modification Memorandum deliverables and due dates TBD by written technical direction. The contractor will normally be given 7 days or more to complete these deliverables.
3.2.b. EPA WACOR approved changes to Methodology and Data Modifications due dates TBD by written technical direction.
3.2.c. Planned Option Assessment deliverables and due dates TBD by written technical direction. The contractor will normally be given 7 days or more to complete these deliverables.
3.2.d. Quick Response Option Assessment deliverables and due dates TBD by written technical direction. The contractor will be given less than 7 days to complete these deliverables.

Task 3.3 – Development of the Initial Regulatory Flexibility Analysis (IRFA) for the Perchlorate Proposed Rule

The contractor shall prepare the Initial Regulatory Flexibility Analysis (IRFA) document for perchlorate regulation. The IRFA is an analysis that describes the anticipated economic impacts of proposed rules on small entities and any significant alternatives to the proposed rules that would accomplish the objectives of the rules while minimizing significant economic impacts on small entities.

The draft IRFA document will be provided to the EPA WACOR for an initial review.

Once the EPA WACOR completes the initial review of the draft IRFA document and provides revisions and/or comments to the contractor, the contractor shall incorporate the changes into the draft document and provide a final draft IRFA document to the EPA WACOR.

Deliverables and schedule under Task 3.3

3.3.a. Draft Perchlorate IRFA document due three months after workplan approval, unless delayed by written technical direction.
3.3.b. Final Perchlorate IRFA document is due within 2 calendar weeks of receipt of comments from the EPA WACOR, unless delayed by written technical direction.

Task 3.4 – Development of the Draft Technical Support Document (TSD) for the Economic Costs, Impacts, and Benefits of the Perchlorate Proposed Rule

Under this task, the contractor shall develop a draft Economic Analysis TSD. This report will revise the Baseline Analysis, Cost Analysis, and Benefits Analysis chapters of the NPRM Economic Analysis TSD written under WA 5-20 and 6-20 (EP-C-07-023). Drafts of the remaining chapters shall be written and submitted to the EPA WACOR for review. The chapter structure of the TSD shall remain the same as that developed in WA 5-20. The chapters of the economic analysis TSD will be:

- Executive Summary
- Need for the Rule
- Consideration of Regulatory Alternatives
- Baseline Analysis
- Health Effects
- Benefits Analysis
- Economic Impact and Cost Analysis
- Comparison of Benefits and Costs
- Administrative Requirements

The Administration Requirements chapter includes the Regulatory Flexibility Act (RFA) Analysis, the Unfunded Mandates Reform Act (UMRA) Analysis, and the Executive Order Analyses (E.O. 12866, 13132, 13175, 13045, 13211, 12898, and 13158).

The TSD will contain the assessment of the three to five proposed rule options which are to be determined through the EPA Office of Water proposed rule process. These primary options will be defined by written Technical Direction.

The draft TSD report chapters shall be provided to the EPA WACOR for an initial review.

Once the EPA WACOR completes the initial review of the draft TSD report chapters and

provides revisions and/or comments to the contractor, the contractor shall incorporate the changes into the draft TSD report chapters.

Under this task, the draft Economic Analysis TSD report chapters may also need to be revised further in response to public comments, changes in the technical data, comments from OW management, agency workgroup members, and OMB, as well as changes to the proposed rule regulatory options and/or technology efficacy results. These changes are expected to occur in several waves as the proposed rule moves though the Agency and Inter- agency review process. All changes will be given to the contractors by written Technical Direction. After each set of significant revisions initiated by technical direction, the contractor shall supply that portion or chapter of the TSD to the EPA WACOR for further review.

The Final Economic Analysis TSD report will be due at the time of the Administrator's Signature or the Proposed Perchlorate Rule, currently scheduled for March 2018, which is after the end of this work assignment's period of performance. Therefore, the contractor shall prepare final draft versions of the Economic Analysis TSD report chapters that have been drafted and modified during the period of performance, incorporating the EPA WACOR's comments at the end of the period of performance.

Deliverables and schedule under Task 3.4

3.4.a. Second Drafts of the Baseline Analysis, Cost Analysis, and Benefits Analysis chapters due four months after workplan approval, unless delayed by written technical direction.
3.4.b. First Drafts of the remaining TSD chapters due dates TBD by written technical direction.
3.4.c. Final Draft Economic Analysis TSD chapters due date TBD by written technical direction.

Task 4 - Lead and Copper Rule (LCR)

Task 4.1 – Lead and Copper Long Term Revisions Rule Support

The contractor shall, based on technical direction given by the EPA WACOR, provide technical support related to health risk assessment, and economic benefit assessment issues associated with the rulemaking. Such support may include responding to management questions about economic issues, preparing briefing and meeting materials (which may include but are not limited to short briefing documents and PowerPoint presentations). The contractor may also be requested to participate in and/or conduct briefings, assisting Agency economists in their review of analyses conducted by EPA and its contractors, providing technical review of materials prepared for the rulemaking by Agency staff, and assist in the development of the rulemaking record. For planning purposes, EPA expects that there will be a need for between 4 and 6 short briefing documents and the contractor shall participate in 1 to 2 briefings. The contractor may also be required to review and summarize 1 to 2 documents prepared by outside groups and/or other EPA offices.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule under Task 4.1

4.1.a. Draft deliverables and due dates TBD listed or delayed by written technical direction.
4.1.b. Final deliverable due dates listed or delayed by written technical direction.

Task 4.2 – Revisions to the Household Action Level (HAL) for the Lead and Copper Long Term Revisions Rule

Under WA 2-32 the contractor developed a draft HAL report for the LCR. The contractor shall revise the report and supporting analysis based on technical direction given by the EPA WACOR. The EPA WACOR's technical direction may include the development of a number of additional methods for deriving the LCR's Household Action Level. The Household Action Level is a health based threshold level of concern. This value is being developed in response to the National Drinking Water Advisory Council's recommendations for the revision of the LCR. The Household Action Level will be a tap sample threshold value above which the public water utility will inform both the residents and local health department official that a site-specific assessment of lead exposure impacts to the residents is advisable. Additional updates to the Agency's Integrated Exposure Uptake Biokinetic (IEUBK) model maybe required as part of the updating of the HAL report and development of new HAL approaches. This work will require research into several exposure pathway lead concentrations. Because of the iterative approach to determining the drinking water concentration threshold it will be necessary to run the IEUBK model possibly more than a 100 times. If the EPA's Office of Research and Development (ORD) develops significant lead exposure information from their Stochastic Human Exposure and Dose Simulation (SHEDS) exposure model, in time to meet the household action level deadline, it may become necessary to link IEUBK to SHEDS this work would be done based on technical direction from the EPA WACOR.

For planning purposes, assume that there will be two drafts of the HAL report prior to the final report.

Deliverables and schedule under Task 4.2

4.2.a. Additional drafts of the Household Action Level Report due date TBD based on EPA WACOR comments.
4.2.b. Final deliverable due dates listed or delayed by written technical direction.

Task 4.3 – Development of new health and economic impact assessment methodologies for the Lead and Copper Long Term Revisions Rule

This work is to be done in preparation for the development of chapters of the TSD for the economic costs, impacts, and benefits of the proposed rulemaking (Task 4.4).

It may be necessary to make significant changes to the existing methodology or databases, and explore new types of analysis (i.e. changes to the economic benefits of the proposed rule that result from the development of the Household Action Level (Task 4.2 above)). These changes may require major updates to the SafeWater model and or other health and economic analysis methodologies previously developed in WA 5-20 and 6-20. The exact nature and timing of these changes cannot be foreseen at this time. Making significant changes to existing methodology or databases or exploration of new lines of inquiry will follow the process outlined below:

1. The EPA WACOR will issue written technical direction to produce a short memorandum,table, or PowerPoint outlining the details of the new analysis required. The length of the document is expected to be less than 5 pages unless otherwise specified in the technical direction.

2. Once the EPA WACOR has reviewed the document and a determination is made as to whether to move forward with the changes to existing methods or data or conduct a new analysis (which would give additional insight into and not supplant the more general goals of the economic analysis outlined in this work assignment), the EPA WACOR will give written technical direction to the contractor. If it is decided that new work should be conducted then the technical direction will include any EPA changes to the contractor's proposed approach and specific deadlines for completion of the work.

Although a precise number of these potential significant changes to the existing NPRM methodology or databases, and/or explorations of new types of analysis cannot be given at this time, EPA expects that 3 significant changes to the existing methodology or databases, and new types of analysis will be required. The general time frame for the new analysis "scoping" deliverables will be on the order of 7 days after issuance of technical direction.

Under this task, the contractor shall conduct potential rule option assessments that will be used by EPA to determine the three to five primary regulatory options to be presented in the final economic TSD (Task 4.4). These scoping option assessment results should be reported to the EPA in tabular form, without a significant amount of written explanation and interpretation around the analysis results, unless otherwise requested by the EPA WACOR in written technical direction. The EPA WACOR will issue written technical direction specifying the options to be assessed and the completion date. The options to be assessed will be developed over time as part of the Agency's option selection, final agency review, and interagency review processes leading up to the proposed rule signature date. New options or changes to existing options may result from changes in the technical data, engineering analysis, and/or economic assessment methodology and, comments from OW management, agency workgroup members, other federal agencies and OMB. Although a precise number of these option assessments cannot be given at this time, EPA expects the number to be between 5 and 10. For the purpose of estimating workplan costs assume that 25% of the option assessments will require turn around on the order

of 7 days, the remaining 75% may be "quick response" deliverables particularly as we move through the Agency and Inter-agency review process.

Once the EPA WACOR reviews an option assessment, changes in the scope or methodology may be communicated through technical direction. The technical direction will also include a due date for the updated option assessment.

Deliverables and schedule under Task 4.3

4.3.a. Methodology and Data Modification Memorandum deliverables and due dates TBD by written technical direction. The contractor will normally be given 7 days or more to complete these deliverables.
4.3.b. EPA WACOR approved changes to Methodology and Data Modifications due dates TBD by written technical direction.
4.3.c. Planned Option Assessment deliverables and due dates TBD by written technical direction. The contractor will normally be given 7 days or more to complete these deliverables.
4.3.d. Quick Response Option Assessment deliverables and due dates TBD by written technical direction. The contractor will be given less than 7 days to complete these deliverables.

Task 4.4 – Update the SafeWater Model to incorporate distribution system impact costs and lead child and adult benefits assessment

The contractor shall, based on written technical direction from the EPA WACOR, continue the work started under WA 2-32 and update the SafeWater model to support rule cost components that occur in water utility distribution systems. The LCR will have regulatory options that might require proactive lead service line replacement and sampling at households. Previous versions of the SafeWater cost model looked only at entry point treatment costs. Alterations to the model must be made to allow for an assessment of costs that are not tied to entry point treatment. Additional modeled strata (e.g. systems with and without lead service lines) will also need to be added to the cost framework.

The contractor shall update the benefits model, based on written technical direction, to include appropriate lead dose response function information for child intelligence quotient (IQ) decrements and adult cardiovascular impacts. Additional health endpoint data may also become available based on work being conducted by EPA's National Center for Environmental Economics. If new dose response relationships are developed, the EPA WACOR will give written technical direction to incorporate the additional health endpoint to the benefits analysis. At this time, EPA estimates that only one new endpoint will be developed.

For planning purposes, assume that there will be six drafts of the cost model prior to the final cost model, and four drafts of the benefits model prior to the final benefits model.

Deliverables and schedule under Task 4.4

4.4.a. Draft SafeWater cost model changes and due dates TBD listed or modified by written technical direction.
4.4.b. Final SafeWater cost model changes due dates listed or modified by written technical direction.
4.4.c. Draft SafeWater benefit model changes and due dates TBD listed or modified by written technical direction.
4.4.d. Final SafeWater benefit model changes due dates listed or modified by written technical direction.

Task 4.5 – Development of Chapters of the Draft Technical Support Document for the Economic Costs, Impacts, and Benefits of the Lead and Copper Long Term Revisions Proposed Rule

Under this task, the contractor shall develop chapters and sections of chapters for a draft Economic Analysis TSD. The chapters of the economic analysis TSD to be developed will be:

- Health Effects
- Benefits Analysis
- National Economic Impact and Cost Analysis
- Comparison of Benefits and Costs

Sections of the economic baseline chapter supporting the cost benefit work and the administrative requirements chapter will also need to be developed. The Administration Requirements chapter sections include the Regulatory Flexibility Act (RFA) Analysis, the Unfunded Mandates Reform Act (UMRA) Analysis, and the Executive Order 12866.

The TSD will contain the assessment of the three to five proposed rule options which are to be determined through the EPA Office of Water proposed rule process. These primary options will be defined by written Technical Direction.

The draft TSD report chapters and sections shall be provided to the EPA WACOR for an initial review.

Once the EPA WACOR completes the initial review of the draft TSD report chapters and sections and provides revisions and/or comments to the contractor, the contractor shall incorporate the changes into the draft TSD report chapters and sections.

Under this task, the draft Economic Analysis TSD report chapters and sections may also need to be revised further in response to public comments, changes in the technical data, comments from OW management, agency workgroup members, and OMB, as well as changes to the proposed rule regulatory options and/or technology efficacy results. These changes are expected to occur in several waves as the proposed rule moves though the Agency and Inter- agency review process. All changes will be given to the contractors by written Technical Direction. After each

set of significant revisions initiated by technical direction, the contractor shall supply that portion or chapter of the TSD to the EPA WACOR for further review.

The Final Economic Analysis TSD chapters sections will be due at the time of the Administrator's Signature or the Proposed Lead and Copper Long Term Rule Revision, currently scheduled for September 2017, which is after the end of this work assignment's period of performance. Therefore, the contractor shall prepare final draft versions of the Economic Analysis TSD report chapters that have been drafted and modified during the period of performance, incorporating the EPA WACOR's comments at the end of the period of performance.

Deliverables and schedule under Task 4.5

4.5.a. Second Drafts of the Baseline Analysis, Cost Analysis, and Benefits Analysis chapters due four months after workplan approval, unless delayed by written technical direction.
4.5.b. First Drafts of the remaining TSD chapters due dates TBD by written technical direction.
4.5.c. Final Draft Economic Analysis TSD chapters due date TBD by written technical direction.

Task 5 - Provide Technical Support for Rulemaking Activities

The contractor shall provide technical support related to health assessment, and economic cost and benefit assessment issues associated with the Perchlorate, Lead and Copper, Carcinogenic Voltile Organic Compounds, and Fluoride rulemakings. Such support may include conducting SafeWater runs, developing regulatory flexibility analysis (RFA) reports, developing health effects documents, responding to management questions about economic and health impact issues, preparing briefing and meeting materials (which may include but are not limited to short briefing documents, PowerPoint presentations, and memoranda). The contractor may also be requested to participate in and/or conduct briefings, assisting Agency economists in their review of analyses conducted by EPA and its contractors, providing technical review of materials prepared for the rulemaking by Agency staff, and assist in the development of the rulemaking record.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

For planning purposes, assume 15 quick turnaround tasks that would include document review and summarizing, single spreadsheets, and bulleted memos, and 5 tasks that have longer timeframes to complete which would include long memos and multipage spreadsheets.

Deliverables and schedule under Task 5

5.a. Draft deliverables and due dates TBD listed or modified by written technical direction.
5.b. Final deliverable due dates listed or modified by written technical direction.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-32

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Perchlorate Rulemaking and Saf

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.2

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 09/15/2016 To 07/31/2017

Comments:
Amendment 1 modifying Task 3.1 and adding to new tasks 4.6 and 6. A work plan is required per the contract requirements.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017	Cost/Fee:	LOE: 5,590
This Action:		1,860
Total:		7,450

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Erik Helm	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1049 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT
Amendment No. 1

I. Title: Perchlorate Rulemaking and SafeWater Model Support

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-32

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Estimated Level of Effort: 1860 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):

Erik Helm
OGWDW/SRMD (4607M)
202/566-1049
202/564-3758 (fax)
helm.erik@epa.gov

VI. Background and Purpose:

This amendment (No. 1) adds additional level of effort to Task 3.1 in support of the Environmental Protection Agency's (EPA's) activities related to the regulation of Perchlorate in drinking water. The Maximum Contaminant Level Goal (MCLG) Report that was drafted under Work Assignment (WA) 2-32 and previously under this work assignment must be expanded to include a number of differing methodologies for calculating a perchlorate MCLG.

This amendment also adds two new tasks to this work assignment that support the Office of Ground Water and Drinking Water's lead regulatory efforts. Task 4.6 looks to assess the negative environmental impact from mandating that systems with lead service lines add orthophosphate to the drinking water. Phosphates are nutrients that can pass through wastewater treatment plants and cause negative environmental impacts like harmful algal blooms (HABs). Task 6 relates to the Agency's Lead Free regulation, which implements Section 1417 of the Safe Drinking Water Act: Prohibition on Use of Lead Pipes, Solder, and Flux. Because of the additional small business definitions being considered as part of the Lead Free rulemaking and specifically how those definitional changes relate to self or third party certify of lead free products, additional analysis and revisions to previously prepared models and documentation must be conducted in under Task 6.

EPA estimates that, for this Amendment, 1860 additional professional hours will be required to complete Tasks 3.1, 4.6, and 6 as outlined in this Performance Work Statement. With no additional

hours added to the other tasks the total professional hours are projected to be 7450 (5590 base WA + 1860 incremental for Amendment 1).

The current approved Quality Assurance Project Plan (QAPP) is applicable to the additional task requirements in this amendment.

VII. Performance Work Statement

Task 3.1 is being revised as follows:

Task 3.1 – Development of an MCLG for the Perchlorate Rule

The contractor shall complete the development of the MCLG by linking Physiologically based pharmacokinetic and pharmacodynamic (PBPK/PD) model outputs to adverse health outcome information developed as part of the literature review that was conducted under WA 4-96 of Contract EP-W-11-003 and WA 2-32 of contract EP-C-13-039. Under this work assignment, the contractor shall produce a memorandum assessing the variation in thyroid hormone levels throughout pregnancy and at what stages thyroid hormones insufficiency has the largest impact on fetus and childhood neurological development.

Based on the PBPK/PD model data, the literature review of health effect information, and the results of the assessment of thyroid hormone variability and effect in pregnancy, the contractor shall develop a memorandum characterizing a "meta-analysis" type approach for setting the MCLG. Once the EPA WACOR has commented on the approach for calculating the MCLG, the contractor shall develop a report documenting the complete MCLG development process.

Based on significant input on the draft MCLG methodology and report that was previously completed under the current work assignment significant edits to the MCLG draft report will be necessary and update to the supporting model spreadsheets are required. The report will now present 4 or more alternative methodologies for the derivation of an MCLG falling into two categories neurodevelopmental endpoint impacts and change in hypothyroxinemic populations.

The contractor shall prepare revised draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the revised draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

For planning purposes, assume that there will be four additional drafts of the MCLG report, which includes multiple approaches prior to the final report and supporting model spreadsheets will have to be updated twice per draft report.

Deliverables and schedule under Task 3.1

3.1.a. Drafts of the MCLG report and supporting models due date to be determined (TBD) by written technical direction.
3.1.b. Final Drafts of all MCLG development documents and models due dates TBD by written technical direction.

<u>Tasks 4.6 and 6 are being added to the WA:</u>

Task 4.6 – Evaluate changing nutrient loads from corrosion control on wastewater treatment and receiving water bodies

Under the Lead and Copper Rule (LCR), EPA requires large water systems to use corrosion control treatments for drinking water. Orthophosphate is a corrosion inhibitor that is generally used by these systems. Under the long-term revisions to the LCR, EPA is considering expanding the requirement for corrosion control treatment to medium and/or small systems that have not previously installed corrosion control treatment, which could substantially increase the amount of phosphorus that flows into wastewater treatment plants, and thus to receiving water bodies. Discharge from wastewater treatment facilities, with little to no treatment for phosphorus, is already a significant source of nutrient loading in surface waters throughout the country, in part because only certain regions have National Pollution Discharge Elimination (NPDES) permitting limits for total phosphorus.

Under this task, the contractor shall evaluate the potential impacts to Waste Water Treatment Plants (WWTP) for phosphorous removal and discharges from WWTPs to receiving water bodies under a set of LCR regulatory assumptions that the EPA WACOR will supply to the contractor. As part of this analysis, the contractor shall:

- Identify those areas that do not currently have NPDES limits for total phosphorus but are likely to be candidates for limits or increased monitoring of total phosphorus.
- Identify areas in which receiving waters from WWTP are likely to see substantial increases in phosphorus loads;
- Discuss the potential environmental impacts of additional phosphorus contribution to receiving water bodies; and
- Identify metropolitan areas that are unlikely to be able to meet NPDES permit limitations for nutrients/total phosphorus based on the assumptions provided by EPA.
- Analyze the economic costs of any environmental harm to receiving bodies, given changes in nutrient loading that can be identified by proposed rule requirements.

Once the EPA WACOR has commented on the approaches and models to be developed for assessing the impact of the nutrients, the contractor shall develop a draft report documenting the complete nutrient assessment process.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

For planning purposes, assume that there will be three drafts of the nutrient impact assessment

report prior to the final report.

Deliverables and schedule under Task 4.6

4.6.a. Drafts of the Nutrient Impact Assessment Report due date TBD based on EPA WACOR comments.
4.6.b. Final Nutrient Impact Assessment Report deliverable due dates listed or delayed by written technical direction.

Task 6 - Provide Regulatory Flexibility Act (RFA) Technical Support for the Lead Free Rulemaking

The contractor shall update and revise the Lead Free RFA analysis that was conducted under WA 2-32 of this contract. As a result of guidance and comment given during the option selection process the current RFA analysis must be updated to include assessment of revenue impacts for different definitions of small entities under the rule. The definition of small entities incurring third party and self-certification costs will vary across North American Industry Classification System (NAICS) codes. Also an assessment of impact will be conducted based on product complexity requirements for third party and self-certification.

The contractor shall prepare draft deliverable spreadsheets for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft spreadsheets and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the spreadsheets incorporating the EPA WACOR's comments.

Given final versions of the spreadsheets, the contractor shall revise the RFA report that was developed under WA 2-32 of this contract. The draft revised report shall be delivered to the EPA WACOR for review and approval.

Once the EPA WACOR reviews the draft report and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the report incorporating the EPA WACOR's comments.

For planning purposes, assume 3 sets of small business/product complexity definitions to be assessed. The contractor should assume three iterations on the spreadsheets: 2 drafts and 1 final draft. For the report, assume one draft and one final draft report.

Deliverables and schedule under Task 6

6.a. Draft RFA spreadsheet model changes and due dates TBD listed or modified by written technical direction.

6.b. Final RFA spreadsheet model changes due date listed or modified by written technical direction.
6.c. Draft revised RFA report due dates TBD listed or modified by written technical direction.
6.d. Final RFA report due date listed or modified by written technical direction.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-32

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Perchlorate Rulemaking and CBX

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.2

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Performance on this Work Assignment shall not begin until August 1, 2016.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		5,590
Total:		5,590

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Erik Helm	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1049 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams TAMMY ADAMS Digitally signed by TAMMY ADAMS DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=TAMMY ADAMS, dnQualifier=0000018417 Date: 2016.07.28 07:08:21 -04'00'	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: Perchlorate Rulemaking and SafeWater Model Support

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-32

III. Estimated Period of Performance: August 1, 2016 through July 31, 2017

IV. Estimated Level of Effort: 5590 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Erik Helm
OGWDW/SRMD (4607M)
202/566-1049
202/564-3758 (fax)
Helm.erik@epa.gov

VI. Background and Purpose:

Perchlorate

Perchlorate is an inorganic ion (ClO4-) occurring primarily as a salt. Perchlorate occurs naturally in calcium carbonate deposits in arid regions (e.g., parts of the western US) and via atmospheric processes. People are exposed to perchlorate through both food and drinking water. Perchlorate interferes with the thyroid gland by inhibiting iodide uptake. Reduced iodide uptake by the thyroid impacts the amount of thyroid hormones produced. Thyroid hormones are critical for normal growth and development. Poor iodide uptake and subsequent impairment of thyroid function in pregnant women are linked to delayed development and decreased learning capacity in infants and children.

On February 11, 2011 (76 FR 7762), the Environmental Protection Agency (EPA) announced its decision to regulate perchlorate based on its finding that perchlorate meets the Safe Drinking Water Act's (SDWA) three criteria for regulating a contaminant:

- Perchlorate may have adverse health effects,
- There is a substantial likelihood that perchlorate occurs with frequency at levels of health concern in public water systems, and
- There is a meaningful opportunity to reduce risk through a drinking water regulation.

In accordance with SDWA, the Agency requested EPA's Science Advisory Board (SAB) to review how to consider available data in deriving a Maximum Contaminant Level Goal (MCLG). The MCLG is a non-enforceable goal defined under the SDWA as "the level at which no known or anticipated adverse effects on the health of persons occur and which allows an

adequate margin of safety." for a perchlorate National Primary Drinking Water Regulation. The SAB released its final report on May 29, 2013 and recommended that EPA "derive a perchlorate MCLG that addresses sensitive life stages through physiologically-based pharmacokinetic/pharmacodynamic (PBPK/PD) modeling."

Food and Drug Administration (FDA) and EPA scientists developed a PBPK/PD model to determine under what conditions of iodine nutrition and exposure to perchlorate across sensitive lifestages would experience low serum free and total thyroxine (hypothyroxinemia).

EPA began the process of deriving a perchlorate MCLG by linking model output to information from literature to account for adverse health outcomes under WA 4-96 of Abt Contract EP-W-11-003 and WA 2-32 of Abt Contract EP-C-13-039. Under this work assignment the contractor shall continue to assist EPA in the development of the Perchlorate MCLG (not duplicating any work previously completed under WA 4-96 of contract EP-W-11-003 or WA 2-32 of contract EP-C-13-039) and the benefits and costs of the Perchlorate Rulemaking. In order to estimate the costs and benefits of the rule the contractor shall update EPA's SafeWater modeling system (developed and updated under several previous contracts and work assignment ending with WA 2-32 of contract EP-C-13-039 – no previous work shall be duplicated under this WA) to include the dose response information that will be developed along with the Perchlorate MCLG calculations.

Lead and Copper Rule Long Term Rule Revision

Under the Safe Drinking Water Act (SDWA) EPA sets public health goals and enforceable standards for drinking water quality. The Lead and Copper Rule (LCR) is a treatment technique rule. Instead of setting a maximum contaminant level (MCL) for lead or copper, the rule requires public water systems (PWSs) to take certain actions to minimize lead and copper in drinking water, to reduce water corrosivity and prevent the leaching of these metals from the premise plumbing and drinking water distribution system components and when that isn't enough, to remove lead service lines.

EPA is currently in the process of evaluating potential changes to the existing lead and copper rule. These regulatory changes may consist of modifications to the tiering criteria for lead and copper sampling sites, changes to requirements for lead service line replacement, changes and/or additions to existing corrosion control treatments, modifications to existing water quality parameters, public education requirements, and the determination of a health based lead tap sample threshold of concern referred to as the Household Action Level.

Under WA 2-32, an initial set of analyses was performed to calculate the drinking water concentration of lead resulting in the defined increase in the probability of elevated blood lead levels. Several iterations of this approach have been used with varying input parameters to investigate a health-based household action level. A number of additional analyses and approaches may be required based on changing regulatory requirements and EPA comments.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan that will be based on Task 2 quality assurance project plan (QAPP) language. The

QAPP shall describe the procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract Level Contracting Officer Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Workplan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: The contractor shall be required to travel under this work assignment. Travel may be to participate with EPA in on site data collection, in meetings with trade associations, and to meet with EPA to discuss methodology and other important issues associated with the project. A request for approval for any travel directly chargeable to this work assignment must be submitted and approved by the CL-COR before travel begins.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of

varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

Quality Assurance: Tasks 3 through 5 in this Work Assignment (WA) require the use of secondary data. Consistent with the Agency's Quality Assurance (QA) requirements, the contractor must prepare a complete Project Specific Quality Assurance Project Plan (PQAPP), to assure the quality of the data used under this WA. The contractor shall use the Project Specific Quality Assurance Project Plan (PQAPP) completed under task 2 of WA 2-32 for this purpose. The QA requirements must be addressed in the work plan and monthly progress reports as specified under Task 1, below.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Workplan

The contractor shall prepare a workplan within 15 calendar days of receipt of the work assignment. The workplan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. In addition, the workplan shall include the requirement that all electronic and information technology (EIT) and all EIT deliverables be Section 508 compliant in accordance with the policies referenced at http://www.epa.gov/accessibility/. The contractor shall use the Project Specific Quality Assurance Project Plan (PQAPP) completed under task 2 of WA 2-32, and ensure the quality of secondary data used to complete tasks 3 through 5.

The EPA WACOR, the CL-COR and the CO will review the workplan. However, only the CO can approve/disapprove, suggest revisions, or change the workplan. Official revisions will be given to the contractor by the Contracting Officer. The contractor shall prepare a revised workplan incorporating the Contracting Officer's comments, if required.

A weekly update call with the EPA WACOR and a monthly progress report will be required for this work assignment to discuss progress on deliverables, costs, and other potential issues.

The Monthly Progress Report shall indicate, in a separate QA section, whether significant QA issues have been identified and how they are being resolved. Monthly reports must include a table with the invoice LOE and costs` broken out by the tasks.

Deliverables and schedule under Task 1

1.a. Workplan within 15 calendar days of receipt of work assignment.

Task 2 - Quality Assurance

Tasks 3 through 5 in this work assignment require the use of secondary data. Collection, use, and analysis of data will be identical to the procedures described in the Project Specific Quality Assurance Project Plan (PQAPP), completed under task 2 of WA 2-32, consistent with the Agency's Quality Assurance requirements. EPA has determined that this approved PQAPP is appropriate for the tasks outlined in this Performance Work Statement. The work described for Tasks 3, 4, and 5 in this work assignment are covered by Task 2 in the original PQAPP (WA 2-32). Based on this determination, the contractor is not required to modify the approved PQAPP for this action. The project specific QA requirements must be addressed in the work plan and monthly progress reports as specified under Task 1.

Deliverables and schedule under Task 2

None.

Task 3 – Perchlorate Rule

Task 3.1 – Development of an MCLG for the Perchlorate Rule

The contractor shall complete the development of the MCLG by linking PBPK/PD model outputs to adverse health outcome information developed as part of the literature review that was conducted under WA 4-96 of Contract EP-W-11-003 and WA 2-32 of contract EP-C-13-039. Under this work assignment, the contractor shall produce a memorandum assessing the variation in thyroid hormone levels throughout pregnancy and at what stages thyroid hormones insufficiency has the largest impact on fetus and childhood neurological development.

Based on the PBPK/PD model data, the literature review of health effect information, and the results of the assessment of thyroid hormone variability and effect in pregnancy, the contractor shall develop a memorandum characterizing a "meta-analysis" type approach for setting the MCLG. Once the EPA WACOR has commented on the approach for calculating the MCLG, the contractor shall develop a report documenting the complete MCLG development process.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

For planning purposes, assume that there will be three drafts of the MCLG report prior to the

final report.

Deliverables and schedule under Task 3.1

3.1.a. Drafts of the MCLG report due date to be determined (TBD) by written technical direction.
3.1.b. Final Drafts of all MCLG development documents due dates TBD by written technical direction.

Task 3.2 – Development of new health and economic impact assessment methodologies for the Perchlorate Proposed Rule

The contractor shall update the Perchlorate Notice of Proposed Rulemaking (NPRM) analyses completed under Contract EP-C-07-023, WAs 5-20 and 6-20. This work is to be done in preparation for the development of chapters of the technical support document (TSD) for the economic costs, impacts, and benefits of the proposed rulemaking (Task 3.4).

It may be necessary to make significant changes to the existing methodology or databases, and explore new types of analysis (i.e. changes to the economic benefits of the proposed rule that result from the development of the MCLG (Task 3.1 above). These changes may require major updates to the SafeWater model and or other health and economic analysis methodologies previously developed in WA 5-20 and 6-20. The exact nature and timing of these changes cannot be foreseen at this time. Making significant changes to existing methodology or databases or exploration of new lines of inquiry will follow the process outlined below:

(1) The EPA WACOR will issue written technical direction to produce a short memorandum, table, or PowerPoint outlining the details of the new analysis required. The length of the document is expected to be less than 5 pages unless otherwise specified in the technical direction.

(2) Once the EPA WACOR has reviewed the document and a determination is made as to whether to move forward with the changes to existing methods or data or conduct a new analysis (which would give additional insight into and not supplant the more general goals of the economic analysis outlined in this work assignment), the EPA WACOR will give written technical direction to the contractor on how to proceed. If it is decided that new work should be conducted then the technical direction will include any EPA changes to the contractor's proposed approach and specific deadlines for completion of the work.

Although a precise number of these potential significant changes to the existing NPRM methodology or databases, and/or explorations of new types of analysis cannot be given at this time, EPA expects that 3 significant changes to the existing methodology or databases, and new types of analysis will be required. The general time frame for the new analysis "scoping" deliverables will be on the order of 7 days after issuance of technical direction.

Under this task, the contractor shall conduct potential rule option assessments that will be used by EPA to determine the three to five primary regulatory options to be presented in the final economic TSD (Task 3.4). These scoping option assessment results should be reported to the EPA in tabular form, without a significant amount of written explanation and interpretation around the analysis results, unless otherwise requested by the EPA WACOR in written technical direction. The EPA WACOR will issue written technical direction specifying the options to be assessed and the completion date. The options to be assessed will be developed over time as part of the Agency's option selection, final agency review, and interagency review processes leading up to the proposed rule signature date. New options or changes to existing options may result from changes in the technical data, engineering analysis, and/or economic assessment methodology and, comments from Office of Water (OW) management, agency workgroup members, other federal agencies and Office of Management and Budget (OMB). Although a precise number of these option assessments cannot be given at this time, EPA expects the number to be between 5 and 10. For the purpose of estimating workplan costs assume that 25% of the option assessments will require turn around on the order of 7 days, the remaining 75% may be "quick response" deliverables particularly as we move through the Agency and Inter-agency review process.

Once the EPA WACOR reviews an option assessment, changes in the scope or methodology may be communicated through technical direction. The technical direction will also include a due date for the updated option assessment.

Deliverables and schedule under Task 3.2

3.2.a. Methodology and Data Modification Memorandum deliverables and due dates TBD by written technical direction. The contractor will normally be given 7 days or more to complete these deliverables.
3.2.b. EPA WACOR approved changes to Methodology and Data Modifications due dates TBD by written technical direction.
3.2.c. Planned Option Assessment deliverables and due dates TBD by written technical direction. The contractor will normally be given 7 days or more to complete these deliverables.
3.2.d. Quick Response Option Assessment deliverables and due dates TBD by written technical direction. The contractor will be given less than 7 days to complete these deliverables.

Task 3.3 – Development of the Initial Regulatory Flexibility Analysis (IRFA) for the Perchlorate Proposed Rule

The contractor shall prepare the Initial Regulatory Flexibility Analysis (IRFA) document for perchlorate regulation. The IRFA is an analysis that describes the anticipated economic impacts of proposed rules on small entities and any significant alternatives to the proposed rules that would accomplish the objectives of the rules while minimizing significant economic impacts on small entities.

The draft IRFA document will be provided to the EPA WACOR for an initial review.

Once the EPA WACOR completes the initial review of the draft IRFA document and provides revisions and/or comments to the contractor, the contractor shall incorporate the changes into the draft document and provide a final draft IRFA document to the EPA WACOR.

Deliverables and schedule under Task 3.3

3.3.a. Draft Perchlorate IRFA document due three months after workplan approval, unless delayed by written technical direction.
3.3.b. Final Perchlorate IRFA document is due within 2 calendar weeks of receipt of comments from the EPA WACOR, unless delayed by written technical direction.

Task 3.4 – Development of the Draft Technical Support Document (TSD) for the Economic Costs, Impacts, and Benefits of the Perchlorate Proposed Rule

Under this task, the contractor shall develop a draft Economic Analysis TSD. This report will revise the Baseline Analysis, Cost Analysis, and Benefits Analysis chapters of the NPRM Economic Analysis TSD written under WA 5-20 and 6-20 (EP-C-07-023). Drafts of the remaining chapters shall be written and submitted to the EPA WACOR for review. The chapter structure of the TSD shall remain the same as that developed in WA 5-20. The chapters of the economic analysis TSD will be:

- Executive Summary
- Need for the Rule
- Consideration of Regulatory Alternatives
- Baseline Analysis
- Health Effects
- Benefits Analysis
- Economic Impact and Cost Analysis
- Comparison of Benefits and Costs
- Administrative Requirements

The Administration Requirements chapter includes the Regulatory Flexibility Act (RFA) Analysis, the Unfunded Mandates Reform Act (UMRA) Analysis, and the Executive Order Analyses (E.O. 12866, 13132, 13175, 13045, 13211, 12898, and 13158).

The TSD will contain the assessment of the three to five proposed rule options which are to be determined through the EPA Office of Water proposed rule process. These primary options will be defined by written Technical Direction.

The draft TSD report chapters shall be provided to the EPA WACOR for an initial review.

Once the EPA WACOR completes the initial review of the draft TSD report chapters and

provides revisions and/or comments to the contractor, the contractor shall incorporate the changes into the draft TSD report chapters.

Under this task, the draft Economic Analysis TSD report chapters may also need to be revised further in response to public comments, changes in the technical data, comments from OW management, agency workgroup members, and OMB, as well as changes to the proposed rule regulatory options and/or technology efficacy results. These changes are expected to occur in several waves as the proposed rule moves though the Agency and Inter- agency review process. All changes will be given to the contractors by written Technical Direction. After each set of significant revisions initiated by technical direction, the contractor shall supply that portion or chapter of the TSD to the EPA WACOR for further review.

The Final Economic Analysis TSD report will be due at the time of the Administrator's Signature or the Proposed Perchlorate Rule, currently scheduled for March 2018, which is after the end of this work assignment's period of performance. Therefore, the contractor shall prepare final draft versions of the Economic Analysis TSD report chapters that have been drafted and modified during the period of performance, incorporating the EPA WACOR's comments at the end of the period of performance.

Deliverables and schedule under Task 3.4

3.4.a. Second Drafts of the Baseline Analysis, Cost Analysis, and Benefits Analysis chapters due four months after workplan approval, unless delayed by written technical direction.
3.4.b. First Drafts of the remaining TSD chapters due dates TBD by written technical direction.
3.4.c. Final Draft Economic Analysis TSD chapters due date TBD by written technical direction.

Task 4 - Lead and Copper Rule (LCR)

Task 4.1 – Lead and Copper Long Term Revisions Rule Support

The contractor shall, based on technical direction given by the EPA WACOR, provide technical support related to health risk assessment, and economic benefit assessment issues associated with the rulemaking. Such support may include responding to management questions about economic issues, preparing briefing and meeting materials (which may include but are not limited to short briefing documents and PowerPoint presentations). The contractor may also be requested to participate in and/or conduct briefings, assisting Agency economists in their review of analyses conducted by EPA and its contractors, providing technical review of materials prepared for the rulemaking by Agency staff, and assist in the development of the rulemaking record. For planning purposes, EPA expects that there will be a need for between 4 and 6 short briefing documents and the contractor shall participate in 1 to 2 briefings. The contractor may also be required to review and summarize 1 to 2 documents prepared by outside groups and/or other EPA offices.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule under Task 4.1

4.1.a. Draft deliverables and due dates TBD listed or delayed by written technical direction.
4.1.b. Final deliverable due dates listed or delayed by written technical direction.

Task 4.2 – Revisions to the Household Action Level (HAL) for the Lead and Copper Long Term Revisions Rule

Under WA 2-32 the contractor developed a draft HAL report for the LCR. The contractor shall revise the report and supporting analysis based on technical direction given by the EPA WACOR. The EPA WACOR's technical direction may include the development of a number of additional methods for deriving the LCR's Household Action Level. The Household Action Level is a health based threshold level of concern. This value is being developed in response to the National Drinking Water Advisory Council's recommendations for the revision of the LCR. The Household Action Level will be a tap sample threshold value above which the public water utility will inform both the residents and local health department official that a site-specific assessment of lead exposure impacts to the residents is advisable. Additional updates to the Agency's Integrated Exposure Uptake Biokinetic (IEUBK) model maybe required as part of the updating of the HAL report and development of new HAL approaches. This work will require research into several exposure pathway lead concentrations. Because of the iterative approach to determining the drinking water concentration threshold it will be necessary to run the IEUBK model possibly more than a 100 times. If the EPA's Office of Research and Development (ORD) develops significant lead exposure information from their Stochastic Human Exposure and Dose Simulation (SHEDS) exposure model, in time to meet the household action level deadline, it may become necessary to link IEUBK to SHEDS this work would be done based on technical direction from the EPA WACOR.

For planning purposes, assume that there will be two drafts of the HAL report prior to the final report.

Deliverables and schedule under Task 4.2

4.2.a. Additional drafts of the Household Action Level Report due date TBD based on EPA WACOR comments.
4.2.b. Final deliverable due dates listed or delayed by written technical direction.

Task 4.3 – Development of new health and economic impact assessment methodologies for the Lead and Copper Long Term Revisions Rule

This work is to be done in preparation for the development of chapters of the TSD for the economic costs, impacts, and benefits of the proposed rulemaking (Task 4.4).

It may be necessary to make significant changes to the existing methodology or databases, and explore new types of analysis (i.e. changes to the economic benefits of the proposed rule that result from the development of the Household Action Level (Task 4.2 above)). These changes may require major updates to the SafeWater model and or other health and economic analysis methodologies previously developed in WA 5-20 and 6-20. The exact nature and timing of these changes cannot be foreseen at this time. Making significant changes to existing methodology or databases or exploration of new lines of inquiry will follow the process outlined below:

1. The EPA WACOR will issue written technical direction to produce a short memorandum,table, or PowerPoint outlining the details of the new analysis required. The length of the document is expected to be less than 5 pages unless otherwise specified in the technical direction.

2. Once the EPA WACOR has reviewed the document and a determination is made as to whether to move forward with the changes to existing methods or data or conduct a new analysis (which would give additional insight into and not supplant the more general goals of the economic analysis outlined in this work assignment), the EPA WACOR will give written technical direction to the contractor. If it is decided that new work should be conducted then the technical direction will include any EPA changes to the contractor's proposed approach and specific deadlines for completion of the work.

Although a precise number of these potential significant changes to the existing NPRM methodology or databases, and/or explorations of new types of analysis cannot be given at this time, EPA expects that 3 significant changes to the existing methodology or databases, and new types of analysis will be required. The general time frame for the new analysis "scoping" deliverables will be on the order of 7 days after issuance of technical direction.

Under this task, the contractor shall conduct potential rule option assessments that will be used by EPA to determine the three to five primary regulatory options to be presented in the final economic TSD (Task 4.4). These scoping option assessment results should be reported to the EPA in tabular form, without a significant amount of written explanation and interpretation around the analysis results, unless otherwise requested by the EPA WACOR in written technical direction. The EPA WACOR will issue written technical direction specifying the options to be assessed and the completion date. The options to be assessed will be developed over time as part of the Agency's option selection, final agency review, and interagency review processes leading up to the proposed rule signature date. New options or changes to existing options may result from changes in the technical data, engineering analysis, and/or economic assessment methodology and, comments from OW management, agency workgroup members, other federal agencies and OMB. Although a precise number of these option assessments cannot be given at this time, EPA expects the number to be between 5 and 10. For the purpose of estimating workplan costs assume that 25% of the option assessments will require turn around on the order

of 7 days, the remaining 75% may be "quick response" deliverables particularly as we move through the Agency and Inter-agency review process.

