EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-49

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2018 Base Option Period Number 4	Quantifying and Valuing Advers

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section a.2.2, Section B.3

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

Period of Performance: From 08/30/2017 To 07/31/2018

Comments:
The purpose is to initiate Work Assignment 4-49. The contractor shall submit an estimated workplan and an estimated budget in accordance with the contract. See attached statement of work.

☐ 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 07/31/2018		0
This Action:		325
Total:		325

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 Noelle Mills	Noelle Mills (Signature)	Digitally signed by NOELLE MILLS DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=NOELLE MILLS, dnQualifier=0000044796 Date: 2017.08.30 15:27:41 -04'00' (Date)	Branch/Mail Code: Phone Number: 513-487-2171 FAX Number:

WORK ASSIGNMENT

Title: Quantifying and Valuing Adverse Health Risks

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

Work Assignment Number: 4-49

Estimated Period of Performance: Date of issuance to July 31, 2018

Estimated Level of Effort: 325 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 dose-response functions and values of risk changes for adverse health outcomes for use in economic benefits analysis. Specific outcomes to be focused upon in this work assignment are risks of reduced birth outcomes (e.g., birth weight and preterm birth), attention-related disorders, and cardiovascular effects. These adverse health effects are associated with a number of contaminants in water and other media, including lead. This work assignment seeks to complete draft work accomplished under previous work assignments, specifically:

- Under previous work assignment (EP-C-13-039, WA 3-49), the contractor developed draft dose-response functions for lead (Pb) and cardiovascular mortality, lead and attention-related disorders, and lead and birthweight. This work assignment seeks to complete the development of these values and respond to comments that will be received during external peer review.

- Under previous work assignment (EP-C-13-039, WA 3-51), the contractor developed draft cost-of-illness values for reduced birthweight and preterm birth, work that is near completion. This work assignment seeks to complete the development of these values and respond to comments that will be received during external peer review.

No work performed under this work assignment will duplicate work performed under previous work assignments.

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 the Environmental Protection Agency (EPA). Memos must 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. shall 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.

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 (QAPP), 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 Estimates for changes in birth outcomes **[Contract PWS Section A.2.2, page 6 of 24]**

Under a previous work assignment (EP-C-13-039, WA 3-51), the contractor produced draft estimates of the cost of illness for reduced birth weight and for preterm birth. These estimates are very near completion and will then be subject to external peer review in accordance with EPA guidelines. The contractor shall complete and finalize cost-of-illness for reduced birth weight and preterm birth, responding to comments provided by the WACOR. 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. As part of this report the contractor shall offer a draft set of charge questions for peer reviewers. 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 6 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 – Dose-response functions for lead and specific health outcomes. **[Contract PWS Section B.3, page 10 of 24]**

Under a previous work assignment (EP-C-13-039, WA 3-51), the contractor provided draft dose-response functions linking lead (Pb) with adverse birth outcomes, cardiovascular mortality, and attention-related disorders. The contractor shall complete and finalize these dose-response functions, responding to comments provided by the WACOR. 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. As part of this report the contractor shall offer a draft set of charge questions for peer reviewers. 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 3

3a. Draft report on dose-response functions within 6 weeks of work plan initiation
3b. Revised report within 2 weeks of receiving comments from WACOR
3c. Revised report based on comments from external peer review within 12 weeks of receiving these comments from the WACOR

Summary of Deliverables and Dates:

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

2a. Draft report on cost-of-illness estimates within 6 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 report on dose-response functions within 6 weeks of work plan initiation
3b. Revised report within 2 weeks of receiving comments from WACOR
3c. Revised report based on comments from external peer review within 12 weeks of receiving these comments from the WACOR

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-49

☐ 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 4	Quantifying and Valuing Advers

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	Section a.2.2, Section B.3

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

Period of Performance: From 08/30/2017 To 07/31/2018

Comments:
The purpose of this amendment is to add 28 no-cost hours to the WA.

☐ 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										
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5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/11/2013 To 07/31/2018		325
This Action:		28
Total:		353

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 Harold D. Hincks	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2146 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-49

☐ 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 4	Quantifying and Valuing Advers

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section a.2.2, Section B.3

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

Period of Performance: From 04/26/2018 To 07/31/2018

Comments:
This Amendment adds additional cost/LOE (200 Hours), which includes additional scope to a task and descope of two tasks.