Once the EPA WACOR reviews an option assessment, changes in the scope or methodology may be communicated through technical direction. The technical direction will also include a due date for the updated option assessment.

Deliverables and schedule under Task 4.3

4.3.a. Methodology and Data Modification Memorandum deliverables and due dates TBD by written technical direction. The contractor will normally be given 7 days or more to complete these deliverables.
4.3.b. EPA WACOR approved changes to Methodology and Data Modifications due dates TBD by written technical direction.
4.3.c. Planned Option Assessment deliverables and due dates TBD by written technical direction. The contractor will normally be given 7 days or more to complete these deliverables.
4.3.d. Quick Response Option Assessment deliverables and due dates TBD by written technical direction. The contractor will be given less than 7 days to complete these deliverables.

Task 4.4 – Update the SafeWater Model to incorporate distribution system impact costs and lead child and adult benefits assessment

The contractor shall, based on written technical direction from the EPA WACOR, continue the work started under WA 2-32 and update the SafeWater model to support rule cost components that occur in water utility distribution systems. The LCR will have regulatory options that might require proactive lead service line replacement and sampling at households. Previous versions of the SafeWater cost model looked only at entry point treatment costs. Alterations to the model must be made to allow for an assessment of costs that are not tied to entry point treatment. Additional modeled strata (e.g. systems with and without lead service lines) will also need to be added to the cost framework.

The contractor shall update the benefits model, based on written technical direction, to include appropriate lead dose response function information for child intelligence quotient (IQ) decrements and adult cardiovascular impacts. Additional health endpoint data may also become available based on work being conducted by EPA's National Center for Environmental Economics. If new dose response relationships are developed, the EPA WACOR will give written technical direction to incorporate the additional health endpoint to the benefits analysis. At this time, EPA estimates that only one new endpoint will be developed.

For planning purposes, assume that there will be six drafts of the cost model prior to the final cost model, and four drafts of the benefits model prior to the final benefits model.

Deliverables and schedule under Task 4.4

4.4.a. Draft SafeWater cost model changes and due dates TBD listed or modified by written technical direction.
4.4.b. Final SafeWater cost model changes due dates listed or modified by written technical direction.
4.4.c. Draft SafeWater benefit model changes and due dates TBD listed or modified by written technical direction.
4.4.d. Final SafeWater benefit model changes due dates listed or modified by written technical direction.

Task 4.5 – Development of Chapters of the Draft Technical Support Document for the Economic Costs, Impacts, and Benefits of the Lead and Copper Long Term Revisions Proposed Rule

Under this task, the contractor shall develop chapters and sections of chapters for a draft Economic Analysis TSD. The chapters of the economic analysis TSD to be developed will be:

- Health Effects
- Benefits Analysis
- National Economic Impact and Cost Analysis
- Comparison of Benefits and Costs

Sections of the economic baseline chapter supporting the cost benefit work and the administrative requirements chapter will also need to be developed. The Administration Requirements chapter sections include the Regulatory Flexibility Act (RFA) Analysis, the Unfunded Mandates Reform Act (UMRA) Analysis, and the Executive Order 12866.

The TSD will contain the assessment of the three to five proposed rule options which are to be determined through the EPA Office of Water proposed rule process. These primary options will be defined by written Technical Direction.

The draft TSD report chapters and sections shall be provided to the EPA WACOR for an initial review.

Once the EPA WACOR completes the initial review of the draft TSD report chapters and sections and provides revisions and/or comments to the contractor, the contractor shall incorporate the changes into the draft TSD report chapters and sections.

Under this task, the draft Economic Analysis TSD report chapters and sections may also need to be revised further in response to public comments, changes in the technical data, comments from OW management, agency workgroup members, and OMB, as well as changes to the proposed rule regulatory options and/or technology efficacy results. These changes are expected to occur in several waves as the proposed rule moves though the Agency and Inter- agency review process. All changes will be given to the contractors by written Technical Direction. After each

set of significant revisions initiated by technical direction, the contractor shall supply that portion or chapter of the TSD to the EPA WACOR for further review.

The Final Economic Analysis TSD chapters sections will be due at the time of the Administrator's Signature or the Proposed Lead and Copper Long Term Rule Revision, currently scheduled for September 2017, which is after the end of this work assignment's period of performance. Therefore, the contractor shall prepare final draft versions of the Economic Analysis TSD report chapters that have been drafted and modified during the period of performance, incorporating the EPA WACOR's comments at the end of the period of performance.

Deliverables and schedule under Task 4.5

4.5.a. Second Drafts of the Baseline Analysis, Cost Analysis, and Benefits Analysis chapters due four months after workplan approval, unless delayed by written technical direction.
4.5.b. First Drafts of the remaining TSD chapters due dates TBD by written technical direction.
4.5.c. Final Draft Economic Analysis TSD chapters due date TBD by written technical direction.

Task 5 - Provide Technical Support for Rulemaking Activities

The contractor shall provide technical support related to health assessment, and economic cost and benefit assessment issues associated with the Perchlorate, Lead and Copper, Carcinogenic Voltile Organic Compounds, and Fluoride rulemakings. Such support may include conducting SafeWater runs, developing regulatory flexibility analysis (RFA) reports, developing health effects documents, responding to management questions about economic and health impact issues, preparing briefing and meeting materials (which may include but are not limited to short briefing documents, PowerPoint presentations, and memoranda). The contractor may also be requested to participate in and/or conduct briefings, assisting Agency economists in their review of analyses conducted by EPA and its contractors, providing technical review of materials prepared for the rulemaking by Agency staff, and assist in the development of the rulemaking record.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

For planning purposes, assume 15 quick turnaround tasks that would include document review and summarizing, single spreadsheets, and bulleted memos, and 5 tasks that have longer timeframes to complete which would include long memos and multipage spreadsheets.

Deliverables and schedule under Task 5

5.a. Draft deliverables and due dates TBD listed or modified by written technical direction.
5.b. Final deliverable due dates listed or modified by written technical direction.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-34

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Oil Program Tech & Reg Support

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Tasks A, C & D

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Close-Out
- [ ] Work Assignment Amendment
- [ ] Incremental Funding
- [ ] Work Plan Approval

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Performance on this Work Assignment shall not begin until August 1, 2016.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		673
Total:		673

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Mark W. Howard	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-1964 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

PERFORMANCE WORK STATEMENT

I. Title: Oil Program Regulatory and Technical Support

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-34

III. Estimated Period of Performance: August 1, 2016 through July 31, 2017

IV. Estimated Level of Effort: 673

V. Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):
Mark W. Howard
OEM/RID (5104A)
202/564-1964
202/566-1053 (fax)

VI. Background and Purpose:

The EPA Office of Emergency Management (OEM), an office under the Office of Land and Emergency Management (OLEM) is responsible for implementing the Spill Prevention, Control, and Countermeasure (SPCC) and Facility Response Plan (FRP) programs under section 311 of the Clean Water Act (CWA) as amended by the Oil Pollution Act (OPA or OPA 90). OEM's work includes amending current regulatory requirements, developing new regulatory proposals, drafting guidance/policy/training and implementing the oil inspection program.

The Work Assignment is intended to provide funding and hours for the technical support of development of regulations, guidance, policy and training pertaining to oil pollution prevention and preparedness regulations (40 CFR Part 112,including the SPCC and FRP regulations). This work assignment also addresses needs for program implementation, oil program training, technical outreach and the other oil program activities. Contractor support is immediately necessary to meet the requirements of future rulemaking and policy efforts for the oil program possibly under an extremely ambitious schedule, set by law from Congress.

VII. General Requirements of the Work Assignment and Schedule

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract Level Contracting Officer's Representative (CL-COR) when 75 percent

of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: The contractor shall be required to travel under this work assignment. Travel may be to participate with EPA in on-site training/meeting support/outreach support. A request for approval for any travel directly chargeable to this work assignment must be submitted and approved by the CL-COR before travel begins.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973. The contractor shall maintain a copy of all deliverables and drafts presented to the WACOR, and shall deliver a copy these documents within two weeks of closure of the Work assignment.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the

EPA WACOR's comments.

Task 1 - Prepare Workplan and QAPP

a. **Workplan**-The contractor shall prepare a workplan within **15 calendar days** of receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, **a detailed cost estimate by task**, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

b. **Quality Assurance**-Quality Assurance Project Plans (QAPP) are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1A2 and implementing guidance CIO-2105-P-OI-0. All projects that involve the generation, collection, analysis and use of environmental data must have an approved QAPP prior to the commencement of the work. The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract) to the breadth of tasks anticipated to fall within the scope of the contract, notably economic and environmental analyses to support rulemaking. EPA reviewed and approved the PQAPP. The PQAPP addresses the quality assurance (QA) requirements salient to the gathering, evaluation, analysis, and use of existing environmental data and will similarly apply to regulatory analyses conducted under this assignment. To the extent that this PQAPP does not address some objectives, data, or procedures specific to this work assignment (e.g., data sources used to characterize the universe of oil storage facilities regulated under 40 CFR part 112), these project-specific requirements will need to be addressed in a supplemental QAPP (SQAPP) to complement the PQAPP.

QA Project Plan Requirements

EPA policy requires that an approved QAPP be in place before any work begins that involves the collection, generation, evaluation, analysis or use of environmental data. The work to be performed by the Contractor under this work assignment involves such activities; in order to comply with this requirement:

- The contractor shall prepare and submit a SQAPP documenting how QA and quality control (QC) will be applied to the generation, collection, evaluation, analysis and use of environmental data within 15 days after submittal of the work plan.
- EPA will review the submitted SQAPP and provide the Contractor with written approval or comments within 15 days of receiving the Contractor's submission.
- The Contractor shall revise the submitted SQAPP within 10 days of receipt, unless otherwise instructed by the EPA WACOR.
- The contractor shall not perform work that involves the generation, collection,

evaluation, analysis, or use of environmental data without an approved QAPP in place 50 days after submission of the Contractor's work plan.

- Under no circumstances shall field sampling or laboratory analysis activities be conducted prior to receipt of an approved work plan.
- Any non-sampling/non-analytical work performed by the contractor that involves the generation, collection, evaluation, analysis, or use of environmental data that is initiated prior to approval of the Contractor's SQAPP must be performed in accordance with the approved QAPP. The QAPP requirements must be applied retroactively to this period that lasts no more than 50 days from submission of the Contractor's work plan.

The contractor shall write the SQAPP using the active voice. The SQAPP shall address the generation (including field studies, laboratory studies, and modeling output), collection (including surveys, literature searches, and third party data), evaluation (including data inspection, review, assessment, and validation), analysis (including statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models) and use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, methods, criteria, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs).

Examples of data include, but are not limited to, Oil Program, farms and SPCC plan development/implementation costs to support the Economic Analysis for the rule, economic questionnaire data, economic data, use of models, secondary data (including sources and the acceptance criteria), any software and database management requirements and any other relevant work that might affect the quality of the data.

Note that QAPPs are also required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. For example, when existing models are used as a tool to generate or evaluate data, the project SQAPP must describe the model, how it will be used, and how the model output will be evaluated to ensure it meets the overall quality objectives for the project. However, development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

The SQAPP shall provide enough detail to clearly describe objectives of the project supported by the work assignment; the type of data to be collected, generated, or used under this work assignment to support the project objectives; the quality objectives needed to ensure that these will support the project objectives; and the quality assurance and quality control activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed. The SQAPP shall include specific performance criteria and measures that will be used to verify that data generated, collected or used in this work assignment meet those criteria. If a database or other electronic tool (e.g., model, spreadsheet, etc.) will be created for the project, the SQAPP must describe how the database or electronic tool will be documented

(e.g., data element dictionary, user manual, Standard Operating Procedure (SOP), or other means appropriate for the project), the controls to ensure accurate data entry (when data from another source are manually entered into the database), data transfer (when data are transferred from one electronic medium to another), or data merging (when data from multiple databases or electronic media are merged into a single database). The text of the SQAPP also must explicitly reference tools, such as SOPs, checklists, and guidelines that the contractor will use in the project to document data quality. The SQAPP must include the tools as attachments for EPA's review, and acceptance.

When preparing the SQAPP, the Contractor shall address the following general questions applicable to all QAPPs. These questions may be directly addressed within the format of the SQAPP to the maximum extent possible, and/or may be addressed in a separate section or addendum to the Quality Management Plan (QMP).

General Questions Applicable to all QAPPs that support all projects
• What is the objective/goal of this effort?
• What are the roles and responsibilities of staff who will support this project, and how to they relate to the specific key steps?
• What training and competency requirements are necessary for key personnel that will support the project?
• If models will be used to support the project, what are these models, why have they been selected, and how will they be validated, documented and used?
• What are the SOPs, tools and checklists that will be used?

Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version will be included in the public docket for the applicable rulemaking (or other docket or record), and the unsanitized version will be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved SQAPP must be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information

Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractor shall indicate which results were obtained using the tools (SOPs, checklists, and guidelines) that the Contractor designates as confidential so that the EPA WACOR can easily identify the areas that will require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the Contractors may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, February 2009. If this is required, the EPA WACOR will notify the Contractor through written technical direction.

Additional QA Documentation Required

In addition to the SQAPP requirements described above, all major deliverables (e.g., Technical Support Documents, Study Reports, Study Plans, etc.) produced by the Contractor under this work assignments must include a discussion of the QA/QC activities that were or will be performed to support the deliverable. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies that were employed to control and document the quality of data generated and used.

The contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the SQAPP, and corrective actions taken. If desired, the contractor may include this as a part of the contract-required monthly financial/technical progress report.

Deliverables and schedule under Task 1

1a. Workplan within 15 calendar days of receipt of work assignment.
1b.

- **SQAPP within 15 days after submittal of the Contractor's work plan.**
- **If required by the EPA WACOR, the contractor shall revise the plan within 10 days of receipt of comments from the EPA WACOR, or as otherwise requested by the EPA WACOR**

a. Monthly reports of QA work performed (may be included in the Contractor's monthly progress report.)

Task 2 – Economic, Regulatory and Technical Support for Rulemaking (Contract EP-C-13-039, PWS Tasks A, C)

OEM will task the contractor to conduct the following activities in support of SPCC, FRP or other rulemaking associated with revising the requirements applicable to farms or other changes:

a. **Data Analysis**–The contractor shall conduct research and provide data analysis in support of the SPCC Farm rulemaking action. The research and data analysis tasks will generally be driven by questions from the regulatory workgroup and therefore will often be tied to the activities of the workgroup which meets approximately once per month. Issues may include, but are not limited to, characteristics of regulated industries and facilities, industry standards, costs, environmental impacts, and spill prevention benefits. Analyses may require the collection of existing data from internal agency and/or external contacts, including other federal agencies, state and local personnel, industry groups, environmental groups, etc., as requested by the WACOR in a Technical Directive (TD). Any information submitted directly to the contractor shall be copied and sent to OEM. The issues of focus for these analyses and/or data collections will be specified by the WACOR in a TD. Upon receipt of a TD, the contractor shall provide including memorandum describing the proposed approach for carrying out the data analysis an estimate of the Level of Effort for the specific analysis task to the WACOR **no later than 5 days after receiving a TD**. After discussion of the approach and level of effort with the WACOR, the contractor shall proceed with the analysis and provide a summary of findings.

Deliverables:

One memorandum describing the proposed approach for the analysis and estimated level of effort within 5 days of receiving a TD from the EPA WACOR.

Summary of analysis findings one week prior to regulatory workgroup meeting or as requested by the WACOR in a TD. Summary of findings shall be revised within three days of receipt of the WACOR's comments, but not later than one week before the next scheduled meeting.

It is estimated that 5 summary of analysis findings documents will need to be drafted during the period of performance of this assignment.

b. **ICRs**–The SPCC and FRP regulations both have existing Information Collection Requests (ICRs) that cover the submittal of information to EPA by regulated facilities. If requested by the EPA WACOR in a TD, the contractor shall assist in developing new and/or revising existing ICRs. The extent and timing of the work under this task will depend on each ICR's cycle. The WACOR will provide specific schedules to the contractor through a TD when the ICRs need to be developed or updated. The contractor shall also prepare ICRs for proposed and final rulemakings as requested by the WACOR. The ICR process has begun with the Office of Management and Budget (OMB) and this task was worked in in the previous WA 2-34 of this contract.

Deliverables:

The contractor shall prepare and support the preparation of ICRs for proposed and final rulemakings by dates provided by the WACOR in forthcoming TDs.

For revisions to an existing ICR, expected deadline is within two weeks of receiving a TD. Any subsequent revisions shall be completed within one week of receiving comments from the WACOR.

It is estimated that 2 draft ICR documents and 1 final ICR document will need to be drafted during the period of performance of this assignment.

c. **Technical Support Documents**–The contractor shall develop and/or amend technical background documents and other relevant materials that support the development of the regulatory action. The WACOR will provide the contractor with the scope, direction and schedule for technical documents through a TD.

Deliverables:

The contractor shall prepare draft technical documents within 14 days of receiving TD from the WACOR or by other dates provided by the WACOR in forthcoming TDs.

The contractor shall provide final drafts of technical documents within 7 days after receiving comments from the WACOR.

It is estimated that 10 technical documents will need to be drafted in support the farm rule making action. Technical documents will typically be limited to about ten pages.

d. **Preamble Language**–Based on regulatory workgroup direction, the contractor shall assist in drafting preamble language as part of the regulatory review process. The regulatory development support schedule and requirements for any future SPCC or FRP proposed rule action will be provided to the contractor once the range and complexity of issues are identified. The WACOR will provide the contractor with specific format and content directions through a TD. The contractor shall incorporate comments and decisions from the regulatory workgroup, other EPA offices, and other U.S. government agencies, including but not limited to the Department of Transportation (DOT), the Bureau of Safety and Environmental Enforcement (BSEE), and OMB during the regulatory development process, as requested by the WACOR.

Deliverables:

EPA expects multiple rounds of drafting and revisions for the preamble. The contractor is expected to use the most current templates for preamble drafting.

Drafts of the preamble will generally be due one week prior to regulatory workgroup meeting or as requested by the WACOR in a TD. Revisions to these documents shall be made within five days of receipt of the WACOR's comments.

Revisions from the concurrence process shall be made two weeks prior to Office Land and Emergency Management (OLEM) signoff. The contractor will be

provided with documents edited during the concurrence process. Revisions to these documents shall be made within five days of receipt of the WACOR's comments.

Any revisions following the OLEM signoff process shall be submitted one month prior to when Administrator approval is expected.

A final draft of the full farm rule preamble will be completed within 90 days of the work plan approval or by other date provided by the WACOR.

It is estimated that 3 drafts and 1 final preamble document will need to be drafted during the period of performance of this assignment.

e. **Economic Analyses**–The contractor shall prepare and/or revise Economic Analyses (EA) as required under Executive Order 12866 (or other equivalent cost/benefit or economic and financial analysis document that describes the level of analysis for the regulatory action), and other relevant material required for rulemaking. This analysis may require the collection of existing data from public sources or through discussion with internal Agency and/or external contacts, including other Federal agencies, State and local personnel, industry groups, environmental groups, etc., as requested in a TD. Discussions to gather information shall be conducted locally or by telephone. The economic analysis shall be prepared in accordance with the most current Federal requirements and Agency guidelines.

Deliverables:

The contractor shall submit economic analysis documents to the WACOR three weeks prior to the regulatory review process in the Summer of 2016 (more precise scheduling of the regulatory review process will depend on resolution of all regulatory issues and the contractor will be informed of this date).

The contractor shall make revisions from the concurrence process two weeks prior to OLEM signoff.

Revisions following the OLEM signoff process shall be submitted one month prior to when Administrator approval is expected, contingent upon transmission of the information from the WACOR to the contractor.

The contractor shall provide a final draft of the economic impact analysis regarding the agency's action of farms and the Water Resources Reform and Development Act (WRRDA) within 90 days of the work plan approval or by other date provided by the WACOR.

It is estimated that 3 drafts and 1 final economic analysis document will need to be drafted during the period of performance of this assignment.

f. **Small Business Impact Analysis**–The contractor shall evaluate the impacts of the proposed rule on small business. This evaluation shall include characterizing the universe of small businesses affected by the action and assessing the significance of

incremental impacts on these businesses. The contractor shall identify and analyze options to relieve significant economic costs on these businesses in accordance with Agency policy, the Regulatory Flexibility Act (RFA), and the Small Business Regulatory Enforcement Fairness Act (SBREFA). The evaluation shall be revised within one week of receipt of the WACOR's comments.

Deliverables:

The contractor shall provide a draft analysis and evaluation of the impacts on small business regarding the agency's action on farms and the WRRDA within 90 days of the work plan approval or by other date provided by the WACOR (typically one month before the regulatory review process).

It is estimated that 3 drafts and 1 final Small Business Impact Analysis document will need to be drafted during the period of performance of this assignment.

g. **Public Information/Comment Review**–The contractor shall assist in categorizing and summarizing information and/or comments received from the public in response to Federal Register (FR) notices. The WACOR will inform the contractor through a TD of the timeframe for the end of the comment period and completion of comment summaries, based on the number of comments received during public comment periods and the regulatory schedule. The contractor shall also assist in developing the responses to comments based on the direction from the regulatory workgroup and final policy decisions made by Agency officials. The contractor shall develop a summary and response to comment document as issues are resolved during the regulatory process.

Deliverables:

Initial categorization and summary of the public comments due within one week after receipt of TD from the EPA WACOR initiating the task (or according to date specified in the TD).

Draft analysis of substantive issues raised in the comments will be due within two weeks after receipt of the TD (or according to date specified in the TD). Issue analysis will be revised within one week of receipt of the WACOR's comments and will be completed within three weeks of when decisions are reached at a workgroup meeting.

Draft of discussion points responding to the substantive comments due within two weeks of completing the issue analysis. Discussion points will be revised within one week of the receipt of the WACOR's comments.

Draft response to comments document for EPA review three weeks prior to the regulatory review process for the rule (exact date to be specified based on the final rulemaking schedule). Response to comment document shall be revised within one week of receipt of comments from the WACOR.

Revisions resulting from comments provided during the concurrence process shall be made three weeks prior to OLEM signoff, contingent upon transmittal of the comments from the WACOR to the contractor.

Revisions resulting from comments provided during the signoff process shall be submitted one month prior to when Administrator approval is expected, contingent upon the transmittal of the information from the WACOR to the contractor.

It is estimated that 3 drafts and 1 final Response to Comment document will need to be drafted during the period of performance of this assignment.

h. **Briefing Materials/Miscellaneous Rule Documents**–The contractor shall develop documents as needed in support of rulemaking activities. These documents shall include, for example: briefing materials, data summaries and analyses, workgroup meeting notes, rule fact sheets, status reports, conference papers, issue and options papers, regulatory development schedules, project management artifacts, and special analyses and presentations. The content and type of the material will be specified by the WACOR in a TD. Printing shall be in accordance with the contract EPAAR 1552.208-70 clause.

Deliverables:

The contractor shall provide requested materials and documents within one week of the technical direction or other date as requested by the WACOR.

It is estimated that 12 technical documents will need to be drafted in support of the farm rulemaking action.

i. **Communications Strategy**–The contractor shall provide support in the development of communications strategies to inform regulated entities of the provisions and requirements of the rulemaking. The contractor shall develop the communications strategy documents according to direction provided in the EPA guidelines for the development of regulatory communications packages. As part of the communications activities, the contractor shall prepare supporting documents, such as fact sheets, communication strategies, articles or newsletters for industry publications and web messages to be posted in EPA and other industry sites. The content and type of the material will be specified by the WACOR in a TD.

Deliverables:

The contractor shall provide draft materials to support the development of communications strategies within one month of anticipated presentations to OLEM management or as otherwise specified in the TD. The WACOR expects that the drafts will be needed by September 15, 2016; if not, the delivery date shall be established by TD by the WACOR.

The contractor shall respond to EPA comments on the communication strategy within one week of receiving WACOR comments.

It is estimated that 3 drafts and 1 final Communication Strategy document will need to be drafted during the period of performance of this assignment.

j. **General Technical Support (PWS Tasks C, D)** The contractor shall provide both general and specialized technical support for the Oil Program implementation efforts. This task includes assisting with the development of policy/guidance, inspection checklists, internal technical outreach documents, and external technical outreach for government, the regulated community and other interested stakeholders. This task includes but is not limited to the production, development and review of both electronic, HyperText Markup Language (HTML) web ready pages and printed materials in support of technical outreach as related to 40 CFR part 112. All data gathering activities must be conducted in compliance with the Paperwork Reduction Act and Agency Data Quality Standards. The specialized technical support for this task includes use of licensed Professional Engineers (PEs), petroleum engineers, production experts (including hydraulic fracturing and offshore operations), oil spill response professionals/planners, corrosion engineers/professionals, safety/fire engineers, American Petroleum Institute (API)/Steel Tank Institute (STI) certified 653/570/SP001 inspectors, non-petroleum oil specialists including food sanitation or biofuel specialists, non-petroleum oil chemists, and alternative fuel experts. This expertise will be used to address storage tank/pipe construction, corrosion, fire protection, inspection, testing, operation, oil spill response/preparedness and planning, security and management issues related to the regulatory development, implementation, and enforcement of 40 CFR part 112 as required through written technical direction. These experts must be carefully evaluated for potential conflicts of interest.

This task shall include review and comment on technical reports (such as API 653/SP001 inspections, 570 inspections, Non Destructive Testing (NDT) data, corrosion evaluations, standards and practices, and other related inspections) in support of the regional and headquarters offices. The contractor shall perform technical reviews of technical documents and materials as required through written technical direction. The task includes but is not limited to the review and analysis of technical documents, laws/regulations/preamble, standards, specifications, papers, websites, and presentations as related to the regulatory/policy development, enforcement and implementation of 40 CFR part 112.

The contractor shall provide support for technical outreach activities relating to 40 CFR part 112 and other oil program activities. This technical outreach includes but is not limited to the developing and or reviewing the following technical outreach materials: brochures, flyers, fact sheets, videotapes, audiotapes, presentation materials (slides, overheads, etc.), technical press releases, and art/conference displays (booths for conferences). The task may include the design, development and maintenance of web pages and related electronic lists, documents or files related to 40 CFR part 112 and other oil related activities. This task may include formatting and publication assistance for

technical publications, OEM webpages, electronic newsletters (such as the EPA Oil Update and similar documents), Teleconferences, and Audio Visual (AV) production/webinar support (including technical support in scrip development, booking and arrangement of studio (and related) support, satellite time, and downlink sites and equipment and other support necessary to produce a teleconference/webinar or other AV product). Develop and revise graphics standards in conformance with Agency directive and policies and providing administrative and technical assistance in support of the oil program.

Deliverables:

The contractor shall develop documents as needed in support of rulemaking activities. The contractor shall provide such documents within one week of the technical direction or other date as requested by the WACOR.

It is estimated that 12 technical documents will need to be drafted during the period of performance of this assignment.

k. **Training Support (PWS Task D)** The contractor shall provide support for the mandatory training requirements of EPA Order 3500.1 relating to OEM's 40 CFR part 112 inspector training courses (4 refresher and 40 hour inspector training courses) and all other training programs relating to the implementation of the 40 CFR part 112 regulation and other oil program related functions. This task includes but is not limited to the production, development and review of both electronic, HTML (web ready) web pages and printed training program materials in support of the 40 CFR part 112 inspector training program development and delivery. This may include the development of an online refresher module for inspectors to complete the training in an online setting. This task will include developing versions of the 40 hour course materials that may be developed into or used as webinars to teach to components of the 40 hour course via a webinar. This task also includes support for advanced training courses on inspection related subject matter.

The contractor shall prepare draft and final course materials in support of the On Scene Coordinators (OSC) training program, the Oil Program Introductory Training program (OPA 101) and the International Oil Spill Conference (IOSC) (including supporting the management of the IOSC film festival). In the case of the IOSC this may also include meeting support to assist with the IOSC. This task includes but is not limited to the production, development, and review of electronic and printed training oil program materials in support of the OSC Training Program, the IOSC, and the Oil Program Introductory Training program (OPA 101).

The contractor shall provide expert instructors, trainers and inspectors to instruct EPA staff and/or develop specialized courses. This specialized technical training expertise shall include the utilization of licensed Professional Engineers (PEs), oil spill response professionals/planners, petroleum engineers, corrosion engineers/professionals,

safety/fire engineers, and API/STI certified 653/570/SP001 inspectors, as needed. This expertise will be used to address storage tank/pipe construction, corrosion, production (including hydraulic fracturing), fire protection, inspection, testing, operation, oil spill response/preparedness and planning, security and management issues related to the regulatory and implementation efforts associated with 40 CFR part 112 and other oil program related activities.

The contractor shall provide logistical support for the preparation and delivery of training programs under this task. This support includes online support to host a website for inspectors as well as support for webinar type presentations. The contractor shall provide support for registration and assisting with the negotiation/acquisition of hotels/meeting space for the training and meeting tasks under this work assignment. The contractor may be required to purchase materials to support the course (PadFolios), negotiate bus rental, and complete printing to support the course.

Deliverables:

Within 15 days of the receipt of a TD from the WACOR for a training course/activity, the contractor shall develop a detailed implementation schedule and level of effort for each course/activity.

The contractor may be required to assist with the development of the next two installments of the 40-hour course to be held in Summer of 2016 and Spring of 2017. A detailed schedule of interim deliverables (including draft training slides, revised slides, and course support material) will be provided by the WACOR in a TD initiating this task.

The contractor shall perform other logistics support duties as specified in the TD.

It is estimated that 3 drafts and 1 final Inspector Training materials documents will need to be drafted during the period of performance of this assignment.

Task 3 - Logistical Support (PWS Task D)

The contractor shall attend (either in person or on a conference line-as requested) and submit detailed summaries of regulatory workgroup and other technical meetings to the WACOR. The contractor shall assist in distributing relevant materials to the workgroups in preparation for the meetings, and in collecting any information/data from workgroup members for the same purpose. There may be numerous meetings during the work assignment period. This is an ongoing task and the contractor should expect approximately two meetings per month, including one monthly workgroup.

Deliverables:

Summaries of regulatory workgroup and other technical meetings, if requested by the WACOR, to be provided within one week following the meeting.

Deadline for other material to be specified by TD from the WACOR.

It is estimated that 10 meeting summary documents will need to be drafted during the period of performance of this assignment.

DELIVERABLES SCHEDULE

As requested by the WACOR, deliverables will be hard copy and/or in Microsoft Word format, a spreadsheet, a database, other electronic formats and/or CD-ROM, as needed. The contractor shall provide two copies of all draft and final deliverables as well as associated electronic files compatible with Agency equipment, in Arial font unless otherwise requested by the WACOR. Due dates for deliverables will be based on the following schedule:

Task	Deliverable	Schedule
Task 1a	Work plan	Within 15 calendar days of receipt of the work assignment.
Task 1b	Supplemental QA Project Plan	Within 15 days after EPA approval of the Contractor's work plan.
	Revised supplemental QA Project Plan	Within 10 days of receipt of comments from the EPA WACOR, unless otherwise requested by the EPA WACOR.
	Reports of QA work performed	Monthly (may be included in the Contractor's monthly progress report)
Task 2a	Memorandum describing analysis approach	Within 5 days of technical direction or other date as requested by the WACOR
	Summary of analysis findings	One week prior to regulatory workgroup meeting or as requested by the WACOR in a technical direction
	Revised analysis	Within 3 days of receipt of the WACOR's comments.
Task 2b	Draft revisions to existing ICR statement.	2 weeks of receiving technical direction or other date as requested by the WACOR
	Revised ICR statement.	Within 1 week of receipt of the WACOR's comments
Task 2c	Draft technical documents to support rulemaking.	Within 14 days of technical direction or other date as requested by the WACOR
	Final drafts of technical documents to support rulemaking	Within 7 days after receiving comments from the WACOR
Task 2d	Draft preamble.	Within 7 days prior to regulatory workgroup meeting or as requested by the WACOR in a technical direction
	Revised draft preamble	Within 5 days after receiving comments from the WACOR
	Draft preamble for OLEM signoff	14 days prior to OLEM signoff (to be specified by WACOR)
	Final preamble	30 days prior to Administrator approval (to be specified by WACOR)

Task	Deliverable	Schedule
Task 2e	Draft economic analysis documents.	21 days prior to the start of the regulatory (concurrence) review process
Task 2e Cont.	Draft economic analysis for OLEM signoff	14 days prior to OLEM signoff (to be specified by WACOR)
	Final economic analysis	30 days prior to Administrator approval (to be specified by WACOR)
Task 2f	Draft analysis and evaluation of the impacts on small business.	Within 90 days of the work plan approval or by other date provided by the WACOR (expected to be 30 days before the start of the regulatory review process)
	Revised analysis and evaluation of the impacts on small business	30 days prior to Administrator approval (to be specified by WACOR)
Task 2g	Initial categorization and summary of comments.	7 days from receipt of technical direction or other date as requested by the WACOR.
	Draft analysis of substantive issues	14 days from receipt of technical direction or other date as requested by the WACOR
	Revised analysis of substantive issues	7 days after receipt of comments (to be completed within 21 days when decisions are reached at workgroup meeting)
	Draft of discussion points	14 days from completion of issue analysis; to be revised within 7 days of receiving comments
	Draft response to comments	21 days prior to the start of the regulatory review process; to be revised within 7 days of receiving comments
	Draft response to comments	21 days prior to OLEM signoff
	Final response to comment document	30 days prior to Administrator approval (to be specified by WACOR)
Task 2h	Draft documents as needed in support of rulemaking activities.	Within 7 days of the technical direction or other date as requested by the WACOR
	Final documents	Within 5 days of receiving comments from WACOR
Task 2i	Draft material to support communications strategies	Within 30 days of presentations to OLEM management or as otherwise specified by TD (expected 45 days in advance of rule publication in February 2017)
	Revised material to support communications strategies	Within 7 days of receiving comments from WACOR
Task 2j	Draft document.	Within 7 days of technical direction or other date as requested by WACOR
	Revised document	Within 7 days of receiving comments from WACOR

Task	Deliverable	Schedule
Task 2k	Detailed implementation schedule and level of effort for each course/activity. The contractor shall perform other duties as specified in the TD.	Within 15 days of the receipt of a TD from the WACOR
Task 2k Cont.	Training material and supporting documents	Within 7 days of technical direction or other date as requested by WACOR
	Revised training material and supporting documents	Within 7 days of receiving comments from WACOR
Task 3	Summary of workgroup or other technical meetings.	Within 7 days of meeting
	Revised summary of workgroup or other technical meetings	Within 3 days of receiving comments from WACOR

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-35

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039	Contract Period: 09/11/2013 To 07/31/2017 Base Option Period Number 3	Title of Work Assignment/SF Site Name: Linking WQ Models to Econ
Contractor: ABT ASSOCIATES INC.	Specify Section and paragraph of Contract SOW: Sects. A.2.2, A.6, B.4, C.1, C.7	

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Close-Out
- [ ] Work Assignment Amendment
- [ ] Incremental Funding
- [ ] Work Plan Approval

Period of Performance: From 08/10/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017	Cost/Fee:	LOE: 0
This Action:		1,325
Total:		1,325

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Matt Heberling (Signature) (Date)	Branch/Mail Code: Phone Number: 513-569-7917 FAX Number:	
Project Officer Name: Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:	
Contracting Official Name: Tammy Adams (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545	

WORK ASSIGNMENT

I. Title: Linking Water Quality Models to Economic Models

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-35

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Estimated Level of Effort: 1275

V. Key EPA Personnel:

Work Assignment Contracting Officers Representative (WACOR):
Matthew T. Heberling
ORD/NRMRL/STD
513/569-7917

Alternate Work Assignment Contracting Officers Representative:
Joel Corona
OW/WPS
202/564-0006

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection (EPA) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to support EPA's efforts to improve its ability to monetize the benefits associated with these regulatory actions.

Under this work assignment, the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan (QAPP) that will be based on Task 2 QAPP language. The QAPP shall describe the procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WA 1-20, WA 2-20, and WA 2-35 under this

Contract EP-C-13-039, which supports the development of a national water quality benefits modeling framework. The work performed under this work assignment will not duplicate work conducted under the previous work assignments. For such a framework that will use a mix of original economic studies and benefits transfer approaches, understanding how to link water quality models and economic benefits will be an important step. In addition, EPA intends to do a comprehensive assessment of existing water quality models concerning how well they address EPA's current and anticipated water quality modeling needs. The assessment will account for each model's temporal and spatial prediction scale, scope or water types modeled, output parameters, and potential for interoperability with Office of Water's (OW) water quality modeling platform Hydrologic and Water Quality System (HAWQS). Finally, EPA intends to build off the draft memo that describes potential approaches for using available information to create a methodology for assessing surface water quality effects on property values at a national scale.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor under this work assignment shall report to the EPA WACOR and Contract Level Contracting Officers Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must report to the EPA WACOR when 75 percent of the approved Workplan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts shall clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment. Travel may be required under

amendments to this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment signed by the Contracting Officer. The work plan shall outline, describe, and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the Contracting Officer. The contractor shall prepare a revised work plan incorporating the Contracting Officer's comments, if required. To start this WA, a weekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables, costs, and other potential issues. The update may change to every two weeks, depending on the progress.

Deliverables and schedule under Task 1

1a. Workplan within 15 calendar days of receipt of work assignment.
1b. Weekly update call.

Task 2 - Quality Assurance

2.1 Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the

work. Examples of these environmental data operations are provided in **Table 1-1** below.

Table 1-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data.

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (known as "secondary" use of data) and collecting primary data using EPA 308 Authority. However, EPA has determined the Contractor is operating under the existing PQAPP and the PQAPP addresses QA requirements for this work assignment. In support of this work assignment, the Contractor shall ensure the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when using existing sources of data to perform economic analyses in support of the Unconventional Oil and Gas (UOG) final rulemaking, centralized

waste treatment (CWT) study, and Petroleum Refinery Study; and collecting primary financial and engineering information for 308 letters, and developing a survey for the CWT industry.

- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases, letters from industry—as a well as a rationale for when those sources are appropriate and what data available in each will support the project.
- The quality objectives needed to ensure the data will support the project objectives, and
- The quality assurance/quality control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Table A1 in the Appendix demonstrates how the PQAPP addresses QA requirements for this work assignment. The contractor shall fill in staff roles to the Table A1 checklist under A.4 and make any additional detailed notes in the 'explanatory comments' column as requested by the WACOR. The contractor shall then include the completed Table A1 as a separate Appendix A to the workplan upon submittal to EPA. This Appendix A should be a stand-alone document if QA documentation is requested, therefore the Table A1 title must include the title of the WA, WA number, contract number, and what projects each covers. The WACOR has provided this information in the title, which the contractor may use to fulfill this requirement.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable, and this discussion must provide a sufficient level of detail to allow the Office of Research and

Development, Sustainable Technology Division's (STD) QA Coordinator (or designee) to determine if the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WACOR will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's PQAPP.

The Contractor shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and Supplemental QAPPs (SQAPPs).) The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractor should indicate which results were obtained using the tools (standard operating procedures (SOPs), checklists, and guidelines) the Contractor designates as confidential so the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractors may be requested to prepare pre-dissemination review checklist as described in Appendix B of the Office of Water Quality Management Plan, April, 2015. If this is required, the EPA WACOR shall notify the Contractor through written technical direction.

Deliverables and schedule under Task 2

Deliverable	Projected Schedule Date
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly throughout the WA period of performance

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan that was developed under the Construction and Development WA 0-01 of contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment. The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point under this WA. The EPA WACOR will review the revised memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare the edited SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use the revised SNCVC.

Deliverables and schedule under Task 3

3a. Revised SNCVC memorandum within 3 calendar days of EPA WACOR technical direction.
3b. If additional edits are required the memorandum must be updated within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 – Source Review, Acquisition, and Preparation of Water Quality Data (Contract PWS section C.7. Database Development and Management)

EPA anticipates performing analyses of the economic benefits associated with changes in surface water quality. To perform these analyses, EPA will need contractual support for assessing, obtaining, preparing, and summarizing surface water quality monitoring data and surface water quality estimates derived from surface water modeling.

Under WA 1-20 and 2-20, the contractor assessed, obtained, cleaned, and provided monitoring data for multiple counties in Florida, Ohio, and New York to EPA. EPA anticipates the need for the contractor to support EPA in augmenting, interpreting, and/or using these data sets. EPA will specify the nature of the required support through written technical direction.

In addition, the EPA WACOR will provide technical direction to the contractor that identifies up to 3 additional data searches for new locations. EPA anticipates that one of these searches will focus on surface water quality data for Washington state counties adjacent to Puget Sound. EPA anticipates potentially undertaking one or two additional searches that would be broader in geographic scope and would be tailored to support the needs of potential methodologies for

estimating recreational use value or property value effects from surface water quality changes at a national or large regional scale.

EPA will specify locations, time periods, monitoring frequency, surface water categories, and surface water model types through technical direction. EPA will identify surface water quality data sources for each location already known to EPA and direction on whether the contractor should further investigate those sources.

For each location, the contractor shall assess available sources of water quality monitoring data and surface water model estimates for constituent parameters of interest including, but not limited to, total suspended solids (TSS), biological oxygen demand (BOD) chlorophyll a, clarity (i.e., secchi depth), dissolved oxygen, pathogens, nitrogen, phosphorus, and biotoxins. The contractor shall search for state or jurisdiction level information on impairment events, such as algal blooms, fish kills, beach closures, shellfish bed closures, fishing advisories, and swimming advisories. In addition, the contractor shall search for water quality indices designed and used by state or local jurisdictions to provide an aggregate measure of surface water quality on an annual or more frequent basis. EPA will provide guidance on any additional parameters of interest through technical direction.

The contractor shall identify and review water quality information available from public sources, including Federal, state, and local organizations (e.g., watershed organizations, academic institutions). As needed, the contractor shall obtain the data in order to conduct this review. The contractor shall characterize and assess the data available for each location in a summary memo or other written format. The report shall describe data sources, water body type(s), geographic extent, number and location of monitoring stations, parameters monitored, monitoring frequency (e.g., daily, monthly, seasonally), and monitoring period (start/end). The contractor shall provide a description of key features for any water quality indices identified. The contractor shall provide maps showing the location of monitoring stations relative to land features and county boundaries.

The contractor shall provide the written assessment to EPA. After considering the assessment, EPA will provide technical direction to the contractor on any research needed to complete assessment of the data. Research topics could include, but are not limited to, obtaining additional information on data quality, assessing suitability of data for calculation of a water quality index score, evaluating methodologies for addressing data gaps, and assessing possibilities for aggregation of data from multiple monitoring stations. The contractor shall conduct the specified research, incorporate it in a revised assessment report, and submit the revised report to EPA.

EPA will provide technical direction to the contractor on what water quality data is suitable for further use. The contractor shall obtain the data (if not already obtained during review process), clean, and prepare it for use by EPA. EPA will provide technical direction to the contractor on cleaning and preparation requirements. These could include, but are not limited to, specific data formatting requirements, preliminary screening of data points, and preliminary aggregation of data points. The contractor shall provide a data field dictionary for each database they prepare. The contractor shall submit the water quality data, data field dictionary, and a summary memo or other written description describing the methods used for data cleaning and preparation to EPA.

Deliverables and schedule under Task 4

4a. Written assessment of availability and suitability of surface water quality data – within 30 calendar days of receipt of written technical direction from EPA WACOR.
4b. Revised written assessment of the availability and suitability of water quality data – within 14 calendar days of receipt of comments from EPA WACOR.
4c. Water quality data sets and summary description – within 60 calendar days of receipt of written technical direction from EPA WACOR.