☐ 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										
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Authorized Work Assignment Ceiling

	Cost/Fee	LOE
Contract Period: 09/11/2013 To 07/31/2018		353
This Action:		200
Total:		553

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: Angela Lower	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2036 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-53

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039	Contract Period: 09/11/2013 To 07/31/2018 Base Option Period Number 4	Title of Work Assignment/SF Site Name: Urban Waste Technical 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 08/01/2017 To 07/31/2018

Comments:
Work shall not commence until August 1, 2017

☐ 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 07/31/2018	Cost/Fee:	LOE: 0
This Action:		8,141
Total:		8,141

Work Plan / Cost Estimate Approvals

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

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: 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:** Urban Waste Technical Assistance and Network Support

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

II. **Work Assignment Number:** 4-53

III. **Estimated Period of Performance:** Date of Issuance through July 31, 2018

IV. **Estimated Level of Effort:** 8,141 hours

V. **Key EPA Personnel:**

Work Assignment Contracting Officer's Representative (WACOR):
Tom Frankiewicz
OAR/OAP/CCD (4353TT)
202/343-9232

Alternate WACOR:
Monica Shimamura
OAR/OAP/CCD (4353RR)
202/ 343-9337

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 per contract requirements. 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	Per contract requirements

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 QAPP. Because this work assignment requires the contractor to collect or use environmental or economic data, a 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. In an effort to scale-up and "catalyze" waste management improvements at a national level, EPA will also be working with 1-2 national level governments to share best practices on waste management to reduce SLCP emissions.

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 may occasionally be the lead in working with cities on assessing waste treatment options, 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, Mexico, and Southeast Europe, EPA will be providing ongoing technical assistance, assessment and training to regional city networks. 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. Technical assistance to promote best practices on waste management to reduce SLCP emissions may include desktop research or tailored training and

technical guidelines.

Deliverable	Projected Schedule Date
4 technical working sessions	2 within 6 months of work plan approval and 2 within 12 months of work plan approval
2 onsite field training	1 within 6 months of work plan approval and 1 within 12 months of work plan approval
Site visit to U.S. waste management facilities	Within 8 months of work plan approval
6 online training modules	Within 8 months of work plan approval
2 best practices reference document on waste management to reduce SLCP emissions	1 within six months of work plan approval and 1 within 12 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
2-3 Tailored MSW Trainings	1 within 6 months of work plan approval and 1-2 within 12 months of work plan approval
2 technical assessment studies	1 within six months of work plan approval and 1 within 10 months of work plan approval
Update 2-3 Existing Tools	Within 6 months of work plan approval

2 Guidance documents for existing tools	Within 3-6 months of work plan approval
1 National-level Policy Assessment	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, 2017)	Within 2 months of work plan approval
6 communications products	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: 4-56

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-13-039	09/11/2013 To 07/31/2018 Base Option Period Number 4	Economic Analyses of Californi

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A.2.2

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

Period of Performance: From 09/22/2017 To 07/31/2018

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 07/31/2018		0
This Action:		800
Total:		800

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 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
EPA Contract No., EP-C-13-039
Work Assignment # 4-56

TITLE: Development of Economic Analyses for California Statewide Water Quality Plans

I. Work Assignment Contracting Officer Representative (WACOR)

Ghulam Ali
Engineering and Analysis 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 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

800 hours

IV. Duration

Issuance to July 31, 2018

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, with US EPA Region 9 staff and California, it was determined that several water quality 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 objectives (criteria) and associated implementation plan from Cadmium. National Marine Services (National Oceanic and Atmospheric Administration (NOAA) Fisheries) determined that the Cadmium criteria proposed for the California Toxics Rule were 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. The costs 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 no later than July 31, 2018.

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 efficacy of restoration actions – similar to a compensatory mitigation program.

Timeline: Draft water quality objectives and amendment language no later than July 31, 2018.

This is a follow on to work assignment 3-56 on this contract, EP-C-13-039. The work assignment (3-56) included economic analyses of cadmium, nutrients and sediments The State Water Board was able to develop a draft policy about sediments and, hence, economic analysis of sediments was completed. Therefore, the sediments analysis to support the sediments objectives is excluded from this roll over work assignment, except for minor touch ups. However, the State Water Board was not able to prepare cadmium and nutrients objectives during the performance period for work assignment 3-56. As a result, no work was done on these projects in work assignment no. 3-56. Thus, this follow-on work assignment includes the tasks which were not completed before. Moreover, it involves an additional task of revising the toxicity and sediments economic analyses.

The toxicity economic analysis was completed on July 31, 2017 under the work assignment 3-39 on this contract, EP-C-13-039. There was no time for California to review the analysis before July 31, 2017 and, hence, there was no time to provide comments. The contractor is expected to revise the analysis once California provides comments (before it proposes the toxicity policy). Major revisions to the toxicity analysis are not expected because additional data may not be available.

The State Water Board has planned to propose the sediments objectives and get public comments. The contractor may be requested to revise the analysis in view of the public comments. Similarly, California is planning to propose the toxicity policy and receive public comments. The contractor may be expected to revise toxicity analysis as well. However, if the recent past is any guide, California usually does not request such revisions unless they are necessary.

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: Quality Assurance

The contractor shall use the contract-wide programmatic quality assurance project plan (PQAPP) which was developed under the base period work assignment 0-01 of this contract, EP-C-13-039. The contractor shall use the PQAPP 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 cadmium and nutrients and revising toxicity and sediment analyses (if requested). Specifically, the contractor shall identify quality of the monitoring data, and point sources technology data required to meet the quality assurance (QA) 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 quality assurance/quality control (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 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 determine the one-time cost, unit cost, and annual cost (including operation and maintenance (O&M) and monitoring) of each alternative included in the draft of the policy provided by California relative to the baseline. For cost estimates, the contractor shall provide a low and a high cost estimates, so that a range of costs is provided for each alternative for point and non-point sources. The contractor shall estimate the aggregate additional cost of the proposed requirements for regulated entities from the baseline.

If requested, in view of the public comments on the criteria or objectives proposals, the contractor shall revise the sediments analysis (completed under work assignment 3-56) and the toxicity analysis completed under work assignment 3-39. Minor revisions are expected in view of public comments. Since the toxicity analysis could not be prepared in time to provide comments, the contractor shall revise the economic analysis in view of the staff comments under this work assignment. Comments are expected to result in minor changes to the analyses. If requested, the contractor shall also do minor touch up of already completed toxicity analysis.

Written economic analysis reports suitable for inclusion as the economics section of the California 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. 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 when each economic analysis needed to be completed in order to fit the schedule of each project.

Tasks	Schedule
Task 1: Prepare Work Plan and Cost Estimates	Per contract requirements
Task 3: Cost Analysis	June 30, 2018
Task 4: Economic Support for Rule and policy	July 31, 2018
Task 5: Provide Technical Support for Policy Making Activities	July 31, 2018

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: 4-57

☐ 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 4	Lead Free Rulemaking

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: VI paragraph 2 & VIII

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

Period of Performance: From 08/01/2017 To 07/31/2018

Comments:
Support for OGWDW Lead rule.

☐ 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 07/31/2018 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 Jessica Georges	(Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-0966 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 Kathleen Rechenberg	(Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2853 FAX Number:

PERFORMANCE WORK STATEMENT

I. Title: Lead Free Rulemaking

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

II. Work Assignment Number: 4-57

III. Estimated Period of Performance: Date of issuance through July 31, 2018

IV. Estimated Level of Effort: 945 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Jessica Georges
OW/OGWDW/SRMD (4607M)
(202) 564-0966
(202) 564-3758 (fax)
georges.jessica@epa.gov

VI. Background and Purpose:

The Reduction of Lead in Drinking Water Act (RLDWA) was enacted on January 4, 2011 to amend Section 1417 of the Safe Drinking Water Act (SDWA or Act) regarding the use and introduction into commerce of lead pipes, plumbing fittings or fixtures, solder and flux. The Act established a prospective effective date of January 4, 2014, which provided a three-year timeframe for affected parties to transition to the new requirements. The Community Fire Safety Act of 2013 further amends Section 1417 to exempt fire hydrants. EPA in December of 2013 developed a summary document of answers to frequently asked questions that is intended to help the public understand the statutory requirements of the two pieces of legislation. To further clarify and refine these statutory requirements in a new rulemaking, EPA published a proposed rule on January 17, 2017.

The Federal Register Notice is available at:
https://www.federalregister.gov/documents/2017/01/17/2017-00743/use-of-lead-free-pipes-fittings-fixtures-solder-and-flux-for-drinking-water

The purpose of this work assignment is to support EPA's clarifications and extensions to the RLDWA in the rulemaking: "Use of Lead Free Pipes, Fittings, Fixtures, Solder and Flux for Drinking Water." The work outlined in this work assignment is a continuation of the efforts initiated in other work assignments on other contracts and supports this new EPA Reduction of Lead in Drinking Water Implementation Rulemaking by providing the Agency with cost assessment, rulemaking support documents, comment summary and response documents, and

other technical assistance.

No duplication of previous work is to take place under 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 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 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. The contractor shall use the Supplemental Quality Assurance Project Plan (SQAPP) completed under task 2 of WA 2-32 on this contract, and ensure the quality of secondary data used to complete tasks 3 through 5. 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 a 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. In addition, the work plan 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 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 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. Work plan within 15 calendar days of receipt of work assignment.

Task 2 - Provide Regulatory Flexibility Act (RFA) Technical Support for the Lead Free

Rulemaking

Task 2.1 – Lead Free Small Business Model

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 shall 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.

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.

Deliverables and schedule under Task 2.1

2.1a. Draft RFA spreadsheet model changes and due dates TBD listed or modified by written technical direction.
2.1b. Final RFA spreadsheet model changes due date listed or modified by written technical direction.

Task 2.2 - Lead Free Small Business Technical Support Document

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.

Deliverables and schedule under Task 2.2

For the report, assume two drafts and one final draft report.

3.2a. Draft revised RFA report due dates TBD listed or modified by written technical direction.

3.2b. Final RFA report due date listed or modified by written technical direction.

Task 3 - Small Business Legal Analysis

The contractor shall, based on technical direction given by the EPA WACOR, provide legal analysis support related to the rulemaking. Such legal support may include but is not limited to questions about self-certification, labeling, marking and international issues. The contractor may also be requested to participate in and/or conduct briefings, assisting Agency economists in their review of the legal analyses, providing technical review of materials prepared for the rulemaking by Agency staff, and assist in the development of the rulemaking record. The contractor may also be required to review and summarize 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 3

3.a. Draft deliverables and due dates TBD listed or delayed by written technical direction.
3.b. Final deliverable due dates listed or delayed by written technical direction.