Task 5 – Water Quality Modeling Support (Contract PWS B.4. Methodology Development and Technical Review; C.1. Collection/Preparation of Reports)

EPA has invested in the development of a watershed and surface water quality and quantity modeling platform known as HAWQS (Hydrologic and Water Quality System) for rivers and larger streams in the coterminous United States. Similar national modeling platforms do not exist for other surface water types (i.e., Great Lakes, estuaries, coastal waters, and streams and their associated watersheds below the hydrologic unit code-12 (HUC-12) scale). These water body types are addressed by other existing models that may differ in their scope, temporal and spatial scale, surface water parameters modeled, and other attributes.

Under this Task, the contractor shall provide support to EPA in identifying, characterizing and evaluating the capabilities present in other existing models to complement those provided by HAWQS. A primary objective of the task is to identify and prioritize ways to address critical gaps in modeling capacity for national-scale and large regional scale evaluations, including surface water types (e.g., small streams, estuaries, Great lakes, coastal waters), and processes or constituents not addressed in HAWQS.

Under WAs 1-20 and 2-20, the contractor worked with EPA to create a framework refining the scope of the model review, identify readily available information resources (including EPA experts), conduct an initial literature review, summarize information from the literature and other sources in tabular and text form, and draft a preliminary outline for a final summary report. The contractor shall build upon these prior efforts under this WA.

EPA anticipates that this task shall consist of the steps described below. Although work will generally proceed in the sequence described below, EPA anticipates the overall effort will be iterative. For example, the contractor will work with EPA to define the scope for review under prior WAs. EPA anticipates continued effort under this WA to refine the scope of the review as new information is obtained.

Step 1: Assemble existing information on surface water quality models.
Under WAs 1-20 and 2-20, the contractor collected and summarized information on water quality models from the literature and websites in both textual and tabular formats. The contractor shall refine and augment the information contained in these materials with

new information as it becomes available. This new information may arise from discussions with EPA staff experts, discussions with experts outside EPA, or through additional literature and website review. EPA anticipates that additional literature search needs will be identified as an outcome of discussions with EPA and non-EPA experts (see Steps 2 and 3). EPA shall provide guidance on the scope of additional information review and summarization under this task through written technical direction. The contractor shall submit the summary materials to the EPA WACOR for review and comment. The contractor shall revise the materials in response to EPA comments.

Step 2: Discussions with EPA staff experts.
EPA will hold discussions with EPA staff experts with the following goals:

-identify modeling resources available within EPA;
-solicit feedback on the initial written summary of information on water quality models;
-answer questions about the nature and utility of certain models;
-solicit suggestions of other potentially useful resources for the effort (e.g., additional models, literature, modeling experts).

Based on written technical direction from the EPA WACOR, the contractor shall assist the EPA WACOR with the development of a list of EPA staff to contact, and discussion questions. The contractor shall participate in the conversations between the EPA WACOR and EPA staff experts via telephone. The contractor shall keep detailed notes of the conversations and provide a summary (including any action items) to the EPA WACOR. EPA anticipates holding discussions with up to 25 experts.

Step 3: Discussions with non-EPA water quality modeling experts.
EPA will hold discussions with non-EPA water quality modeling experts with the following goals:

-solicit feedback on the initial written summary of information on water quality models;
-answer questions about the nature and utility of certain models;
-solicit suggestions of other potentially useful resources for the effort (e.g., additional models, literature, modeling experts).

Based on written technical direction from the EPA WACOR, the contractor shall assist the EPA WACOR with developing a list of potential non-EPA experts to contact. The contractor shall assist the EPA WACOR with the development of discussion questions and shall participate in conversations between the EPA WACOR and non-EPA experts via telephone. The contractor shall keep detailed notes of the conversations and provide a summary (including any action items) to the EPA WACOR. EPA anticipates holding discussions with up to 25 experts.

Step 4: Create written report summarizing findings.
Based on technical direction from the EPA WACOR, the contractor shall assist the EPA WACOR in developing a written report addressing models and resources available for supporting the EPA Office of Water's surface water quality modeling needs at the

national and large regional scale. The contractor shall summarize information obtained in prior steps under this Task in the report. The report shall provide background information on the Office of Water's modeling needs, describe the methods used to obtain information, identify and describe available resources, identify important gaps, and suggest potential actions to address those gaps. EPA anticipates that this report will be approximately 40 pages in length (not including appendices). The contractor shall submit the summary report to the EPA WACOR for review and comment. The contractor shall revise the report in response to EPA comments.

Deliverables and schedule under Task 5

5a. Written summary of existing information (Step 1) – within 30 calendar days of receipt of written technical direction from EPA WACOR.
5b. Revised Preliminary Model Information Collection Framework (Step 1) – within 14 calendar days of receipt of comments from EPA WACOR.
5c. Notes from Phone Conversations with EPA Staff Experts (Step 2) – within 14 calendar days of each conversation.
5d. Revised Notes from Phone Conversations with EPA Staff Experts (Step 2) – within 10 calendar days of receipt of comments from EPA WACOR.
5e. Notes from Phone Conversations with Non-EPA Experts (Step 3) – within 14 calendar days of each conversation.
5f. Revised Notes from Phone Conversations with Non-EPA Experts (Step 3) – within 10 calendar days of receipt of comments from EPA WACOR.
5g. Summary Findings Report (Step 4) – within 45 calendar days of receipt of technical direction from EPA WACOR.
5h. Revised Summary Findings Report (Step 4) – within 30 calendar days of receipt of comments from EPA WACOR.

Task 6 –Acquisition, Preparation, and Summarization of Housing Transaction Data (Contract PWS A.2.2. Benefit Analysis; C.1. Collection/Preparation of Reports)

The goals of this task are the following:

-Obtain, clean, and format several datasets into a form suitable for estimating hedonic property value regressions.

-Prepare a memo, data sets/meta-data sets, or other materials on options and considerations for use of hedonic estimates in the regulatory analysis context.

Subtask 6.1 - Acquisition, Preparation, and Summarization of Housing Transaction Data

The goal of this Subtask is to obtain, clean, and format several datasets into a

standardized form suitable for estimating hedonic property value regressions. Under WAs 1-20 and 2-20, the EPA WACOR identified study locations of interest (selected counties in Florida, New York, Ohio, and Washington) and the contractor subsequently created several property sales and parcel data files and enhanced geographic information system (GIS) databases for those locations. The necessary datasets have been formatted and delivered to EPA for the majority of EPA's target locations. The contractor shall complete data sets for 2 to 5 remaining counties. EPA will specify these counties through written technical direction and anticipates that several will be from the lower Hudson River watershed in New York. EPA does not anticipate examining any additional counties outside of those identified under WAs 1-20 and 2-20.

Based on written technical direction from the EPA WACOR, the contractor shall deliver (1) an enhanced GIS database, and (2) cleaned and original property sales and parcel data files for each county. The contractor shall provide programming code and documentation for (1) and (2). The contractor shall prepare materials according to all relevant technical direction issued under WA 2-20. EPA will review the deliverables and the contractor shall respond to and address any EPA inquiries as needed.

EPA anticipates the need to request assistance from the contractor for amendment or interpretation of data sets submitted to EPA under Task 7 of WA 2-20 as EPA progresses with its analysis of these data sets. EPA will specify the nature of this assistance through written technical direction.

Deliverables and schedule under Subtask 6.1:

6.1a. Draft GIS database for 2 to 5 counties with multiple map layers - within 30 calendar days of receipt of written technical direction from EPA WACOR.

6.1b. Revised GIS database for any study location - within 15 calendar days of receipt of comments from the EPA WACOR.

6.1c. Draft property transaction and parcel datasets for 2 to 5 counties - within 30 calendar days of receipt of written technical direction from EPA WACOR for deliverable 6.1a.

6.1d. Revised property transactions and parcel datasets for any study location - within 15 calendar days of receipt of comments from EPA WACOR.

6.1e. All original data purchased/obtained from their respective sources delivered to the EPA WACOR - within 15 calendar days of completion of deliverables 6.1a and 6.1c.

6.1f. All code used to clean or manipulate data under this Subtask - within 15 calendar days of receiving written technical direction from EPA WACOR for deliverable 6.1c.

Subtask 6.2 - Options and Considerations for Use of Hedonic Estimates in the Regulatory Analysis Context

Under Task 11 of WA 2-20, the contractor prepared a preliminary draft memo on options and considerations for use of hedonic estimates in the regulatory analysis context. Based on written technical direction from the EPA WACOR, the contractor shall build upon this preliminary draft memo and any subsequent work conducted under Subtask 7.4 of WA 2-20. EPA anticipates that work under this Subtask could entail:

(i) Revision of existing memos and/or drafting of additional technical memos;

(ii) Conducting literature reviews and compiling a dataset of past hedonic property value studies to facilitate meta-analysis; and

(iii) Compiling regional or nationwide datasets of the population of interest for regulatory analysis. The latter dataset may entail, for example, aggregate statistics at the Census block group (or tract) level on the number of homes and mean (or median) housing values for homes in close proximity to waterbodies. Such a dataset would be spatial in nature, linking block groups to specific waterbodies. The development of such a dataset would require compiling and performing GIS calculations on data from the U.S. Census Bureau's decennial census and American Community Survey (ACS), the National Hydrography Dataset (NHD), and the National Land Cover Dataset (NLCD). Efforts pertaining to item (iii) will build on past work submitted by Abt to the Office of Water under this contract, including efforts related to the water quality stated preference meta-analysis under WA 2-09, the hedonic benefit transfer methodology developed under WA 1-14, and the aforementioned preliminary draft memo under task 11 of WA 2-20. These efforts may potentially relate to and draw upon work under WA 2-35, Tasks 13 and 14 under WA 2-20, and Tasks 4 and 5 under WA 3-20.

Deliverables and schedule under Subtask 6.2:

6.2a. Draft technical memo - within 30 calendar days of receiving written technical direction from EPA WACOR.

6.2b. Revised technical memo - within 14 calendar days of receipt of comments from EPA WACOR on deliverable 6.2a.

6.2c. Draft hedonic property value meta-analytic dataset - within 30 calendar days of receiving written technical direction from EPA WACOR.

6.2d. Revised hedonic property value meta-analytic dataset - within 15 calendar days of receipt of comments from EPA WACOR on deliverable 6.2c.

6.2e. Draft nationwide housing population or other dataset - within 30 calendar days of receiving written technical direction from the EPA WACOR.

6.2f. Revised nationwide housing population or other dataset - within 15 calendar days of receipt of comments from EPA WACOR on deliverable 6.2e.

Task 7: Complete Literature Reviews on Linking Water Quality Measures to Economic Models and on Perceptions of Ecosystem Services and Water Quality (Contract PWS A.2.2. Benefit Analysis; C.1. Collection/Preparation of Reports)

Under Task 4 of WA 2-35, the contractor prepared a draft report, Summary and Discussion of Literature Linking Water Quality to Economic Value. Under Task 5 of WA 2-35, the contractor prepared a draft memo on how aquatic ecosystem services or surface water quality attributes are perceived and valued by the public and how these services or attributes have been linked to ecological endpoints and water quality management policies in past studies. The contractor will be asked to make final edits on both of these literature review memos. The EPA WACOR through written technical direction will provide specific revisions, additional sources, and deliverable dates to the contractor. EPA anticipates the edits will require final searches of literature to ensure completeness, minor editorial corrections, and formatting.

Deliverables and schedule under Task 7

7a. Final version of Summary and Discussion of Literature Linking Water Quality to Economic Value as specified through written technical direction from EPA WACOR.

7b. Final version of Summary and Discussion of Understanding of Aquatic Ecosystem Services or Surface Water Quality Attributes by the General Public as specified through written technical direction from EPA WACOR.

Task 8 – Focus Group Script Review (Contract PWS A.2.2. Benefit Analysis; C.1. Collection/Preparation of Reports)

Under Subtask 5.1 of WA 2-35, the contractor identified potential researchers who may have scripts from focus groups. The focus group scripts may provide insight into how the general public or select samples of the public may perceive water quality attributes or aquatic ecosystem services. The Contractor has made initial contact with economists who use surveys. If the initial contacts prove to be productive (e.g., transcripts have already been produced from recordings), the Contractor shall begin reviewing transcripts, summarizing findings and writing a summary memo. The information gleaned from the transcripts will be included in the Summary Table already produced under Subtask 5.2 of WA 2-35 or as a separate deliverable once the materials have been reviewed. If the majority of the materials are only available as recordings, EPA will provide technical direction for next steps or determine this is not a feasible task.

Deliverables and schedule under Task 8
8a. Written summary of existing information (i.e., transcripts vs. recordings, source of information, etc.) available from resource economists—within 7 days of receiving written technical direction from EPA WACOR

8b. EPA WACOR as specified through written technical direction will decide whether to move forward with the remaining deliverables after reviewing summary—15 days after receiving written summary from contractor.

8b. Memo summarizing findings from focus group transcripts and incorporation of phrases that relate to aquatic services into summary table described in Subtask 5.2 of WA 2-35-- within 45 calendar days of receiving written technical direction from EPA WACOR.

Task 9 – Develop, Test, Validate, or Revise Water Quality Indices (WQIs), Water Quality Ladders (WQLs), or Other Potential Approaches for Linking Water Quality Measures to Economic Models

EPA anticipates one or more potential studies for linking water quality measures to economic models. These studies are intended to test, validate, and/or revise WQIs, WQLs or other linkages to better support benefits analyses and the national water quality benefits platform. To perform these analyses EPA will need support for reviewing, testing, validating, and developing linking approaches.

For this WA, currently there is no work or deliverables for the contractor to prepare under Task 9. However, the EPA WACOR anticipates amending the WA during the option period to add work and deliverables for Task 9.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-35

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Linking WQ Models to Econ

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	Sects. A.2.2, A.6, B.4, C.1, C.7

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/10/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		1,325
This Action:		1,060
Total:		2,385

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Matt Heberling	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-569-7917 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name Nicholas Bisher	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

WORK ASSIGNMENT AMENDMENT

I. **Title:** Analytic Support for EPA Cross Office Water Benefits Work

Contractor: Abt Associates, Inc. **Contract No.:** EP-C-13-039

II. **Work Assignment Number:** 3-35 / Amendment 1

III. **Estimated Period of Performance:** Amendment Approval to July 31, 2017

IV. **Estimated Level of Effort for Amendment:** 1000 hours + 60 no cost hours

V. **Key EPA Personnel:**

Work Assignment Contracting Officer Representative (WACOR):
Matt Heberling
ORD/NRMRL/STD/SEB
513-569-7917

Alternate Work Assignment Contracting Officer Representative (AltWACOR):
Joel Corona
OW/IO/WPS
202-564-0006

VI. Purpose

The first purpose of this amendment is to request additional no cost hours. The second purpose of this amendment is to add two new tasks, Task 10 and Task 11. A detailed description of the work covered by these tasks follows.

The EPA WACOR requests an additional 60 hours at no additional cost to the government under Work Assignment (WA) 3-35. Abt Associates utilized a more junior mix of staff on the work completed to date than was anticipated under the work plan. Abt Associates also anticipates a greater level of effort under Task 8, Focus Group Script Review, than anticipated under the work plan. These additional hours will not cover Task 9 (which was part of the original Performance Work Statement and will be amended at a later date) or the amended Tasks 10 and 11 (described below).

Task 10– Planning for National Water Quality Benefits Platform

Under a separate work assignment, WA 3-20, the contractor worked with EPA on developing a software platform to facilitate and enhance the estimation of the benefits of surface water quality improvement. Task 10

addresses the planning of future changes and updates to the platform. Specifically, the contractor shall undertake the following activities:

Sub-task 10.1. Human Health Benefits Road Map

The EPA intends to develop a long-term plan for improving its ability to estimate the human health benefits of water regulations and policies. To aid in this effort, the contractor shall develop a health benefits road map report (10-20 pages) that provides EPA with recommendations on how to most effectively expand the ability platform to analyze water related human health benefits. The report should identify a candidate list of stressors (e.g., toxins, pathogens) and recommendations for prioritizing the stressors, based on what is known regarding their potential harm, the extent of public exposure, and the ability to reliably estimate cause and effect relationships. The report should identify information sources for:

- Dose-Response functions that provide a numerical relationship between stressor exposure and specific health effects. Whenever possible accounting for both acute and chronic health effects.
- Sub-populations with higher exposure risks (e.g., subsistence fishers) and what are the ways that the frequency, timing, and levels of contact with a stressor can be estimated.
- Exposure pathways such as fish tissue, drinking water, and contact recreation.
- Characterizations of the time profile of changes in exposures and risks, such as cessation lags and latency periods.
- Health outcomes in terms of morbidity versus mortality and length of illness.
- Health risks that may disproportionately affect children.

<u>Subtask 10.1. Deliverables</u>

1. Draft Human Health Benefits Road Map Report delivered to EPA within 40 days of receiving technical direction from EPA WACOR.
2. Revised plan delivered to EPA within 15 days of receiving technical direction from EPA WACOR.

Sub-task 10.2. Memorandum on Adding Geographic Information System (GIS) Functionality to the National Water Quality Benefits Platform

The current version of the platform does not have GIS capabilities, although it does allow for the export of static map image files. The EPA is interested in examining how the addition of GIS features can enhance the overall functionality of the platform. The EPA is also interested in knowing how readily the GIS features of Environmental Benefits Mapping and Analysis Program (BenMap), COBRA®, and Risk-Screening Environmental Indicators (RSEI) could be incorporated into the platform. The contractor shall produce a memorandum (7-15 pages) summarizing options for adding GIS functionality to the tool (i.e., provide input data, select analytic area or subset of waters, display results and etc.) and provide estimates for the resources required to implement each option.

The memorandum shall address how users could import GIS layers for land use and demographic data. Currently the platform contains land use or demographic data in a rasterized (grid) format. However, there is no ability for users to incorporate additional data not currently contained in the platform. An example of the type of data a user might want to incorporate is a file displaying the spatial distribution of subsistence fishing rates for a given

state. Ideally there would be a way to convert vector-based data to grid data within the platform, or at a minimum a set of requirements that users could follow to pre-process the data and then import. The memorandum shall address how GIS features could be used to facilitate the development of analytical scenarios directly within the platform through the modification of market or commodity boundaries. An example of this type of functionality is a GIS component that allows users to select a subset of waters to be analyzed based on pre- established boundaries, such as watersheds or state borders. The memorandum shall address the exporting of analytical outputs in both grid and vector based file formats.

Subtask 10.2. Deliverables

1. Draft Memorandum on Adding GIS Functionality to the National Water Quality Benefits Platform delivered to EPA within 40 days of receiving technical direction from EPA WACOR.
2. Revised plan delivered to EPA within 15 days of receiving technical direction from EPA WACOR.

Sub-task 10.3. Plan for Web-based National Water Quality Benefits Platform

The current platform is a desk-top application that is limited to users within EPA. The EPA would like to make a web-based version of the platform publicly available. The contractor shall produce a plan (8-16 pages) describing the steps necessary to create a web-based version of the platform. These steps shall include both development and hosting requirements, and shall layout different options for the EPA WACOR to consider. The plan shall address how it will comply with the Federal Information Technology Acquisition Reform Act (FITARA). Similarly, the plan shall clearly layout what the requirements from the EPA Office of Environmental Information's System Life Cycle Management (SLCM) Policy are pertinent to creating a web-based version of the platform, and the steps that would be taken to meet those requirements.

The plan shall cover staging and testing working software on the public web for use by a subset of the target audience (e.g., academics and employees of state agencies); as well as the process that will be used to implement changes based on user behavior and feedback. The contractor shall detail all anticipated security, performance, and policy requirements that the web-based platform will need to meet, including a continuous and final Authority to Operate (ATO). The contractor shall describe how web-site analytics and user feedback will be used to inform future platform improvements.

Subtask 10.3. Deliverables

1. Draft Plan for Web-based National Water Quality Benefits Platform delivered to EPA within 40 days of receiving technical direction from EPA WACOR.
2. Revised plan delivered to EPA within 15 days of receiving technical direction from EPA WACOR.

Sub-task 10.4. Additional Memorandums

As requested through technical direction from EPA, the contractor shall develop additional memos, briefing materials, planning documents, and/or other summary materials in order to provide information and options for EPA staff on issues relevant to future platform development. Development of these materials could require

review and collection of existing literature and data sets. At this time, EPA anticipates requesting up to 3 additional documents.

Subtask 10.4. Deliverables

1. Draft memorandums, briefing materials, planning documents, or other summary materials, each document delivered to EPA within 20 days of receiving technical direction from EPA WACOR.
2. Revised memorandums, briefing materials, planning documents, or other summary materials, each document delivered to EPA within 10 days of receiving technical direction from EPA WACOR.

Task 11 – National Water Quality Benefits Platform Development

Under this task, the contractor shall make additions to the functional and analytical capabilities of the current National Water Quality Benefits Platform (NWQB). The specific platform elements to be addressed by the contractor under this new task are provided in the three subtasks below.

For each deliverable described below, the contractor shall deliver an executable file that runs on the Windows operating system. For new input files, the contractor shall deliver the data inputs or provide a way of downloading this data from the internet using the NWQB interface. The contractor shall document the platform code with annotations and comments to facilitate eventual review. The contractor shall deliver a brief set of instructions (1-2 pages) for using the platform features.

So that the EPA WACOR and platform sub-group can sufficiently assess progress and provide feedback during the development process, the contractor shall deliver up to 4 demonstrations, using Adobe Connect. Each demonstration shall take approximately 30 minutes and focus on the module and how it fits within the larger platform. The EPA WACOR and contractor shall discuss the schedule for the demonstrations, and the specific dates and times for each demonstration will be provided to the contractor by the EPA WACOR though written technical direction.

Sub-task 11.1. Human Health Improvements

Human health improvements from environmental policies include effects such as reduced mortality rates, decreased incidence of non-fatal cancers, chronic conditions and other illnesses, and reduced adverse reproductive or developmental effects. The contractor shall revise the recreational fishing cancer risk analysis module currently included in the Benefits Platform. The current version of the analysis is a "proof of concept" that estimates the value of avoided cancer deaths by a reduction in all Toxic Release Inventory (TRI) carcinogens. The current module only addresses the benefits of reduced mortality and not reduced morbidity. It also does not distinguish between vulnerable sub-populations such as pregnant women and children. Finally, the current analysis does not address time factors such as duration of exposure and latency factors for the onset of illness. The contractor shall revise the current recreational fishing module to focus on just the three toxic metals considered for the Steam Electric Effluent Limitation Guidelines Benefits Analysis (Lead, Mercury, Arsenic). Specifically, the revised module will incorporate these effects:

- Lead: Avoided neurological and cognitive damages in children (ages 0-7) based on the impact of an additional IQ point on an individual's future earnings and the cost of compensatory education for children with learning delays; and reduced incidence of cardio-vascular disease in adults.
- Mercury: Reduced neurological and cognitive damages in infants from exposure to mercury in-utero.
- Arsenic: Reduced incidence of cancer cases.

The relevant data shall include: baselines for pollutant discharges and ambient pollutant concentrations in receiving reaches and downstream reaches, pollutant concentrations in fish tissue, fish consumption rates among different racial and ethnic cohorts for affected recreational anglers and subsistence fishers, and the average daily dose (ADD) or lifetime average daily dose (LADD) of pollutants for each age cohort for recreational anglers and subsistence fishers.

Sub-task 11.1. Deliverables

1. The contractor shall deliver at least one demonstration of the revised recreational fishing cancer risk analysis module using Adobe Connect. The timing for this shall be provided through written technical direction from the EPA WACOR.
2. The contractor shall deliver updated version of the NWQB platform with revised recreational fishing cancer risk analysis module by April 28, 2017. The deliverable shall include an executable file, data sets, and instructions for using the new features.

Sub-task 11.2. Waters of Concern

Currently the waters of concern that the NWQB platform can analyze are limited to freshwaters covered by the National Hydrography medium resolution dataset (NHDmed). The contractor shall incorporate data layers for non-linear freshwater features: lakes, reservoirs, ponds, wetlands. The contractor will not be responsible for identifying the water quality models that can be linked to these non-linear features. Currently the platform uses total reach miles to measure the water resources of concern. The contractor shall add the ability to use surface area measures of the affected resources or bank miles as measures of the water resources of concern. The contractor shall incorporate the Chesapeake Bay as a water that can be included for analysis. This effort shall provide a means to develop a more generalizable approach for incorporating large/iconic water bodies. The contractors shall rely on the benefits analysis conducted for the Chesapeake Bay Total Maximum Daily Load (TMDL) as guidance for how to estimate household willingness to pay (WTP) and determine market areas.

Sub-task 11.2. Deliverables

1. The contractor shall deliver at least one demonstration of the increased capabilities for analyzing additional waters of concern using Adobe Connect, the timing for this shall be provided through written technical direction from the EPA WACOR.
2. The contractor shall deliver updated version of the NWQB platform with the capabilities for analyzing additional waters of concern by May 12, 2017. The deliverable shall include an executable file, data sets, and instructions for using the new features.

Sub-task 11.3. Hedonic Property Values

Currently the platform cannot be used to analyze the effects on property values from improvements to the quality of nearby waters. Although the benefit-transfer procedures are similar, the population of interest is different. To date, the Platform applies WTP values to all households within some pre-specified distance of a waterbody being improved. When transferring hedonic property value results, however, the estimated changes in price (i.e., elasticities or semi-elasticities) apply to houses within some other pre-specified, and much more local, distance. Based on the current literature, EPA will likely assume a 500-meter distance for any changes in residential property values resulting from a change in water quality. EPA has developed a detailed framework for compiling and formatting the necessary data to estimate the number of potentially impacted homes surrounding individual waterbodies. These efforts will utilize several publically available and spatially explicit datasets, including data from the US Census Bureau, US Geological Survey's (USGS) National Land Cover Dataset, and EPA's National Hydrography Dataset (NHD).

Following EPA's proposed framework, the contractor shall develop a "proof of concept" hedonic property value module that could form the basis for a future fully functioning module. The proof of concept module shall focus on changes to a measurable water quality attribute (or attributes), such as clarity. EPA envisions that this framework would eventually result in an interface that allows for evaluation of housing value changes due to surface water quality improvements at a national and regional scale, and occurring at different subsets of waterbodies. The valuation component will, at least initially, utilize one or several unit value estimates of the elasticity (or semi-elasticity) of house prices with respect to water quality. These estimates will be based on a parallel meta-analysis of hedonic property value studies, but for purposes of the "proof of concept", an agreed upon elasticity estimate can be used as an initial placeholder. Determining the market and commodity areas will be an important part of developing this proof of concept module, as they will require using demographic data at a more refined scale than what is currently used.

Although beyond the scope of the initial "proof of concept", the proposed framework will eventually rely on the parallel meta-analysis results to estimate and perform limited function and/or unit value transfers, depending on the available primary studies. To aid the contractor in developing the initial proof of concept hedonic module, EPA is including the following description of how the anticipate this final hedonic property value module is expected to function.

The appropriate values for applying to the set of potentially impacted houses will be determined by three user-selected criteria:

1. Region of the US (as reflected in *northeast*, *midwest*, *south*, and *west*),
2. Waterbody type (following the NHD Plus categorization: lake/reservoir, river, small river, and estuary), and
3. Water quality metric (e.g., water clarity, fecal coliform counts, etc.).

In cases where no or few studies fit the combination of the above three criteria, then the future module would return a null value. In cases, where a sufficient number of studies were available, the corresponding meta-analytic estimate of the average elasticity would be applied to the housing population of interest. EPA envisions that two outputs would then be provided – the total change in residential property values among waterfront homes (assumed distance of 0 to 100 meters from the waterbody of interest) and the total change in residential

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-36

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Ecosystem Services

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A.2.2, A.6, B.6, C

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/10/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		245
Total:		245

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Joel Corona	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-0006 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: Ecosystem Services

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-36

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Estimated Level of Effort: 245 hours

V. Key EPA Personnel:

Work Assignment Contracting Officers Representative (WACOR):

Joel Corona
OW/IO/WPS (4101M)
202/564-0006
202/564-0500 (fax)

Alternate WACOR:

Michael Trombley
OW/IO/WPS (4101M)
202/564-3906
202/564-0500 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA or Agency) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines (ELGs)) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to support the development of tools that can be used to provide such estimates. For example, when identifying, quantifying, and valuing ecosystem services, the National Ecosystem Services Classification System (NESCS) is a classification framework that can assist in *identifying* final ecosystem services for subsequent quantification and valuation.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WA 2-36 under this Contract EP-C-13-039. The work performed under this work assignment will not duplicate work conducted under previous

work assignments.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor is not expected to be accessing and evaluating confidential business information (CBI). However, if the contractor does access or evaluate CBI, the contractor shall adhere to EPA's CBI policy and other procedures as described in the contract clauses (Clauses H.15-H19 and H.21). The contractor must maintain CBI security clearance to use CBI information. The contractor shall not disclose any CBI to anyone other than EPA without prior written approval from the EPA WACOR. The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in our "Office of Science and Technology Confidential Business Information Application Security Plan" (August 2011) or its successor approved plans.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA Contract Level Contracting Officer Representative (CL-COR), and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are

to be provided in hard copy and in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan (20 hours estimated LOE)

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment signed by the Contracting Officer. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

A biweekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables, costs, and other potential issues.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.
1b. Biweekly update call.

Task 2 - Provide Technical Support for the National Ecosystem Services Classification System (NESCS) (225 hours estimated LOE)

The contractor shall provide technical support related to the NESCS and other ecosystem services research activity. NESCS is being developed under joint direction from EPA's Office of Research and Development (ORD) and EPA's Office of Water (OW). In addition, EPA's Office of Air and Radiation (OAR) has announced interest in using a NESCS framework/approach in future rulemaking (Secondary National Ambient Air Quality Standards (NAAQS) for nitrogen oxides/sulfur oxides (NOx/SOx)). EPA is interested in better understanding the usefulness of NESCS and other ecosystem services research activities for benefits analysis. Under this task, the contractor will provide technical support in the form of 2-3 memoranda or other technical documents. Examples *could* include:

- Memorandum on when to best use NESCS, and recommendations on improvements to the classification system
- Comparison of the Final Ecosystem Goods and Services-Classification System (FEGS-CS) and NESCS approaches, including recommendations on when (if) one approach is more appropriate
- Case Study applying NESCS to an existing or future policy scenario
- Memorandum on whether the National Aquatic Resource Surveys (NARS) program could collect information useful to NESCS, other ecosystem services work, or benefits analysis in general
- Recommendations and/or support on how to incorporate NESCS categories into databases (such as the ELG database or EPA's EnviroAtlas)
- Application of NESCS and/or other classification systems to environmental/green accounting

Additional support may include responding to management questions about economic issues, preparing briefing and meeting materials (which may include but are not limited to short briefing documents and PowerPoint presentations). The contractors may also be directed to participate in and/or conduct briefings, assisting Agency economists in their review of analyses conducted by EPA and its contractors, and providing technical review of materials prepared by Agency staff.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule under Task 2

2a. Draft deliverables and due dates to be determined by written technical direction.
2b. Final deliverable due dates to be determined by written technical direction.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-36

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Ecosystem Services

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.2.2, A.6, B.6, C

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/11/2016 To 07/31/2017

Comments:
This is an administrative amendment to determine if a patch to FedConnect resolved an issue which stopped the WA from being submitted via FedConnect. No actions are required by the Contractor.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
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Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017 Cost/Fee: LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: Cost/Fee LOE:

Cumulative Approved: Cost/Fee LOE:

Work Assignment Manager Name Joel Corona	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-0006 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-37

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039	Contract Period 09/11/2013 To 07/31/2017 Base Option Period Number 3	Title of Work Assignment/SF Site Name: RSEI Model Update Tech Support
Contractor: ABT ASSOCIATES INC.	Specify Section and paragraph of Contract SOW: A.2.4, B1, B2, B4, C3, C7, D2	

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 01/19/2017 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017	Cost/Fee:	LOE: 0
This Action:		866
Total:		866

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Wayne Davis (Signature) (Date)	Branch/Mail Code: Phone Number: 410-305-3030 FAX Number:
Project Officer Name: Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name: Guy Tomassoni (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1937 FAX Number:
Contracting Official Name: Tammy Adams (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: Risk Screening Environmental Indicators Model Update and Technical Support

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-37

III. Estimated Period of Performance: Date of issuance through July 31, 2017

IV. Estimated Level of Effort: 866 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Wayne Davis
OCSPP/OPPT/TRIPD
202/566-2425
443/283-4080 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA or Agency) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to provide contractor support for the continued development and upgrading of the Risk-Screening Environmental Indicators (RSEI) Model, updating it to reflect Toxic Release Inventory (TRI) data through 2016, further enhancing the model where applicable and its documentation, providing technical support to its users, and development of relevant analyses using RSEI. **This WA covers the preliminary steps to the full production of the 2016 RSEI results, which may be developed in a future WA.**

The objective of the RSEI project is to develop a set of risk-based indicators, which provide additional information and context to help users understand the data in the TRI. The RSEI Model contains Indicators Elements -- numeric relative ranking values that assess the risk-related impacts of chemical releases on human health and ecological well-being. The RSEI Model is useful for examining trends in risks from chemical releases, ranking and prioritizing chemicals for strategic planning, performing risk-related targeting for enforcement and compliance

purposes, and supporting community-based environmental protection efforts.

Under this WA, the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance project plan (QAPP) that will be based on Task 2 QAPP language. The QAPP shall describe the procedures for assuring the quality of the primary and existing environmental and economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WA #2-37 under this Contract EP-C-13-039, and WAs #6-18 and 7-18 under Contract EP-W-08-010, WAs 4-79 and 4-105 under Contract EP-W-11-003. The work performed under this work assignment will not duplicate work conducted under the previous work assignments.

Under the previous work assignment(s), Abt Associates performed the following analyses:

- Model updates and data refresh for Record Year 2013, 2014, and 2015
- Education and outreach involving updating the RSEI microsite, use cases, and training videos
- Technical support for EPA and other users of the RSEI results

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract-Level Contracting Officers Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to

provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases, another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of a work assignment signed by the CO. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

A weekly update memo to the EPA WACOR will be required for this work assignment to provide progress on deliverables, any cost issues, and other potential issues.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.
1b. A weekly update memo to the EPA WACOR to provide progress on deliverables, any cost issues, and other potential issues.

Task 2 Quality Assurance

2.1 Background

Quality Assurance Project Plans (QAPPs) are required under the Agency's Quality Assurance

Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis and use of environmental data must have an EPA approved QAPP in place prior to the commencement of the work. Examples of these environmental data operations are provided in **Table 2-1** below.

Table 2-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). Therefore, the Contractor must prepare a QAPP that describes the work to be performed, how it will be done, and specific QA strategies that will be used when gathering and using the data to support the objectives of this work assignment. The QAPP shall provide enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when using existing data to populate the Risk-Screening Environmental Indicators (RSEI) model, conduct the fate and transport modeling associated with RSEI, and produce risk-screening scores based on the data and modeling.
- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases—as a well as a rationale for when those databases are appropriate and what data available in each will support the project

- The quality objectives needed to ensure the data will support the project objectives, and
- The quality assurance/quality control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

2.3 QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable, and this discussion must provide a sufficient level of detail to allow the EPA QA Manager (or designee) to determine if the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WACOR will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's QAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report.

2.4 QAPP Schedule

Within 15 days after submittal of the work plan, the Contractor shall prepare and submit a QAPP. EPA will review the submitted QAPP and provide the Contractor with written approval or comments within 15 days of receiving the Contractor's submission. The Contractor shall revise the submitted QAPP within 10 days of receipt, unless otherwise instructed by the EPA WACOR.

Until the QAPP is fully approved, the Contractor must not perform any activities that involve

gathering, evaluating, analyzing, and otherwise using existing environmental data. The QAPP shall be kept up to date and revised as needed

2.5 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractor should indicate which results were obtained using the tools (standard operating procedures, checklists, and guidelines) that the Contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed.

2.6 Deliverables and Schedule Under Task 2.

Deliverable	Projected Schedule Date
Draft QAPP	Within 15 days after submittal of the Work Plan
Revised QAPP reflecting EPA comments, if needed	Within 10 days of receipt of EPA comments on initial submission
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly throughout the WA period of performance

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan that was developed under the Construction and Development WA 0-01 of the contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point under this WA. The EPA WACOR will review the revised memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare the edited SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use the revised SNCVC.

Deliverables and schedule under Task 3
If required, via technical direction revise memorandum within 3 calendar days of receipt of comments from the EPA WACOR.

Task 4: RSEI Model Upgrades
Model modifications may be required to accept the new TRI data and supporting data sets. Specific model enhancements to the existing version 2.3.5 model will be described at the request of the EPA WACOR, which may include adding year-specific weather data into the modeling process and evaluating toxicity-weighting methodologies including those used by the National Air Toxics Assessment (NATA).

Deliverables and schedule under Task 5
4a. RSEI Model Upgrade status memo no later than May 1, 2017.
4b. RSEI Model Upgrade no later than July 28, 2017.

Task 5 - Geographic Microdata and Associated Products
Under previous WAs documented in the background section of this performance work statement, disaggregated model results known as RSEI Geographic Microdata have been produced and distributed to the public. For this task, the contractor shall provide State-specific block-group ARCGIS Shape files to support EPA to increase the accessibility of the RSEI Geographic Microdata. This task may also include writing application program interfaces (APIs) for the data, creating additional data files, and creating user interfaces for data visualization and manipulation.

Deliverables and schedule under Task 5
5. Updated microdata products no later than July 28, 2017.

Task 6 – EasyRSEI and Associated Products
Under previous WAs documented in the background section of this performance work statement, the RSEI website (including the EasyRSEI help), EasyRSEI installation files and instructions, and any version-specific information have been completed. The contractor shall create a Qlik Dashboard containing RSEI results and prepare a memo evaluating using the Qlik Dashboard to replace the current EasyRSEI interface.

Deliverables and schedule under Task 6
6a. Draft of the Qlik Dashboard no later than July 14, 2017
6b. Final of the Qlik Dashboard no later than July 28, 2017

Task 7 - Program and User Technical Support and Auxiliary Analyses

Various types of RSEI technical support and analysis are needed by users of the model. The contractor shall support EPA in the preparation of supplementary analyses or presentations related to the RSEI model. The results of analyses performed under this Task shall be described in memoranda or presentations provided by the contractor to the EPA WACOR. The EPA WACOR will designate the topics to be addressed through technical direction. These analyses will be conducted if resources allow.

Examples of possible activities under this task include:

- Providing RSEI model results for the latest update of the TRI National Analysis.
- Using the RSEI water model to generate toxicity-weighted concentration for stream reaches using facility release data to support EJScreen.
- Comparisons of the RSEI methodology with alternative ranking methods. The contractors shall describe the strengths and weakness of each approach.
- Ranking of facilities by state or other geographic boundary. The contractor shall provide lists of these facilities to the WACOR, as well as providing a memo or report that contains summary information about the facilities, such as the chemicals of concern, their releases and transfers of chemicals, their geographic distribution, etc.
- Identification of sources of discrepancies or interpretation of results. Development of patches to correct problems in results.
- Environmental justice analyses identifying disparate risk-related impacts by race, income, and age using geographic microdata.
- Comparisons of RSEI results throughout the years and analyses of trends.
- Graphs and trend results broken out by hazard, cancer hazard, non-cancer hazard or other similar break outs.
- Uncertainty (sensitivity) analysis that identifiers RSEI drivers and potential areas for future refinement.
- Presentations describing the RSEI modeling approach or other aspects related to RSEI.

The exact topics and mix of auxiliary analyses cannot be known at this time. The analyses will address issues that arise during the course of various EPA activities relating to Indicator topics and require a quick response. The results of the analyses performed under this task shall be described in memoranda or reports provided by the contractor to the EPA WACOR, and revised to respond to comments by the EPA WACOR. If any analysis is not addressed in the QAPP, then the QAPP must be revised to reflect these analyses.

Deliverables and schedule under Task 7
7a. Draft product no later than 3 weeks following technical direction describing the analysis.
7b. Final product no later than one week after comments received by the WACOR.

Summary of Deliverables and Dates:
1a. Work plan within 15 calendar days of receipt of work assignment.
1b. A weekly update memo to the EPA WACOR to provide progress on deliverables, any cost issues, and other potential issues.

2a. QAPP within 15 days after submittal of the Work Plan.

2b. Revised QAPP within 10 days of receipt of EPA comments on initial submission working days of receipt of any comments from the WACOR.
2.c Monthly reports of QA work performed (may be included in the Contractor's monthly progress report).

3. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

4a. RSEI Model Upgrade status memo no later than May 1, 2017.
4b. RSEI Model Upgrade no later than July 28, 2017.

5. Updated microdata products no later than July 28, 2017.

6a. Draft of the Qlik Dashboard no later than July 14, 2017
6b. Draft of the Qlik Dashboard no later than July 28, 2017

7a. Draft product no later than 3 weeks following technical direction describing the analysis.
7b. Final product no later than one week after comments received by the WACOR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-37

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2018 Base Option Period Number 3	Risk Screening Environmental I

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A.2.4, B1, B2, B4, C3, C7, D2

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 01/19/2017 To 07/31/2017

Comments:
Assigning contractor (Abt) 200 no-cost hours because a greater level of effort is anticipated under task 6. The contractor was able to complete work more efficiently by using a different labor mix on the work completed to date than anticipated in the work plan.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2018		866
This Action:		200
Total:		1,066

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Wayne Davis	(Signature)	(Date)	Branch/Mail Code: Phone Number: 410-305-3030 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name: Nicholas Bisher	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-39

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Economic Analyses for Californ

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.2.2

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Close-Out
- [ ] Work Assignment Amendment
- [ ] Incremental Funding
- [ ] Work Plan Approval

Period of Performance: From 10/24/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period: 09/11/2013 To 07/31/2017	Cost/Fee:	LOE: 0
This Action:			350
Total:			350

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Ghulam Ali (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1004 FAX Number:
Project Officer Name: Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

Performance Work Statement
EPA Contract No., EP-C-13-039
Work Assignment # 3-39

TITLE: Economic Analyses for California Statewide Water Quality Plans

I. Work Assignment Contracting Officer's Representative (WACOR)

Ghulam Ali
Standards and Health Protection Division
Office of Science and Technology
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Email ali.ghulam@epa.gov
Phone: 202-566-1004

II. Alternative Work Assignment Contracting Officer's Representative (ALT WACOR)

Matthew Mitchell
U.S. EPA Region 9
Water Quality Assessment Section (WTR-2-1)
75 Hawthorne Street
San Francisco, CA 94105

Email: Mitchell.Matthew@epa.gov
Phone: 415-972-3508

III. Level of Effort

350

IV. Duration

Date of Issuance to July 31, 2017

V. DESCRIPTION

This is a follow on to work assignment no. 2-39 to complete policies regarding bacteria and methyl mercury for California which were not developed. The State Water Resources Control Board (the Board) was able to develop only the draft policy about toxicity towards the end of the performance period, but was unable to gather the information about test needed to estimate the cost of the policy/objective in a timely fashion. Relatively late in July 2016, the Board was able to provide the required cost data of whole effluent toxicity test. As a result, the contractor could not finish the economic analysis even for the toxicity policy and no output was generated. However, the contractor updated the baseline, reviewed the facility permits and

revised the toxicity limits according to the proposed policy in order to update the economic analysis. The Board planned to finalize the draft policies regarding methyl mercury and the bacteria in this work assignment. As a result, this follow up work assignment includes the work which was not completed before. The contractor shall use the previously prepared quality assurance project plan (QAPP).