Task 4 - Revisions to the benefits chapter for the Technical Support Document

Under this task, the contractor, based on written technical direction from the EPA WACOR, shall revise the proposed rule Technical Support Document pertain to the benefits of the Lead-Free Rule for use in supporting the final rule.

Under this task, the TSD report benefits chapter may need to be revised further in response to public comments, changes in the technical data, comments from OW management, and agency workgroup members, as well as changes to the regulatory options from those of the proposed rule and/or technology efficacy results. These changes are expected to occur in several waves as the final rule moves though the 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.

Once the EPA WACOR provides revisions and/or comments to the contractor, the contractor shall incorporate the changes into the draft TSD report benefits chapter.

The contractor should assume three iterations of each chapter: 2 drafts and 1 final.

Deliverables and schedule under Task 4

4.a. Draft deliverables and due dates TBD listed or delayed by written technical direction.
4.b. Final deliverable due dates listed or delayed by written technical direction.

Task 5 - Issue Papers and Technical Support

The contractor shall develop issue papers and technical analyses as identified through written technical direction by the EPA WACOR. EPA anticipates that some issues may become high priority during this review process and may require analytical support for internal Agency decision-making processes. Upon direction from the EPA WACOR, the contractor shall collect summary information on particular issues (e.g., manufacturing production practices), risk assessment background and status information, and perform preliminary cost-benefit analyses.

Deliverables: For work planning purposes, up to 3 analyses may be required.

5.a. Draft deliverables and due dates TBD listed or delayed by written technical direction.
5.b. Final deliverable due dates listed or delayed by written technical direction.

The contractor shall assume three iterations of each document: 2 drafts and 1 final.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-57

☐ 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 4	Lead Free Rulemaking

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 08/01/2017 To 07/31/2018

Comments:
The purpose of this amendment is to name Erik Helm the Alternate WACOR for this WA.

☐ 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 07/31/2018		945
This Action:		0
Total:		945

Work Plan / Cost Estimate Approvals

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

Work Assignment Manager Name: Jessica Georges	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-0966 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: Donna Reinhart	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2114 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-57

☐ 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 4	Lead Free Rulemaking

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	VI paragraph 2 & VIII

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

Period of Performance: From 08/01/2017 To 07/31/2018

Comments:
The purpose of this amendment is to provide additional environmental justice support in the context of EPA's Lead and Copper Rulemaking.

☐ 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		945
This Action:		200
Total:		1,145

Work Plan / Cost Estimate Approvals

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

Work Assignment Manager Name Jessica Georges (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-0966 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 Angela Lower Angela Lower (Signature) 07/11/2018 (Date)	Branch/Mail Code: Phone Number: 513-487-2036 FAX Number:	

PERFORMANCE WORK STATEMENT

I. Title: Lead Free Rulemaking

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

II. Work Assignment Number: 4-57 Amendment 2

III. Estimated Period of Performance: Date of Issuance through April 30, 2018

IV. Estimated Level of Effort: 200 hours for this amendment (1,145 hours total)

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Jessica Georges
OW/OGWDW/SRMD (4607M)
(202) 564-0966
(202) 564-3758 (fax)
georges.jessica@epa.gov

VI. Background and Purpose:

The Reduction of Lead in Drinking Water Act was enacted on January 4, 2011 to amend Section 1417 of the Safe Drinking Water Act (SDWA or Act) regarding the use and introduction into commerce of lead pipes, plumbing fittings or fixtures, solder and flux. The Act established a prospective effective date of January 4, 2014, which provided a three-year timeframe for affected parties to transition to the new requirements. The Community Fire Safety Act of 2013 further amends Section 1417 to exempt fire hydrants. EPA in December of 2013 developed a summary document of answers to frequently asked questions that is intended to help the public understand the statutory requirements of the two pieces of legislation. To further clarify and refine these statutory requirements in a new rulemaking, EPA published a proposed rule on January 17, 2017.

The Federal Register Notice is available at:
https://www.federalregister.gov/documents/2017/01/17/2017-00743/use-of-lead-free-pipes-fittings-fixtures-solder-and-flux-for-drinking-water

The purpose of this work assignment is to support EPA's clarifications and extensions to the RLDWA in the rulemaking: "Use of Lead Free Pipes, Fittings, Fixtures, Solder and Flux for Drinking Water." The work outlined in this work assignment is a continuation of the efforts initiated in WA 0-08, 1-08, 2-21, 3-21, and 4-21 and supports this new EPA Reduction of Lead in Drinking Water Implementation Rulemaking by providing the Agency with cost assessment, rulemaking support documents, comment summary and response documents, and other technical assistance.

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 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 consistent with the Agency's Quality Assurance (QA) requirements, appending the Contract Quality Assurance Project Plan (QAPP). 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 a 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. In addition, the work plan 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 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.

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

Task 2 - Provide Regulatory Flexibility Act (RFA) Technical Support for the Lead Free Rulemaking

Task 2.1 – Lead Free Small Business Model

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 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.

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.

Deliverables and schedule under Task 2.1

2.1a. Draft RFA spreadsheet model changes and due dates TBD listed or modified by written technical direction.
2.1b. Final RFA spreadsheet model changes due date listed or modified by written technical direction.