The Clean Water Act (CWA) directs States, with oversight by the U.S. Environmental Protection Agency (US EPA) to adopt water quality standards to protect the public health and welfare, enhance the quality of water, and serve the purposes of the act. State standards must include (1) designated uses for all water bodies within their jurisdictions, (2) water quality criteria (referred to as objectives under California law) sufficient to protect the most sensitive of the uses, and (3) an antidegradation policy. States are also required to review their standards once every three years and, as appropriate, modify and adopt standards. The results of this triennial review must be submitted to US EPA and US EPA must approve or disapprove any new or revised standards. Section 303(c) of the CWA directs US EPA to promulgate standards where US EPA has determined that a new or revised standard is not consistent with the requirements of the CWA, or where necessary to meet the requirements of the CWA.

Through the triennial review process, in roundtable discussions and in discussions with US EPA Region 9 staff, it was determined that several standards need to be modified and/or adopted in California. The State Board is taking the approach that adopting statewide standards is an efficient use of limited resources and is presently in the process of developing water quality standards for the following pollutants:

1. Development of Methylmercury Fish Tissue Objectives and Implementation Policy
2. Development of a Statewide Methyl Mercury Reservoir Control Program total maximum daily loadings (TMDL)
3. Update Economic Analysis for Statewide Toxicity Policy
4. Development of Statewide bacteria objectives and program of implementation

The following are individual descriptions of each of the above listed projects:

1 & 2. Development of Methylmercury Fish Tissue Objectives and Implementation Policy and TMDL for Mercury in Reservoirs

The Board is considering adopting a statewide policy for methylmercury that would apply to inland waters, enclosed bays, and estuaries in the State. Based on the US EPA's revised methylmercury (MeHg) fish tissue-based criteria guidance, elements of the proposed policy may include a methylmercury fish tissue objective and implementation procedures related to the Board's regulatory program. As a parallel project the state is developing a statewide reservoir TMDL and program of implementation that is intended to address lakes currently listed for mercury and hopefully will be able to contain implementation methods that would address any additional lakes that are found to have elevated levels of Mercury in fish tissue in the future. The TMDL will establish Fish Tissue objectives for reservoirs and set target and loads.

Timeline: Both projects are currently underway and we anticipate adoption of the objectives in approximately 18 months and the TMDL in 24 months.

3. Toxicity Policy – Update of Draft Economics Policy

The Board has developed a draft policy for Toxicity Assessment and Control. A draft economics analysis was prepared using an early draft of the policy before the final US EPA statistical methods (the "Test of Significant Toxicity") was released. Due to changes in the draft policy a revision to the economics analysis is needed. Updates should include the cost to Storm Water, Channelized dischargers as well as for publically owned treatment works (POTWs). Factors to consider would include costs for routine monitoring as defined in the draft Policy (including courier costs as appropriate) and costs for accelerated monitoring.

Timeline: Draft Substitute Environmental Documentation (SED) in approximately 2 months

4. Bacteria Objectives

The Board is working to adopt the 2012 recommended 304(a) updated bacteria criteria as well as a program of implementation. While the update is replacing more or less equivalent total or fecal coliform objectives it will also contain several implementation measures. They are likely to include a reference beach approach allowance for TMDLs, an allowance for the development of high-flow suspensions and definition of a limited contact recreation beneficial use. The proposed update will likely not impact sewage treatment plants as they are already meeting a more stringent total coliform effluent limit. However, there could be costs to Storm Water and other non-point source dischargers as well as the communities should a lower illness rate be chosen and additional beach closure days are incurred.

Timeline: SED in approximately 4 months

Task 1: Prepare Work Plan and Cost Estimates

The contactor shall prepare the work plan and cost estimates for the tasks below. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the Contract-Level Contracting Officer Representative (CL-COR), and the Contracting Officer (CO) will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Task 2: Prepare a Quality Assurance Plan for Literature Search, Data Collection and Analyses

The contractor shall use the Programmatic QAPP (PQAPP) used under the previous work assignment, 2-39, for the literature search, data collection, and analyses to be conducted under this work assignment. The following provides the details of quality assurance.

Quality Assurance (QA)

2.1 Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in Table 1-1 below.

Table 1-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data.

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note, this work assignment does not anticipate development of new software or models to estimate the cost to the point and nonpoint sources to comply with the methyl mercury, toxicity and bacteria policy in California. As result, QAPPs does not require development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project.

2.2 QA Project Plan Requirements

The contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). However, EPA has determined that the contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this work assignment. In support of this work assignment, the contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when using existing sources of data to perform economic analyses in support of the policy regarding the methymercury, toxicity and bacteria in California.
- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal and state databases, EPA data bases, letters from industry—as a well as a rationale for when those sources are appropriate and what data available in each will support the project
- The quality objectives needed to ensure the data will support the project objectives, and
- The quality assurance/quality control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Table 1-2 at the end of this WA demonstrates how the PQAPP addresses QA requirements for this work assignment. The contractor shall fill in staff roles to the Table 1-2 under A.4 and make any additional detailed notes in the 'explanatory comments' column as requested by the WACOR. The contractor shall then include the completed Table 1-2 as a separate Appendix A to the work plan upon submittal to EPA. This Appendix A should be a stand-alone document if QA documentation is requested, therefore the Table 1-2 title must include the title of the WA, WA number, contract number, and what projects each covers. The WACOR has provided this information in the title, which the contractor may use to fulfill this requirement.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a technical support document or study report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-39

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Economic Analysis of Methyl Me

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A.2.2

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 10/24/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		350
This Action:		350
Total:		700

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Ghulam Ali	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1004 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

Performance Work Statement
EPA Contract No., EP-C-13-039
Work Assignment # 3-39, Amendment 1

TITLE: Economic Analysis of Methyl Mercury for California

I. Work Assignment Contracting Officer's Representative (WACOR)

Ghulam Ali
Standards and Health Protection Division
Office of Science and Technology
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Email ali.ghulam@epa.gov
Phone: 202-566-1004

II. Alternative Work Assignment Contracting Officer's Representative (ALT WACOR)

Matthew Mitchell
U.S. EPA Region 9
Water Quality Assessment Section (WTR-2-1)
75 Hawthorne Street
San Francisco, CA 94105

Email: Mitchell.Matthew@epa.gov
Phone: 415-972-3508

III. Level of Effort

350 Amended Additional Hours

IV. Duration

Date of Issuance to July 31, 2017

V. DESCRIPTION

The Clean Water Act (CWA) directs States, with oversight by the U.S. Environmental Protection Agency EPA) to adopt water quality standards to protect the public health and welfare, enhance the quality of water, and serve the purposes of the act. State standards must include (1) designated uses for all water bodies within their jurisdictions, (2) water quality criteria (referred to as objectives under California law) sufficient to protect the most sensitive of the uses, and (3) an antidegradation policy. States are also required to review their standards

once every three years and, as appropriate, modify and adopt standards. The results of this triennial review must be submitted to EPA and EPA must approve or disapprove any new or revised standards. Section 303(c) of the CWA directs US EPA to promulgate standards where EPA has determined that a new or revised standard is not consistent with the requirements of the CWA, or where necessary to meet the requirements of the CWA.

Through the triennial review process, in roundtable discussions and in discussions with EPA Region 9 staff, it was determined that several standards need to be modified and/or adopted in California. The State Board of California has adopted the approach that establishing statewide standards is an efficient use of limited resources and is presently in the process of developing water quality standards for several pollutants. As a result, State Board of California has developed its own methyl mercury criteria. The contractor has already prepared an economic analysis of methyl mercury for the state. However, the water quality criteria developed by the state does not seem to match EPA's expectation at this time. Therefore, EPA is in the process of proposing its own criteria. Moreover, EPA needs to fulfil its own deadline (June 30, 2017), established by a consent decree, about proposing the methyl mercury criteria, if the state failed to establish its own criteria. Rather than preparing an economic analysis from scratch, the contractor shall revise the already completed economic analysis created under this work assignment. This amendment pertains to revising the economic analysis (Economic Analysis of Proposed Water Quality Objectives for Mercury in the State of California, December 2016) according to EPA's developed criteria. The contractor shall prepare the draft of the economic analysis by May 2017 in order for EPA to meet its legal deadline of June 30, 2017 for proposing the criteria.

Task 1: Prepare Work Plan and Cost Estimates (Existing Task)

The contactor shall prepare the work plan and cost estimates for the new task below. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate, and a staffing plan. The EPA WACOR, the Contract-Level Contracting Officer Representative (CL-COR), and the Contracting Officer (CO) will review the workplan. However, only the CO can approve/disapprove, suggest revisions, or change the workplan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

New Task
Task 6: Cost Analysis

The contractor has already collected the information about the baseline, analyzed permits and conducted the reasonable potential analysis in view of the state dictated methyl mercury criteria. The contractor shall gather additional information, revise the reasonable potential analysis and estimate the additional cost to point and nonpoint sources for complying with the revised criteria. The EPA WACOR will provide the contractor draft of the revised criteria. The contractor shall not duplicate the efforts already gone into preparing the economic analysis for California (Economic Analysis of Proposed Water Quality Objectives for Mercury in the State of California, December 2016). Instead, the contractor shall revise those parts which needs to be

revised in view of the new criteria. The EPA WACOR does not expect the contractor to gather additional unit costs.

The contractor shall revise the economic analysis in view of EPA's comments and prepare the final draft. The contractor shall prepare the economic analysis for the preamble and provide feedback on matters related to the cost analysis. The contractor shall cost out regulatory options, if requested by the EPA WACOR.

PERFORMANCE STANDARDS AND QUALITY MEASURES:

The following standards will be used to measure performance:

1) **Quality of Outputs -** All tasks to be superior quality. The quality of outputs will be measured against similar analyses and work products already performed by EPA. These include the costs methodology, and supporting documentation and analyses for The California Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, the Great Lakes Water Quality Guidance, the California Toxics Rule, and water quality standards regulations for the States of California, Alabama, Delaware, Idaho, Kansas, and Oregon, and the U.S. Territory of Puerto Rico.

2) **Timeliness -** All tasks are to be completed on or ahead of schedule as measured against the acceptance criteria.

3) **Ingenuity and Resourcefulness -** New issues are addressed using innovative analyses. Ingenuity and resourcefulness will be measured by the ability to use innovative analyses to address new issues not previously identified in the analyses conducted for the California Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, Great Lakes Water Quality Guidance, California Toxics Rule, as well as the Alabama, California, Delaware, Idaho, Kansas, and Oregon, and Puerto Rico water quality standards rulemakings.

4) **Quality Assurance -** All work is to adhere to the Quality Assurance Project Plan for the contract.

Deliverables and Schedule

Deliverables due dates shall be suitable for the timelines noted for each project, i.e., the contractor shall, working with the WACOR, contact the State Board staff on the timelines that each economic analysis is needed to be complete in order to fit within the schedule of each project.

Tasks	Schedule
Task 1: Prepare Work Plan and Cost Estimates	Within Fifteen calendar days after receipt of the work assignment
Task 6: Cost Analysis	As requested, likely May 30, 2017

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-39

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Economic Analysis of Methyl Me

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A.2.2

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 10/24/2016 To 07/31/2017

Comments:
The purpose of this amendment is to issue a stop work order to the Contractor for all activities associated with Amendment 1 of this work assignment until otherwise directed by the Contracting Officer in writing.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		700
This Action:		0
Total:		700

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Ghulam Ali	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1004 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-39

☐ Other ☒ Amendment Number: 000003

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2017

Base — Option Period Number: 3

Title of Work Assignment/SF Site Name: Economic Analyses for Californ

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.2.2

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 10/24/2016 To 07/31/2017

Comments:
Because of unanticipated changes to requirements delivered by the California State Board, the contractor requires 200 additional hours to complete the tasks of this work assignment.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period 09/11/2013 To 07/31/2017		700
This Action		200
Total		900

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated		
Cumulative Approved		

Work Assignment Manager Name: Ghulam Ali	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1004 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Noelle Mills	(Signature)	(Date) 4/4/17	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

Performance Work Statement
EPA Contract No., EP-C-13-039
Work Assignment # 3-39, Amendment 3

TITLE: Economic Analyses for California Statewide Water Quality Plans

I. Work Assignment Contracting Officer's Representative (WACOR)

Ghulam Ali
Standards and Health Protection Division
Office of Science and Technology
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Email ali.ghulam@epa.gov
Phone: 202-566-1004

II. Alternative Work Assignment Contracting Officer's Representative (ALT WACOR)

Matthew Mitchell
U.S. EPA Region 9
Water Quality Assessment Section (WTR-2-1)
75 Hawthorne Street
San Francisco, CA 94105

Email: Mitchell.Matthew@epa.gov
Phone: 415-972-3508

III. Level of Effort

200 Amended Additional Hours

IV. Duration

Date of Issuance to July 31, 2017

V. DESCRIPTION

Additional Level of Effort

EPA estimate that the contractor requires an additional 200 hours of LOE to complete the assigned pathogen (item 3 in description subsection of PWS 3-39) and toxicity analyses (item 4 in description subsection of PWS 3-39) under this amendment. This requirement is due to unforeseen changes necessary due to unexpectedly complicated nature of the State Board's criteria and policy. The contractor shall complete the tasks 3, 4 and 5 included in PWS 3-39 related to the items 3 and 4 in view of these updated requirements. Since the cost analysis of methyl mercury (items 1 and 2 in description subsection of PWS 3-39) has already been

completed, the contractor shall use the additional resources to complete tasks 3, 4, and 5 related to toxicity and pathogens, but not methyl mercury, under this amendment.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-40

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	2016 National TRI Conference

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Task C, Task D, Task E

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/31/2016 To 07/31/2017

Comments:

[ ] Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) [ ]

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		216
Total:		216

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name DNise Kaalund (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-0612 FAX Number:	
Project Officer Name Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:	
Contracting Official Name Tammy Adams TAMMY ADAMS Digitally signed by TAMMY ADAMS DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=TAMMY ADAMS, dnQualifier=0000018417 Date: 2016.08.31 08:50:15 -04'00' (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545	

PERFORMANCE WORK STATEMENT

I. Title: 2016 National Training Conference on TRI and the Environmental Conditions in Communities Support

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-40

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Estimated Level of Effort: 216

V. Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):
Dnise Kaalund
OCSPP/OPPT/TRIPD(2842T)
202/566-0612

Alternate Work Assignment Contracting Officer's Representative:
Margaret Conomos
OCSPP/OPPT/TRIPD (2842T)
202/566-0617

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA or Agency) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to provide conference administrative and management services to include site selection, audio visual needs, pre-conference planning, and onsite meeting support for the Fall 2016 Toxics Release Inventory (TRI) National training conference. Other services may include, but not limited to, providing instructions on non-Federal Government expert travel arrangements/invitational travel (in accordance with Federal Travel Regulations); supporting the preparation and presentation of reports, including duplication and distribution of documents; providing editorial support, audiovisual support, audio taping and transcription of tapes; preparing summary reports; and if needed, providing a meeting facilitator. Additionally, the contractor may be required to ensure

that section 508 compliant materials are provided or if presentations or other video material is placed on a conference/meeting website that the video meets the requirements of section 508.

The work performed by the contractor shall include the above activities necessary to support the conduct of a successful conference. These activities are outlined in the tasks and may be expanded upon in the subsequently issued work plan. The scope of work is divided into four tasks as described in the following text.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract level Contracting Officer's Representative (CL-COR) when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts shall clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement (PWS) the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: EPA anticipates the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of

varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement (Contract PWS Sections Task C, D and E)

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

A weekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables, costs, and other potential issues.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.
1b. Weekly Update Call.

Task 2. Technical Assistance

2.a. Review and Analysis of Public Comments

The contractor shall review public comments on proposals, regulations, Notices of Data Availability (NODAs) and preliminary studies. The contractor shall provide technical support for EPA's activities to classify, analyze, and respond to comments. Based on an analysis of comments, the contractor shall provide information to the EPA to use in responding to comments on economic, financial, cost, benefit or environmental assessment issues. The contractor shall establish and maintain database systems in support of the public comment process in support of the TRI National Training Conference and its planning process.

2.b. Post Conference Public Comments

The contractor shall make record of metrics as necessary information for EPA to use in creating statistics, qualitative and quantitative measures and evaluations that are for learning outcomes, post-conference deliveries and future planning.

Such activities to observe include but are not limited to post-conference reports, training effectiveness, attendees, quantities, and their representing agencies; session and workshop evaluations; 508 compliant accommodations; recordings and their transcriptions, lessons learned and other related activities and follow up meetings that may be identified during the training conference. Such post-training conference reports and related materials provided to EPA are also used for programmatic consideration and outreach improvement for the TRI Program.

The EPA WACOR and the CL-COR will review the post-conference plan. However, only the EPA WACOR and the CL-COR can approve/disapprove, suggest revisions, or change the post-conference plan. The contractor shall prepare a revised post-conference plan incorporating the EPA WACOR or the CL-COR's comments, if required.

2.c. Outreach and Communications Plan

The contractor shall assist the conference planning leads with preparatory tasks for the 2016 training conference community outreach, marketing and communication. The conference planning team is normally comprised of EPA headquarters and regional staff, environmental justice staff, staff of other co-sponsors, and state TRI coordinators whom provide valuable input during the outreach and communication planning stages of the conference. However, the contractor shall only act on Technical Direction from the EPA WACOR. The team normally considers its audience with respect to the interest groups brought to them through the conference planning team and its stakeholders.

The contractor shall assist the conference planning leads with identifying potential communities and targeted audience; creating a timeline of milestones with target deadlines; compiling, organizing, and reviewing the submitted interest groups. The contractor shall assist the conference planning leads to meet the conference objectives and collaborate with the targeted audience through constructing a marketing and communications plan. Additionally, the contractor shall take notes during the conference planning team meetings and provide those notes via email to the conference planning team leads within three business days of the meeting. The contractor shall maintain a master file of all materials produced and provide those documents in addition to the original, editable files to the EPA WACOR.

2.d. Quick Turnaround

The contractor shall provide a post-conference plan that outlines, describes and includes the technical approach to improving the TRI Program including but not limited to relative resources, timeline and due dates for deliverables. The contractor shall provide the EPA WACOR with support and implementation for the elements and details of the post-training conference plan and its objectives. The contractor shall provide post-conference services and residuals including but not limited to recordings and their transcripts, evaluations, statistics in the form of metrics,

qualitative and quantitative results. In addition, the contractor shall provide conference reports, lessons learned modules and next steps from the training conference.

3. Outreach and Training Support

3.a. Public and Industry Outreach Activities

The contractor shall prepare materials to support the EPA's outreach and training activities to the public and industry. These materials may include reports, brochures, PowerPoint presentations, leaflets or posters and other media. All materials shall be submitted in draft form for EPA review and approval. In some cases, the contractor shall present standard lectures, workshops, and/or discuss case studies developed by the Agency. The contractor shall develop training courses to provide technical support for the Office of Environmental Information (OEI) in its work with EPA Regional Offices and States. The contractor shall also support the preparation for, and conduct of, public meetings and workshops. The contractor shall also provide expert speakers for conferences and symposia as identified in the work assignment.

3.b. Logistics Support

The contractor shall support conference planning and implementation activities as described in the following subtasks.

The contractor shall research possible themes, speakers, and other related topics identified during the planning process for the 2016 training conference. The contractor shall research themes for EPA and the conference co-sponsor the Dillard University Deep South Center for Environmental Justice (DSCEJ) to consider if they would like to focus the training and conference in a certain direction. However, DSCEJ has no authority to change or add anything this is already or not included in this performance work statement (PWS) or the approved work plan. The contractor shall only act on Technical Direction from the EPA WACOR.

Additionally, October 2016 will be the 30th Anniversary of the Emergency Planning and Community Right to Know Act (EPRA). The contractor shall consider this pending anniversary and collaborating to reduce toxic releases in proposing at least three options for themes that the contractor believes would help attract conference and training interest in speakers, poster/exhibit presenters and conference participants. The contractor shall work with the EPA WACOR in identifying individuals representing key target audience stakeholder groups to encourage participation from their respective constituencies representing industry, states, Tribes, non-Governmental Organizations and academics.

The contractor shall provide at least five recommendations for focuses or topics (such as "pollution prevention") and then at least three captivating themes to accompany each of those recommended topics (such as the ones used in 2010 and 2012). Additionally, the contractor shall consider a theme that embraces the concept of "Collaborating to Reduce Toxic Releases."

Additionally, the contractor shall research speakers and attendees to market the training and conference including the call for abstracts to. Google alerts for "Toxics Release Inventory" and "Toxic Release Inventory" are sources of information to easily find out who is using TRI data in studies, what media outlets are using TRI in their stories and how, and finding other possible speakers or attendees. The contractor shall utilize this method throughout the option period along with other creative and traditional ways of researching and reaching possible trainers, conference speakers and attendees.

The contractor shall keep track of all names (including leaders and others involved in environmental hot topics identified during their theme research) and email addresses, web form links, social media identities, and other means of contacting people to market the training and conference to, update that list periodically, and send over to the EPA WACOR an updated list biweekly. The contractor shall perform other related research as identified by the EPA WACOR. The contractor shall maintain a master file of all materials produced and provide those documents in addition to the original, editable files to the EPA WACOR.

3.c. Training Support

The contractor shall coordinate notification and management of speakers, trainers, exhibits, posters, and moderators and other training conference management tasks identified during the planning process. The contractor shall develop and transmit guidelines, deadlines and other related communications for speakers, exhibits, posters and moderators whose requirements will be slightly different. The contractor shall confirm audio visual and other equipment needs from speakers, exhibits and posters, schedule needed conference calls or make calls necessary to obtain this information and coordinate everyone, and collect bios, presentations and abstracts. The contractor shall track this information and provide the conference lead with an update on a weekly and as needed basis. The contractor shall update the compilation of accepted abstracts book with any changes speakers' request. The contractor shall maintain a master file of all materials produced and provide those documents in addition to the original, editable files to the EPA WACOR. The contractor shall ensure that all materials are Section 508 compliant, if appropriate.

3.d. Outreach Support

The contractor shall support the EPA WACOR in developing and planning two training webinars that will be offered to conference registrants in advance of the conference to provide new registrants an enhanced understanding of the TRI program that is valuable for the rest of the conference. The contractor shall scope out proposal for these pre-conference training webinars and develop them based on input from the EPA WACOR. The contractor shall utilize training materials already developed by EPA where possible (e.g., Toxics Release Inventory Teach-in Trainers Guide, Introduction to the Toxics Release Inventory slides, Training on Basic TRI Reporting Concepts, Training on Advanced TRI Reporting Concepts, etc.) and identify a moderator or facilitator and individuals to present the trainings from in-house, EPA, DSCEJ, academia, or other organizations as appropriate. The contractor shall maintain a master file of all

materials produced and provide those documents in addition to the original, editable files to the EPA WACOR.

3.e. Additional Respective Support

The contractor shall provide technical and logistical support in the planning and execution of workshops, conferences, training sessions, symposia, and public meetings and to address various rulemaking issues and practical implementation concerns on related subjects. Activities shall include preparing course materials, coordinating facilities for training, and providing course instructors. Meetings shall vary in size, location, topics, and level of documentation. Materials prepared under this paragraph shall be submitted in draft for review and approval to the EPA CL-COR and/or the WACOR.

The contractor shall assist the conference planning leads with preparatory tasks for the 2016 training conference planning team meetings, communications plans, note taking during the team meetings, and with support for other tasks identified during the planning process. The conference planning team is normally comprised of EPA headquarters and regional staff, DSCEJ staff, staff of other co-sponsors, and state TRI coordinators whom provide valuable input during the planning stages of the conference. However, DSCEJ or other sponsors has no authority to change or add anything that is already or not included in the PWS or the approved work plan. The contractor shall only act on Technical Direction from the EPA WACOR. The team normally meets once a month starting approximately nine to 10 months before the conference. The planning team assists with a variety of conference related items such as providing opinions on the training conference theme, assisting with marketing the conference and call for abstracts, providing suggestions for topics on the call for abstracts, reviewing abstracts, commenting on the draft agenda, providing suggestions for exhibits, posters, sessions, and activities at the conference, and serving as moderators during the conference among others.

Additionally, the contractor shall provide on-site logistical support for the Conference including but not limited to workshop delivery and monitoring, and providing support of speaker, exhibit, presentations, poster, moderator, and master of ceremonies management. Also, coordinating the daily set up of and take down of equipment, tables and chairs, attendee materials, and signs; coordinating exhibits, orchestrating the equipment, technical support and execution of electronically sharing and/or recording conference proceedings; coordinating with on-site audio-visual staff to ensure that all equipment (e.g., screens, projectors, laptop computers, microphones, recordings, phones, sound board, etc.) functions properly; and other tasks that may be identified during the planning process.

The contractor shall assist the conference planning lead with identifying potential members; drafting conference planning team meeting agendas; creating a timeline of milestones with target deadlines; compiling, organizing, and reviewing the submitted abstracts; creating an abstract book of accepted abstracts for presentations and lists of exhibits and posters accepted; framing out possible agenda designs; and other related tasks identified during the planning process or stemming from the planning team meetings. Additionally, the contractor shall take notes during the conference planning team meetings and provide those notes via email to the conference

planning team lead within three business days of the meeting. The contractor shall maintain a master file of all materials produced and provide those documents in addition to the original, editable files to the EPA WACOR.

3.f. Public Conference Space Search

The contractor shall search for and acquire logistics space for the 2016 TRI National Training Conference in the Washington, DC area. The Request for Proposals shall meet the accommodations and logistics of the conference requirements from the WACOR. The contractor shall update the WACOR weekly.

Once the WACOR selects training conference space based on accommodations and logistics provided by the contractor, the contractor shall negotiate and secure the conference space on behalf of EPA. The contractor shall provide liaison support between the selected hotel and EPA prior to the conference.

3.g. US EPA Green Meeting Requirements

When soliciting quotes or offers for meeting and conference services on behalf of the EPA, the Contractor shall follow the contract EPA-H-31-106 (Which can be obtained from the WACOR), EPA-Sponsored Meetings, Workshops and/or Conferences.

4. Deliverables

All deliverables developed under this work assignment must be provided to the WACOR in electronic formats that are supported (i.e., PDF) and can be edited (i.e., Word, Excel) by the EPA. GIS data must be in ArcGIS format. The Contractor shall support the WACOR/CL-COR in conducting a "Final Deliverable Validation" to ensure compliance with Section 508 and the Federal Acquisition Regulations (FAR) related to " electronic and information technology (EIT) deliverables". The Contractor shall furnish certification, in writing, to the WA-COR/CL-COR that the Contractor has complied with EPAAR Clause 1552.211-79 "Compliance with EPA Policies for Information Resources Management" (Reference Contract Clause C-1), including the requirement that all electronic and information technology (EIT) deliverables be Section 508 compliant in accordance with the policies referenced at http://www.epa.gov/accessibility/ .

The contractor shall provide an environment conducive to fulfilling the goals and objectives of the TRI National Training conference including but not limited to:

- Giving attendees valuable informational leads, cross-governmental and cross-organizational connections regarding the TRI Program;
- Providing sessions enhanced awareness, understanding, and use of TRI data among many stakeholder groups;
- Fostering ideas for collaborations that they may not have otherwise considered;

- Offering opportunities for external parties to highlight the work they have done through partnerships with EPA, including powerful presentations by community organizations and innovative work from student groups;
- Arranging a forum for coordinated progress on a wide range of issues among the States, Tribes and EPA that includes TRI regulatory updates, the TRI National Analysis, the TRI interpretive guidance workgroup, data quality, and enforcement; and
- Presenting an exhibition that provides hands-on personalized training about many data access and analytical tools.

DELIVERABLE SCHEDULE

TASKS	ASSIGNMENTS	DUE DATE
1	Prepare work plan	within 15 calendar days of receipt of WA
2	Outreach and communications plans	To Be Determined (TBD)
	Recordings and transcripts	15 calendar days post conference
	Evaluations	15 calendar days post conference
	Statistics, quantitative and qualitative measures	30 calendar days post conference
	Conference report	30 calendar days post conference
	Lessons learned and next steps	30 calendar days post conference
3	Conference and training space	seven calendar days of approved work plan
	Preparation, planning and timeline	TBD
	Research	TBD
	Agenda, Marketing and Materials	TBD
	Speaker, Exhibits, Poster, Moderators	TBD
	Workshop development	TBD
	eConference sharing	TBD
	Conference support	TBD
	Abstract management	TBD
	Registration flyer	TBD
	Post-conference evaluation, Abstracts	TBD
	Welcome letter, speaker, exhibit, poster and moderator notification	TBD
	Master of ceremonies and break slides	TBD
	Signs, Exhibit list, name tags	TBD
	Social media messages for conference	TBD
	Bio, presentation, audio visual needs, and submitted abstract analyses	TBD

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-43

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	NE Recreational Surveys

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.2.2, paragraph 2; A.6; C.2

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		728
Total:		728

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Marty Chintala	(Signature)	(Date)	Branch/Mail Code: Phone Number: 401-782-3155 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

Title: Instrument Development for Coastal Recreation Revealed Preference Surveys

Contractor: Abt Associates **Contract No.: EP-C-13-039**

Work Assignment Number: 3-43

Estimated Period of Performance: August 1, 2016 through July 31, 2017

Estimated Level of Effort: 728

Key EPA Personnel:

Work Assignment COR (WACOR):

Marty Chintala
NHEERL/ORD/AED/WEB
401-782-3155
401-782-3030 (fax)

Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to support EPA's efforts to improve its ability to monetize the benefits associated with these regulatory actions. The WA will include support for developing and implementing two related revealed preference surveys to estimate participation in and values for water recreation as those values relate to water quality. This will include arranging and facilitating focus groups, assistance with survey design and statistical sampling design, survey pre-testing, and survey implementation. The contractor shall assist staff in EPA's Office of Research and Development (ORD) in the development and implementation of the revealed preference survey instruments.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan that will be based on Task 2 QAPP language. The QA project plan shall describe the procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment.

The focus of this work is on coastal recreation participation and site choice, and effects of water quality on participation in and values for water recreation, using revealed preference approaches. This will include defining the market extent, or the affected people and activities. While stated preference methods can capture a larger set of values, including both use and non-use values, they may suffer from various types of bias, and often respondents lack context and experience with the good or ecosystem service they are expected to value. Revealed preference methods, on the other hand, require data on choices and choice sets and assumptions of a choice framework, often based on random utility models (RUM) of discrete choices.

Developing a sound revealed preference survey instrument requires at least two phases: focus groups and survey pre-testing. EPA requires assistance to set up a series of focus groups that EPA researchers will participate in and use to develop, evaluate, and refine two revealed preference surveys. One of these instruments will focus on regional (New England) water-based recreation participation and site choices including water quality in the factors affecting Willingness to Pay (WTP) as well as site choice (referred to below as the mail or internet survey). The data collected will inform a regional demand model for water-based recreation, including marginal value (WTP estimates) as well as aggregate participation modeling for site alternatives. The other survey will be a Barnstable County, MA (Cape Cod) specific intercept survey (referred to below as the intercept survey). The results of the intercept survey will be used to test the viability of the regional demand model in addressing site-specific total maximum daily loads (TMDL) benefits/costs, such as those written for Cape Cod coastal estuaries.

The focus of this work will be values for and participation in water-contact recreation. It will include estimates of site choice, total participation, and values per trip; and how these change with changes in water quality. It may include various types of coastal recreation, including beach use, swimming, shellfishing, small boating, and other activities. As part of the initial scoping and survey development (Tasks 4 and 5), EPA will work with the contractor to determine which activities to include in the survey. The geographic focus of the study is New England, with an added emphasis on Barnstable, County, MA (Cape Cod). As part of the initial scoping and survey development (Tasks 4 and 5), EPA will work with the contractor to determine the specific range of geographic locations to include.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract-Level Contracting Officer Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor shall not be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel:
The contractor may be required to travel under this work assignment. Travel may be to participate with EPA in focus groups or other on-site data collection, and to meet with EPA to discuss methodology and other important issues associated with the project. A request for approval for any travel directly chargeable to this work assignment must be submitted and approved by the CL-COR before travel begins.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, GIS shapefiles, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of a work assignment signed by the Contracting Officer. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, and include a detailed cost estimate by task and a staffing plan. The WACOR, CL-COR, and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the Contracting Officer's comments, if required.

Deliverables and schedule under Task 1

1. Work plan within 15 calendar days of receipt of work assignment.

Task 2 - Quality Assurance

2.1 *Background*

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work.

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing economic data (also known as "secondary" use of data) and collecting primary data using revealed preference surveys and focus groups. For any activities not covered under the existing PQAPP, the Contractor shall prepare a supplemental QAPP (SQAPP).

In support of this work assignment, the Contractor shall ensure that the work plan provides enough detail to clearly describe:

- The type of data to be gathered or used under this work assignment to support the project objectives as well as a rationale for when those sources are appropriate and what data available in each will support the project
- The quality objectives needed to ensure the data will support the project objectives, and
- The Quality Assurance/Quality Control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable, and this discussion must provide a sufficient level of detail to allow the QA Coordinator (or designee) to determine if the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WACOR will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's PQAPP and SQAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and

methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/ data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and SQAPPs.) The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractor should indicate which results were obtained using the tools (Standard Operating Procedures (SOPs), checklists, and guidelines) that the Contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractors may be requested to prepare pre-dissemination review checklist as described in Appendix B of the Office of Water Quality Management Plan, April, 2015. If this is required, the EPA WACOR shall notify the Contractor through written technical direction.

Acceptable Quality Assurance Documentation must be submitted to the EPA CL-COR within 60 days of the acceptance of this agreement. No work involving direct measurements or data generation, environmental modeling, compilation of data from literature or electronic media, and data supporting the design, construction, and operation of environmental technology shall be initiated under this project until the EPA CL-COR, in concert with the EPA Quality Assurance Manager, has approved the quality assurance documentation (see CFR 30.54 or 31.45 as appropriate).

Deliverables and schedule under Task 2

2a. SQAPP, *if necessary*, within 60 calendar days of receipt of work assignment.

2b. Monthly reports of QA work performed (may be included in Contractor's monthly progress report), monthly throughout the WA period of performance.

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum
The contractor shall prepare and submit a memorandum that proposes a standardized naming convention and version control (SNCVC) for all deliverables associated with the WA. This

system will ensure that deliverables are clearly named and dated and that the sequence of versions of a document is clear. The EPA WACOR will review the memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare a revised SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor will use this standardized convention for all deliverables associated with the work assignment(s). The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point during the WA.

Deliverables and schedule under Task 3
3a. SNCVC memorandum within 7 calendar days if required.
3b. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 – Arrange for Focus Groups for Survey Development and Qualitative Data Collection (A.2.2 Benefit Analysis; A.6 Methodology Development and Technical Review)

The contractor shall arrange for the conduct of up to 8 focus groups to develop revealed preference valuation approaches for estimating the benefits and costs of changes in water quality on water-based recreation; to develop survey questions related to sense of place; and to collect qualitative social science data. The focus groups will be conducted in and near Barnstable County, MA. The WACOR will provide technical direction as to the expected schedule and locations, and for final locations.

The contractor shall recruit focus group participants based on criteria developed by EPA and provided by the WACOR. The contractor shall arrange for each focus group to be conducted in an appropriate facility, such as a hotel conference room or other public space. Each focus group shall be audio-recorded in digital format and delivered to EPA on digital video disk (DVD) or as a digital download. The contractor shall provide transcriptions for the focus groups.

The contractor shall recruit 10-12 individuals for each focus group, with the goal of 6-10 participants in each group. The contractor shall arrange for and distribute appropriate incentive payments for attendees. Each focus group shall last approximately 2 hours and be conducted at a convenient time and in a convenient location. The EPA will provide the moderator services for the focus groups.

The WACOR in conjunction with the appropriate personnel in ORD will secure the Information Collection Request (ICR) approval for the focus groups under an existing agreement with the Office of Management and Budget (OMB) for expedited review.

Deliverables and schedule under Task 4

4a. Establish locations and initial dates for focus groups within 1 week of receiving technical direction from WACOR.

4b. Recruit participants for first focus group within 1 week of receiving final location information and criteria from EPA and for subsequent focus groups within 1 week of receiving criteria for those groups.

4c. Arrange audio-recordings of each group within 1 week of receiving final location information from EPA and for subsequent focus groups within 1 week of receiving criteria for those groups.

4d. Submit audio-recordings and transcripts to WACOR within 1 week of completing each set of focus groups.

Task 5 – Identify and Contract with an Expert to Assist with Survey Development (A.6 Methodology Development and Technical Review)

The contractor will identify and contract with a recognized expert in revealed preference surveys to support study development.

Deliverables and schedule under Task 5

5a. Identify and contract with a recognized revealed preference survey expert, within 2 weeks of receiving technical direction from WACOR.

5b. Arrange for consultations with expert, and deliver a memo by the expert regarding survey design, within 6 weeks of receiving technical direction from WACOR.

Task 6 – Assistance With Survey Design and Layout, and Programming of Internet Survey(s) (A.2.2 Benefit Analysis; A.6 Methodology Development and Technical Review)

ORD plans to conduct a mail or internet survey (or mixed-method approach using mail recruitment for an internet survey) of people who participate in coastal recreation within 100 miles of the coast in New Hampshire (NH), Massachusetts (MA), and Rhode Island (RI), and an intercept survey of people at recreational sites for one or two watersheds in Barnstable County, MA. The contractor shall assist with survey design and operationalizing the survey. Specific tasks required to complete this task will depend on the final choice for the format of the survey.

If a mail survey is selected, the contractor shall assist with formatting and producing the files needed to print survey booklets. ORD will have the booklets printed using U.S. Government printing services. If an internet survey is selected, the contractor shall either assist with contracting with an online survey company for necessary programming, or program the needed online functionality for data collection. This functionality should be created so that it can be

reused, with modifications, in future applications in other regions.

For the intercept survey, the contractor shall assist with formatting and producing files needed to implement the survey – either using paper surveys or data entry on tablet computers; or using an on-site recruitment to an internet survey. If online recruitment to an internet survey is used, the contractor shall either assist with contracting with an online survey company for necessary programming, or program the needed online functionality for data collection.

Deliverables and schedule under Task 6

6a. Assist with developing and designing survey instruments and formatting of paper surveys within 4 weeks of receiving technical direction from WACOR.

6b. Create or assist with contracting for online survey functionality, if an internet survey is selected. Provide tool for future applications within 8 weeks of receiving technical direction from WACOR.

Task 7 – Statistical Design and Assistance Preparing ICR for OMB Approval for Mail or Internet Survey and Intercept Survey (A.2.2 Benefit Analysis; A.6 Methodology Development and Technical Review; C.2 Review and Analysis of Public Comments)

The contractor shall prepare the necessary documents and package to obtain OMB approval to conduct the surveys. Any questions, changes and clarifications from OMB will be addressed and the packet re-filed in consultation with ORD staff. As part of the process, the contractor shall assist in conducting a pre-test survey, if needed for approval.

Deliverables and schedule under Task 7

7a. Prepare OMB package for survey approval, and address needed follow-up questions from OMB in consultation with ORD within 8 weeks of receiving technical direction from WACOR.

Task 8 – Conduct Mail/Internet or Mixed-Method Survey (A.2.2 Benefit Analysis; A.6 Methodology Development and Technical Review; C.2 Review and Analysis of Public Comments)

Once approval for survey(s) is obtained from OMB, the contractor shall implement the pretest and survey for the mail, internet, or mixed-method survey as designed. This entails mailings/emailings, follow-up mailings/emailings, providing token cash incentives to respondents, and other steps needed to follow the Dillman survey implementation recommendations.

Deliverables and schedule under Task 8

8a. Implement pre-test survey instrument per OMB process, within 2 weeks of OMB approval.

8b. Implement mail/internet (or mixed-method) survey, beginning within 2 weeks of OMB approval of final survey instrument, to be completed within the timing specified by the final sampling strategy, depending on whether a one-time collection or survey waves is selected.

Task 9 – Support for compiling water quality metrics and site attributes and linking them to survey results (A.2.2 Benefit Analysis; A.6 Methodology Development and Technical Review)

The contractor shall provide assistance in compiling water quality metrics and other site attributes, and linking these metrics to survey data. This may include compilation of appropriate water quality measures and other attribute measures, in coordination with ORD and other EPA staff; and Geographic Information System (GIS) support for linking these measures to appropriate geographic locations where survey respondents participate in water recreation.

Deliverables and schedule under Task 9

9a. Compilation of appropriate water quality and other measures within 4 weeks of receiving technical direction from WACOR.

9b. GIS support to link water quality and other measures to recreational locations specified by survey respondents within 4 weeks of receiving technical direction from WACOR.

Schedule for Deliverables:

Task	Deliverable	Form and Quantity	Schedule
Task 1	1a) Work plan	Electronic Document	Within 15 calendar days of work assignment receipt
Task 2	2a) Supplementary Quality Assurance Project Plan (if necessary)	Electronic document	Within 60 calendar days of receipt of work assignment.

	2b) Monthly progress reports	Electronic document	Monthly
Task 3	3a) SNCVC memorandum	Electronic document	Within 7 calendar days if required.
Task 4	4a) Establish location and dates for up to 8 focus groups	Email	Within 1 week of receiving technical direction from WACOR
	4b) Recruit focus group participants	N/A	First focus group: within 1 week of final location and receiving selection criteria. Remaining focus groups: Within 1 week of receiving additional selection criteria.
	4c) Arrange audio recordings of focus groups	NA	First focus group: within 1 week of final location and receiving selection criteria. Remaining focus groups: Within 1 week of receiving additional selection criteria.
	4d) Submit audio recordings and transcripts of focus groups	DVD or digital download	Within 1 week of completing each set of focus groups
Task 5	5a) Identify and contract with a recognized revealed preference survey expert.	NA	Within 2 weeks of receiving technical direction from WACOR.

	5b. Arrange for consultations with expert, and deliver a memo by the expert regarding survey design.	Electronic document	Within 6 weeks of receiving technical direction from WACOR.
Task 6	5a) Assist with developing and designing survey instruments and formatting of paper surveys	Meetings, emails, electronic documents	Within 4 weeks of receiving technical direction from WACOR
	5b) Create or assist with contracting for online survey functionality. Provide tool for future applications.	Website and code	Within 8 weeks of receiving technical direction from WACOR
Task 7	7a) Prepare OMB package for survey approval, and address any OMB follow-up questions.	Electronic Documents	Within 8 weeks of receiving technical direction from WACOR
Task 8	8a) Implement pre-test survey instrument per OMB process if needed.	NA	Within 2 weeks of OMB approval
	8b) I mail/internet (or mixed-method) survey	NA	Within 2 weeks of OMB approval of final survey instrument
Task 9	9a) Compilation of appropriate water quality and other measures.	Electronic documents and files	Within 4 weeks of receiving technical direction from WACOR.
	9b) GIS support to link water quality and other measures to recreational locations specified by survey respondents.	Electronic files	Within 4 weeks of receiving technical direction from WACOR.