Task 2.2 - Lead Free Small Business Technical Support Document

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.

Deliverables and schedule under Task 2.2

For the report, assume two drafts and one final draft report.

3.2a. Draft revised RFA report due dates TBD listed or modified by written technical direction.
3.2b. Final RFA report due date listed or modified by written technical direction.

Task 3 - Small Business Legal Analysis

The contractor shall, based on technical direction given by the EPA WACOR, provide legal analysis support related to the rulemaking. Such legal support may include but are not limited to questions about self-certification, labeling, marking and international issues. The contractor may also be requested to participate in and/or conduct briefings, assisting Agency economists in their review of the legal analyses, providing technical review of materials prepared for the rulemaking by Agency staff, and assist in the development of the rulemaking record. The contractor may also be required to review and summarize 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 3

3.a. Draft deliverables and due dates TBD listed or delayed by written technical direction.
3.b. Final deliverable due dates listed or delayed by written technical direction.

Task 4 - Revisions to the benefits chapter for the Technical Support Document

Under this task, the contractor, based on written technical direction from the EPA WACOR, shall revise the proposed rule Technical Support Document pertain to the benefits of the Lead-Free Rule for use in supporting the final rule.

Under this task, the TSD report benefits chapter may need to be revised further in response to public comments, changes in the technical data, comments from OW management, and agency workgroup members, as well as changes to the regulatory options from those of the proposed rule and/or technology efficacy results. These changes are expected to occur in several waves as the final rule moves though the 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.

Once the EPA WACOR provides revisions and/or comments to the contractor, the contractor shall incorporate the changes into the draft TSD report benefits chapter.

The contractor should assume three iterations of each chapter: 2 drafts and 1 final.

Deliverables and schedule under Task 4

4.a. Draft deliverables and due dates TBD listed or delayed by written technical direction.
4.b. Final deliverable due dates listed or delayed by written technical direction.

Task 5 - Issue Papers and Technical Support

The contractor shall develop issue papers and technical analyses as identified through written technical direction by the EPA WACOR. EPA anticipates that some issues may become high priority during this review process and may require analytical support for internal Agency decision-making processes. Upon direction from the EPA WACOR, the contractor shall collect summary information on particular issues (e.g., manufacturing production practices), risk assessment background and status information, and perform preliminary cost-benefit analyses.

Deliverables: For work planning purposes, up to 3 analyses may be required.

5.a. Draft deliverables and due dates TBD listed or delayed by written technical direction.
5.b. Final deliverable due dates listed or delayed by written technical direction.

The contractor shall assume three iterations of each document: 2 drafts and 1 final.

Task 6 - Lead and Copper

The contractor shall develop the Information Collection Request for the Lead and Copper Revision Rule. This includes but is not limited to developing the supporting statement for burden estimates generated by the SafeWater CBX simulation.

6.a. Draft deliverables and due dates TBD listed or delayed by written technical direction.
6.b. Final deliverable due dates listed or delayed by written technical direction.

The contractor shall assume three iterations of each document: 2 drafts and 1 final.

The contractor shall develop issue papers and technical analyses as identified through written technical direction by the EPA WACOR pertaining to the Environmental Justice Analysis (EJA) for the Lead and Copper Revision Rule. EPA anticipates that some issues may become high priority during this review process and may require analytical support for internal Agency decision-making processes. Upon direction from the EPA WACOR, the contractor shall collect summary information on particular issues related to environmental justice. In addition, the contractor shall develop and prepare deliverables of the EJA report and preamble language for the Federal Register Notice for the Lead and Copper Rule Revision Rule.

6.c. Draft deliverables and due dates TBD listed or delayed by written technical direction.
6.d. Final deliverable due dates listed or delayed by written technical direction.

The contractor shall assume three iterations of each document: 2 drafts and 1 final.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-58

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039	Contract Period: 09/11/2013 To 07/31/2018 Base Option Period Number: 4	Title of Work Assignment/SF Site Name: Econ Sup't for WQS
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 08/01/2017 To 07/31/2018

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 07/31/2018	Cost/Fee:	LOE: 0
This Action:		1,250
Total:		1,250

Work Plan / Cost Estimate Approvals

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

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: Kathleen Rechenberg (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2853 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-58

☐ 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 4	Econ Sup't for WQS

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 08/01/2017 To 07/31/2018

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 07/31/2018		0
This Action:		1,250
Total:		1,250

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: Kathleen Rechenberg	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2853 FAX Number:

PERFORMANCE WORK STATEMENT (PWS)
Work Assignment 4-58

I. **Title:** Economics Support for Water Quality Standards Rulemakings

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

II. **Work Assignment Number:** **4-58**

III. **Performance Period:** Date of issuance to July 31, 2018

IV. **Estimated Level of Effort:** **1,250 hours**

V. **Key EPA Personnel:**

Work Assignment Contracting Officer Representative (WACOR) and Task Manager for Subtask 4.2:

Wendy Hoffman
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4303T
Washington, DC 20460
Phone: (202) 564-8794
Email: hoffman.wendy@epa.gov

Alternate WACOR and Task Manager for Subtask 4.1:

Michael Trombley
U.S. EPA, Office of Water
1200 Pennsylvania Ave., N.W., 4303T
Washington, DC 20460
Phone: (202) 564-3906
Email : trombley.michael@epa.gov

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 National Pollutant Discharge Elimination System (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 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, which continues the work the contractor conducted under WA 3-58 of this contract, EPA will continue to conduct work on the economic analyses for Missouri and Oregon. 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 quality assurance project plan (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 WA.

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. The contractor shall not exceed the contract limit in any printing or duplication activities under this WA.

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 Work Plan and Cost Estimates

Estimated LOE hours: 18 hours

The contactor shall prepare a work plan 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 CL-COR, and the CO will review the work plan. The EPA WACOR, the PO and the CO will review the work plan. However, only the CO can approve or 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. Work plan 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: 15 hours

2.1 Background

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 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 QAPP entitled, "Secondary Data Quality Assurance Project Plan for the 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 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.

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 work plan 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, Economic Analyses, 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 (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. 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: 1,217 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 operation and maintenance (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 shall not analyze the benefits of achieving the WQSs.

The contractor shall use 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 Economic Analysis document on criteria prepared for each of the rulemakings identified in subtasks below. Note that the documents prepared by another contractor for EPA, which include engineering costs and information on water quality and TMDLs, are also called Economic Analyses, but are not the same economic analyses which the contractor will prepare under this WA. To avoid confusion in this PWS, the Economic Analyses prepared by the other contractor are referred to here as the overall Economic Analyses. The overall Economic Analyses 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 proposed 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 proposed 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 overall Economic Analyses.

The following data will be provided to the contractor by the EPA WACOR for each of the economic analyses:

- Baseline criteria (where available).
- 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 overall Economic Analysis 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 overall Economic Analysis 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-13-039.

Only the EPA WACOR has the authority to issue technical direction to the contractor for work under the subtasks in this WA. 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: 985 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 complete work on the draft Economic Analysis begun under WA 3-58 of this contract, 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 final Economic Analysis for the proposed rule. 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 final Economic Analysis for the proposed rule due no later than August 28, 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 December 15, 2017.

Subtask 4.2: Economic Analysis for WQS for Oregon Aluminum Criteria

Estimated LOE: 232 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 complete work on the draft Economic Analysis begun under WA 3-58 of this contract, for the proposed WQS for Oregon for aluminum. 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.

The EPA WACOR will provide revisions and/or comments to the contractor and the contractor shall incorporate the changes into a final Economic Analysis for the proposed rule. 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 final Economic Analysis for the proposed rule due no later than August 28, 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 the proposed rule due no later than Dec. 15, 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 final EA due August 28, 2017. Revised drafts due 3 calendar days after receipt of comments from EPA WACOR. Final EA due no later than Dec. 15, 2017.
4.2	EA for Proposed Oregon WQS for aluminum	Draft final EA due August 28, 2017. Revised drafts due 3 calendar days after receipt of comments from EPA WACOR. Final EA due no later than Dec. 15, 2017.

Appendix 1
QA 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. Page references are from Secondary Data Quality Assurance Project Plan for project entitled: Western States Criteria and Rulemaking Support," EPA Contract EP-C-12-006, Work Assignment No. 5-13.

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	
A1. Title & Approval Sheet							
Project title	X						Page 3
Organization's name	X						Page 3
Effective date and/or version identifier	X						Page 3
Dated signature of Organization's project manager	X						Page 3
Dated signature of Organization's QA manager	X						Page 3
Other signatures, as needed (e.g., EAD Project Officer, EAD QA Coordinator)	X						Pages 3-4
Revision History	X						Page 5
A2. Table of Contents							
Includes sections, figures, tables, references, and appendices	X						Pages 6-7
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						Page 7
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						Pages 11

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	
Organization chart shows lines of authority & reporting responsibilities	X						Page 11
Project QA manager position indicates independence from unit collecting/using data	X						Page 11
A5. Problem Definition/Background							
Clearly states problem to be resolved, decision to be made, or hypothesis to be tested	X						Pages 7-8
Identifies project objectives or goals	X						Pages 7-8
Historical & background information		X					
Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives	X						Pages 7-8
A6. Project/Task Description							
List measurements to be made/data to obtain	X						Page 11
Notes special personnel or equipment requirements		X					Pages 12-13
Provides work schedule		X					Work schedule provided in WA
A7. Overall Quality Objectives & Criteria							
States overall quality objectives and limits needed to support the project goals and objectives cited in Element A5.	X						Page 14
A8. Special Training Requirements/ Certifications							
Identifies specialized skills, training or certification requirements	X						Page 15
Discusses how this training will be provided/the necessary skills will be assured and documented	X						Page 15
A9. Project-level Documents & Records							
Describes process for distributing the approved QAPP and other planning documents (and updates) to staff	X						Pages 15-16

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	
Identifies final work products that will result from the project	X						Page 15
Describes the process for developing, reviewing, approving, and disseminating the final work products and individuals responsible for these processes	X						Pages 15-16
B1. Data Needs							
Detailed list/description of the specific data elements needed to support project goals	X						Pages 16-17
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						Pages 16-17
If project includes development or update of a project database, QAPP identifies and defines each database field	X						Pages 16-17
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						Pages 17-18
If literature searches are used, describes the search engines that will be used and key search terms	X						Pages 17-18
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						Pages 17-18
For other potential sources, describe the potential sources and rationale for considering or using each one	X						Pages 18 - 19

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	
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						Pages 18-20
Explains rating system used to evaluate source against each criterion	X						Pages 18-20
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						Pages 18-20
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						Page 20
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						Pages 20
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						Page 20.