Task 7	7a) Assist with intercept survey logistics	NA	Within 2 weeks of receiving technical direction from WACOR
	5b) Data entry and cleaning for intercept survey	Electronic Database	Within 4 weeks of survey completion
Task 8	8a) Compile appropriate water quality measures	Electronic database or Excel file	Within 4 weeks of receiving technical direction from WACOR
	8b) GIS support to link water quality measures to recreational locations	GIS files	Within 4 weeks of receiving technical direction from WACOR

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-43

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Instrument Development for Coa

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A.2.2, paragraph 2; A.6; C.2

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 09/20/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		728
This Action:		116
Total:		844

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Marty Chintala	(Signature)	(Date)	Branch/Mail Code: Phone Number: 401-782-3155 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

AMENDED WORK ASSIGNMENT

Title: Instrument Development for Coastal Recreation Revealed Preference Surveys

Contractor: Abt Associates **Contract No.: EP-C-13-039**

Work Assignment Number: 3-43, Amendment 1

Estimated Period of Performance: Date of Issuance through July 31, 2017

Estimated Level of Effort: 1185 (initial work plan estimate of 1069 + 116 estimate for added surveys in amendment)

Key EPA Personnel:

Work Assignment COR (WACOR): Marty Chintala

NHEERL/ORD/AED/WEB

401-782-3155

401-782-3030 (fax)

Task 4 REPLACE TEXT IN FIRST PARAGRAPH OF CURRENT VERSION WITH THE FOLLOWING

The contractor shall arrange for the conduct of 8 to 10 focus groups to complete survey development and to collect qualitative social science data regarding sense of place and barriers and opportunities for adoption of innovative technology solutions, with an emphasis on Green Infrastructure. The focus groups will be conducted in and near Barnstable County, Massachusetts (MA). The WACOR will provide technical direction as to the expected schedule and locations, and for final locations.

Task 6 REPLACE TEXT IN CURRENT VERSION WITH THE FOLLOWING

Subject to Office of Management and Budget (OMB) approval, Office of Research and Development (ORD) plans to conduct a mixed-mode survey (using mail recruitment for an internet survey) of people who participate in coastal recreation within 100 miles of Cape Cod. ORD will provide printing of any survey booklets needed, using U.S. Government printing services. The contractor shall assist with operationalizing the online survey. For a mixed-mode survey, the contractor shall program the needed online functionality for data collection, including interactive mapping functionality. This programming and mapping functionality should be created so that it can be reused, with modifications, in future applications in other regions.

Task 8, Survey Implementation REPLACE TEXT IN CURRENT VERSION WITH THE FOLLOWING

Once approval for survey(s) is obtained from OMB, the contractor shall implement the pretest and survey for the mail, or mixed-method survey as designed. This entails mailings/e-mailings, follow-up mailings/e-mailings, providing token cash incentives to respondents, and other steps needed to follow the Dillman survey implementation recommendations.

Contingent upon OMB approval, EPA will select a mixed-method approach using mail recruitment for an internet survey. If OMB does not approve the mixed-method approach, EPA will select a mail only approach. The survey sample will be drawn based on three sub-samples of the study area: (1) General population within 100 miles of Cape Cod, (2) Recreational shellfishers in the study area, (3) Cape Cod residents.

For the survey pretest, 370 letters/surveys will be mailed. For the main survey, 4,500 total letters/surveys will be mailed, tentatively broken down into 3,000 for group 1, 750 for group 2, and 750 for group 3. This breakdown may change based on analysis and recommendations by the contractor's statistician under Task 7 of the original PWS. The contractor shall include a $2 pre-incentive in the first mailing. EPA will provide the necessary printed hardcopy surveys. The mailing protocol will be:

- Mail Only:
  - First Packet Mailing (with pre-incentive)
  - Reminder Postcard
  - Second Packet Mailing
- Mail & Web:
  - Invitation Letter 1 (with pre-incentive)
  - Invitation Letter 2
  - Survey Packet Mailing

The contractor shall print the cover letters, postcards, and provide Business Reply Envelopes; will handle postage costs; and will receive and log the surveys in a tracking database as they are returned.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-43

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2018 Base Option Period Number 3	Instrument Development for Coa

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A.2.2, paragraph 2; A.6; C.2

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 09/20/2016 To 07/31/2017

Comments:
This amendment stops work on Tasks 5, 6, 7, and 8.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2018 Cost/Fee: LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: Cost/Fee LOE:

Cumulative Approved: Cost/Fee LOE:

Work Assignment Manager Name Marty Chintala	(Signature) (Date)	Branch/Mail Code: Phone Number: 401-782-3155 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Noelle Mills	(Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-45

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Petroleum Refining Study

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.1 and A.2

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Performance on this Work Assignment shall not begin until August 1, 2016.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		900
Total:		900

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name James Covington	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1034 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: Economic Analysis for Petroleum Refining Study

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-45

III. Estimated Period of Performance: August 1, 2016 through July 31, 2017

IV. Estimated Level of Effort: 900

V. Key EPA Personnel:

Work Assignment Contracting Officers Representative (WACOR):
James C. Covington, III
OST/EAD (4303T)
202/566-1034
202/566-1053 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to review discharge information from petroleum refineries to determine whether the current effluent limitations guidelines and standards (ELGs) for these operations should be revised, examine the economic health and any community impacts.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan was developed for this work. The QA project plan shall describe the procedures for assuring the quality of the primary and secondary economic data used for this work assignment.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will be accessing and evaluating CBI. As such, the contractor shall adhere to EPA's CBI policy and other procedures as described in the contract clauses (Clauses H.15-H19 and H.21). The

contractor must maintain CBI security clearance to use CBI information. The contractor will not disclose any CBI to anyone other than EPA without prior written approval from the EPA WACOR. The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor will manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in our "Office of Science and Technology Confidential Business Information Application Security Plan" (August 2011) or its successor approved plans.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract Level Contracting Officer Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved Workplan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor will submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor will incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor will adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel:
The contractor shall be required to travel under this work assignment. Travel may be to participate with EPA in on site data collection, in meetings with trade associations, and to meet with EPA to discuss methodology and other important issues associated with the project. A request for approval for any travel directly chargeable to this work assignment must be submitted and approved by the CL-COR before travel begins.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of

varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a workplan within 15 calendar days after receipt of work assignment signed by the CO. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Deliverables and schedule under Task 1

1a. Work Plan within 15 calendar days of receipt of work assignment.

Task 2 - Quality Assurance

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis, and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in **Table 2-1** below.

Table 2-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039 This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment may involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). However, EPA has determined that the Contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this work assignment. In support of this work assignment, the Contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when using existing sources of data to perform economic analyses in support of the study of the petroleum refining industry.

- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases—as a well as a rationale for when those databases are appropriate and what data available in each will support the project

- The quality objectives needed to ensure the data will support the project objectives, and

- The Quality Assurance/Quality Control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were

met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable, and this discussion must provide a sufficient level of detail to allow the EAD QA Coordinator (or designee) to determine if the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the WACOR will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's PQAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/ data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. (This includes PQAPPs and Supplemental (SQAPPs.)) The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the Contractors should indicate which results were obtained using the tools (Standard Operating Procedures (SOPs), checklists, and guidelines) that the Contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the Contractors may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of

the Office of Water Quality Management Plan, February 2009. If this is required, the EPA WACOR shall notify the Contractor through written technical direction.

2.5 Task 2 QA Deliverables

Deliverable	Projected Schedule Date
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly throughout the WA period of performance

Table 2-2. Justification for Use of Existing PQAPP as the Sole Quality Documentation for Projects that Rely on Existing Data

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
A1. Title & Approval Sheet			
Project title	X		WA X-XX Economic Support for Petroleum Refining Study.
Organization's name	X		Abt Associates
Effective date and/or version identifier	X		Page ii of PQAPP
Dated signature of Organization's project manager	X		Page ii of PQAPP
Dated signature of Organization's QA manager	X		Page ii of PQAPP
Other signatures, as needed (e.g., EAD Project Officer, EAD QA Coordinator)	X		Page ii of PQAPP
Revision History	X		Page ii of PQAPP
A2. Table of Contents			
Includes sections, figures, tables, references, and appendices	X		Page v of PQAPP
Document control information indicated (when required by the EPA Project Manager and QA Manager)	X		Page v of PQAPP
A3. Distribution List			
Includes all individuals who are to implement or otherwise receive the QAPP and identifies their organization	X		2.1 pages 5-7 of PQAPP
A4. Project/Task Organization			
Identifies key individuals with their responsibilities (e.g., data users, decision makers, project QA manager, Subcontractors, etc.) and contact info.	X		Reference PQAPP section 2.1 on page 5. Referencing table 2.1 and descriptions on page 7 of PQAPPOST WACOR: James C. Covington, III
Organization chart shows lines of authority & reporting responsibilities	X		Reference PQAPP section 2.1 for overall picture
Project QA manager position indicates independence from unit collecting/using data	X		Reference PQAPP section 2.1 for overall picture
A5. Problem Definition/Background			
Clearly states problem to be resolved, decision to be made, or hypothesis to be tested	X		PQAPP Section 2.2 – goal of program is to conduct economic analyses for ELGs See PQAPP table 2-2: cost-benefit and economic impact analysis, industry profiles, collection /preparation of reports, review and analysis of public comments, legislative and litigation support, database development and management,. Also see WA
Identifies project objectives or goals	X		See WA
Historical & background information			
Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives	X		Section 2.2 – goal of program is to conduct economic analyses for ELGs and studies. See table 2-2 for specific analyses
A6. Project/Task Description			
List measurements to be made/data to obtain	X		Section 2.3 PQAPP
Notes special personnel or equipment requirements		x	
Provides work schedule		x	

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
A7. Overall Quality Objectives & Criteria			
States overall quality objectives and limits needed to support the project goals and objectives cited in A5	X		See 2.3 of PQAPP
A8. Special Training Requirements/ Certifications			
Identifies specialized skills, training or certification requirements	X		See 2.5 of PQAPP
Discusses how this training will be provided/the necessary skills will be assured and documented	X		See 2.5 of PQAPP
A9. Project-level Documents & Records			
Describes process for distributing the approved QAPP and other planning documents (and updates) to staff	X		See section 2 of PQAPP
Identifies final work products that will result from the project	X		Section 2.6 of PQAPP
Describes the process for developing, reviewing, approving, and disseminating the final work products and individuals responsible for these processes	X		Appendix A of PQAPP
B1. Data Needs			
Detailed list/description of the specific data elements needed to support project goals	X		See Table 3-1 of PQAPP headings: Company Financial Data,, & Other Industry Data, & valuation and Economic Impact: including specifically:, US Census Bureau, EIA, RMS
Description of the scope of the data elements that you need (e.g., data supporting specific treatment options vs. the full range of options, data supporting the entire country vs. a specific geographic region)	X		See Table 3-1 of PQAPP headings: Company Financial Data,, & Other Industry Data, & valuation and Economic Impact: including specifically:, US Census Bureau, EIA, RMS
If project includes development or update of a project database, QAPP identifies and defines each database field		x	
B2. Potential Data Sources			
Identifies and describes potential sources of the existing data needed (e.g., photographs, topographical maps, facility or state files, census data, meteorological data, publications, etc.) and the rationale for their use	X		See Table 3.1 of PQAPP
If literature searches are used, describes the search engines that will be used and key search terms	X		See Table 3.1 of PQAPP
If databases or models will be used, describe the database (or model) in terms of who developed it and operates it and the type of data it contains	X		See table 3.2 of PQAPP
For other potential sources, describe the potential sources & rationale for considering or using each one		x	

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
B3. Criteria for Selecting Data Sources			
Identifies each criterion that will be used to determine if the candidate data sources listed in B2 will meet your needs, and how each criterion is defined. (Criteria vary by project; examples include reliability, age, applicability, quantity, format, and others)	X		PQAPP 3.1.3 Criteria for Selecting Data Sources
Explains rating system used to evaluate source against each criterion		x	
B4. Data Value Selection Approach			
For data sources that meet the criteria identified in B3: Describes the criteria and procedures that will be used to determine which value(s) identified in the acceptable sources are most appropriate for use in the project	X		Section 3.1.4 of PQAPP
For data that do not meet these pre-established criteria but are the only data available, explains how the decision to use such data will be made and documented		x	
B5. Resolving Data Gaps			
Describes the process for identifying and addressing data gaps that still exist after candidate data sources have been evaluated and appropriate data values have been identified	X		Section 3.1.5 of PQAPP
Describes the process that will be used to address any new data needs revealed during the data gathering process (i.e., additional data elements not previously considered)		x	
B6. Data Gathering Documentation and Records			
Describes how results of the source selection and the data value selection will be documented, including any sources or values that were rejected and the rationale for not using them	X		See Section 3.1.6
For data that are deemed acceptable and that will be used, explains how each data element will be associated to its original source citation (i.e., bibliographic information, telephone contact reports, email messages, etc.)	X		See Section 3.1.6
C1. Standardization of Data Elements			
Describes the process to ensure that units and other key measures are captured and standardized (or otherwise made comparable) in the database	X		See Section 3.2.1

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
If the project requires that all fields be standardized to a single set of units (e.g., US dollars for economic data, µg/L for chemical data), identifies the standard units that will be required for each data element	X		See Section 3.2.1
Identifies the procedures for converting data reported in other units to the standardized units, including any rounding or truncating procedures, and procedures for ensuring these conversions are performed correctly	X		See Section 3.2.1
If standardization of data elements is not needed, explains the process for ensuring that data presented in varying units are comparable enough for use in the project and that project staff members and other data users will be able to readily identify differences in units	X		See Section 3.2.1
C2. Data Entry			
Explains the process for manually entering selected data into the project database, who will be responsible for such data entry, and the QC strategies that will be used to ensure that the database accurately and completely captures the data as presented in the original source	X		See Section 3.2.2
C3. Merging or Uploading Electronic Data from Existing Sources			
If data are available electronically and will be uploaded or merged into the project database: describes the procedures that will be followed to ensure that errors are not introduced during the upload/merge process and that the final database reflects the original dataset(s)	X		See Section 3.2.3
C4. Data Review			
Describes the process for ensuring that the data have been recorded, transmitted, and processed correctly	X		See Section 3.2.4
C5. Data Storage and Manipulation			
Describes how the existing data will be stored	X		See Section 3.2.5
Describes who will be responsible for access to and maintenance of the stored data	X		See Section 3.2.5
Describes how the existing data will be incorporated with other project data to support the project goal/decision to be made	X		See Section 3.2.5

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
Describes the QC strategies that will be employed to ensure that the integrity of the data is not compromised during data storage, access/retrieval, updates, or other manipulation	X		See Section 3.2.5
D1. Data Quality Verification and Data Quality Reporting			
Describes the process for verifying that the final set of data meets the overall criteria originally specified for the project	X		Section 3.3.1
Describes how these determinations will be documented and reported	X		Section 3.3.1
For data that don't meet the pre-established specifications, explains the process for determining if they are usable and how such decisions will be documented	X		Section 3.3.1
D2. Use/Analysis of the Existing Data			
Provides details regarding the exact means in which the data will be used to meet project objectives	X		Section 3.3.2
Includes an explanation or list of the information to be calculated and the data elements that will be used to make those calculations	X		Section 3.3.2
Includes applicable calculations and equations (if known) or explanations of how they will be developed	X		Section 3.3.2
Includes plans for excluding outliers	X		Section 3.3.2
D3. Methodology Documentation and Conceptual Review			
If exact methodologies for analyzing the data will need to be developed or modified during the course of data analysis, explains the process by which such methodologies will be documented, who is responsible for reviewing/ approving their use, and how the methodologies will be checked to ensure they yield the desired products	X		Section 3.2.3
D4. Technical Review of the Data Analysis			
Describes activities that will be used to ensure the data analyses are being implemented as specified and will support project objectives	X		Section 3.3.4
Explains procedures for identifying and notifying appropriate personnel if changes to the originally planned procedures are warranted, and the process for approving, documenting and implementing such changes	X		Section 3.3.4

QAPP Element	Sufficiently Addressed in PQAPP	Not Applicable to Project	Explanatory Comments
D5. Final Verification of Data Analysis and Reconciliation with User Requirements			
Describes the process for reviewing the final work product to ensure that the work was generated in accordance with the QAPP, and that the work product addresses the overall project goals and objectives	X		Section 3.3.5
Describes how the results of this assessment will be documented	X		Section 3.3.5
Describes how any limitations of the data or data analyses that were used to prepare the final work product will be documented and communicated	X		Section 3.3.5

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan that was developed under the Construction and Development WA 0-01 of the contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point under this WA. The EPA WACOR will review the revised memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare the edited SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use the revised SNCVC.

Deliverables and schedule under Task 3
3a. SNCVC memorandum within 7 calendar days if required.
3b. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4- Industry Profile

The contractor shall continue development of the industry profile of the petroleum refining industry began in the previous performance period's work assignment, WA 2-06. This product shall be formatted as a standalone report. The profile should include a discussion of the financial health of the petroleum refining sector, addressing issues such as consolidation, small business characteristics, regulations (both currently in place and new potential regulatory efforts) that may affect the sector's profit margins, the geographic distribution of firms and how the spatial dispersion may impact financial and business decision making, and input/output products transportation that may impact petroleum refining facilities. The contractor, to the extent feasible, should characterize cost of capital for the sector, reporting metrics like customary debt to equity

ratios, etc. The contractor shall characterize how petroleum refineries make decisions about investment in new capital costs. The profile shall also include an industry outlook section (including crude oil input impacts on future outlooks).

To streamline efforts on this WA, the contractor shall refer to Appendix E of the *Economic Analysis for Final 316(b) Existing Facilities Rule* to pull general information and a basic outline of this profile. This outline shall include: Background, Introduction, Domestic Production, Structure and Competitiveness, Financial Condition and Performance, and Industry Outlook. All of the information should be as up-to-date as possible.

EPA will provide a report developed by the engineering contractor that summarizes the current industry make-up. The contractor shall use this document to better understand the scope of EPA's study.

The initial draft of this profile shall include a placeholder outline of information and analysis that will be added to the profile upon completion of the §308 questionnaire data collection activity described in the next task (§308 Letters). Information received via the §308 questionnaires is expected to provide insight into financial performance and condition of non-public reporting refineries (including small business-owned refineries) and will supplement information obtained for refineries owned by public-reporting firms. The §308 questionnaire information is also expected to provide insight on the factors driving recent and prospective future capital outlays at refineries that may affect, (1) the kinds of technology additions needed for discharge treatment under a revised effluent guideline for the Petroleum Refining industry category, and (2) the ability of refinery owners to finance the technology outlays needed for compliance with revised effluent guidelines.

Deliverable	Due Date
Draft Refining Industry Profile	Draft refining profile will be due by June 1, 2017. Revised final draft will be due three weeks after comments from WACOR but no later than July 31, 2017.
Final Refining Industry profile	

Task 5-§308 Letter support

The contractor shall continue to support EPA in identifying potential §308-letter recipients. The contractor shall build off the existing Petroleum Refining database, which attempts to categorize petroleum refiners in America, including their parent company information. EPA and the contractor shall populate this excel file with relevant information from public financial forms (most likely at the company level).

The contractor shall develop criteria and analysis that could be used in selecting refineries for receiving §308 letters and site visits. This information will supplement the criteria and analysis based on pollutant discharge and treatment technologies.

In the previous performance period, the contractor drafted financial and related questions for inclusion in a §308 questionnaire. The contractor shall continue to work with the EPA WACOR to refine these questions for inclusion in the §308 letter.

Deliverable	Due Date
§308 letter questions	Due two weeks after receipt of comments from the EPA WACOR. Quick turnaround deliverables are
§308 letter summaries	Due three weeks after receipt of comments from EPA WACOR. Revised final versions are due two weeks after second set of comments from the WACOR (if provided) but no later than February 28, 2017

Task6-Site Visits

The contractor shall provide support to EPA in conducting site visits at refineries. Support may include attending conference calls with engineering contractor and facility personnel to obtain facility information, providing financial and economic memos after site-visits, and conducting follow-up activities. If the EPA WACOR attends the site visit, the contractor shall maintain the information collected on the site visit by the EPA WACOR once it is provided to the contractor. The contractor shall assume 3 site visit economic/financial reports will be prepared under this task.

Deliverable	Due Date
Draft financial memo for site visit	Due two weeks after receipt of technical direction from the EPA WACOR
Final financial memo for site visit	Revised final versions are due two weeks after second set of comments from the WACOR, but no later than July 31, 2017.

Task 7-Environmental Justice Analysis Support

The contractor shall prepare an Environmental Justice (EJ) profile to support the Petroleum Refining study. The profile will describe the socioeconomic and demographic composition of populations within specified radiuses of the refineries in the Petroleum Refining database, with focus on the presence of populations of EJ interest (low income and minority populations, or EJ populations). The profile will compare the presence of EJ populations in the specified nearby radiuses of refineries relative to the socioeconomic/demographic composition of larger areas (e.g., the Metropolitan Statistical Area, county, or other relevant jurisdictional unit) surrounding the refineries.

The contractor shall work with the WACOR to outline potential process and considerations for accounting for EJ factors in the Petroleum Refining pre-regulation study.

Deliverable	Due Date
Draft environmental justice analysis methodology memorandum	Due two weeks after receipt of technical direction from the EPA WACOR

Final environmental justice analysis methodology memorandum	Revised final versions are due two weeks after second set of comments from the WACOR, but no later than July 31, 2017.
Final draft environmental justice profile	Final versions are due two weeks after second set of comments from the WACOR, but no later than July 31, 2017.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-47

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	SP Health Benefits Survey

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: section A.2.2

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/29/2016 To 07/31/2017

Comments:
The purpose is to initiate Work Assignment 3-47. The contractor shall submit an estimated Work Plan and an estimated budget in accordance with the contract. See attached Performance Work Statement.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		1,221
Total:		1,221

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Nathalie Simon	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-2347 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

PERFORMANCE WORK STATEMENT

Title:	Estimating the Value of Health Benefits Using a Stated Preference Survey
Contractor:	Abt Associates
Contract No.:	EP-C-13-039
Work Assignment Number:	3-47
Estimated Period of Performance:	Date of issuance – July 31, 2017
Estimated Level of Effort:	1,221 hours
Key EPA Personnel:	Work Assignment Contracting Officer's Representative (WACOR): Nathalie Simon OP/ NCEE (MC 1809T) 202-566-2347

I. Background and Purpose:

The US Environmental Protection Agency (EPA) is required by statute and/or executive order to perform benefit-cost analysis of rulemakings. For impacts on human health, a key challenge is to estimate the expected health benefits in dollar terms, largely because willingness to pay (WTP) or cost-of-illness estimates are not always available for the health effects associated with different rules. The literature contains many valuation estimates associated with occupational fatalities; however, there are far fewer estimates available for a number of potentially important health endpoints affected by environmental policy. These endpoints include risk of fatal and non-fatal cancer of many types; cardiovascular outcomes, such as stroke and hypertension; and cognitive effects (e.g., Alzheimer's). In order to provide a more comprehensive assessment of the benefits associated with rules that reduce health risks, analysts need WTP estimates for different health endpoints affected by rules. For many health endpoints, stated preference (SP) methods are a valuable method to elicit the WTP estimates needed for more complete benefits analysis.

EPA is in the process of developing a stated preference survey instrument to elicit willingness to pay estimates for selected health benefits. A key set of health effects with limited valuation data are birth and early life stage outcomes, which are associated with a wide array of environmental contaminants including lead, arsenic, mercury, and many other chemicals. EPA's National Center for Environmental Economics (NCEE) met with economists and policy analysts from the Offices of Air and Radiation (OAR), Office of Water (OW), Chemical Safety and Pollution Prevention (OCSPP), and Land and Emergency Management (OLEM) to gather information on specific health endpoints and contaminants for which EPA routinely lacks values and/or are

likely to be the subject of future rulemaking efforts. The results of these discussions indicate that birth and neurodevelopmental outcomes: (1) often lack WTP estimates for valuation, (2) are associated with many contaminants of concern across program offices, and (3) are likely to be encountered in one or more future rulemakings. The objective of the survey project is to elicit individuals' willingness to pay (WTP) for reduced risks of outcomes that result from exposures in utero and during early life stages, such as birthweight, preterm birth, and neurodevelopmental effects.

The purpose of this work assignment (WA) is to obtain contractor support for key activities needed to develop and conduct the stated preference survey of the selected health risk reduction benefits. Specifically, contractor support is needed for establishing a technical review panel of experts, arranging for focus groups and cognitive interviews, identifying appropriate non-response bias tests, drafting the information collection request (ICR) package, recruiting the sample for one split of our anticipated split sample design, pre-testing and administering the survey, and cleaning and coding the data. The contractor support shall aid staff in NCEE in the development and administration of a high quality stated preference survey. Results of this stated preference survey will fill gaps in EPA's ability to monetize noncancer health benefits in policy analyses.

II. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor must also report to the EPA WACOR when 75 percent of the approved Work Plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA Contract-Level Contracting Officer's Representative (CL-COR), and EPA WACOR.

Quick Response: Under this Performance Work Statement (PWS) the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

Quality Assurance (QA) Requirements: All analyses requiring the collection and manipulation of data and models will be conducted in accordance with the EPA-approved programmatic quality assurance project plan (pQAPP) developed under work assignment 0-01 of this contract, supplemented as needed by procedures outlined in the QAPP previously developed for this work under contract EP-C-07-023. The PQAPP and QAPP describe procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment. EPA will be conducting to focus groups and interviews described below in Tasks 3 and 5. The contractor shall prepare transcripts of the focus groups and interviews and ensure their accuracy. The PQAPP describes procedures for data entry, data evaluation, and data quality verification that are sufficient to ensure the accuracy of text transcripts. Should the need arise, the approved QAPP will be modified to incorporate any modifications to the analysis tasks performed under this WA.

III. CONTRACT LEVEL STATEMENT OF WORK REFERENCE

The tasks to be performed under this work assignment are consistent with the contract PWS. This work falls under key program areas established for contract EP-C-13-039 including: improvements to benefits analysis and economic methodologies (stated preference analysis) as described in section A.2.2 of the PWS.

IV. STATEMENT OF WORK TASKS

Task 1 - Prepare Work Plan and Administer Work Assignment

The contractor shall prepare a work plan within 15 calendar days of receipt of a work assignment signed by the Contracting Officer. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, and a detailed cost estimate by task and a staffing plan. The WACOR, the CL-COR, and the CO will review the work plan. However, only the CO can approve/disapprove the work plan. The contractor shall prepare a revised work plan incorporating the CO's, if required. A kick-off meeting between the contractor, WACOR and other relevant EPA staff identified by the WACOR will be held to discuss the approved work plan.

The contractor shall also identify how the work assignment will be administered.

Deliverables and Schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.
1b. Kick-off meeting within 7 calendar days of work plan approval.

Task 2 – Establish and coordinate activities of expert panel

The contractor shall coordinate activities of a team of experts to provide input at several points in the survey development process in the form of comments on draft materials, suggestions and other advice related to the health benefits stated preference survey and a second stated preference survey under development related to water quality benefits. The expert panel shall consist of up to five members from the academic or scientific community with backgrounds in environmental economics, stated preference valuation, and survey methodology. At least two of the experts shall have expertise in valuing reductions in health risks and at least two shall have experience in nonmarket valuation of surface water quality improvements, with the possibility that some members will have experience in both areas. The WACOR will provide additional criteria through technical direction to assist the contractor in selecting experts. Activities of the expert panel will include providing advice on the development of the survey instruments based on outcomes of focus group discussions, providing recommendations on the study designs for each study, proposing alternatives and improvements to the data analysis plans for each study. The expert panel members shall provide their individual comments and suggestions on all materials in writing. The expert input provided under this task would not serve to meet the requirements set forth in the Peer Review Guidelines for peer review of these ISI products. The required peer review would be undertaken by other means, and not via this same contract and Work Assignment.

The contractor shall arrange for up to six meetings with the expert panel with at least one of those meetings occurring in person. Prior to arranging any in-person meetings, the contractor and WACOR will explore the feasibility of using EPA facilities. The WACOR will provide all electronic versions of documents to be discussed to the contractor in advance of the meetings for distribution. The contractor shall take detailed notes at each meeting of the expert panel and shall provide the WACOR with detailed summaries of the meetings. The contractor shall provide the WACOR with electronic versions of the completed reviews.

Deliverables and Schedule under Task 2

2a) Discussion between contractor and WACOR regarding general composition of the expert panel to take place within one week of receipt of the WA.

2b) Confirmation from contractor of expert panel participation within one week of discussion noted in 2a.

2c) Schedule meetings within 1 week of receiving technical direction from WACOR and distribute relevant materials to expert panel members. Meetings to be scheduled at a time and date agreed upon by WACOR and contractor taking into account team member availability.

2d) Meeting summaries and expert panel member reviews to be provided within two weeks of meetings.

Task 3 - Facilitate and Arrange for 6 Focus Groups for Health Stated Preference Survey Development

The six (6) focus groups are expected to be held in the Washington, DC metro area, but may include others such as Baltimore, MD and Richmond, VA. The WACOR will provide technical direction as to the expected schedule and final locations.

The contractor shall recruit focus group participants based on criteria developed by EPA and provided by the WACOR. The contractor shall arrange for each focus group to be conducted in an appropriate facility with audio-visual support. Each focus group shall be audio- and video-recorded in digital format and delivered to EPA on a Digital Versatile Disk (DVD) or as a digital download. In addition, written transcripts of each focus group shall be prepared. The contractor shall recruit 12-14 individuals for each focus group, with the goal of 9-10 participants in each group. Each focus group shall last approximately 2 hours and be conducted at a convenient time and in a convenient location.

The contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated cost of $20,000 or more, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The EPA WACOR will then prepare approval internal paperwork for the event and will advise the CO when appropriate signatures have been obtained. At that point, the CO will notify the contractor when effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

The WACOR, in conjunction with the appropriate personnel in NCEE, will secure ICR approval for the focus groups under an existing agreement with the Office of Management and Budget (OMB) for expedited review.

<u>Deliverables and schedule under Task 3</u>

3a. Establish location and initial dates for six (6) focus groups within 1 week of receiving technical direction from WACOR.
3b. Recruit participants for first focus group within 1 week of receiving final location information and criteria from EPA and for subsequent focus groups within 1 week of receiving criteria for those groups.
3c. Arrange audio- and/or video- recordings and written transcripts of each group within 1 week of receiving final location information from EPA and for subsequent focus groups within 1 week of receiving criteria for those groups.
3d. Submit audio- and video-recordings to WACOR within 1 week of completing each set of focus groups.

Task 4 – Design Layout and Graphics for Mixed-Mode Survey

EPA anticipates the health survey will be administered in an electronic form using a split sample design for recruitment. Specifically, EPA plans to administer the survey via the internet to a sample drawn from a probability based internet panel (PBIP) as well as a sample of respondents recruited directly via mail. The survey instrument administered to respondents recruited by mail should look identical and operate in the exact same manner as versions accessed by the PBIP. Ideally, the same electronic versions of the survey would be administered to each sample. To that end and to the extent possible, the contractor should avoid duplication of effort in the development of the electronic survey versions for administration via the PBIP and the mail-recruited sample. Note that EPA is expecting multiple versions of the survey to be administered to each sample. Prior to their administration in a pretest, the survey instruments will be tested in cognitive interviews (see Task 5). The contractor shall provide separate electronic files for each version of the survey for review. The EPA will review the files and provide comments through the WACOR after which the contractor shall revise the electronic files and program code according to comments received from the WACOR.

Once uploaded to the internet, the contractor shall provide a means for the WACOR to test operation of each version of the survey. EPA shall be given access to each survey version using a web link. The EPA will review the operation of the electronic surveys and provide comments after which the contractor shall revise the electronic survey according to comments from the WACOR.

<u>Deliverables and Schedule under Task 4</u>
4a. Submit electronic files of survey instruments for use in cognitive interviews within 2 weeks of receiving technical direction from the WACOR.

4b. Revise electronic versions of cognitive interview surveys within 1 week of receiving comments from the WACOR.

4c. Revise electronic versions of pretest survey within 1 week of receiving comments from the WACOR.

4c. Revise electronic versions of final survey within 1 week of receiving comments from the WACOR.

Task 5 - Facilitate and Arrange for 20 One-on-One Interviews for Health Survey Development

At the conclusion of the focus groups for developing the health survey instrument, the contractor shall arrange for a series of up to 12 one-on-one interviews with potential respondents. After the peer review of the survey instrument the contractor shall arrange for up to 8 additional one-on-one interviews with potential respondents. Each interview shall last approximately 50-60 minutes. Computers with necessary software shall be available for the interviewees to facilitate testing of the electronic survey instrument. EPA will conduct these interviews to test different versions of the survey instrument and will provide all materials for the participants.

The contractor shall recruit participants according to criteria provided by the WACOR. The contractor shall provide an appropriate facility and location for these interviews. The contractor shall arrange for these interviews to be audio- and video-recorded in digital format and delivered to EPA on DVD or by digital download. In addition, written transcripts of each interview shall be prepared. As with the focus groups in task 3, the one-on-one interviews are expected to be held in the Washington, DC metro area, but may include others such as Baltimore, MD and Richmond, VA. The WACOR will provide technical direction as to the expected schedule and final locations.

The contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated $20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The EPA WACOR will then prepare approval internal paperwork for the event and will advise the CO when appropriate signatures have been obtained. At that point, the CO will notify the contract when effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

The WACOR, in conjunction with the appropriate personnel in NCEE, will secure ICR approval for the one-on-one interviews under an existing agreement with OMB for expedited review and will work with the contractor to ensure compliance with other relevant OMB guidance.

Deliverables and schedule under Task 5

5a. Establish location and dates for 12 one-on-one interviews within 1 week of receiving technical direction from WACOR.
5b. Recruit participants for the first set of interviews within 1 week of establishing location and dates for interviews, and recruit participants for the subsequent interviews according to the schedule determined in task 3a.
5c. Establish location and dates for 8 additional one-on-one interviews within 1 week of receiving technical direction from WACOR.
5d. Arrange audio- and video- recordings and written transcripts of each interview
5e. Submit audio- and/or video-recordings to WACOR within one week of completing each set of interviews.

Task 6 – Recommendations for Sampling Strategy

The contractor shall provide a memorandum recommending a sampling strategy to achieve goals expressed by the WACOR. The sampling strategy may include (but may not be limited to) stratification by household structure (e.g., adults with children vs. adults with no children), recruitment method, and versions of the survey. Specifically, EPA plans to administer the survey using a split sample design on recruitment. Namely, EPA expects to administer the survey electronically to both a sample drawn from a PBIP as well as a sample of respondents recruited directly by mail. For both samples, the survey would be administered electronically via the internet.

Deliverables and Schedule under Task 6

6a. Submit a memorandum recommending a sampling strategy within 2 weeks of receiving technical direction from WACOR.

Task 7 – Prepare ICR Package

The contractor shall assist with the preparation of the draft ICR package to be submitted to OMB for approval to conduct the survey. The package shall follow EPA and OMB guidelines and will include all relevant sections identified in the guidance. The contractor shall work with the WACOR to identify sections where input from the contractor will be needed. These sections will likely include but may not be limited to a description of the sampling design, precision requirements, and collection methods and follow up. The WACOR will provide technical assistance on other relevant sections of the package, including providing relevant guidance documents. NCEE will submit the ICR package to EPA's Office of Environmental Information (OEI) for formal transmittal to OMB. The contractor shall assist with revisions to the ICR based on comments from the WACOR up to 3 times.

Deliverables and Schedule under Task 7:

7a. Prepare drafts of selected sections of the ICR package within 2 weeks of completing task 6b.

7b. Revise ICR package up to 3 times within 1 week of receiving comments from WACOR.

Task 8 – Obtain Mailing Addresses for Mail Recruitment Split

The contractor shall obtain a sufficient number of valid residential mailing addresses to recruit a sufficient number of respondents to reach a target of approximately 2000 completed electronic surveys recruited by mail and satisfying the final sampling strategy provided by the WACOR (see task 6). The number of addresses needed will be affected by the number of individuals recruited directly by mail who decline to complete the survey electronically via the internet. Although EPA plans to administer a short survey to individuals who decline to participate in the electronic SP survey (see Task 14), administration of full paper versions of the survey are not planned.

Deliverables and Schedule under Task 8:

8a. Obtain list of valid residential addresses for sample within 1 week of receiving technical direction from WACOR.

Task 9 – Coding Plan

a. Survey Development:

The contractor shall provide assistance in the thematic coding for qualitative content analysis of focus group and cognitive interview data. EPA will determine preliminary coding categories for a first pass through the focus group and cognitive interview transcripts. The contractor shall review the coding categories and provide a review of the analyzed text to help determine whether the codes were appropriately applied.

b. Administered Survey

The contractor shall provide EPA with a coding plan for all closed and open-ended responses on the short paper survey (see Task 14). The plan will include data quality control procedures to ensure data are being captured accurately as well as specific instructions explaining how each response is recorded in the database.

Deliverables and Schedule under Tasks 9a and 9b:

9a. Review EPA's thematic coding categories for qualitative content analysis of focus groups and cognitive interviews 1 week after receiving technical direction from WACOR.

9b. Provide a review of coded text 3 weeks after receiving technical direction from WACOR.

9c. Submit a coding plan for closed and open-ended responses based on the short paper survey (see Task 14) 3 weeks after receiving technical direction from WACOR.

Task 10 – Conduct Pretest

The contractor shall develop and provide to the WACOR a pretest schedule assuming a split sample design (PBIP and mail recruit for electronic survey), including, for the mail recruitment split, dates for mailing an advance invitation letter, the survey instrument link, a reminder post-card, a follow-up letter with the link, and a final reminder letter using priority mail. Each mailing will use a unique identifier indicating the address and survey version provided by the web link.

The pretest will be administered to achieve up to 200 completed responses from the PBIP and up to 200 completed responses from participants recruited directly via mail. The exact number of expected completes will be determined in technical direction from the WACOR.

EPA will print all necessary mailings for the pretest mail-recruit sample other than the address and survey ID labels. The materials for the mail recruit sample will be shipped from EPA to the contractor. The contractor shall print mailing labels and survey ID labels that indicate the survey cell and survey version. The contractor shall apply the labels to the appropriate materials, place the materials in the appropriate envelopes and mail the materials on the dates specified in the pretest schedule. EPA will supply envelopes with prepaid postage for the mailing and returns envelopes.

The contractor shall receive and track pretest responses in the survey response databases. An electronic database will serve as a clearinghouse for all completed surveys by recruitment method and in particular will store vital information about each piece of mail that is used to track

the survey response throughout the data preparation process. This electronic file will consist of survey identification, version, completion status, date completed.

Respondents recruited by mail will have the option to request a paper survey. If a paper survey is requested, the database will also track when the short paper survey (see Task 14) was sent, when it was completed and when data were coded and checked. Under this task, all responses will be recorded according to the data coding plan. The contractor shall deliver a dataset to the WACOR reporting all responses from completed pretest surveys.

Additionally, the contractor shall administer the pretest to the PBIP and provide the cleaned data file to the WACOR upon completion to include selected demographic variables provided for each respondent

Deliverables and Schedule under Task 10:

10a. Obtain addresses for pretest sample within 1 week of receiving technical direction from the WACOR.

10b. Print labels and apply to survey materials, place materials in envelopes with EPA-paid postage and mail.

10c. Administer pretest to PBIP according to sampling strategy.

10d. Deliver dataset reporting responses from completed mail-recruited and PBIP pretest surveys within 4 weeks of first mailing.

Task 11-- Pretest Report

During the administration of the pretest, the contractor shall track the success of the survey under each survey recruitment method as well as the nonresponse survey (see task 14) and note any anomalies such as undeliverable mailings, item non-response, incorrectly answered questions, etc. and develop a plan to address those anomalies when administering the main survey. The anomalies and proposed solutions shall be presented in a written report to the EPA. The report shall also include a narrative of the pretest describing the effectiveness of the approach taken to administer the survey and any recommendations to improve the effectiveness for the main sample.

Deliverables and Schedule under Task 11:

11a. Track success of pretest.

11b. Prepare report on pretest with suggested changes for main sample.

Task 12 – Administer Survey using a Split Sample

For the sample recruited by mail, the EPA will print all necessary mailings (e.g., introduction letter, reminder postcard, etc.) and deliver to the contractor for further preparation and mailing. Each set of mailings will be marked with an identification number indicating the address and survey version included in the link. The contractor shall ensure that the mailings are sent to the correct addresses as indicated by the unique identification number. The contractor shall also ensure that the electronic survey link is working properly. The target sample size shall be achieved in a reasonable period of time; the contractor shall include appropriate reminders to survey respondents in order to achieve the target response rate.

Additionally, the contractor shall administer the full survey to the sample drawn from the PBIP and provide the cleaned data file to the WACOR upon completion.

A total of up to 2,000 completed surveys by recruitment method for a total of up to 4,000 completed responses are anticipated. The precise number of completed responses needed will be determined through technical direction from the WACOR.

Deliverables and Schedule under Task 12:

12a. Obtain addresses for main sample within 1 week of receiving technical direction from the WACOR.

12b. Print labels and apply to survey materials, place materials in envelopes with EPA-paid postage and mail.

12c. Mail introduction letter within 1 week of receiving printed materials from EPA with subsequent mailings occurring according to schedule provided by the WACOR.

12d. Deliver dataset reporting responses from completed mail and electronic surveys within 6 weeks of first mailing.

12e. Ensure electronic survey is working properly for both survey recruitment methods according to schedule provided by the WACOR.

Task 13 – Clean and Code Data

The contractor shall clean the electronic data to ensure that any inconsistencies and or anomalies are addressed. When one half of the target number of completed surveys are collected, the contractor shall deliver cleaned and coded data for those surveys with a description of all variables, as well as a memo with a description of how the data were cleaned in a format determined by EPA. When the target number of completed surveys is collected, the contractor shall deliver clean and coded data for the complete sample.

Deliverables and Schedule under Task 13:

13a. Deliver clean and coded data to EPA within 1 week of receiving one-half of the target number of completed surveys.
13b. Deliver clean and coded data for the complete sample within 1 week of receiving target number of completed surveys.

Task 14 – Non-response Follow Up

The contractor shall administer a non-response follow up survey (NRFS) to obtain information from a sample of respondents who do not complete the main, electronic survey. Under this task, the contractor shall determine the appropriate sample size for the non-response follow-up using the same recruitment modes utilized for the main survey. The contractor shall include appropriate cash incentives for non-respondents as agreed upon with the WACOR and OMB. The contractor shall administer a short questionnaire provided by EPA to both recruitment modes to ascertain important information on respondents who did not complete the main survey. Under this task, the contractor shall also enter the data from these responses into a data file and submit the information to EPA within 2 weeks of completing the non-response follow-up. For the costing purpose, the contractor should assume that 200 non-response follow ups will be administered by priority mail. Should NCEE select a different survey non-response study design or sample size, the estimated level of effort and cost for this task could understandably change.

Deliverables and Schedule under Task 14:

14a. Determine necessary sample size for NRFS.
14b. Administer short questionnaire to NRFS by mail including appropriate incentives.
14c. Create data file of all responses and provide to EPA within 2 weeks of completion.

Task 15 --Main Survey Report

During the administration of the full survey, the contractor shall track the success of the survey and nonresponse follow up and note any anomalies such as undeliverable mailings, item non-response, incorrectly answered questions, etc. and develop recommendations to address those anomalies in future surveys. The anomalies and proposed solutions shall be presented in a written report to the EPA.

Deliverables and Schedule under Task 15:

15a. Track success of main survey.

15b. Prepare report on survey administration with suggested changes for future efforts.

V. Schedule for Deliverables

Task	Deliverable	Form and Quantity	Schedule
	Phase 1		
Task 1	1a) Work plan	Electronic Document	Within 15 calendar days of work assignment receipt
	1b) Kick-off meeting	Meeting/teleconference	Within 7 calendar days of work plan approval.
Task 2	2a) Draft list of potential expert panel participants	Electronic Document	Within 1 week of technical direction providing desired credentials
	2b) Confirmation of expert panel participants	Electronic Document	Within 2 weeks of comments from WACOR on 2a
Task 3	3a) Establish location and initial dates for six focus groups	Email	Within 1 week of receipt of technical direction from WACOR
	3b) Recruit participants for first focus group within	Electronic confirmation	Within 1 week of 3a)
	3c) arrange audio and/or video recordings for each group	Electronic confirmation	Within 1 week of 3a)
	3d)submit audio and video recordings and written transcripts to WA COR	Electronic documents/DVDs	Within 1 week of completion of each focus group
Task 4	4a) Submit electronic files of each version of survey instruments to be used in cognitive interviews	Electronic documents	Within 2 weeks of receiving technical direction form WACOR
	4b) Revise electronic versions of cognitive interview surveys	Electronic Document	Within 1 week of receiving comments from WACOR

	4c) Revise electronic files of survey instruments for use in pretest	Electronic documents	Within 1 week of receiving technical direction from WACOR
	4d) Revise electronic files of survey instruments for use in Full survey		Within 1 week of receiving technical direction from WACOR
Task 5	5a) Establish location and dates for 12 one-on-one interviews.	Email	Within 1 week of receiving technical direction from WACOR
	5b) Recruit participants for the first 12 one-on-one interviews	Electronic Document	First interview: within 1 week of completing task 5a
	5c) Establish location and dates for up to 8 more one-on-one interviews	Electronic Document	First interview: within 1 week of receiving technical direction from WACOR
	5d) Arrange audio and video recordings of each interview	NA	To coincide with 5a
	5e) Submit audio and video recordings of interviews and written transcripts of interviews	DVD, electronic document	Within 1 week of completing each set of interviews
Task 6	6a) Submit memo recommending sampling strategy	Electronic Document	Within 2 weeks of receiving technical direction from WACOR
Task 7	7a)Drafts of selected sections of ICR package	Electronic Document	Within 2 weeks of receiving technical direction from WACOR

	7b) Revised ICR section	Electronic Document	Within 1 week of receiving comments from WACOR (to be repeated up to 2 additional times)
Task 8	8 a) Obtain list of valid residential addresses from which to draw sample	Email confirmation	Within 1 week of receiving technical direction from WACOR
Task 9	9 a) Review of EPA thematic coding categories for qualitative content analysis	Electronic Document	Within 1 week of receiving technical direction from WACOR
	9 b) Review of coded text	Electronic Document	Within 3 weeks of receiving technical direction from WACOR
	9c) Submit coding plan for responses from short paper survey	Electronic Document	Within 3 weeks of receiving technical direction from WACOR
Task 10	10a) Obtain mailing addresses for pretest sample	Electronic Spreadsheet	Within 1 week of receiving technical direction from WACOR
	10b) Print labels and apply to survey materials, place in envelopes and mail	NA	According to schedule provided by WACOR
	10c) Administer pretest to PBIP	NA	According to schedule provided by WACOR
	10d) Deliver dataset for completed pretest surveys by recruitment method	Electronic database	Within 4 weeks of first mailing
Task 11	11a) Track success of pretest	NA	During pretest
	11b) Report on pretest with suggested changes for full implementation	Electronic Document	Within 1 week of conclusion of pretest

Task 12	12a) Obtain addresses for main sample	Electronic spreadsheet	Within 1 week of receiving technical direction from WACOR
	12b & c) Print labels and apply to survey materials, place in envelopes and mail	NA	First mailing shall occur within 1 week of receiving printed materials from EPA with subsequent mailings to follow schedule provided by WACOR
	12d)Data set reporting responses from completed surveys	Excel data file	Within 6 weeks of first mailing
	12e) Ensure electronic surveys are working properly		According to schedule provided by WACOR
Task 13	13 a) Deliver cleaned and coded data for half of the target number of completed surveys	Excel data file	Within 1 week of receiving half of the target number of completed surveys
	13 b) Deliver cleaned and coded data for the complete sample	Excel data file	Within 1 week of receiving the target number of completed surveys
Task 14	14a) Determine necessary sample size for NRFS	Electronic document	
	14b) Administer non-response follow up survey/short questionnaire	N/A	For NRFS: Within 2 weeks of receiving the follow up questionnaire from WACOR For short questionnaire: on rolling basis during survey administration as requests are received.
	14c) Deliver clean and coded data for the non-response study	Electronic database	Within 2 weeks of receiving the target number of completed surveys

Task 15	15a) Track success of main survey	NA	
	15b) report on survey administration with suggested changes for future efforts	Electronic Document	Within 2 weeks of receiving target number of surveys and non-response follow up

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-47

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	SP Health Benefits Survey

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A.2.2

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		1,221
This Action:		306
Total:		1,527

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Nathalie Simon	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-2347 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name Nicholas Bisher	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

PERFORMANCE WORK STATEMENT

Title:	Estimating the Value of Health Benefits Using a Stated Preference Survey
Contractor:	Abt Associates
Contract No.:	EP-C-13-039
Work Assignment Number:	3-47
Estimated Period of Performance:	Date of issuance – July 31, 2017
Estimated Level of Effort:	**306 hours (to be added)** 177 (previously awarded)
Key EPA Personnel:	Work Assignment Contracting Officer's Representative (WACOR): Nathalie Simon OP/ NCEE (MC 1809T) 202-566-2347

I. Background and Purpose:

The US Environmental Protection Agency (EPA) is required by statute and/or executive order to perform benefit-cost analysis of rulemakings. For impacts on human health, a key challenge is to estimate the expected health benefits in dollar terms, largely because willingness to pay (WTP) or cost-of-illness estimates are not always available for the health effects associated with different rules. The literature contains many valuation estimates associated with occupational fatalities; however, there are far fewer estimates available for a number of potentially important health endpoints affected by environmental policy. These endpoints include risk of fatal and non-fatal cancer of many types; cardiovascular outcomes, such as stroke and hypertension; and cognitive effects (e.g., Alzheimer's). In order to provide a more comprehensive assessment of the benefits associated with rules that reduce health risks, analysts need WTP estimates for different health endpoints affected by rules. For many health endpoints, stated preference (SP) methods are a valuable method to elicit the WTP estimates needed for more complete benefits analysis.

EPA is in the process of developing a stated preference survey instrument to elicit willingness to pay estimates for selected health benefits. A key set of health effects with limited valuation data are birth and early life stage outcomes, which are associated with a wide array of environmental contaminants including lead, arsenic, mercury, and many other chemicals. EPA's National Center for Environmental Economics (NCEE) met with economists and policy analysts from the

Offices of Air and Radiation (OAR), Office of Water (OW), Chemical Safety and Pollution Prevention (OCSPP), and Land and Emergency Management (OLEM) to gather information on specific health endpoints and contaminants for which EPA routinely lacks values and/or are likely to be the subject of future rulemaking efforts. The results of these discussions indicate that birth and neurodevelopmental outcomes: (1) often lack WTP estimates for valuation, (2) are associated with many contaminants of concern across program offices, and (3) are likely to be encountered in one or more future rulemakings. The objective of the survey project is to elicit individuals' willingness to pay (WTP) for reduced risks of outcomes that result from exposures in utero and during early life stages, such as birthweight, preterm birth, and neurodevelopmental effects.

The purpose of this work assignment (WA) is to obtain contractor support for key activities needed to develop and conduct the stated preference survey of the selected health risk reduction benefits. Specifically, contractor support is needed for establishing a technical review panel of experts, arranging for focus groups and cognitive interviews, identifying appropriate non-response bias tests, drafting the information collection request (ICR) package, recruiting the sample for one split of our anticipated split sample design, pre-testing and administering the survey, and cleaning and coding the data. The contractor support shall aid staff in NCEE in the development and administration of a high quality stated preference survey. Results of this stated preference survey will fill gaps in EPA's ability to monetize noncancer health benefits in policy analyses.

II. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor must also report to the EPA WACOR when 75 percent of the approved Work Plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA Contract-Level Contracting Officer'sRepresentative (CL-COR), and EPA WACOR.

Quick Response: Under this Performance Work Statement (PWS) the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

Quality Assurance (QA) Requirements: All analyses requiring the collection and manipulation of data and models will be conducted in accordance with the EPA-approved programmatic quality assurance project plan (pQAPP) developed under work assignment 0-01 of this contract, supplemented as needed by procedures outlined in the QAPP previously developed for this work under contract EP-C-07-023. The PQAPP and QAPP describe procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment. EPA will be conducting to focus groups and interviews described below in Tasks 3 and 5. The contractor shall prepare transcripts of the focus groups and interviews and ensure their accuracy. The PQAPP describes procedures for data entry, data evaluation, and data quality verification that are sufficient to ensure the accuracy of text transcripts. Should the need arise, the approved QAPP will be modified to incorporate any modifications to the analysis tasks performed under this WA.

III. CONTRACT LEVEL STATEMENT OF WORK REFERENCE

The tasks to be performed under this work assignment are consistent with the contract PWS. This work falls under key program areas established for contract EP-C-13-039 including: improvements to benefits analysis and economic methodologies (stated preference analysis) as described in section A.2.2 of the PWS.

IV. STATEMENT OF WORK TASKS

Task 1 - Prepare Work Plan and Administer Work Assignment

[PREVIOUSLY APPROVED – NO CHANGES]

The contractor shall prepare a work plan within 15 calendar days of receipt of a work assignment signed by the Contracting Officer. The work plan shall outline, describe and include the

technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task and a staffing plan. The WACOR, the CL-COR, and the CO will review the work plan. However, only the CO can approve/disapprove the work plan. The contractor shall prepare a revised work plan incorporating the CO's, if required. A kick-off meeting between the contractor, WACOR and other relevant EPA staff identified by the WACOR will be held to discuss the approved work plan.

The contractor shall also identify how the work assignment will be administered.

Deliverables and Schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.
1b. Kick-off meeting within 7 calendar days of work plan approval.

Task 2 – Establish and coordinate activities of expert panel

The contractor shall coordinate activities of two three-person teams of experts to provide input at several points in the survey development process in the form of comments on draft materials, suggestions and other advice related to two stated preference surveys under development: one focused on health benefits and the other on water quality benefits. Each expert panel shall consist of three members from the academic or scientific community with backgrounds in environmental economics, stated preference valuation, and survey methodology. At least two of the experts on one panel shall have expertise in valuing reductions in health risks and at least two experts on the second panel shall have experience in nonmarket valuation of surface water quality improvements. The WACOR will provide additional criteria through technical direction to assist the contractor in selecting experts. Activities of the two expert panels will include providing advice on the development of the respective survey instruments based on outcomes of focus group discussions, providing recommendations on the study designs for the study in question, and proposing alternatives and improvements to the data analysis plans for the study. The expert panel members shall provide their individual comments and suggestions on all materials in writing. The expert input provided under this task would not serve to meet the requirements set forth in the Peer Review Guidelines for peer review of these ISI products. The required peer review would be undertaken by other means, and not via this same contract and Work Assignment.

The contractor shall arrange for up to two meetings of each expert panel. All meetings will occur remotely, with EPA providing the webinar access. Each of the meetings will last no more than two hours. The WACOR will provide all electronic versions of documents to be discussed to the contractor for distribution in advance of the meetings The contractor shall provide the WACOR with electronic versions of the panelists' completed reviews.

Deliverables and Schedule under Task 2

2a) Discussion between contractor and WACOR regarding general composition of the expert panel to take place within one week of receipt of the WA.

2b) Confirmation from contractor of expert panel participation within one week of discussion noted in 2a.

2c) Dates for meetings to be identified within 1 week of receiving technical direction from WACOR and relevant materials distributed to expert panel members. Meetings to be scheduled at a time and date agreed upon by WACOR and contractor taking into account team and panel member availability.

2d) Expert panel member reviews to be provided within two weeks of meetings.

Task 3 - Facilitate and Arrange for 6 Focus Groups for Health Stated Preference Survey Development

[PREVIOUSLY APPROVED – NO CHANGES]

The six (6) focus groups are expected to be held in the Washington, DC metro area, but may include others such as Baltimore, MD and Richmond, VA. The WACOR will provide technical direction as to the expected schedule and final locations.

The contractor shall recruit focus group participants based on criteria developed by EPA and provided by the WACOR. The contractor shall arrange for each focus group to be conducted in an appropriate facility with audio-visual support. Each focus group shall be audio- and video-recorded in digital format and delivered to EPA on a Digital Versatile Disk (DVD) or as a digital download. In addition, written transcripts of each focus group shall be prepared. The contractor shall recruit 12-14 individuals for each focus group, with the goal of 9-10 participants in each group. Each focus group shall last approximately 2 hours and be conducted at a convenient time and in a convenient location.

The contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated cost of $20,000 or more, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The EPA WACOR will then prepare approval internal paperwork for the event and will advise the CO when appropriate signatures have been obtained. At that point, the CO will notify the contractor when effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

The WACOR, in conjunction with the appropriate personnel in NCEE, will secure ICR approval for the focus groups under an existing agreement with the Office of Management and Budget (OMB) for expedited review.

<u>Deliverables and schedule under Task 3</u>

3a. Establish location and initial dates for six (6) focus groups within 1 week of receiving technical direction from WACOR.

3b. Recruit participants for first focus group within 1 week of receiving final location information and criteria from EPA and for subsequent focus groups within 1 week of receiving criteria for those groups.
3c. Arrange audio- and/or video- recordings and written transcripts of each group within 1 week of receiving final location information from EPA and for subsequent focus groups within 1 week of receiving criteria for those groups.
3d. Submit audio- and video-recordings to WACOR within 1 week of completing each set of focus groups.

Task 4 – Design Layout and Graphics for Mixed-Mode Survey

EPA anticipates the health survey will be administered in an electronic form using a split sample design for recruitment. Specifically, EPA plans to administer the survey via the internet to a sample drawn from a probability based internet panel (PBIP) as well as a sample of respondents recruited directly via mail. Once the EPA has completed the design of a draft instrument, the WACOR will transmit the file to the contractor for computerization. The survey instrument administered to respondents recruited by mail should be identical to and operate in the exact same manner as versions accessed by the PBIP. Ideally, respondents would access the same electronic versions of the survey, hosted on the same platform, regardless of how they are recruited. To that end, the contractor should avoid duplication of effort in the computerization of the electronic survey versions for administration to the PBIP and the mail-recruited sample.

Note that EPA is expecting to administer up to five versions of the survey to each sample. The contractor shall provide EPA (via the WACOR) access to each survey version using a web link. The EPA will test and review the operation of the electronic survey instruments and provide written comments to the contractor. Subsequently, the contractor shall revise the electronic surveys according to the comments received from the WACOR.

The revised survey instruments will be further tested in cognitive interviews (see task 5). Additional comments and requests for revision will be provided by the WACOR to the contractor following this stage of survey development.

<u>Deliverables and Schedule under Task 4</u>
4a. Provide weblinks to electronic surveys for survey review and testing within 2 weeks of receiving technical direction from the WACOR.
4b. Revise electronic versions of the survey instruments within 1 week of receiving comments from the WACOR and provide links to revised survey instruments for use in cognitive interviews.

4c. Following cognitive interviews, revise electronic versions of the survey instruments and provide links to revised survey instruments for use in the survey pretest within 1 week of receiving comments from the WACOR.

4d. Following the survey pretest, revise electronic versions of the survey instruments and provide links to revised survey instruments for use in the full survey administration within 1 week of receiving comments from the WACOR.

Task 5 - Facilitate and Arrange for 20 One-on-One Interviews for Health Survey Development

At the conclusion of the focus groups for developing the health survey instrument, the contractor shall arrange for a series of up to 12 one-on-one interviews with potential respondents (in 2 sessions). After the peer review of the survey instrument the contractor shall arrange for up to 8 additional one-on-one interviews with potential respondents (in 2 sessions). Each interview shall last approximately 50-60 minutes. Computers with necessary software shall be available for the interviewees to facilitate testing of the electronic survey instrument. EPA will conduct these interviews to test different versions of the survey instrument and will provide all materials for the participants.

The contractor shall recruit participants according to criteria provided by the WACOR. The contractor shall provide an appropriate facility and location for these interviews. The contractor shall arrange for these interviews to be audio- and video-recorded in digital format and delivered to EPA on DVD or by digital download. Written transcripts of each interview, however, will not be required. As with the focus groups in task 3, the one-on-one interviews are expected to be held in the Washington, DC metro area, but may include others such as Baltimore, MD and Richmond, VA. The WACOR will provide technical direction as to the expected schedule and final locations.

The contractor shall immediately alert the WACOR to any anticipated event under the work assignment which may result in incurring an estimated $20,000 or more cost, funded by EPA, specific to that event, meeting, training, etc. Those costs would include travel of both prime and consultant personnel, planning and facilitation costs, AV and rental of venue costs, etc. The EPA WACOR will then prepare approval internal paperwork for the event and will advise the CO when appropriate signatures have been obtained. At that point, the CO will notify the contract when effort can proceed for the event. If the event is being sponsored by another EPA organization, the organization providing the planning is responsible for the approval.

The WACOR, in conjunction with the appropriate personnel in NCEE, will secure ICR approval for the one-on-one interviews under an existing agreement with OMB for expedited review and will work with the contractor to ensure compliance with other relevant OMB guidance.

<u>Deliverables and schedule under Task 5</u>

5a. Establish location and dates for 12 one-on-one interviews (in 2 sessions) within 1 week of receiving technical direction from WACOR.
5b. Recruit participants for the first set of interviews within 1 week of establishing location and dates for interviews, and recruit participants for the subsequent interviews according to the schedule determined in task 5a.

5c. Establish location and dates for 8 additional one-on-one interviews (in 2 sessions) within 1 week of receiving technical direction from WACOR.
5d. Arrange audio- and video- recordings of each interview
5e. Submit audio- and/or video-recordings to WACOR within one week of completing each set of interviews.

Task 6 – Recommendations for Sampling Strategy (no change)

The contractor shall provide a memorandum recommending a sampling strategy to achieve goals expressed by the WACOR. The sampling strategy may include (but may not be limited to) stratification by household structure (e.g., adults with children vs. adults with no children), recruitment method, and versions of the survey. Specifically, EPA plans to administer the survey using a split sample design on recruitment. Namely, EPA expects to administer the survey electronically to both a sample drawn from a PBIP as well as a sample of respondents recruited directly by mail. For both samples, the survey would be administered electronically via the internet.

Deliverables and Schedule under Task 6

6a. Submit a memorandum recommending a sampling strategy within 2 weeks of receiving technical direction from WACOR to achieve precision requirements.

Task 7 – Prepare ICR Package

The contractor shall provide summary descriptions of selected topics to inform the draft ICR package to be submitted to OMB for approval for the conduct of the survey. Primarily, this task will involve providing brief descriptions of the sample selection process, collection methods, and follow up for EPA to incorporate into the supporting statement. A description of the sampling strategy and precision requirements will be provided under task 6. EPA will submit the ICR package to EPA's Office of Environmental Information (OEI) for formal transmittal to OMB. The contractor shall assist with revisions to the sections of the ICR identified above based on comments transmitted by the WACOR up to 3 times.

Deliverables and Schedule under Task 7:

7a. Prepare summary descriptions of selected topics to inform the ICR package within 2 weeks of completing task 6b.

7b. Revise summary descriptions up to 3 times within 1 week of receiving each round of comments from WACOR.

Task 8 – Coding Plan

Survey Development:

The contractor shall provide assistance in the thematic coding for qualitative content analysis of focus group and cognitive interview data. EPA will determine preliminary coding categories for a first pass through the focus group and cognitive interview transcripts. The contractor shall review the coding categories and provide a review of the analyzed text to help determine whether the codes were appropriately applied.

Deliverables and Schedule under Tasks 9a and 9b:

8a. Review EPA's thematic coding categories for qualitative content analysis of focus groups and cognitive interviews 1 week after receiving technical direction from WACOR.

8b. Provide a review of coded text 3 weeks after receiving technical direction from WACOR.

V. Schedule for Deliverables

Task	Deliverable	Form and Quantity	Schedule
		Phase 1	
Task 1	1a) Work plan	Electronic Document	Within 15 calendar days of work assignment receipt
	1b) Kick-off meeting	Meeting/teleconference	Within 7 calendar days of work plan approval.
Task 2	2a) Draft list of potential expert panel participants	Electronic Document	Within 1 week of technical direction providing desired credentials
	2b) Confirmation of expert panel participants	Electronic Document	Within 2 weeks of comments from WACOR on 2a
Task 3	3a) Establish location and initial dates for six focus groups	Email	Within 1 week of receipt of technical direction from WACOR
	3b) Recruit participants for first focus group within	Electronic confirmation	Within 1 week of 3a)
	3c) arrange audio and/or video recordings for each group	Electronic confirmation	Within 1 week of 3a)
	3d) submit audio and video recordings and written transcripts to WA COR	Electronic documents/DVDs	Within 1 week of completion of each focus group
Task 4	4a) Submit electronic files of each version of survey instruments to be used in cognitive interviews	Electronic documents	Within 2 weeks of receiving technical direction form WACOR

	4b) Revise electronic versions of cognitive interview surveys	Electronic Document	Within 1 week of receiving comments from WACOR
	4c) Revise electronic files of survey instruments for use in pretest	Electronic documents	Within 1 week of receiving technical direction from WACOR
	4d) Revise electronic files of survey instruments for use in Full survey		Within 1 week of receiving technical direction from WACOR
Task 5	5a) Establish location and dates for 12 one-on-one interviews.	Email	Within 1 week of receiving technical direction from WACOR
	5b) Recruit participants for the first 12 one-on-one interviews	Electronic Document	First interview: within 1 week of completing task 5a
	5c) Establish location and dates for up to 8 more one-on-one interviews	Electronic Document	First interview: within 1 week of receiving technical direction from WACOR
	5d) Arrange audio and video recordings of each interview	NA	To coincide with 5a
	5e) Submit audio and video recordings of interviews and written transcripts of interviews	DVD, electronic document	Within 1 week of completing each set of interviews
Task 6	6a) Submit memo recommending sampling strategy	Electronic Document	Within 2 weeks of receiving technical direction from WACOR
Task 7	7a) summaries of selected topics to inform ICR package	Electronic Document	Within 2 weeks of receiving technical direction from WACOR

	7b) revised summaries	Electronic Document	Within 1 week of receiving comments from WACOR (to be repeated up to 2 additional times)
Task 8	8 a) Review of EPA thematic coding categories for qualitative content analysis	Electronic Document	Within 1 week of receiving technical direction from WACOR
	8 b) Review of coded text	Electronic Document	Within 3 weeks of receiving technical direction from WACOR

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-47

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2018 Base Option Period Number 3	SP Health Benefits Survey

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.2.2

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
Increase in LOE for Task 2.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2018		306
This Action:		204
Total:		510

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Nathalie Simon	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-2347 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name: Nicholas Bisher	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

AMENDMENT TO PERFORMANCE WORK STATEMENT

Title:	Estimating the Value of Health Benefits Using a Stated Preference Survey
Contractor:	Abt Associates
Contract No.:	EP-C-13-039
Work Assignment Number:	3-47
Amendment:	2
Estimated Period of Performance:	Date of issuance – July 31, 2017
Estimated Level of Effort:	**+ 27.0 hours** **(510 hours total)**
Key EPA Personnel:	Work Assignment Contracting Officer's Representative (WACOR): Nathalie Simon OP/ NCEE (MC 1809T) 202-566-2347

This amendment pertains to Task 2 of WA 3-47-1 under which the contractor is asked to establish and coordinate activities of two expert panels to review draft survey materials.

The description of the task and deliverables remain unchanged from the Amended PWS (Amendment #1); however, due to modified expectations for the time needed to prepare and participate in the panel reviews, EPA is increasing its estimate of LOE (and ODC) for the relevant task by 27 hours to cover the expected increase in LOE for two consultants. Additional ODC funds are also added to cover the increase in effort for four additional experts brought on through subcontracts.

The increased LOE is based on the following assumptions:

Preparation for first conference call: 4.5 hours
First conference call: 2.0 hours
Complete and write up first review: 4 hours
Prepare for second conference call: 3.0 hours
Second conference call and preparation: 2.0 hours
Complete and write-up second review: 4 hours

Total: 19.5 hours per reviewer

In their workplan, Abt had identified two subcontractors and one consultant to review the Water Quality survey and had assumed 12.0 hours LOE per reviewer and had assumed a rate of approximately $200/hr for the two subcontractors.

Assuming similar staffing for the Health benefits survey review, EPA is adding 27.0 hours for the consultants and additional funds to cover the additional 7.5 hours in LOE for each of four subcontractors.

Task 2: **Establish and coordinate activities of expert panel**

The contractor shall coordinate activities of two three-person teams of experts to provide input at several points in the survey development process in the form of comments on draft materials, suggestions and other advice related to two stated preference surveys under development: one focused on health benefits and the other on water quality benefits. Each expert panel shall consist of three members from the academic or scientific community with backgrounds in environmental economics, stated preference valuation, and survey methodology. At least two of the experts on one panel shall have expertise in valuing reductions in health risks and at least two experts on the second panel shall have experience in nonmarket valuation of surface water quality improvements. The WACOR will provide additional criteria through technical direction to assist the contractor in selecting experts. Activities of the two expert panels will include providing advice on the development of the respective survey instruments based on outcomes of focus group discussions, providing recommendations on the study designs for the study in question, and proposing alternatives and improvements to the data analysis plans for the study. The expert panel members shall provide their individual comments and suggestions on all materials in writing. The expert input provided under this task would not serve to meet the requirements set forth in the Peer Review Guidelines for peer review of these ISI products. The required peer review would be undertaken by other means, and not via this same contract and Work Assignment.

The contractor shall arrange for up to two meetings of each expert panel. All meetings will occur remotely, with EPA providing the webinar access. Each of the meetings will last no more than two hours. The WACOR will provide all electronic versions of documents to be discussed to the contractor for distribution in advance of the meetings The contractor shall provide the WACOR with electronic versions of the panelists' completed reviews.

<u>Deliverables and Schedule under Task 2</u>

2a) Discussion between contractor and WACOR regarding general composition of the expert panel to take place within one week of receipt of the WA.

2b) Confirmation from contractor of expert panel participation within one week of discussion noted in 2a.

2c) Dates for meetings to be identified within 1 week of receiving technical direction from WACOR and relevant materials distributed to expert panel members. Meetings to be scheduled at a time and date agreed upon by WACOR and contractor taking into account team and panel member availability.

2d) Expert panel member reviews to be provided within two weeks of meetings.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-47

☐ Other ☒ Amendment Number: 000003

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2018
Base Option Period Number 3

Title of Work Assignment/SF Site Name: Estimating the Value of Health

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.2.2

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/01/2016 To 07/31/2017

Comments:
This amendment removes the increased effort under Task 2 added in Amendment 2. It is anticipated that this effort will be added into a follow-on work assignment in Option Year 3.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2018	Cost/Fee:	LOE: 510
This Action:		-27
Total:		483

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Nathalie Simon (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-2347 FAX Number:
Project Officer Name: Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Noelle Mills (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

WORK ASSIGNMENT

I. Title: Stated Preference Study of Water Quality Benefits

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-48

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Estimated Level of Effort: 234 hours

V. Key EPA Personnel:

Work Assignment Contracting Officers Representative (WACOR):

Chris Moore
Office of Policy 1809T
202-566-2348
202/566-1053 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA or Agency) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines or ELGs) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to obtain contractor support for key activities needed to conduct a stated preference survey of the benefits of the improving surface water quality. Specifically, contractor support is needed for facilitating focus groups and cognitive interviews to aid in survey design and assist in preparing the Information Collection Request (ICR) to be submitted to Office of Management and Budget (OMB) for approval to conduct the subsequent survey.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan. The QA project plan shall describe the procedures for assuring the quality of the primary and secondary economic data used for this work assignment.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor must also report to the EPA WACOR and Contract Level Contracting Officers Representative (CL-COR) when 75 percent of the approved work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement (PWS) the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel:
EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the

EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.

Task 2 - Quality Assurance
The contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA-approved programmatic quality assurance project plan (PQAPP) developed under work assignment 0-01 of this contract, supplemented as needed by procedures outlined in the QAPP previously developed for this work under contract EP-C-07-023. The PQAPP and QAPP describe procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment. EPA will be conducting focus groups and interviews described below in Tasks 4 and 5. The contractor shall prepare transcripts of the focus groups and interviews and ensure their accuracy. The PQAPP describes procedures for data entry, data evaluation, and data quality verification that are sufficient to ensure the accuracy of text transcripts. The contractor shall revise this previously approved QAPP if needed to incorporate any changes to the analyses performed under this WA.

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan that was developed under the Construction and Development WA 0-01 of the contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point under this WA. The EPA WACOR will review the revised memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare the edited SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use the revised SNCVC.

Deliverables and schedule under Task 3

3. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 - Arrange for 10 Focus Groups [Contract PWS Section A.2.2, para 2, page(s) 6]

The contractor shall arrange for the conduct of ten focus groups to examine stated preference valuation approaches for estimating the benefits of improving water quality in the Chesapeake Bay watershed. The ten focus groups shall be held in five separate locations, two focus groups in each location. The WACOR will provide technical direction as to the final locations.

The contractor shall recruit focus group participants based on criteria developed by EPA and provided by the WACOR. The contractor shall arrange for each focus group to be conducted in an appropriate facility with audio-visual support. Each focus group shall be audio- and video-recorded in digital format and delivered to EPA on electronically. The contractor shall also provide written transcripts for the focus groups. The contractor shall recruit 12-14 individuals for each focus group, with the goal of 9-10 participants in each group. Each focus group shall last approximately 2 hours and be conducted at a convenient time and in a convenient location.

The WACOR, in conjunction with the appropriate personnel in the National Center of Environmental Economics (NCEE) will secure information collection request (ICR) approval for the focus groups under an existing agreement with the Office of Management and Budget (OMB) for expedited review.

4a. Recruit participants for first focus group within 1 week of receiving final location information and criteria from EPA and for subsequent focus groups within 1 week of receiving criteria for those groups.
4b. Arrange audio- and/or video- recordings and written transcripts of each group within 1 week of receiving final location information from EPA and for subsequent focus groups within 1 week of receiving criteria for those groups.
4c. Submit audio- and video-recordings and written transcripts to WACOR within 1 week of completing each set of focus groups.

Task 5 - Arrange for 24 One-on-One Interviews [Contract PWS Section A.2.2, para 2, page(s) 6]

The contractor shall arrange for a series of up to 24 one-on-one interviews with potential respondents. Each interview shall last approximately 50-60 minutes. EPA will conduct these interviews to test drafts of the survey instrument and will provide all materials for the participants.

The contractor shall recruit participants according to criteria provided by the WACOR. The contractor shall provide an appropriate facility and location for these interviews. The contractor shall arrange for these interviews to be audio- and video-recorded in digital format and delivered to EPA on DVD. The contractor shall also provide written transcripts of the interviews. Six

interviews shall be held in each of the four locations identified by the WACOR.

The WACOR, in conjunction with the appropriate personnel in NCEE will secure ICR approval for the one-on-one interviews under an existing agreement with OMB for expedited review.

5a. Establish location and dates for first six one-on-one interviews within 1 week of receiving technical direction from WACOR.
5b. Recruit participants for the first set of interviews within 1 week of establishing location and dates for interviews, and recruit participants for the subsequent interviews according to technical direction from WACOR.
5c. Arrange audio- and video- recordings and written transcripts of each interview
5d. Submit audio- and/or video-recordings and written transcripts to WACOR within one week of completing each set of interviews.

Task 6 – Prepare ICR Package [Contract PWS Section A.2.2, para 2, page(s) 6]

The contractor shall prepare a draft of the ICR package to be submitted to OMB for approval to conduct the survey. The package shall follow EPA and OMB guidelines and include all relevant sections identified in the guidance. The contractor shall work closely with the WACOR to ensure that all necessary information is included in the package. The WACOR will provide technical assistance on relevant sections of the package, including providing relevant guidance documents. NCEE will submit the ICR package to EPA's Office of Environmental Information (OEI) for formal transmittal to OMB.

6a. Prepare a first draft of the ICR package within 2 weeks of completing task 4b.
6b. Revise ICR package within 1 week of receiving comments from WACOR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-48

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039	Contract Period: 09/11/2013 To 07/31/2017 Base Option Period Number 3	Title of Work Assignment/SF Site Name: Water Quality SP Study
Contractor: ABT ASSOCIATES INC.	Specify Section and paragraph of Contract SOW: Section A.2.2, para 2, page 6	

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/25/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		234
Total:		234

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Chris Moore (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-2348 FAX Number:
Project Officer Name: Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams TAMMY ADAMS Digitally signed by TAMMY ADAMS DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=TAMMY ADAMS, dnQualifier=0000018417 Date: 2016.08.25 09:05:53 -04'00' (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. Title: Stated Preference Study of Water Quality Benefits

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. Work Assignment Number: 3-48

III. Estimated Period of Performance: Date of Issuance through July 31, 2017

IV. Estimated Level of Effort: 234 hours

V. Key EPA Personnel:

Work Assignment Contracting Officers Representative (WACOR):

Chris Moore
Office of Policy 1809T
202-566-2348
202/566-1053 (fax)

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA or Agency) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines or ELGs) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to obtain contractor support for key activities needed to conduct a stated preference survey of the benefits of the improving surface water quality. Specifically, contractor support is needed for facilitating focus groups and cognitive interviews to aid in survey design and assist in preparing the Information Collection Request (ICR) to be submitted to Office of Management and Budget (OMB) for approval to conduct the subsequent survey.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan. The QA project plan shall describe the procedures for assuring the quality of the primary and secondary economic data used for this work assignment.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor must also report to the EPA WACOR and Contract Level Contracting Officers Representative (CL-COR) when 75 percent of the approved work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement (PWS) the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel:
EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the

EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Deliverables and schedule under Task 1

1a. Work plan within 15 calendar days of receipt of work assignment.

Task 2 - Quality Assurance

The contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA-approved programmatic quality assurance project plan (PQAPP) developed under work assignment 0-01 of this contract, supplemented as needed by procedures outlined in the QAPP previously developed for this work under contract EP-C-07-023. The PQAPP and QAPP describe procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment. EPA will be conducting focus groups and interviews described below in Tasks 4 and 5. The contractor shall prepare transcripts of the focus groups and interviews and ensure their accuracy. The PQAPP describes procedures for data entry, data evaluation, and data quality verification that are sufficient to ensure the accuracy of text transcripts. The contractor shall revise this previously approved QAPP if needed to incorporate any changes to the analyses performed under this WA.

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan that was developed under the Construction and Development WA 0-01 of the contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point under this WA. The EPA WACOR will review the revised memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare the edited SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use the revised SNCVC.

Deliverables and schedule under Task 3

3. If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 - Arrange for 10 Focus Groups [Contract PWS Section A.2.2, para 2, page(s) 6]

The contractor shall arrange for the conduct of ten focus groups to examine stated preference valuation approaches for estimating the benefits of improving water quality in the Chesapeake Bay watershed. The ten focus groups shall be held in five separate locations, two focus groups in each location. The WACOR will provide technical direction as to the final locations.

The contractor shall recruit focus group participants based on criteria developed by EPA and provided by the WACOR. The contractor shall arrange for each focus group to be conducted in an appropriate facility with audio-visual support. Each focus group shall be audio- and video-recorded in digital format and delivered to EPA on electronically. The contractor shall also provide written transcripts for the focus groups. The contractor shall recruit 12-14 individuals for each focus group, with the goal of 9-10 participants in each group. Each focus group shall last approximately 2 hours and be conducted at a convenient time and in a convenient location.

The WACOR, in conjunction with the appropriate personnel in the National Center of Environmental Economics (NCEE) will secure information collection request (ICR) approval for the focus groups under an existing agreement with the Office of Management and Budget (OMB) for expedited review.

4a. Recruit participants for first focus group within 1 week of receiving final location information and criteria from EPA and for subsequent focus groups within 1 week of receiving criteria for those groups.
4b. Arrange audio- and/or video- recordings and written transcripts of each group within 1 week of receiving final location information from EPA and for subsequent focus groups within 1 week of receiving criteria for those groups.
4c. Submit audio- and video-recordings and written transcripts to WACOR within 1 week of completing each set of focus groups.

Task 5 - Arrange for 24 One-on-One Interviews [Contract PWS Section A.2.2, para 2, page(s) 6]

The contractor shall arrange for a series of up to 24 one-on-one interviews with potential respondents. Each interview shall last approximately 50-60 minutes. EPA will conduct these interviews to test drafts of the survey instrument and will provide all materials for the participants.

The contractor shall recruit participants according to criteria provided by the WACOR. The contractor shall provide an appropriate facility and location for these interviews. The contractor shall arrange for these interviews to be audio- and video-recorded in digital format and delivered to EPA on DVD. The contractor shall also provide written transcripts of the interviews. Six

interviews shall be held in each of the four locations identified by the WACOR.

The WACOR, in conjunction with the appropriate personnel in NCEE will secure ICR approval for the one-on-one interviews under an existing agreement with OMB for expedited review.

5a. Establish location and dates for first six one-on-one interviews within 1 week of receiving technical direction from WACOR.
5b. Recruit participants for the first set of interviews within 1 week of establishing location and dates for interviews, and recruit participants for the subsequent interviews according to technical direction from WACOR.
5c. Arrange audio- and video- recordings and written transcripts of each interview
5d. Submit audio- and/or video-recordings and written transcripts to WACOR within one week of completing each set of interviews.

Task 6 – Prepare ICR Package [Contract PWS Section A.2.2, para 2, page(s) 6]

The contractor shall prepare a draft of the ICR package to be submitted to OMB for approval to conduct the survey. The package shall follow EPA and OMB guidelines and include all relevant sections identified in the guidance. The contractor shall work closely with the WACOR to ensure that all necessary information is included in the package. The WACOR will provide technical assistance on relevant sections of the package, including providing relevant guidance documents. NCEE will submit the ICR package to EPA's Office of Environmental Information (OEI) for formal transmittal to OMB.

6a. Prepare a first draft of the ICR package within 2 weeks of completing task 4b.
6b. Revise ICR package within 1 week of receiving comments from WACOR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-48

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Study of water quality benefit

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	Section A.2.2, para 2, page(s) 6

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 08/25/2016 To 07/31/2017

Comments:
The purpose of this action is to amend work assignment 3-48 by increasing the LOE ceiling by 25 hours for Task 6 for a total of 259 at no additional cost to the government.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		234
This Action:		25
Total:		259

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Chris Moore	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-2348 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-49

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Dose-Response Functions

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section B.3 paragraph 1

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/14/2016 To 07/31/2017

Comments:
The purpose is to initiate Work Assignment 3-49. The contractor shall submit an estimated workplan and an estimated budget in accordance with the contract. See attached performance work statement.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		1,000
Total:		1,000

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Chris Dockins	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-2286 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

Title: DOSE-RESPONSE FUNCTIONS FOR BENEFITS ANALYSIS

Contractor: Abt Associates **Contract No.:** EP-C-13-039

Work Assignment Number: 3-49

Estimated Period of Performance: Date of Issuance to July 31, 2017

Estimated Level of Effort: 1000 Total Hours

Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):

Chris Dockins
OP/NCEE, 1809T
Phone: 202-566-2286
Fax: 202-566-2336

Background:

The Environmental Protection Agency (EPA) regulates a number of environmental contaminants that can damage neurological, cardiovascular, immunological, developmental, and other major organ systems. However, many EPA economic analyses have not been able to fully quantify and value the benefits of reductions in the risks of these outcome with the exception of cancer risks and a few health effects with particularly robust epidemiology. One important reason for this shortcoming is a lack of dose-response (or concentration-response) functions that link changes in exposures to changes in health endpoints that are amenable to economic valuation. In some cases, however, data and studies exist in the public health, epidemiologic, and other literature that can be used to estimate such functions. Using these studies and data to better quantify health risk changes would allow EPA offices, including the Office of Water (OW), to more fully characterize the benefits and outcomes of EPA programs, including in the context of benefit-cost analysis.

Therefore, this work assignment (WA) seeks technical assistance to obtain, and as necessary adapt, useful dose- or concentration-response estimates from the existing literature for contaminants that are priorities for the Agency, including lead.

In a previous work assignment for EPA (EP-W8-010, WA 4-11) the contractor has gathered and assessed available data and methods to value adult health benefits from reductions in lead related to cardiovascular mortality, all-cause mortality, and blood pressure. In a subsequent work assignment (EP-W-11-003, WA 4-62) the contractor estimated a concentration-response function for adult lead exposures and cardiovascular

mortality. And in a third work assignment (EP-W-11-003, WA 4-115) the contractor began initial scoping for estimates to support benefits analysis for additional health endpoints associated with lead. This earlier work will not be repeated under this work assignment.

Purpose and Objectives: The purpose of this performance work statement (PWS) is to identify, and as necessary adapt, dose-response functions to support benefits analysis for EPA regulations under the Safe Drinking Water Act (SDWA), the Clean Water Act (CWA), and other statutes. The work will focus on health endpoints for which there is evidence of adverse health effects and which can be sufficiently supported by the public health and economics literature. These include health endpoints associated with adult lead (Pb) exposure previously identified by the contractor under an earlier work assignment.

The work assignment focuses on the primary step in the risk-assessment-based approach for benefits assessment: quantifying the changes in health endpoints resulting from changes in environmental exposures. This involves developing dose- or concentration-response functions based on peer-reviewed public health literature that relates these changes in exposure to changes in adverse health outcomes.

A key issue involved in developing the concentration-response function(s) is the exposure metric and how it relates to exposures of concern (e.g., bone- or blood-concentrations as a measure of adult exposure to lead.). In some cases there may be a stronger relationship in the literature between some health effects and the exposure metric, something that should be considered in this work.

Tasks and Deliverables:

The WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the WACOR's comments. The contractor shall provide the WACOR with electronic copies of all deliverables and cited source/reference material.

The contractor shall only accept technical direction from the WACOR. Technical direction for this work assignment consists of verbal and written feedback on deliverables, requests for follow-up information or revisions of deliverables, and responses to questions from the contractor regarding specific sources of information to collect and review. Issuance of WACOR verbal technical direction will be provided in email and/or memos within 5 days.

The WACOR will request the contractor to engage in technical communication with other EPA staff if needed for the performance of this work assignment.

Contractor personnel shall at all times identify themselves as contractor employees and shall not present themselves as EPA employees. Furthermore, they shall not represent the views of the U.S. Government, EPA, or its employees. In addition, the contractor shall not engage in inherently governmental activities, including but not limited to actual determination of EPA policy and preparation of documents on EPA letterhead.

All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

QUALITY ASSURANCE (QA) REQUIREMENTS

The Contractor shall submit with their technical proposal a written Quality Assurance Project Plan (QAPP), as this project generates environmental data using models.

TASKS

Task 1 - Prepare Work Plan

The contractor shall prepare a workplan within 15 calendar days of receipt of a work assignment signed by the Contracting Officer (CO). The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task and a staffing plan. The WACOR, the Contract-Level Contracting Officer's Representative (CL-COR), and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised workplan incorporating the CO's comments, if required.

<u>Deliverables under Task 1</u>

1. Work plan **within 15 days of WA receipt**

Task 2 –Identify, and as necessary adapt, dose-response functions for children's exposure to lead *[Contract PWS Section B.3, "Specific Information on Pollutants of Concern," page 10 of 24]*

The contractor shall identify, based on reviews of the literature, one or more dose-response functions suitable for estimating changes in health endpoints for benefits analysis of reduced childhood exposure to lead. To the extent possible the dose-response functions will be based on human data rather than animal bioassays. The contractor shall determine an appropriate strategy for evaluating the feasibility of these dose-response functions for benefits analysis, including any necessary adaptations of the functions. The contractor shall create a report documenting any search strategies, the evaluation of the literature, selected dose-response functions, and how these are applied for benefits analysis, including how to aggregate the results with other health effects benefits (e.g.,

intelligence quotient (IQ) changes) without double-counting. The report shall be suitable for external peer review.