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	
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						Pages 20-21 Note – in cases where sources or values were rejected, the EPA WACOR will have the contractor document reasons for rejection.
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						Pages 20-21

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						Page 20
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						Page 20
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						Page 20
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						Page 22 Note -- If standardization of data elements is not needed, the EPA WACOR will ensure that contractor 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.
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						Pages 20-21

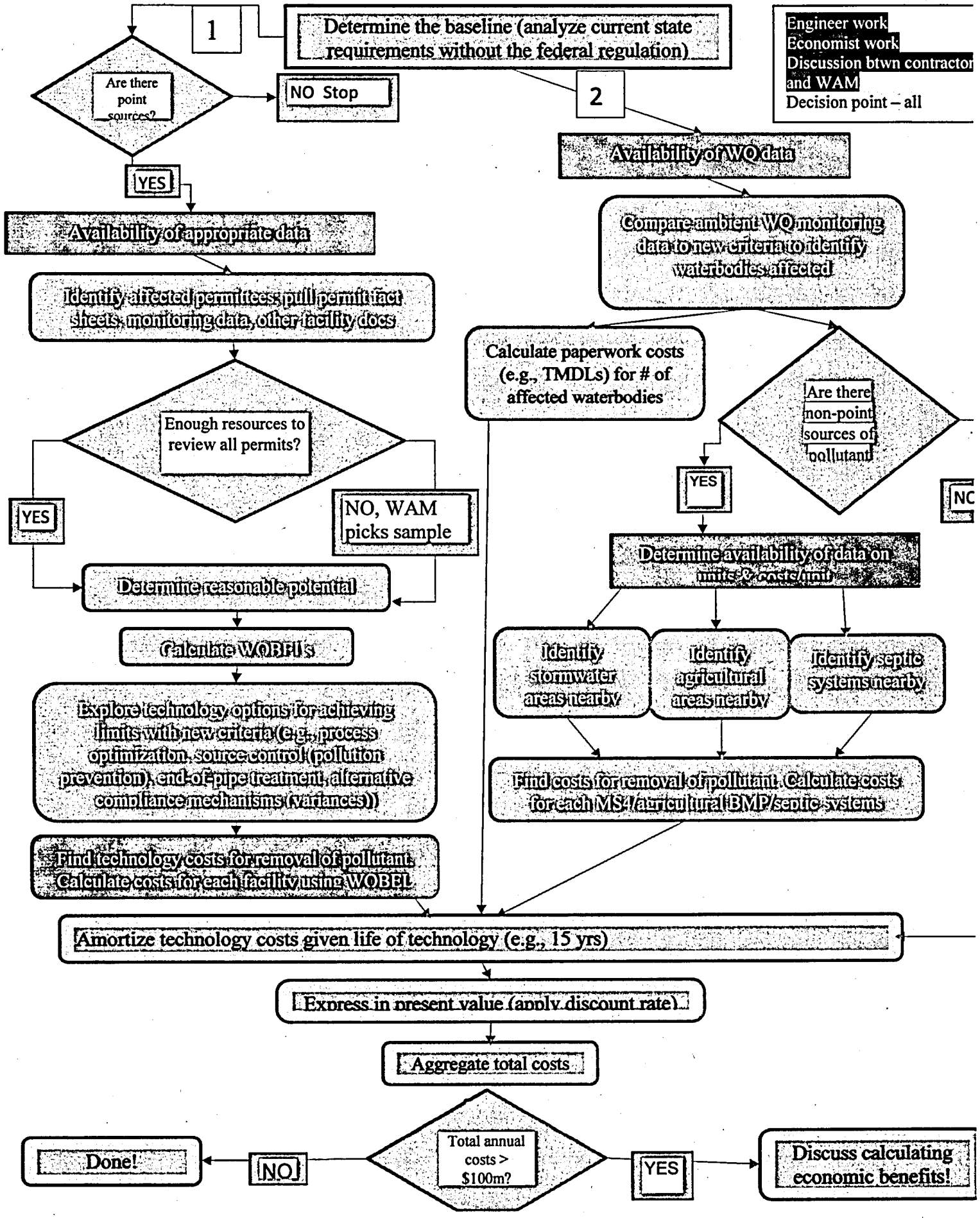
QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
C3. Merging or Uploading Electronic Data from Existing Sources							
If data are available electronically and will be uploaded or merged into the project 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						Pages 20-22
C4. Data Review							
Describes the process for ensuring that the data have been recorded, transmitted, and processed correctly	X						Pages 20-22
C5. Data Storage and Manipulation							
Describes how the existing data will be stored	X						Page 20-21
Describes who will be responsible for access to and maintenance of the stored data	X						Page 20-22
Describes how the existing data will be incorporated with other project data to support the project goal/decision to be made	X						Pages 20-22
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						Pages 20-21