Deliverables under Task 2
2a. Draft child dose-response functions report within 12 weeks of work assignment initiation
2b. Revised child dose-response functions reports, within 4 weeks of receiving comments from WACOR.

Task 3 –Identify, and as necessary adapt, dose-response functions for cardiovascular effects of adult exposure to lead and other health endpoints ***[Contract PWS Section B.3, "Specific Information on Pollutants of Concern," page 10 of 24]***

The contractor shall identify, based on reviews of the literature, one or more dose-response functions suitable for estimating changes in health endpoints for benefits analysis of reduced adult exposure to lead, including cardiovascular outcomes. To the extent possible the dose-response functions will be based on human data rather than animal bioassays. The contractor shall determine an appropriate strategy for evaluating the feasibility of these dose-response functions for benefits analysis, including any necessary adaptations of the functions. The contractor shall create a report documenting any search strategies, the evaluation of the literature, selected dose-response functions, and how these are applied for benefits analysis, including how to aggregate the results with other health effects benefits (e.g., mortality risk changes) without double-counting. The report shall be suitable for external peer review.

Deliverables under Task 3
3a. Draft adult dose-response functions report within 12 weeks of work assignment initiation
3b. Revised adult dose-response functions reports, within 4 weeks of receiving comments from WACOR.

SUMMARY OF DELIVERABLES AND DATES:

Task	Deliverable	Delivery Schedule
1	Work plan	15 calendar days after effective date of work assignment
2a	Draft Child Dose-Response Functions Report	12 weeks after effective date of work assignment
2b	Revised Child Dose-Response Functions Report	4 weeks after receiving comments from WACOR
3a	Draft Adult Dose-Response Functions Report	12 weeks after effective date of work assignment

3b	Revised Adult Dose-Response Functions Report	4 weeks after receiving comments from WACOR

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-49

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2018 Base Option Period Number 3	Dose-Response Functions

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section B.3 paragraph 1

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 09/14/2016 To 07/31/2017

Comments:
This amendment is for a no-cost increase in LOE of 125 hours. The contractor was able to complete work with a more efficient mix of labor and can perform additional in-scope work.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2018		1,000
This Action:		125
Total:		1,125

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Chris Dockins	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-2286 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name: Nicholas Bisher	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-50

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Probabilistic Dose-Response

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section B.3 paragraph 1

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/14/2016 To 07/31/2017

Comments:
The purpose is to initiate Work Assignment 3-50. The contractor shall submit an estimated workplan and an estimated budget in accordance with the contract. See attached performance work statement.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		350
Total:		350

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Chris Dockins	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-2286 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

Title: Probabilistic Dose-Response Functions

Contractor: Abt Associates **Contract No.: EP-C-13-039**

Work Assignment Number: 3-50

Estimated Period of Performance: Date of issuance to July 31, 2017

Estimated Level of Effort: 350 hours

Work Assignment Contracting Officer's Representative (WACOR):

Chris Dockins
NCEE, 1809T
202-566-2286
202-566-2338

Background and Purpose:

Benefit-Cost Analysis is widely employed in evaluating environmental policies, including those taken under the Clean Water Act (CWA) and Safe Drinking Water Act (SDWA), and is required by Executive Order. The Environmental Protection Agency (EPA) has well-developed tools to conduct health benefits analysis for some toxics where there is sufficient epidemiological data, but for many other contaminants of concern there are fewer tools with which to evaluate the health benefits of exposure reductions. It is therefore important to develop and evaluate new methods for quantifying health risks and outcomes that are consistent and compatible with economic analysis. These methods, once sufficiently developed and assessed, can provide information needed to help make sound and informed decisions on regulating environmental contaminants.

The limitations of current methods and the need for new methods is addressed in Chapter 5 of the National Research Council (NRC) report *Science and Decisions,* entitled "Toward a Unified Approach to Dose-Response Assessment" (NRC, 2009). The NRC concludes in this chapter that "Separation of cancer and noncancer outcomes in dose-response analysis is artificial…The separation not only is scientifically unjustified but leads to undesirable risk-management outcomes, including inadequate attention to noncancer end points, especially in benefit-cost analyses." The NRC also stated that a "probabilistic approach to noncancer assessment, similar to how cancer risks are expressed, would be much more useful in risk-benefit analysis and decision-making." The NRC recommends that test cases be developed in such a way that different conceptual models can be applied in the unified approach.

More recently, the World Health Organization (WHO) International Programme on Chemical Safety (IPCS) published a "Guidance document on evaluating and expressing uncertainty in

hazard characterization" (WHO 2014). The IPCS guidance document elaborates on and updates the general dose-response assessment approaches described in *Science and Decisions*.

The primary purpose of this work assignment (WA) is to secure support in developing test cases as recommended by the NRC, including consideration of methods described in the IPCS guidance document. More specifically, this work assignment is to obtain support to develop a probabilistic dose-response function or probabilistic reference values (i.e., a set of risk-specific doses) for a single chemical or group of chemicals. The goal is to demonstrate the feasibility of probabilistic dose-response and provide better quantification of health effects for use in benefits analyses. The function or functions developed should draw upon existing publications for data on chemical health effects, distributions of uncertainty/adjustment factors, and other parameters.

Under previous work assignments (EP-W-11-003, WA 4-91 and WA 4-115), the contractor conducted a probabilistic risk assessment of health effects from exposure to carbonyl sulfide and tetrachlorobenzene, and for acrolein, and prepared manuscripts describing the analysis. Under that same work assignment the contractor developed memoranda that compare and contrast alternative approaches to probabilistic risk assessment. This prior work is informative, but will not be repeated under the current work assignment.

Tasks and Deliverables:

The WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the WACOR's comments. All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.
Contractor personnel shall at all times identify themselves as Contractor employees and shall not present themselves as EPA employees. Furthermore, they shall not represent the views of the U.S. Government, EPA, or its employees. In addition, the Contractor shall not engage in inherently governmental activities, including but not limited to actual determination of EPA policy and preparation of documents on EPA letterhead.

QUALITY ASSURANCE (QA) REQUIREMENTS

The Contractor shall submit with their technical proposal a written Quality Assurance Project Plan, as this project generates environmental data using models.

Task 1 - Prepare Work Plan

The contractor shall prepare a workplan within 15 calendar days of receipt of a work assignment signed by the Contracting Officer (CO). The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, as well as a detailed cost estimate by task and a staffing plan. The WACOR, the Contract-Level Contracting Officer's Representative (CL-COR), and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

1. Work plan within 15 calendar days of receipt of work assignment.

Task 2 - Develop probabilistic dose-response function for one or more health endpoints ***[Contract PWS Section B.3, "Specific Information on Pollutants of Concern," page 10 of 24]***

The contractor shall develop one or more probabilistic dose-response functions for health effects of a contaminant of concern. The contaminant will be provided in technical direction by the WACOR, based on the results of work assignments currently nearing completion. The contractor study shall apply techniques consistent with those identified in Chapter 5 of *Science and Decisions*, entitled "Toward a Unified Approach to Dose-Response Assessment" (NRC, 2009), and the WHO/IPCS "Guidance document on evaluating and expressing uncertainty in hazard characterization" (WHO 2014). The contractor shall evaluate available dose-response data for the chosen chemical, and identify health effects that are candidates for quantitative modeling. The contractor shall then develop an analytical plan for employing these methods based on available data. The contractor shall revise the plan as needed based on comments provided by the WACOR.

The analysis should draw upon existing publications for data on chemical health effects, distributions of uncertainty/adjustment factors, and other parameters. The analysis should illustrate how to employ one or more methods to calculate risks for the chosen chemical. The contractor shall draft a report describing the analysis and results, and shall finalize the report based on comments provided by the WACOR.

Deliverables and schedule under Task 2

2a. Analytical plan for conducting case study within 10 weeks of receiving technical direction from WACOR on selected chemical of concern
2b. Revised analytical plan for conducting case study within 2 weeks of comments from WACOR
2c. Draft report within 36 weeks of workplan approval
2d. Final report within 2 weeks of receiving comments from WACOR

Task 3: Revisions to Submitted manuscripts on (1) acrolein and (2) carbonyl sulfide and tetrachlorobenzene. ***[Contract PWS Section B.3, "Specific Information on Pollutants of***

Concern," page 10 of 24]

Under prior work assignments (EP-W-11-003, WA 4-91 and WA 4-115) the contractor performed analysis and drafted two manuscripts for publication, "Carbonyl Sulfide and Tetrachlorobenzene Case Studies Comparing Two Human Health Noncancer Risk Assessment Models: BMDS and Straw Man," and "Applying the 'Straw Man' Model to Acrolein." Under this work assignment the contractor shall revise the document based on peer review comments received and generate a document summarizing responses to those comments.

Deliverables and schedule under Task 3

3a. Revised manuscript for "Carbonyl Sulfide and Tetrachlorobenzene Case Studies Comparing Two Human Health Noncancer Risk Assessment Models: BMDS and Straw Man," including a summary of the response to comments, within 6 weeks of receiving peer review comments
3b. Revised manuscript for "Applying the 'Straw Man' Model to Acrolein," including a summary of the response to comments, within 6 weeks of receiving peer review comments

Summary of Deliverables and Dates:

1a. Work plan within 15 calendar days of receipt of work assignment.

2a. Analytical plan for conducting case study within 10 weeks of receiving technical direction from WACOR on selected chemical of concern
2b. Revised analytical plan for conducting case study within 2 weeks of comments from WACOR
2c. Draft report within 36 weeks of workplan approval
2d. Final report within 2 weeks of receiving comments from WACOR

3a. Revised manuscript for "Carbonyl Sulfide and Tetrachlorobenzene Case Studies Comparing Two Human Health Noncancer Risk Assessment Models: BMDS and Straw Man", including a summary of the response to comments, within 6 weeks of receiving peer review comments
3b. Revised manuscript for "Applying the 'Straw Man' Model to Acrolein", including a summary of the response to comments, within 6 weeks of receiving peer review comments

References

National Research Council (NRC). *Science and Decisions: Advancing Risk Assessment.* National Acadamies Press, Washington, DC. 2009

World Health Organization (WHO). Guidance Document on Evaluating and Expressing Uncertainty in Hazard Characterization. Geneva, Switzerland: International Programme on Chemical Safety (IPCS). 2014

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-51

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Valuation of Health Effects

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	Section A.2.2, page 6 of 24

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/14/2016 To 07/31/2017

Comments:
The purpose is to initiate Work Assignment 3-51. The contractor shall submit an estimated workplan and an estimated budget in accordance with the contract. See attached performance work statement.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		600
Total:		600

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Chris Dockins	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-2286 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

Title: Valuing Birth Outcomes and Health Effects

Contractor: Abt Associates **Contract No.:** EP-C-13-039

Work Assignment Number: 3-51

Estimated Period of Performance: Date of issuance to July 31, 2017

Estimated Level of Effort: 600 hours

Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):

Chris Dockins
OP/NCEE, 1809T
202-566-2286
202-566-2338

Background and Purpose:

The purpose of this work assignment (WA) is to secure support in estimating values for adverse birth outcomes, particularly preterm birth and reductions in birthweight, for use in economic benefits analysis. These birth outcomes are associated with a number of contaminants in water and other media, including lead. Under a previous work assignment (EP-W-11-003, WA 4-91), the contractor developed draft cost-of-illness values for reduced birthweight and preterm birth. This work assignment seeks to complete the development of these values so that they may undergo external peer review. No work performed under this work assignment will duplicate work performed under previous work assignments.

The work assignment also secures support for developing values for other health endpoints based on Environmental Protection Agency (EPA or Agency) needs and technical direction from the WACOR. These tasks are described more completely below.

Tasks and Deliverables:

The WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the WACOR's comments. All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the

public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

Contractor personnel shall at all times identify themselves as Contractor employees and shall not present themselves as EPA employees. Furthermore, they shall not represent the views of the U.S. Government, EPA, or its employees. In addition, the Contractor shall not engage in inherently governmental activities, including but not limited to actual determination of EPA policy and preparation of documents on EPA letterhead.

QUALITY ASSURANCE (QA) REQUIREMENTS

The Contractor shall submit with their technical proposal a written Quality Assurance Project Plan, as this project generates environmental data using models.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of a work assignment signed by the Contracting Officer (CO). The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, detailed cost estimate by task and a staffing plan. The WACOR, the Contract-Level Contracting Officer's Representative (CL-COR), and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Deliverables and schedule under Task 1

1. Workplan within 15 calendar days of receipt of work assignment.

Task 2 - Cost-of-Illness Studies for adverse birth outcomes **[Contract PWS Section A.2.2, page 6 of 24]**

Under a previous work assignment, 3-75 (contract EP-W-11-003), the contractor produced draft estimates of the cost of illness for reduced birth weight and for preterm birth. The contractor shall complete and finalize cost-of-illness for reduced birth weight and preterm birth, responding to comments provided by the WACOR, and from peer review. The contractor shall provide a report suitable for peer review detailing the analysis and results. This report may be in the form of a manuscript suitable for publication in an appropriate peer-reviewed journal. Upon receiving any comments from external peer reviewers, conveyed as technical direction from the WACOR, the contractor shall revise the report.

Deliverables and schedule under Task 2

2a. Draft report on cost-of-illness estimates within 12 weeks of work plan initiation
2b. Revised report within 2 weeks of receiving comments from WACOR
2c. Revised report based on comments from external peer review within 12 weeks of receiving these comments from the WACOR

Task 3 - Valuation estimates for health outcomes **[Contract PWS Section A.2.2, page 6 of 24]**

The contractor shall conduct analysis to estimate the cost-of-illness and/or the revealed willingness to pay for other birth-related and developmental health effects arising from exposure to toxic chemicals. Specific health endpoints will be identified in technical direction from the WACOR. The contractor shall first provide a memorandum describing the analytic plan based on available data and methods, and shall revise the plan based on comments provided by the WACOR. The contractor shall then undertake the analysis and provide a report describing the analysis and results. The report will be revised based on comments provided by the WACOR.

Deliverables and schedule under Task 3

3a. Draft analytic plan memorandum within 6 weeks of receiving technical direction from WACOR
3b. Revised analytic plan memorandum within 2 weeks of receiving technical direction from WACOR
3c. Draft report on valuation estimates within 12 weeks of revised analytic plan
3d. Revised report within 4 weeks of receiving technical direction from WACOR

Summary of Deliverables and Dates:

1a. Work plan within 15 calendar days of receipt of work assignment.

2a. Draft report on cost-of-illness estimates within 12 weeks of work plan initiation
2b. Revised report within 2 weeks of receiving comments from WACOR
2c. Revised report based on comments from external peer review within 12 weeks of receiving these comments from the WACOR

3a. Draft analytic plan memorandum within 6 weeks of receiving technical direction from WACOR
3b. Revised analytic plan memorandum within 2 weeks of receiving technical direction from WACOR
3c. Draft report on valuation estimates within 12 weeks of revised analytic plan
3d. Revised report within 4 weeks of receiving technical direction from WACOR

WORK ASSIGNMENT

Title: Valuing Birth Outcomes and Health Effects

Contractor: Abt Associates **Contract No.:** EP-C-13-039

Work Assignment Number: 3-51

Estimated Period of Performance: Date of issuance to July 31, 2017

Estimated Level of Effort: 600 hours

Key EPA Personnel:

Work Assignment Contracting Officer's Representative (WACOR):

Chris Dockins
OP/NCEE, 1809T
202-566-2286
202-566-2338

Background and Purpose:

The purpose of this work assignment (WA) is to secure support in estimating values for adverse birth outcomes, particularly preterm birth and reductions in birthweight, for use in economic benefits analysis. These birth outcomes are associated with a number of contaminants in water and other media, including lead. Under a previous work assignment (EP-W-11-003, WA 4-91), the contractor developed draft cost-of-illness values for reduced birthweight and preterm birth. This work assignment seeks to complete the development of these values so that they may undergo external peer review. No work performed under this work assignment will duplicate work performed under previous work assignments.

The work assignment also secures support for developing values for other health endpoints based on Environmental Protection Agency (EPA or Agency) needs and technical direction from the WACOR. These tasks are described more completely below.

Tasks and Deliverables:

The WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the WACOR's comments. All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the

public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

Contractor personnel shall at all times identify themselves as Contractor employees and shall not present themselves as EPA employees. Furthermore, they shall not represent the views of the U.S. Government, EPA, or its employees. In addition, the Contractor shall not engage in inherently governmental activities, including but not limited to actual determination of EPA policy and preparation of documents on EPA letterhead.

QUALITY ASSURANCE (QA) REQUIREMENTS

The Contractor shall submit with their technical proposal a written Quality Assurance Project Plan, as this project generates environmental data using models.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of a work assignment signed by the Contracting Officer (CO). The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, detailed cost estimate by task and a staffing plan. The WACOR, the Contract-Level Contracting Officer's Representative (CL-COR), and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Deliverables and schedule under Task 1

1. Workplan within 15 calendar days of receipt of work assignment.

Task 2 - Cost-of-Illness Studies for adverse birth outcomes **[Contract PWS Section A.2.2, page 6 of 24]**

Under a previous work assignment, 3-75 (contract EP-W-11-003), the contractor produced draft estimates of the cost of illness for reduced birth weight and for preterm birth. The contractor shall complete and finalize cost-of-illness for reduced birth weight and preterm birth, responding to comments provided by the WACOR, and from peer review. The contractor shall provide a report suitable for peer review detailing the analysis and results. This report may be in the form of a manuscript suitable for publication in an appropriate peer-reviewed journal. Upon receiving any comments from external peer reviewers, conveyed as technical direction from the WACOR, the contractor shall revise the report.

Deliverables and schedule under Task 2

2a. Draft report on cost-of-illness estimates within 12 weeks of work plan initiation
2b. Revised report within 2 weeks of receiving comments from WACOR
2c. Revised report based on comments from external peer review within 12 weeks of receiving these comments from the WACOR

Task 3 - Valuation estimates for health outcomes **[Contract PWS Section A.2.2, page 6 of 24]**

The contractor shall conduct analysis to estimate the cost-of-illness and/or the revealed willingness to pay for other birth-related and developmental health effects arising from exposure to toxic chemicals. Specific health endpoints will be identified in technical direction from the WACOR. The contractor shall first provide a memorandum describing the analytic plan based on available data and methods, and shall revise the plan based on comments provided by the WACOR. The contractor shall then undertake the analysis and provide a report describing the analysis and results. The report will be revised based on comments provided by the WACOR.

Deliverables and schedule under Task 3

3a. Draft analytic plan memorandum within 6 weeks of receiving technical direction from WACOR
3b. Revised analytic plan memorandum within 2 weeks of receiving technical direction from WACOR
3c. Draft report on valuation estimates within 12 weeks of revised analytic plan
3d. Revised report within 4 weeks of receiving technical direction from WACOR

Summary of Deliverables and Dates:

1a. Work plan within 15 calendar days of receipt of work assignment.

2a. Draft report on cost-of-illness estimates within 12 weeks of work plan initiation
2b. Revised report within 2 weeks of receiving comments from WACOR
2c. Revised report based on comments from external peer review within 12 weeks of receiving these comments from the WACOR

3a. Draft analytic plan memorandum within 6 weeks of receiving technical direction from WACOR
3b. Revised analytic plan memorandum within 2 weeks of receiving technical direction from WACOR
3c. Draft report on valuation estimates within 12 weeks of revised analytic plan
3d. Revised report within 4 weeks of receiving technical direction from WACOR

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-53

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Urban Waste Tech Asst

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Sections A-E

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 08/31/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		8,116
Total:		8,116

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Thomas Frankiewicz	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-343-9232 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name:	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. **Title:** Urban Waste Technical Assistance and Network Support

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. **Work Assignment Number:** 3-53

III. **Estimated Period of Performance:** Date of Issuance through July 31, 2017

IV. **Estimated Level of Effort:** 8,116 hours

V. **Key EPA Personnel:**

Work Assignment Contracting Officer's Representative (WACOR):
Tom Frankiewicz
OAR/OAP/CCD (4353TT)
202/343-9232

Alternate Work Assignment Contracting Officer's Representative:
Chris Voell
OAR/OAP/CCD (4353WW)
202/ 343-9468

VI. Background and Purpose:

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA or Agency) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to provide capacity building, technical assistance and tool support and development to cities to improve waste management and support networks of cities cooperating on improved waste management, including some of the following:

- **Multimedia analysis** of treatment and disposal options for the reduction of open dumping, diversion of organic waste from disposal sites, and improving the design and operations of disposal sites to prevent the migration of leachate into groundwater, air and greenhouse gas emissions.
- **Pollution prevention**: exploring options for organics diversion and treatment to avoid water and air pollution issues associated with dumpsites.

- **Economic market incentives**: to assist partners in evaluating and developing financing and cost recovery tools and policies to improve urban waste management.
- **Environmental benefit analysis**: including but not limited to environmental assessment, pre-feasibility assessments, and estimation of monetized and non-monetized benefits to improve solid waste management especially as it relates to groundwater and surface water protection. Examples include assisting partners in evaluating the potential benefits of leachate control from improved landfill design or operations. Partners may also benefit from assessment of potential air pollutant or greenhouse gas emission reductions from improved solid waste management: for example, by reducing the amount of organic waste deposited in landfills.

EPA is a lead partner in the United Nations Environment Program (UNEP) Climate and Clean Air Coalition (CCAC) Municipal Solid Waste Initiative (MSWI). The overarching goal of the MSWI is to enable cities, with the support of their regional and national governments, to move along the solid waste management hierarchy in a coordinated and cohesive manner in order to mitigate emissions, especially methane and black carbon. The initiative is flexible and takes into account the different needs of cities to reach an optimal waste management system based on their specific circumstances, including the need to address groundwater contamination from leachate.

Since 2012, participating cities and countries have come together to share their experience and expertise through peer-to-peer partnerships (e.g., sister city pairings), regional workshops to disseminate best practise, and a web-based knowledge-sharing platform to reach a global audience. The purpose of this assignment is to support EPA in its role as a lead partner of the initiative, including capacity building activities in India.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance project plan (QAPP) that was based on Task 2 QAPP language. The QAPP shall describe the procedures for assuring the quality of the primary and secondary environmental and economic data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called on to build upon and continue work performed under orders EP-B31H-0014 and No. EP-B14H-0016, issued under Contract No. GS-10F-0299K, BPA No. EP-BPA-12-H-0024. The work performed under this work assignment will not duplicate work conducted under the previously listed orders.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor will not be accessing and evaluating CBI.

Budget Reporting: The contractor must also report to the EPA WACOR when 75 percent of the approved Work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA Contract level Contracting Officer's Representative (CL-COR), and EPA WACOR.

Quick Response: Under this Performance Work Statement (PWS), the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: The contractor shall be required to travel under this work assignment. Travel may be to participate with EPA in on site data collection, in meetings with trade associations, and to meet with EPA to discuss methodology and other important issues associated with the project. A request for approval for any travel directly chargeable to this work assignment must be submitted and approved by the CL-COR before travel begins.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work Plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR, and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the workplan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

Deliverable	Projected Schedule Date
Work Plan	Within 15 calendar days of receipt of work assignment

Task 2 - Quality Assurance

Under this work assignment, the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved quality assurance (QA) project plan. Because this work assignment requires the contractor to collect or use environmental or economic data, a Quality Assurance Project Plan (QAPP) is required. The QAPP shall describe the procedures for assuring the quality of the primary and secondary environmental and/or economic data used for the work assignment.

Deliverable	Projected Schedule Date
QAPP	Within 15 calendar days after submittal of the Work Plan
Revised QAPP reflecting EPA comments, if needed	Within 10 calendar days of receipt of EPA comments
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly throughout the WA period of performance

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall prepare and submit a memorandum that proposes a standardized naming convention and version control (SNCVC) for all deliverables associated with the WA. This system will ensure that deliverables are clearly named and dated and that the sequence of versions of a document is clear. The EPA WACOR will review the memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare a revised SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use this standardized convention for all deliverables associated with the work assignment(s). The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point during the WA.

Deliverable	Projected Schedule Date
SNCVC memorandum	Within 7 calendar days of Work Plan approval
Revised SNCVC memorandum, if needed	Within 3 calendar days of receipt of EPA comments

Task 4 – Technical Assistance

EPA is a lead partner of the CCAC MSWI. As a lead partner, EPA supports cities in developing countries in improving their solid waste management to address local environmental conditions as well as global climate change. While the nature of the work will vary from city to city, the type of assistance offered is expected to fall within the following categories: collection, recycling, waste diversion, composting, anaerobic digestion, landfill gas energy, closing dump sites, engineered sanitary landfills, management and leadership, and sustainable financing.

The contractor shall support capacity building and knowledge exchanges where U.S. government and other stakeholders from the waste sector exchange information with local experts on key issues affecting short lived climate pollutants (SLCPs) across the waste sector. It is not expected that the contractor will have to develop all original materials. It is, in fact, preferable to leverage other existing materials and models from other Initiative implementers and partners such as United Nations Environment Program - International Environmental Technology Centre (UNEP-IETC), International Solid Waste Association (ISWA) and World Bank.

While EPA will be the lead in working with cities on assessing waste treatment options in some cases, it will often be providing support to other lead implementers. In some cases, assistance will be on an ad hoc bases or on discreet projects, such as providing onsite training on landfill remediation or closure. In other cases, the work will be on an on-gong basis. For example, given the priority set by the CCAC on improving waste management in India, EPA will be providing ongoing technical assistance, assessment and training to a network of cities in India. The technical assistance will include technical working sessions to design and implement proper

waste management techniques; onsite field training to identify and address problems; site visits to waste management facilities in the U.S. and other countries; and development of online training modules.

Deliverable	Projected Schedule Date
4 technical working sessions	2 within six months of work plan approval and 2 within 8 months of work plan approval
2 onsite field training	Within 6 months of work plan approval
Site visit to U.S. waste management facilities	Within 8 months of work plan approval
4 online training modules tailored for India	Within 8 months of work plan approval

Task 5 – Environmental and Economic Assessment

Analysis and pre-feasibility assessments will include but not be limited to environmental assessment, pre-feasibility assessments, and estimation of monetized and non-monetized benefits to improve solid waste management especially as it relates to groundwater and surface water protection. Examples include assisting partners in evaluating the potential benefits of leachate control from improved landfill design or operations.

The contractor shall prepare studies that will be used to assess technical and economic feasibility of specific projects that will achieve quantifiable emissions reductions. Not every project will be able to receive the full level of effort of a pre-feasibility study, so it is expected that two to three studies will be performed for cities that either highlight specific types of projects such as landfill gas energy project or the market for certain kinds of waste handling processes such as composting of green waste or small-scale anaerobic digestion of market waste.

The contractor shall compile tools and resources to support and augment the capacity building activities. The development of these tools and resources will allow cities to become aware of the latest methods to improve municipal solid waste (MSW) management and to mitigate emissions from the waste sector. The tools and resources will draw on existing resources developed by the EPA, the Global Methane Initiative, C40, the World Bank, and other leading experts in the international waste sector, but will be customized for use under the MSWI. For example, the SLCP baseline emissions estimation tool and the economics of organics management tool developed for EPA shall be updated with current information and will also be made user friendly for audiences in developing countries.

Deliverable	Projected Schedule Date
4 prefeasibility studies	1 within six months of work plan approval and 1 within 8 months of work plan approval
Updated emissions estimation tool	Within 4 months of work plan approval
Updated economics of organics tool	Within 4 months of work plan approval

Financing tool	Within 8 months of work plan approval

Task 6 – Communication and Outreach

Outreach, publications, and conference participation are essential in communicating technical, environmental, and economic information developed under this assignment. The contractor shall be expected to represent the initiative at various internal and external CCAC coordination meetings and activities that will include CCAC partners such as United Nations Environment Program, World Bank and other governmental and non-government organizations. The contractor should be well-versed in the issues of climate, environment, and integrated solid waste management and have extensive past experience working with cities on the implementation of climate and environment activities in developing and developed countries.

The contractor shall engage in a broad range of communication activities to support outreach within the CCAC framework. These activities will augment outreach to stakeholders and cities' success stories, best practices and other lessons learned through a variety of media and forums, forge partnerships, and generate feedback to improve the ability of the Coalition to meet the needs of implementing partners. Examples of activities to facilitate the exchange of information between solid waste officials and city leaders include attending technical information sessions, one-on-one stakeholder meetings, and international waste information exchanges; support for mentor cities, developing and disseminating reports, case studies, sector papers, fact sheets, and country and/or regional profiles and other materials that advance consideration of SLCPs in the waste sector; and presenting at private, public, institutional sponsored forums, including government-to-government meetings, technical workshops, and other venues. The development and delivery of activities will be closely coordinated within the CCAC framework. This coordination and interaction will determine the overall extent and number of communication activities for which the MSWI provides support.

Deliverable	Projected Schedule Date
Facilitation of the CCAC session at ISWA Congress (September 21-22, 2016)	Within two weeks of session completion
6 fact sheets	Within 9 months of work plan approval
2 case studies on best practices	Within 8 months of work plan approval
2 presentations	Within 8 months of work plan approval
1 paper for peer reviewed publication	Within 8 months of work plan approval

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-54

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039	Contract Period: 09/11/2013 To 07/31/2017 Base Option Period Number: 3	Title of Work Assignment/SF Site Name: Environmental Impact Support f
Contractor: ABT ASSOCIATES INC.	Specify Section and paragraph of Contract SOW: B.1, B.3, B.4, C.1, G	

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 11/28/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/11/2013 To 07/31/2017	Cost/Fee:	LOE: 0
This Action:		460
Total:		460

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name: Emily Trentacoste (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-0703 FAX Number:
Project Officer Name: Ahmar Siddiqui (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Tammy Adams (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2030 FAX Number: 513-487-2545

WORK ASSIGNMENT

I. **Title:** Environmental Impact Support for the Study of Centralized Waste Treatment

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. **Work Assignment Number:** 3-54

III. **Estimated Period of Performance:** Date of issuance through July 31, 2017

IV. **Estimated Level of Effort:** 460 hours

V. **Key EPA Personnel:**

Work Assignment Contracting Officers Representative (WACOR):
Emily Trentacoste
OST/EAD (4303T)
202-566-0703
202-566-1053 (fax)

VI. **Background and Purpose:**

The 1972 Clean Water Act (CWA) directs the Environmental Protection Agency (EPA or Agency) to develop national technology-based regulations for categories of industries that discharge pollutants directly to surface waters (effluent guidelines) or that discharge pollutants indirectly through sewage treatment plants (pretreatment standards). The CWA also directs EPA to develop national technology-based regulations for new industrial facilities (new source performance standards).

Recent advances in horizontal drilling and hydraulic fracturing have made the extraction of natural gas from coal bed, shale, and tight sands formations more technically and economically feasible than in past decades. These advanced (or unconventional) drilling techniques coupled with large gas reserves in rock formations around the country, have resulted in dramatic increases in the number of wells being drilled and hydraulically fractured in the United States (U.S.). As the number of unconventional gas wells in the U.S. increases, so too does the volume of wastewater that requires disposal. Wastewater associated with oil and gas (O&G) extraction can contain high total dissolved solids (TDS), fracturing fluid additives, metals, and naturally occurring radioactive materials (NORM).

While many wastewaters are recycled and reused by producers, treatment and discharge is needed in certain cases. Where these wastewaters are being managed for treatment and discharge at Centralized Waste Treatment (CWT) facilities, there is the potential for discharge of pollutants of concern to waters of the United States. Some CWT facilities that are accepting these wastewaters, or may potentially accept these wastewaters in the future, may not have advanced treatment in place that is amenable to removal of the pollutants of concern. For these reasons, in

the preliminary 2014 304m Plan, EPA announced that it is performing a study on the CWT industry. The study will evaluate the full spectrum of wastewater management practices at CWT facilities accepting O&G gas extraction wastewaters, including treatment and discharge, recycling, zero discharge, barrel-in/barrel-out, etc.

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. As such, the purpose of this Work Assignment (WA) is to provide contractor tasks to support EPA's completion of the CWT study, and specifically to provide support for the examination of environmental impacts associated with CWT acceptance of O&G extraction wastewaters.

Under this work assignment the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA approved programmatic quality assurance project plan (PQAPP) that was developed for Contract EP-C-13-039. The PQAPP describes the procedures for assuring the quality of the secondary environmental data used for this work assignment.

In carrying out the tasks specified in this work assignment, the contractor may be called upon to build upon and continue work performed under WA 2-06, WA 1-10 under Contract EP-C-13-039 and WA 5-30 under Contract EP-C-07-023. The work performed under this work assignment will not duplicate work conducted under the previous work assignments.

Under the previous work assignments, Abt Associates performed the following analyses:

- Preliminary summary of available literature on documented and potential environmental impacts from treated oil and gas wastewater discharged by CWTs;
- Draft summary of total dissolved solids impacts to water uses;
- Preliminary summary of available data on discharges of radionuclides in CWT effluent;
- Summary of radionuclide limits and monitoring requirements in CWT National Pollutant Discharge Elimination System (NPDES) permits;
- Analysis of state and national regulations on disposal of radioactive treatment residuals;
- Summary of available literature on volatile organic compounds from oil and gas wastewater;
- Literature review of drinking water impacts from treated oil and gas wastewater discharged by CWTs.

VII. General Requirements of the Work Assignment and Schedule

Confidential Business Information: During the course of the work assignment, the contractor is not expected to access and evaluate CBI.

Budget Reporting: The contractor under this work assignment is required to report to the EPA WACOR and Contract-Level Contracting Officers Representative (CL-COR) when 75 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 75 percent of the approved work plan budget has been depleted.

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor shall refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA CL-COR, and EPA WACOR.

Quick Response: Under this Performance Work Statement the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: EPA does not anticipate the need for non-local travel by contractor employees and/or subcontractors to support the scope of this work assignment.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR and shall be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VIII. Performance Work Statement

The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments.

Task 1 - Prepare Work plan

The contractor shall prepare a work plan within 15 calendar days of receipt of the work assignment. The work plan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the CL-COR and the CO will review the work plan. However, only the CO can approve/disapprove, suggest revisions, or change the work plan. Official revisions will be given

to the contractor by the CO. The contractor shall prepare a revised work plan incorporating the CO's comments, if required.

A weekly update call with the EPA WACOR will be required for this work assignment to discuss progress on deliverables, costs, and other potential issues.

Deliverables and schedule under Task 1

Deliverable	Projected Schedule Date
Work Plan	Within 15 calendar days of receipt of work assignment.

Task 2 Quality Assurance

2.1 Background

QAPPs are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1A2 and implementing guidance CIO-2105-P-01-0. All projects that involve the generation, collection, analysis and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in **Table 2-1** below.

Table 2-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data.

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is a set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall

quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-13-039. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this WA involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). EPA has determined that the contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for this WA. In support of this WA, the contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this WA such as researching data sources and models, evaluating and processing data, documenting data processing and quality, assembling, evaluating, and implementing model collections; assessment of model results;
- The type of data to be gathered or used under this WA to support the project objectives—including data from search engines, federal databases, and EPA data bases—as well as a rationale for when those databases are appropriate and what data available in each will support the project;
- The quality objectives needed to ensure the data will support the project objectives; and,
- The quality assurance/quality control (QA/QC) activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Table A-1 in the Appendix to this WA demonstrates how the PQAPP addresses QA requirements for this WA.

The contractor shall fill in staff roles to the Table A-1 checklist under Row A.4 and make any additional detailed notes in the 'explanatory comments' column as requested by the WACOR, when this information differs from the existing PQAPP (*Programmatic Quality Assurance Project Plan (PQAPP) for Economic, Environmental, and Regulatory Analytical and Evaluation Support for Clean Water Regulations* (Contract No. EP-C-13-039), December 21, 2015, Revision 2). When this information does not differ from the existing PQAPP the contractor should simply cite the PQAPP. The contractor shall then include the completed Table A-1 as a separate Appendix A to the work plan upon submittal to EPA. This Appendix A will be a stand-alone document when QA documentation is required to support EPA regulatory activities, therefore the Table A-1 title must include the title of the WA, WA number, contract number, and what projects each covers. The WACOR has provided this information in the title, which the contractor may use to fulfill this requirement.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the contractor under this WA must include a discussion of the QA/QC activities that were performed to support the deliverable. This discussion must provide a sufficient level of detail to allow the Engineering and Analysis Division (EAD) QA Coordinator (or designee) to determine whether the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WACOR will review each applicable report and certify whether the contractor has adhered to the QA requirements documented in the contractor's PQAPP.

The contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this WA. These monthly QA reports shall identify QA activities performed to support implementation of this WA, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the contractor may include this report as a part of the contract-required monthly financial/technical progress report.

2.5 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis that the information is capable of being substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. The Contractor may claim information in QAPPs as confidential; if the Contractor chooses to do so, the Contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized

version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicate that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the contractor should indicate which results were obtained using the tools (standard operating procedures, checklists, and guidelines) that the contractor designates as confidential so that the EPA WACOR can easily identify the areas that shall require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractor may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, March 2015. If this is required, the EPA WACOR will notify the contractor through written technical direction.

2.6 Task 2 QA Deliverables

Deliverable	Projected Schedule Date
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly throughout the WA period of performance

Task 3 - Prepare Standardized Naming Convention and Version Control Memorandum

The contractor shall adhere to the EPA WACOR approved standardized naming convention and version control (SNCVC) plan that was developed under the Construction and Development WA 0-01 of the contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

The EPA WACOR may request the contractor through written technical direction to amend the SNCVC memorandum at any point under this WA. The EPA WACOR will review the revised memorandum and then provide the contractor with written notification of approval or edits that need to be made. The contractor shall prepare the edited SNCVC memorandum incorporating the EPA WACOR's comments, if required. After receiving notification of approval the contractor shall use the revised SNCVC.

Deliverables and schedule under Task 3

Deliverable	Projected Schedule Date
Revised SNCVC memorandum	If required, revised memorandum within 3 calendar days of receipt of comments from the EPA WACOR, at technical direction of EPA WACOR.

Task 4 – CWT Study Environmental Impacts Discussion

Task 4.1 – CWT Environmental Impacts Discussion

The contractor shall revise and update the environmental impacts work initiated under Abt Contract EP-C-13-039 and EP-C-07-023 without duplicating those efforts. The contractor shall discuss with and may provide to the EPA WACOR relevant deliverables under these Contracts. The contractor shall consult a variety of existing information sources including journal articles previously compiled and provided by the EPA WACOR, other published literature, peer-reviewed studies, government reports, internet sources, and personal communications with experts.

The contractor's effort shall address current documented and potential environmental impacts from CWT facilities accepting oil and gas wastewaters including qualitative and quantitative characterizations. Topics shall include, but not be limited to:

- Identification of specific constituents of concern in treated oil and gas wastewater and treatment residuals,
- Routes through which identified constituents could interact with the environment and human health,
- Environmental and human health impacts from surface water discharges, discharges to publicly owned treatment works (POTWs), disposal of treatment residuals, land/road spreading and spills,
- Impacts to water quality, aquatic ecosystems, human health, POTW treatment efficiency, beneficial reuse and irrigation,
- Both documented and potential impacts.

The contractor shall identify existing rules, regulations, thresholds or limits at both the national and state level for the constituents of concern identified in Task 4.1 and in previous work under Contract EP-C-13-039 and EP-C-07-023. For some constituents, this work has been completed under WA 2-06 under Contract EP-C-13-039 and should not be duplicated – specifically radionuclides and radiation in both effluent and residual waste. The contractor may use data sources such as national drinking water and aquatic health standards, and publications from government organizations, such as state governments.

As part of the literature review, the contractor shall also identify and summarize 3-5 specific cases of documented impacts. These cases should include examples of impacts on both environment and human health, and of both direct and indirect discharges from CWTs accepting oil and gas wastewater. The contractor and EPA WACOR will discuss these cases for incorporation into written discussion. Written discussions of the cases can be a few paragraphs each (see Steam Electric Power Generating Point Source Category: Final Detailed Study Report, Chapter 6 – Environmental Assessment of Coal Combustion Wastewater for examples; EPA 821-R-09-008).

The contractor shall organize collected documents, information and case studies into an outline to be presented to the EPA WACOR for review and shall incorporate EAP WACOR comments in a revised version. The contractor shall also prepare written materials and discussion summarizing collected information in a memorandum. The memorandum will organize information according to the areas of interest identified in the previously mentioned outline. The memorandum shall be written so as to serve as the basis for the Environmental Impacts chapter in the CWT Study. The memorandum shall be submitted to the EPA WACOR for review and comment and EPA WACOR comments shall be incorporated in the subsequent version of the written summary.

Task 4.2 – Compile & Analyze Concentration Data on Constituents of Concern

Previous review has identified a number of sources including journal articles, government reports, and EPA data collection that contain concentration data on constituents of concern in CWT effluent, receiving streams, receiving stream sediments, and treatment residuals. The contractor shall expand upon work already completed by EPA to compile the existing data from these reports to determine the current or potential levels of these constituents in these media. The contractor shall include in the compilation current thresholds identified in Task 4.1 that exist for these constituents in these media including, but not limited to drinking water criteria, aquatic health criteria, human health criteria (water + organism and organism only) and hazardous waste disposal criteria. For certain constituents, the contractor should incorporate work already concluded under WA 2-06 under Contract EP-C-13-039. These constituents include radionuclides and radioactivity in effluent and residual waste. The contractor shall then compare the concentrations or levels of constituents found in reported data to these thresholds and determine if any thresholds have been exceeded or the potential for exceedances.

The contractor shall compile concentration data from sources used in Task 4.1 including published literature, peer-reviewed studies, government reports, EPA reports, as well as information previously compiled and provided by the EPA WACOR. The contractor shall provide the compiled concentration data, references for these data, and the identified thresholds in a table format, along with a short discussion of the results of the analysis in the form of a memorandum to the EPA WACOR for review and comment. The contractor shall also devise a figure or visual representation of the concentration data and limits. EPA WACOR comments shall be incorporated into the subsequent version of the table, discussion and figure.

Deliverables and schedule under Task 4 CWT Study Environmental Impacts Discussion

Deliverable	Projected Schedule Date
4.1 Draft memo outline	Within 15 days of receipt of written technical direction from EPA WACOR
4.1 Final memo outline	Within 7 days after EPA WACOR submits comments
4.1 Draft discussion memo	Within 30 days after EPA WACOR finalizes final memo outline.

Deliverable	Projected Schedule Date
4.1 Revised draft discussion memo	Within 14 days after EPA WACOR submits comments
4.1 Final draft discussion memo	Within 10 days after EPA WACOR submits comments
4.2 List of constituents with concentration data	Within 15 days of receipt of technical direction from EPA WACOR.
4.2 Draft analysis table and discussion	Within 21 days after EPA WACOR submits comments on constituents list.
4.2 Final draft table and discussion	Within 14 days after EPA WACOR submits comments.

Task 5 – Support for CWT Rulemaking Environmental Assessment Analyses

Task 5.1 – Identification of Models and Analyses

In preparation for the possibility that the CWT category is selected for rulemaking, the contractor shall inventory, identify and analyze potential models that could be used in an environmental assessment to model the fate, transport and impact of constituents of concern identified in the CWT study under current conditions and potential policy options. This work may build off of the previous work completed under WA-2-36 under Contract EP-C-13-039. This previously completed work used the National Ecosystem Services Classification System to identify final ecosystem services that may be potentially impacted from changes to the CWT effluent guidelines. The contractor may use this work to identify final ecosystem services that could be incorporated into models for quantitative analyses in an environmental assessment.

The contractor shall provide a written summary and discussion of the identified models to the EPA WACOR for review and incorporate revisions. Analysis and discussion for each model shall include:

- Specific constituents captured in the model, or proxies for these constituents,
- Nature and availability of input data sets required for model implementation,
- Output data parameters and the potential for these outputs to be used in subsequent analyses such as benefits,
- Appropriate scale at which to conduct the model,
- Time, experience and resource availability constraints for implementing the model,
- Overall assessment of the appropriateness and usefulness of the model in an environmental assessment for CWTs.

Constituents and/or models to incorporate in the analysis and summary may include

- Bromide in receiving streams as it relates to downstream drinking water intakes,
- TDS and/or salinity in receiving streams,
- Other constituents such as metals, ammonia, and radionuclides in receiving streams,

- Human health impacts of any constituents,
- Fish, shellfish or aquatic life impacts including bioaccumulation.

The contractor shall identify other analyses or methods for quantitatively evaluating the environmental fate and impacts from constituents outside of the modeling approach that would be appropriate to incorporate into the environmental assessment. Examples of such analyses could include geographic information systems (GIS) analyses of public drinking water intakes, proximity analyses of 303(d) listed waters and/or Endangered Species Act-listed species, toxicity of wastewater to aquatic species based on ion constitution. Emphasis should be placed on analyses or methodologies that can be applied at a national level. A discussion of these possible other analyses or methodologies should include, but not be limited to:

- The constituents or impact being addressed,
- Nature and availability of input data required to implement analysis,
- Ability to incorporate results of analyses into economic benefits.

The written summary shall be compiled in the form of a memorandum to be provided to the EPA WACOR for comment and revision. The contractor shall incorporate EPA WACOR comments and revisions into the final memorandum.

Task 5.2 – Develop a Draft Environmental Assessment Methodology Outline

Given the potential for revision of the CWT effluent guidelines, the contractor shall develop a draft outline of the environmental assessment methodology and potential components of an environmental assessment of impacts from CWTs accepting O&G wastewater.

The contractor shall incorporate the work completed under Task 5.1 and draw on ongoing discussions with the EPA WACOR, and Environmental Assessments from previous effluent limitation guidelines rulemakings to identify the quantitative and qualitative analyses (including all models) and discussions. The contractor shall either reference previously generated discussions (such as from Task 5.1) or include in the outline the data sources and specific analyses used for each section. The contractor shall include in the outline the specific areas that could be used for potential monetization approaches for benefits.

A draft outline shall be provided to the EPA WACOR for review and comment, and subsequent draft and final outlines shall be prepared by the contractor.

Deliverables and schedule under Task 5 Support for Environmental Assessment Analyses

Deliverable	Projected Schedule Date
5.1 Draft models & analyses memo	Within 40 days of receipt of technical direction from EPA WACOR.
5.1 Final draft models & analyses memo	Within 21 days of submission of comments by EPA WACOR.
5.2 Draft environmental assessment outline	Within 60 days of receipt of technical direction from EPA WACOR.

Deliverable	Projected Schedule Date
5.2 Final draft environmental assessment outline	Within 21 days of submission of comments by EPA WACOR.

Task 6 - Technical Support for the CWT study and Environmental Assessment

The contractor shall provide technical support related to environmental and human health issues associated with the CWT study and/or rulemaking. Such support may include responding to management questions about economic issues, preparing briefing and meeting materials (which may include but are not limited to short briefing documents and PowerPoint presentations). The contractor may also be requested to participate in and/or conduct briefings, assist the EPA WACOR with review of analyses conducted by EPA and its contractors, provide technical review of materials prepared for the rulemaking by Agency staff, and assist in the development of the rulemaking record. Although a precise number of technical support requests cannot be given at this time, EPA expects the number to be between 3 and 5. For the purpose of costing, the contractor should assume that 2 of these requests require quick responses.

The contractor shall prepare draft deliverable material for EPA WACOR review and approval.

Once the EPA WACOR reviews the draft materials and provides revisions and/or comments to the contractor, the contractor shall prepare a final version of the materials incorporating the EPA WACOR's comments.

Deliverables and schedule under Task 6 Technical Support for CWT Study and Environmental Assessment

Deliverable	Projected Schedule Date
6.1 Draft Deliverables	Within 7 calendar days of written technical direction received from the EPA WACOR or as otherwise specified.
6.1 Final Draft Deliverables	If additional edits are required, the draft deliverable must be updated within 7 calendar days of written technical direction received from the EPA WACOR.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-54

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Environmental Impact Support f

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	B.1, B.3, B.4, C.1, G

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 11/28/2016 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period:	Cost/Fee:	LOE:
	09/11/2013 To 07/31/2017		460
This Action:			0
Total:			460

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee	LOE:
Cumulative Approved:	Cost/Fee	LOE:

Work Assignment Manager Name Emily Trentacoste	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-0703 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

WORK ASSIGNMENT 3-54
Amendment 1

I. **Title:** Environmental Impact Support for the Study of Centralized Waste Treatment

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. **Work Assignment Number:** 3-54

III. **Estimated Period of Performance:** Upon Issuance to July 31, 2017

IV. **Estimated Level of Effort:** 0

V. **Key EPA Personnel:**

Work Assignment Contracting Officer Representative (WACOR):
Emily Trentacoste
OST/EAD (4303T)
202/566-0703
202/566-1053 (fax)

Alt. Work Assignment Contracting Officer Representative (WACOR):
Karen Milam
OST/EAD (4303T)
202/566-1915
202/566-1053 (fax)

VII. **Purpose of the Amendment**

The purpose of this amendment is to add an alternative Work Assignment Contracting Officer Representative: Karen Milam.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-54

☐ Other ☒ Amendment Number: 000002

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2018 Base Option Period Number 3	Environmental Impact Support f

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: B.1, B.3, B.4, C.1, G

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 11/28/2016 To 07/31/2017

Comments:
Amendment 2 will delete Task 5 from the work assignment and add LOE to Task 4 within the current scope of the work plan. EPA WACOR has determined that Task 5 is no longer necessary.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period: 09/11/2013 To 07/31/2018	Cost/Fee:	LOE:
This Action:			-112
Total:			348

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Emily Trentacoste	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-0703 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name: Nicholas Bisher	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

WORK ASSIGNMENT 3-54
Amendment 2

I. **Title:** Environmental Impact Support for the Study of Centralized Waste Treatment

Contractor: Abt Associates **Contract No.:** EP-C-13-039

II. **Work Assignment Number:** 3-54

III. **Estimated Period of Performance:** Upon Issuance to July 31, 2017

IV. **Estimated Level of Effort:** -112

V. **Key EPA Personnel:**

Work Assignment Contracting Officer Representative (WACOR): Emily Trentacoste
OST/EAD (4303T)
202/566-0703
202/566-1053 (fax)

Alt. Work Assignment Contracting Officer Representative (WACOR): Karen Milam
OST/EAD (4303T)
202/566-1915
202/566-1053 (fax)

VII. Purpose of the Amendment

The purpose of this amendment is to remove **Task 5 – Support for CWT Rulemaking Environmental Assessment Analyses**, and to shift additional level of effort to completion of **Task 4 – CWT Study Environmental Impacts Discussion**. This amendment is being driven by the request of the EPA WACOR. The timeline for future work pertaining to Task 5 has been delayed, thus Task 5 is no longer necessary at this time, i.e. the estimated LOE for Task 5 is now zero. In order to conduct a more thorough completion of Task 4, but within the scope of the current work plan, additional LOE will be shifted to Task 4. The current work plan's LOE is 460 hours, with 212 allotted for Task 5. This amendment will reduce the total number of hours to 348, and shift 100 hours from Task 5 to Task 4 (460 hours – 212 hours from Task 5 + 100 hours to Task 4). No changes will be made to the schedule or deliverables for Task 4.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-54

☐ Other ☒ Amendment Number: 000003

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2018 Base Option Period Number 3	Environmental Impact Support f

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	B.1, B.3, B.4, C.1, G

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 11/28/2016 To 07/31/2017

Comments:
This amendment will add 60 zero-cost hours to the work assignment. This amendment will not affect the cost, timeline, or deliverables.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2018		348
This Action:		60
Total:		408

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name Emily Trentacoste	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-0703 FAX Number:
Project Officer Name Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name Nicholas Bisher	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-56

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2017 Base Option Period Number 3	Development of Economic Analys

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.2.2

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Close-Out
- [ ] Work Assignment Amendment
- [ ] Incremental Funding
- [ ] Work Plan Approval

Period of Performance: From 03/08/2017 To 07/31/2017

Comments:
Development of Economic Analyses for California Statewide Water Quality Plans

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2017		0
This Action:		895
Total:		895

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Ghulam Ali	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1004 FAX Number:
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name:	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

Statement of Work
EPA Contract No., EP-C-13-039
Work Assignment # 3-56

TITLE: Development of Economic Analyses for California Statewide Water Quality Plans.

I. Work Assignment Contracting Officer Representative (WACOR)

Ghulam Ali
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Phone: 202-566-1004

II. Alternative Work Assignment Contracting Officer Representative (ALT WACOR)

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U.S. EPA Region 9
Water Quality Assessment Section (WTR-2-1)
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Phone: 415-972-3508

III. Level of Effort

895

IV. Duration

Issuance to July 31, 2017

1. DESCRIPTION: The Clean Water Act (CWA) directs States, with oversight by the U.S. Environmental Protection Agency (US EPA) to adopt water quality standards to protect the public health and welfare, enhance the quality of water, and serve the purposes of the act. State standards must include (1) designated uses for all water bodies within their jurisdictions, (2) water quality criteria (referred to as objectives under California law) sufficient to protect the most sensitive of the uses, and (3) an antidegradation policy. States are also required to review their standards once every three years and, as appropriate, modify and adopt standards. The results of this triennial review must be submitted to US EPA and US EPA must approve or disapprove any new or revised standards. Section 303(c) of the CWA directs US EPA to promulgate standards where US EPA has determined that a new or revised standard is not

consistent with the requirements of the CWA or where necessary to meet the requirements of the CWA.

Through the triennial review process, in roundtable discussions and in discussions with US EPA Region 9 staff, it was determined that several standards need to be modified and/or adopted in California. The State Water Resources Control Board (State Water Board) is taking the approach that adopting statewide standards is an efficient use of limited resources and is presently in the process of developing water quality standards for the following pollutants:

1. Development of Cadmium Objectives
2. Development of Nutrient Numeric End-Points for Wadeable Streams

The following are individual descriptions of each of the above listed projects:

1. Cadmium Objectives –Economics Analysis

   The State Water Board is developing water quality objects (criteria) and associated implementation plan from Cadmium. National Marine Services (NOAA Fisheries) determined that the Cadmium criteria proposed for the California Toxics Rule where not protective of threatened and endangered species. The current national 304(a) criteria may not be protective of west coast salmonid population. California anticipates working with the United State Geological Survey (USGS) to develop protective water quality objectives and an associate program of implementation. Cost of meeting the water quality objectives for point and non-point sources will need to be evaluated.

   Timeline: Draft Water Quality Objectives and amendment language in approximately 12 Months

2. Nutrient Numeric End-Points for Wadeable Streams

   The State Water Board is developing amendments to its statewide water quality control plan(s) to control nutrients on a watershed scale. While the final form and specific numerical objectives will not be finalized until 2018, there are default numeric guidelines that can be used now to assess the costs of implementing nutrient controls on a discharge by discharge basis. The early draft amendment structure includes the option of a flexible watershed approach. Entities required to obtain permits that do not participate in the watershed approach would be subject to the default backstop in which reasonable potential and effluent limits would be determined by permitting procedures using a discharger by discharger approach.

   The State Water Board staff will need costs assessed for several scenarios:

   - Meeting effluent limits based on a deviation from reference approach (default backstop) for both point source dischargers as well as agricultural and non-point dischargers.

- Meeting alternative limits based on best expectations for modified streams using a biological condition gradient (BCG). The BCG is a descriptive model for interpreting change in aquatic ecosystems that describes how ecological indicators change in response to increasing stress. Stressors may include increased nutrient loading, hydro-modification or other ecological stressors.
- Watershed-wide compliance using multiple control mechanisms to prevent or restore river segments that have excessive eutrophication. These elements will include riparian restorations, hydro modification/flow alterations and trading. Cost analysis should include the costs for a third party to verify the efficaciousness of restoration actions – similar to a compensatory mitigation program.

Timeline: Draft outline of regulatory approach and default numeric targets in 6 months. Final amendments 2018

In 2008, the State Water Board adopted sediment quality objectives and an implementation policy for bays and estuaries in the state (Part 1). Part 1 integrated chemical and biological measures to determine if the sediment dependent biota is protected or degraded as a result of exposure to toxic pollutants in sediment and to protect human health. Part 1 included narrative sediment quality objectives for the protection of aquatic life and human health; identification of the beneficial uses that these objectives are intended to protect; and a program of implementation that contained specific indicators, tools, and implementation provisions to determine if the sediment quality at a station or multiple stations meets the narrative objectives, description of appropriate monitoring programs, and a sequential series of actions that would be initiated when a sediment quality objective is not met including stressor identification and evaluation of appropriate targets. While Part 1 provided that the State Water Board would consider relevant and applicable information in conducting a risk assessment, it did not include standardized and consistent implementation provisions for conducting and evaluating a human health risk assessment.

The State Water Board staff prepared amendments to the state's Water Quality Control Plan for Enclosed Bays and Estuaries: Part 1 Sediment Quality (referred to in this report as either "Part 1" or "the Plan"). The amendments included additional sediment quality objectives and implementation procedures that apply to enclosed bays and estuaries in California. An economic analysis was completed of the amendments in 2011. The State Water Board is updating the sediment quality objectives so that it would result in the narrow addition of a Human Health Risk Assessment Framework to Part 1. Hence, the 2011 analysis (Economic Considerations of Proposed Amendments to the Sediment Quality Plan for Enclosed Bays and Estuaries in California, January 2011) needs to be updated accordingly.

Task 1: Prepare Work Plan and Cost Estimates

The contactor shall prepare the work plan and cost estimates for the tasks below. The workplan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task, and a staffing plan. The EPA WACOR, the Contract level Contracting Officer Representative (CL-COR) and the Contracting Officer

(CO) will review the workplan. However, only the CO can approve/disapprove, suggest revisions, or change the workplan. Official revisions will be given to the contractor by the CO. The contractor shall prepare a revised workplan incorporating the CO's comments, if required.

Task 2: Assess Quality of Literature Search, Data Collection and Analyses

The contractor shall use the contract-wide programmatic quality assurance project plan which was developed under the base period work assignment no. 0-01 of the contract (EP-C-13-039). The contractor shall use this quality assurance plan for the literature search, data collection, and analyses to be conducted under this work assignment. The contractor shall identify the quality of primary and secondary data and models. The contractor shall fulfill the reporting requirements to document the quality of both primary and secondary data used in the cost analysis of the policies regarding bacteria, methylmercury, toxicity and sediment in California. Specifically, the contractor shall identify quality of the monitoring data, and point sources technology data required to meet the criteria. The contractor shall analyze the data quality from the perspective of developing economic estimates that can be used to support EPA's decision-making process with respect to water quality standards. The contractor shall perform QA/QC activities to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Task 3: Cost Analysis

To conduct the Economic Analyses for the projects listed above, the contractor shall gather information as directed by the EPA WACOR, in consultation with the State Water Board, and estimate baseline information. The baseline is defined as the conditions that would accrue in the absence of the proposed new water quality objective or proposed new policy. The contractor shall develop the baseline and estimate the incremental cost, i.e., those costs above the baseline cost, for each new or revised objective or policy, or set of objectives and policies, for the particular pollutant or policy as listed above.

The contractor shall identify the proposed issues that are most important in terms of their effect on the economics of the proposed project. Under direction of the EPA WACOR, in consultation with the State Water Board staff, the contractor shall compile a list of proposed reasonable alternatives for each issue identified. The contractor shall then conduct an economic analysis relative to the baseline established above. The contractor shall work with EPA and State Water Board staff to determine the specific scope of each economic analysis, prior to starting work on each economic analysis. The sediment quality objectives plan revisions are not expected to be substantial and hence may not result in substantial changes in the economic analysis conducted in 2011.

The contractor shall evaluate the attainability of the draft policies in all applicable Regions. The contractor shall identify the point and non-point source discharges that might be impacted by the amendment and the costs of compliance for each discharge type in each basin planning area. In addition, the contractor shall identify impacts of non-compliance with the recommended basin plan amendment and the costs of those impacts. If necessary, these measures should include time schedules to achieve compliance.

The contractor shall look at one-time costs and annual costs (including operation and maintenance (O&M) and monitoring) of each alternative, for each issue identified, relative to the baseline costs. For each cost estimated, the contractor shall provide a low and a high cost estimate, so that a range of costs will be provided for each alternative.

Written reports suitable for inclusion as the economics section of the staff reports for the proposed policies shall be produced.

Task 4: Economic Support for Rule and Policy

The contractor shall prepare a summary of the cost analyses performed and of EPA's and the State's evaluation of options and impacts (as applicable) for the rule or policy preamble. The contractor shall provide support in preparing preamble drafts.

Task 5: Provide Technical Support for Policy Making Activities

The contractor shall, based on technical direction given by the EPA WACOR, provide technical support related to economic cost issues associated with the policy, plans and rulemaking. Such support may include responding to EPA or State questions about economic issues on calls, and providing written explanations of contractor analyses as needed. Examples of these tasks include developing economic impacts slides, "one-pagers," and/or writing a briefing document. For this work assignment, the WACOR estimates 5 PowerPoint slides, 10-15 emails responding to EPA staff and management specific analysis questions, 1 conference call per month, and 1 "one-pager" may be needed. The contractor may also be directed to provide support in the review of analyses conducted by EPA and its contractors, providing technical review of materials prepared for the rule or policy making by Agency staff and State, and assist in the development of the rule or policy making record. The contractor shall provide information to be used by EPA or the state to respond to comments and improve economic analyses. Based on a thorough knowledge of the economic analysis, the contractor shall prepare accurate draft technical responses to comments including all relevant citations.

If public meetings in California are held, the contractor shall prepare materials for the public meetings and help answer the public's inquiries about the cost analysis during and after the meetings.

The contractor shall participate in conference calls and will help the EPA Region and the State to respond to enquiries about the economic analysis completed by the contractor.

2. PERFORMANCE STANDARDS AND QUALITY MEASURES:

The following standards will be used to measure performance:

1) **Quality of Outputs -** All tasks to be superior quality. The quality of outputs will be measured against similar analyses and work products already performed by EPA. These include the costs methodology, and supporting documentation and analyses for The California Policy for Implementation of Toxics Standards for Inland Surface Waters,

Enclosed Bays, and Estuaries of California, the Great Lakes Water Quality Guidance, the California Toxics Rule, and water quality standards regulations for the States of California, Alabama, Delaware, Idaho, Kansas, and Oregon, and the U.S. Territory of Puerto Rico.

2) **Timeliness -** All tasks are to be completed on or ahead of schedule as measured against the acceptance criteria.

3) **Ingenuity and Resourcefulness -** New issues are addressed using innovative analyses. Ingenuity and resourcefulness will be measured by the ability to use innovative analyses to address new issues not previously identified in the analyses conducted for the California Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, Great Lakes Water Quality Guidance, California Toxics Rule, as well as the Alabama, California, Delaware, Idaho, Kansas, and Oregon, and Puerto Rico water quality standards rulemakings.

4) **Quality Assurance -** All work is to adhere to the Quality Assurance Project Plan for the contract.

Deliverables and Schedule

Deliverables due dates shall be suitable for the timelines noted for each project, i.e., the contractor shall contact the State Water Board staff on the timelines that each economic analysis is needed to be complete in order to fit within the schedule of each project.

Tasks	Schedule
Task 1: Prepare Work Plan and Cost Estimates	Per contract requirements
Task 2: Prepare a Quality Assurance Plan for Literature Search, Data Collection and Analyses	Fifteen days after the workplan approval.
Task 3: Cost Analysis	As directed by the EPA WACOR
Task 4: Economic Support for Rule and policy	As directed by the EPA WACOR
Task 5: Provide Technical Support for Policy Making Activities	As directed by the EPA WACOR

3. TRAVEL

Travel will not be needed to complete this Work Assignment.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-58

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2018 Base Option Period Number 3	Economics Support for WQS Rule

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section VI, Paragraphs 1, 2 and 3

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/06/2017 To 07/31/2017

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (Max 2) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2018		0
This Action:		260
Total:		260

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Wendy Hoffman	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-8794 FAX Number: 202-566-1053
Project Officer Name: Ahmar Siddiqui	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1044 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Noelle Mills	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

STATEMENT OF WORK
Work Assignment 3-58

I. **Title**: Economics Support for Water Quality Standards Rulemakings

Contractor: Abt Associates **Contract No.**: EP-C-13-039

II. **Work Assignment Number:** **3-58**

III. **Performance Period:** Upon issuance to July 31, 2017

IV. **Estimated Level of Effort:** **260 hours**

V. **Key EPA Personnel:**

Work Assignment Contracting Officer Representative (WACOR) and Task Manager for Subtask 4.2:

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1200 Pennsylvania Ave., N.W., 4303T
Washington, DC 20460
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Alternate WACOR and Task Manager for Subtask 4.1:

Michael Trombley
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1200 Pennsylvania Ave., N.W., 4303T
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VI. Background and Purpose

Section 303(c) of the Clean Water Act (CWA) directs states to adopt water quality standards (WQSs) for their navigable waters. Under CWA section 304(a), EPA periodically publishes criteria recommendations for states to use when setting water quality criteria for particular parameters to protect recreational and aquatic life uses of waters. Where EPA has published recommended criteria, states have the option of adopting water quality criteria based on EPA's CWA section 304(a) criteria guidance, modified to reflect site-specific conditions or other scientifically defensible methods. EPA encourages states to consider adopting the agency's published 304(a) recommended criteria into their WQSs. In addition, CWA section 303(c)(4)(B) authorizes the Administrator to determine, even in the absence of a state submission, that a new or revised standard is needed to meet CWA requirements. Any new or revised WQSs must be submitted to EPA for review and approval or disapproval. Whenever EPA disapproves a state's WQS submittal as being inconsistent with the CWA, Section 303(b)(1) to (2) gives the Agency 90 days from the date of disapproval to propose federal regulations, and 190 days from the date of publication of the proposed rule to promulgate final federal WQSs, unless the state takes action in the interim.

Setting criteria in WQSs is based on science. Even though economic factors are not decisive in establishing WQSs, EPA has chosen to conduct economic analyses in support of federal WQS regulations. Generally, the purpose of such an analysis is, at a minimum, to inform the public of the costs associated with the rule, and to ensure that estimates of costs, benefits or other impacts take the point of view of society as a whole, rather than reflect the point of view of a limited set of stakeholders. In some cases, a WQSs rule may be economically significant (have "an annual effect on the economy of $100 million or more"), in which case, E.O. 12866 requires EPA to conduct a full benefit-cost analysis. Recent examples of states with federal water quality standards rulemakings, where the EPA Administrator determined that a new or revised standard was needed to meet CWA requirements, and EPA conducted an economic analysis, include Florida, California, Washington, Maine, Oregon and Idaho. Only the Florida rule rose to the economically significant level.

To meet the responsibility of developing and promulgating updated aquatic life and aquatic-dependent wildlife criteria for the state WQS identified in Task 4 of this WA, EPA needs to provide information on potential costs and benefits that may be indirectly associated with state implementation of these new criteria. As such, the general purpose of this work assignment is to assess potential costs and benefits that may be indirectly associated with state implementation of these updated site-specific criteria for the state WQSs identified in Task 4.

The contractor shall provide information on potential costs that may be associated with implementation of the rules covered by this work assignment to determine the rules' potential economic impacts. Although EPA's revised WQSs will not independently change any existing NPDES permits, CWA section 303(d) lists or Total Maximum Daily Loads (TMDLs), nor are they independently enforceable, EPA anticipates that the revised WQS may eventually lead to new impaired waters listings or new findings during NPDES permit development of a reasonable potential (RP) for a discharge to cause or contribute to a violation of water quality standards. Potentially incrementally impaired water listings may require associated new TMDLs analyses,

new or revised National Pollution Discharge Elimination System (NPDES) permit conditions for point source dischargers, and/or control requirements or best management practices (BMPs) on other sources (e.g., agriculture, urban runoff, and septic systems). Nonpoint source, watershed-based plans may also be needed to be eligible for CWA Section 319 funding. New RP findings may require new water quality-based effluent limits in NPDES permits. EPA will provide the contractor with the water quality criteria that are part of the WQSs, along with other information regarding how the criteria are to be applied. EPA may also assist with the identification of permits in those states that discharge into waters affected by the promulgation of new WQSs covered by this WA, or that discharge into waters upstream of affected waters, if relevant, for the work under this WA.

The economic analyses are assessments of the potential cost of implementing the new WQSs. The analyses should take into account technologies and other controls that may be used to meet the criteria in waters newly identified as impaired as a result of the new criteria. The economic analyses conducted under this WA represent the difference in estimates of the potential costs between a state's current WQSs and the EPA-revised WQSs. Note that full compliance with current WQSs should be assumed by these analyses.

Under this WA, EPA will conduct an economic analysis for two states. EPA and/or another contractor to EPA may provide information on potential controls and engineering costs that may be associated indirectly with implementation of these revised WQSs. The contractor shall conduct all analyses requiring the collection and transformation of existing (secondary) data and models in accordance with the EPA-approved QAPP which it has developed for WA 5-13 under Contract EP-C-12-006 and amended by letter to cover the analyses in this WA for Missouri and Oregon. The EPA WACOR will provide all technical direction related to this work in writing.

Work conducted under this WA shall not duplicate work conducted under any other .

VI. General Requirements of the Work Assignment

Identification as Contracting Staff: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the contractor should refer all interpretations of policy to the EPA WACOR.

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the EPA WACOR for review prior to submission of the final product. These drafts shall clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The contractor shall incorporate all EPA WACOR comments into all final deliverables, unless otherwise agreed upon by the EPA WACOR. The contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), EPA Contract Level COR (CL-COR), and EPA WACOR.

Quick Response: Under this work assignment the contractor may be required to provide information for use by EPA for quick responses and analyses of options, issues, and policy decisions. Quick responses are those which require completion in one to five working days.

Travel: The contractor may be required to travel under this work assignment. Travel may be to meet with EPA officials to discuss methodology and other important issues associated with the regulatory impact analysis. We estimate up to two trips each requiring one or two contractor personnel, per subtask under Task 4. The EPA WACOR will determine the destination and the activities for which the contractor shall travel, if need arises, in the future. Contractor personnel shall clearly identify their affiliation prior to the start of any meeting. Contractor personnel are prohibited from acting as the Agency's official representative. Request for approval for any travel directly chargeable to this work assignment must be submitted and approved by the CL-COR before travel begins.

Deliverables: The EPA WACOR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the EPA WACOR's comments. At the close of the WA period, the contractor shall provide EPA with final copies of all records, datasets, documents and project file items associated with Task 4.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases, another software program agreed to by EPA. Memos are to be written in a manner which will make them easy to turn into draft chapters for a final report. For deliverables that are in Word or pdf versions of Word documents, and that are intended to be shared with management or the public, the contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the EPA WACOR.

VIII. Performance Work Statement

Task 1: Prepare Project Budget and Cost Estimates

Estimated LOE hours: 12 hours

The contactor shall prepare a project budget for the tasks below. The project budget shall include the technical approach, resources, timeline and due dates for deliverables; a detailed cost estimate by task; and a staffing plan. The EPA WACOR, the PO and the CO will review the budget. However, only the CO can approve or disapprove, suggest revisions, or change the budget. Official revisions will be given to the contractor by the Contracting Officer. The contractor shall prepare a revised budget incorporating the Contracting Officer's comments, if required.

Deliverables and schedule under Task 1:
1. Project budget is due 15 calendar days after receipt of work assignment.

Task 2: Prepare a Quality Assurance Plan for Literature Search, Data Collection and Analyses

Estimated LOE: 8 hours

2.1 Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis, and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in Table 2.1 below.

Table 2.1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output

Table 2.1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

2.2 QA Project Plan Requirements

The contractor has previously prepared a QAPP entitled, "Secondary Data Quality Assurance Project Plan for project entitled: Western States Criteria and Rulemaking Support," for WA 5-13, under Contract EP-C-12-006. The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). EPA has determined that the work under this WA may be conducted under this QAPP (with the letter amendment to add Missouri and Oregon to the list of locations to which the QAPP will be applicable), and that the QAPP addresses QA requirements for this work assignment. The current QAPP includes information on:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when the contractor is using existing sources of data to perform economic analyses in support of EPA's promulgation of state WQSs;
- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA data bases—as well as a rationale for when those databases are appropriate and what data available in each will support the project;
- The quality objectives needed to ensure the data will support the project objectives; and,
- The QA/QC activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Appendix 1 at the end of this PWS contains the QA Checklist for this project, which demonstrates how the QAPP addresses QA requirements for this work assignment. The contractor shall fill in staff roles in the table in the 'explanatory comments' under A.4 and make any additional detailed notes in the explanatory comments column as requested by the WACOR. The contractor shall then include the completed table as a separate Appendix 1 to the project budget upon submittal to EPA. This Appendix 1 should be a stand-alone document if QA documentation is requested. Therefore, the table title must include the title of the WA, WA number, and contract number. The WACOR has provided this information in the title, which the contractor may use to fulfill this requirement.

2.3 Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure that the reports provide enough information to enable a knowledgeable reader to determine whether the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Technical Support Documents, Study Reports, Analytical Methods) produced by the contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable. This discussion must provide a sufficient level of detail to allow the EAD QA Coordinator (or designee) to determine whether the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WACOR will review each applicable report and certify whether the contractor has adhered to the QA requirements documented in the contractor's QAPP.

The contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the contractor may include this report as a part of the contract-required monthly financial/technical progress report.

2.4 Data Quality Act/Information Quality Guidelines Requirements

The Data Quality Act (also known as the Information Quality Act) requires EPA to ensure that influential information disseminated by the Agency is sufficiently transparent in terms of data and methods of analysis so that the information could be substantially reproduced. To support compliance with these data transparency/data reproducibility requirements, EPA plans to include QAPPs as part of any rulemaking record documentation to be made available to the public. The contractor may claim information in QAPPs as confidential; if the contractor chooses to do so, the contractor shall submit a sanitized (i.e., public) version and an unsanitized (i.e., confidential) version at the time the QAPP is submitted for approval by EPA. The sanitized version shall be included in the public docket for the applicable rulemaking (or other docket record), and the unsanitized version shall be included in a non-public (i.e., confidential) portion of the docket (or record).

Information contained in the approved QAPP shall be transparent and reproducible and meet the requirements of the Data Quality Act for influential information. EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* (EPA/260R-02-008, October 2002), referred to as "EPA's Information Quality Guidelines," describe EPA procedures for meeting Data Quality Act requirements. Section 6.3 of EPA's Information Quality Guidelines indicates that "especially rigorous robustness checks" should be applied in circumstances where quality-related information cannot be disclosed due to confidentiality issues. Where applicable, the contractor should indicate which results were obtained using the tools (SOPs, checklists, and guidelines) that the contractor designates as confidential so that the EPA WACOR can easily identify the areas that require rigorous robustness checks and document that those checks have been performed. At the discretion of the EPA WACOR, the contractor may be requested to prepare pre-dissemination review checklist as described in Section 5.5 of the Office of Water Quality Management Plan, February 2009. If this is required, the EPA WACOR will notify the contractor through written technical direction.

Deliverables and schedule

1. Monthly reports of QA work performed (may be included in contractor's monthly progress report) due monthly throughout the WA period of performance. The monthly progress report shall breakdown costs by subtask.

Task 3: Adhere to Standardized Naming Convention and Version Control Memorandum

Estimated LOE hours: 0 hours

The contractor shall adhere to the EPA WACOR-approved standardized naming convention and version control (SNCVC) plan which was developed under the Construction and Development WA 0-01 of Contract EP-C-07-023 (WA0-01_T1_SNCVC_08.31.07_V1.pdf). The contractor shall use this standardized convention for all deliverables associated with this work assignment.

Task 4: Economic Analyses

Estimated Total LOE for Task 4: 240 hours

EPA has constructed a flowchart (see Appendix 2) describing the standard process for developing an economic analysis of a WQSs rulemaking, and the roles various parties play; the focus of this work assignment is the economics work, while the engineering work is most likely conducted under another contract. In general, an early step is to determine the baseline for the rule. While this step is sometimes straightforward, it is often complicated when EPA is regulating in place of a state because there may be costs and benefits associated with *achieving* the baseline. The purpose of this WA is not to estimate such costs and benefits because they are not costs and benefits associated with EPA's WQSs rulemaking. There may, however, be instances where estimating baseline costs is a necessary step in estimating incremental costs. The contractor shall estimate baseline costs only in the case where the EPA WACOR issues written technical direction to do so.

Once the baseline is established, the contractor shall determine the availability of the data on ambient water quality monitoring (for ascertaining potentially incrementally impaired waters) and data on point source dischargers (i.e., facilities in industries with demonstrated RP or permit limits for the pollutants for which criteria are being set by the WQSs, and for which RP should be analyzed and the subset for which technology costs should be estimated). The contractor shall at a minimum estimate the administrative costs associated with TMDLs for potentially incrementally impaired waters. Depending on the circumstances, the subtasks below may call upon the contractor to estimate control costs for nonpoint sources, assuming adequate data is available to estimate costs of control for stormwater runoff, agricultural and forestry sources, and septic systems.

While EPA or another contractor will estimate the engineering costs associated with pollution control, the contractor shall convert such engineering capital and O&M costs into a stream of future costs over the life of the technologies, and annualize using both 3% and 7% discount rates. The 3% discount rate estimates will form the basis of EPA's primary estimates of costs, while the 7% discount rate estimates shall be included in an appendix, in order to comply with OMB's Circular A-4 requirements. Unless specifically noted in the subtasks below, the contractor will not analyze the benefits of achieving the WQSs.

The contractor shall use draft EPA criteria documents and any other relevant existing analyses provided by the EPA WACOR, including relevant TMDLs, as a starting point for the economic analyses in the subtasks below. For the economic analyses, the EPA WACOR will provide the contractor with data on point and nonpoint source dischargers located in the states identified in subtasks below that may be affected by the revised aquatic life and aquatic-dependent wildlife criteria, and human health criteria. The point and nonpoint sources may include, but are not limited to: agriculture, forestry, mining, municipal wastewater treatment plants, industrial wastewater, urban storm water, septic systems, and atmospheric deposition.

The EPA WACOR will provide the contractor with data from the Technical Support Document (TSD) on criteria prepared for each of the rulemakings identified in subtasks below. The TSDs

will identify and document a baseline of water quality based on current water quality standards and TMDLs, and then estimate the incremental change needed to meet the new aquatic life and aquatic-dependent wildlife criteria, and human health criteria. These data will include summarized monitoring data and permit limits for the relevant contaminant related to the existing criteria for the contaminant(s), including all relevant water quality data (including monitoring data from environmental and conservation groups) for the contaminant.

If EPA proposes additional options for new human health and/or aquatic life criteria, the EPA WACOR will provide the contractor with estimates of the additional incremental changes and the contractor shall use them to provide new cost estimates. Where appropriate for a particular cost category, the contractor shall provide lower and upper bound estimates.

If specified below, the contractor shall also use the estimated incremental change to estimate benefits of new human health criteria if requested by the EPA WACOR. The contractor shall consider the use of cancer cases and other illnesses avoided. If applicable, the contractor shall use value of a statistical life and treatment costs of avoided illness for the benefits analysis. The contractor shall also estimate any water quality benefits from the incremental change of new aquatic life criteria. If available, the contractor shall present nonuse benefits in addition to the use benefits for the criteria change. If specified below, the contractor also shall present a discussion of qualitative benefits in the TSD.

The following data will be provided to the contractor by the EPA WACOR for each of the economic analyses:

- Baseline criteria.
- NPDES permitted dischargers by facility type (major/minor) and category.
- The potential engineering control costs to municipal and industrial point sources associated with compliance with the revised human health criteria. Compliance costs may result from changes to NPDES permit requirements and associated effluent limitations.
- The cost of any Best Management Practices (BMPs) identified by EPA.

The economic analyses developed under subtasks below shall have the following common elements:

1. An appendix at the back of each EA, modeled on the Washington State EA/TSD which the EPA WACOR will provide. The appendix shall provide the details of the sample facility results (facility-specific details will be provided in the TSD and include the extrapolation of statewide costs for major dischargers under each rule). The contractor shall annualize capital costs, including study costs (e.g., dilution, variance) and program (e.g., pollution prevention) over the assumed life of the equipment using 3% and 7% discount rates to obtain total annual costs per facility. Wherever a range of costs is available, the contractor shall calculate a minimum and maximum annual cost for each facility in the sample and then apply those costs to all other facilities in that category statewide.

2. Where labor cost data are available for pollution prevention (P2) programs for source controls for individual pollutants (e.g., mercury), the contractor shall use the most recent local labor rate data from the Bureau of Labor Statistics (BLS) and update cost components for changing price

levels using the Gross Domestic Product Implicit Price Deflator (GDP-IPD) from the Department of Commerce's Bureau of Economic Analysis.

The contractor shall summarize the unit costs utilized in the sample facility compliance cost analyses for industrial and municipal dischargers that would need to reduce pollutants as a result of the revised criteria.

3. The contractor shall include an Uncertainty and Quality Assurance table containing a description of each potential uncertainty and/or assumption affecting the cost estimate, the effect on the cost estimate (positive, negative, or ambiguous), and any additional notes. The table should be modeled on Exhibit 6-3, Uncertainties in Analysis of Costs, in the "Economic Analysis for Water Quality Standards Applicable to the State of Washington" prepared under Contract # EP-C-13-03.

Only the EPA WACOR has the authority to issue technical direction to the contractor for work under the subtasks. The Task Managers do not have the authority to issue technical direction. The Task Managers named in **V. Key Personnel** will review and provide comments on all deliverables and relay those comments to the EPA WACOR to provide to the contractor. All technical direction issued by the EPA WACOR must be in writing.

Subtask 4.1: Economic Analysis for WQS for Missouri Lakes Numeric Nutrients Criteria

Estimated LOE: 160 hours

The state of Missouri has narrative nutrients criteria for more than 800 of its lakes (the exception is 25 lakes for which numeric nutrients criteria were set by Missouri, and approved by EPA in 2011). Under a court order, EPA will issue federal numeric nutrients criteria for the lakes with narrative nutrients criteria, covering total nitrogen, total phosphorus and chlorophyll-a. Because the pollutants of concern are nutrients, EPA expects that the economic analysis will need to consider, at a minimum, point sources that are POTWs, other point source categories with numeric limits for nutrients (if any), and nonpoint sources associated with agricultural activity. The criteria are likely to apply to waters with drinking water as a designated use, as well as for aquatic life support.

A key step in the analysis will be to ascertain the baseline, and establish a way to estimate which lakes are impaired under the baseline. EPA does not intend to estimate costs associated with improving waters that are impaired under the baseline, unless it is necessary to do so, either as the upper bound on costs, assuming that none of the lakes are impaired under the baseline, or as a courtesy to the public to place the costs of this rule within the context the total cost of all lakes meeting the numeric nutrients criteria. Should it be necessary to estimate baseline costs, the EPA WACOR will issue written technical direction requesting the analysis. The main challenge will be that the state does not have information that would help make this step straightforward.

Under this subtask, the contractor shall develop an Economic Analysis for the proposed WQS for Missouri based on the revised numeric nutrients criteria. The EA shall contain the elements described above under Task 4 of this WA. A draft Economic Analysis shall be provided to the

EPA WACOR via the task manager for an initial review. The EPA WACOR will provide revisions and/or comments to the contractor and the contractor shall incorporate the changes into a revised draft Economic Analysis. All comments will be provided to the contractor through written technical direction by the EPA WACOR. The contractor should expect three sets of significant revisions. After each set of significant revisions, the contractor shall submit draft materials to the EPA WACOR for review. The contractor shall include a description of the QA measures taken in completing this task. Work conducted under this subtask shall not duplicate work conducted under any other WA..

Deliverables and schedule under Subtask 4.1:

4.1a. Draft Economic Analysis for the proposed rule due no later than July 14, 2017 based on technical direction provided by the EPA WACOR.
4.1b. Revised drafts for each set of significant revisions due three calendar days after receipt of written technical direction from the EPA WACOR.
4.1c. Final Economic Analysis for proposed rule due no later than July 31, 2017.

Subtask 4.2: Economic Analysis for WQS for Oregon Aluminum Criteria

Estimated LOE: 80 hours

Aluminum naturally occurs at low levels in surface waters but, at higher concentrations, can be toxic to aquatic life. Activities such as bauxite mining, alumina refining, production of aluminum products, and manufacturing processes can increase levels of aluminum in surface waters. In addition, alum (potassium aluminum sulfate) used in clarification processes in drinking water and wastewater processes, can contribute to levels of aluminum in surface waters.

In 2013, EPA disapproved the state of Oregon's freshwater acute and chronic aluminum criteria. Oregon has not yet adopted and submitted revised freshwater acute and chronic aluminum criteria to EPA, so EPA proposes to establish federal freshwater acute and chronic aluminum criteria that take into account the best available science, EPA policies, guidance and legal requirements, to protect aquatic life uses in Oregon from the effects of exposure to harmful levels of aluminum.

Under this subtask, the contractor shall respond to EPA's comments on the draft EA prepared for EPA under WA 5-13 under contract EP-C-12-006. EPA will provide the contractor with updated draft EPA aluminum criteria documents for aluminum for Oregon, and other updated relevant existing analyses, including relevant TMDLs. The EPA WACOR will provide the contractor with updated information on point and nonpoint source dischargers located in Oregon that may be affected by the aluminum criteria. Given the very small number of point sources, the contractor may not be able to estimate a range of costs.

All comments will be provided to the contractor through written technical direction by the EPA WACOR. The contractor should expect three sets of significant revisions. After each set of significant revisions, the contractor shall submit draft materials to the EPA WACOR for review.

The contractor shall include a description of the QA measures taken in completing this task. Work conducted under this subtask shall not duplicate work conducted under any other WA.

Deliverables and schedule under Subtask 4.2:

4.2a. Draft Economic Analysis for the proposed rule due no later than July 14, 2017 based on technical direction provided by the EPA WACOR.
4.2b. Revised drafts for each set of significant revisions due three calendar days after receipt of written technical direction from the EPA WACOR.
4.2c. Final Economic Analysis for proposed rule due no later than July 31, 2017.

VI. SCHEDULE OF DELIVERABLES:

Task	Deliverable	Due
1	Work Plan	Due within 15 calendar days after WA receipt.
2	Monthly reports of QA work performed	May be included in monthly progress reports.
3	Adhere to SNCVC memorandum	No deliverables under this task.
4.1	EA for Proposed Missouri WQS for nutrients	Draft EA due July 14. Revised drafts due 3 calendar days after receipt of comments from EPA WACOR. Final EA due no later than July 31, 2017.
4.2	EA for Proposed Oregon WQS for aluminum	Draft EA due July 14. Revised drafts due 3 calendar days after receipt of comments from EPA WACOR. Final EA due no later than July 31, 2017.