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						Pages 21-22
Describes how these determinations will be documented and reported.	X						Pages 21-22
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						Pages 21-22
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						Page 22
Includes an explanation or list of the information to be calculated and the data elements that will be used to make those calculations	X						Page 22
Includes applicable calculations and equations (if known) or explanations of how they will be developed.	X						Page 22
Includes plans for excluding outliers.	X						
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						Page 22

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						Page 22
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						Page 22
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						Page 22
Describes how the results of this assessment will be documented	X						Page 22
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						Page 22

Appendix 2
Basic Template for Economic Analysis for Water Quality Standards

Note: The color key for the roles and responsibilities of the engineer and economist, and the discussion and decision points, is matched to the background color immediately around the text in each element of the flow chart.


Engineer work
Economist work
Discussion btwn contractor and WAM
Decision point – all
1
Determine the baseline (analyze current state requirements without the federal regulation)
Are there point sources?
NO Stop
YES
2
Availability of WQ data
Compare ambient WQ monitoring data to new criteria to identify waterbodies affected
Calculate paperwork costs (e.g., TMDLs) for # of affected waterbodies
Are there non-point sources of pollutant
YES
NO
Determine availability of data on units & costs/unit
Identify stormwater areas nearby
Identify agricultural areas nearby
Identify septic systems nearby
Find costs for removal of pollutant. Calculate costs for each MS4/agricultural BMP/septic systems
Availability of appropriate data
Identify affected permittees; pull permit fact sheets, monitoring data, other facility docs
Enough resources to review all permits?
YES
NO, WAM picks sample
Determine reasonable potential
Calculate WQBELs
Explore technology options for achieving limits with new criteria (e.g., process optimization, source control (pollution prevention), end-of-pipe treatment, alternative compliance mechanisms (variances))
Find technology costs for removal of pollutant. Calculate costs for each facility using WQBEL
Amortize technology costs given life of technology (e.g., 15 yrs)
Express in present value (apply discount rate)
Aggregate total costs
Total annual costs > $100m?
NO
Done!
YES
Discuss calculating economic benefits!

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-58

☐ 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 4	Econ Support for WQS Rulemakin

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: SOW Para.

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

Period of Performance: From 08/01/2017 To 07/31/2018

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 07/31/2018		1,250
This Action:		500
Total:		1,750

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: Angela Lower (Signature) 3/8/18 (Date)	Branch/Mail Code: Phone Number: 513-487-2036 FAX Number:	

Work Assignment Form. (WebForms v1.0)

PERFORMANCE WORK STATEMENT (PWS)
Work Assignment 4-58
Amendment 1

I. **Title:** Economics Support for Water Quality Standards Rulemakings

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

II. **Work Assignment Number:** **4-58**

III. **Performance Period:** Date of issuance to July 31, 2018

IV. **Estimated Level of Effort:** **500 hours for this amendment (total of 1,750 hours for this work assignment)**

V. **Key EPA Personnel:**

Work Assignment Contracting Officer Representative (WACOR) and Task Manager for Subtasks 4.2 and 4.4:

Wendy Hoffman
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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 National Pollutant Discharge Elimination System (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 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, which continues the work the contractor conducted under WA 3-58 of this contract, EPA will continue to conduct work on the economic analyses for Missouri and Oregon.

In addition, in subtask 4.3 described below, the contractor shall prepare an economic analysis for selenium criteria for parts of California. EPA has already finalized the selenium criteria for San Francisco estuary and Bay Delta in California and under WA 2-30 of this contract, the contractor has already completed the economic analysis for selenium for that part of California. Under this amended WA, the contractor shall develop the economic analysis for selenium criteria for the remainder of the state.

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 quality assurance project plan (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.

Under this amended work assignment, the contractor shall conduct all analyses requiring the collection and manipulation of data and models in accordance with the EPA-approved QAPP.

Work conducted under this WA shall not duplicate work conducted under any other WA. The EPA WACOR will provide all technical direction related to this work in writing.

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. The contractor shall not exceed the contract limit in any printing or duplication activities under this WA.

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 Work Plan and Cost Estimates

Estimated LOE hours: 36 hours for this amendment

The contactor shall prepare a work plan for the new subtasks 4.3 and 4.4 described 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 CL-COR, and the CO will review the work plan. The EPA WACOR, the PO and the CO will review the work plan. However, only the CO can approve or 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. Work plan is due 15 calendar days after receipt of the amended work assignment.

Task 2: Prepare a Quality Assurance Plan for Literature Search, Data Collection and Analyses

Estimated LOE: 0 hours for this amendment

2.1 Background

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 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

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

Item	Examples
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 the 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 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.

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 work plan 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, Economic Analyses, 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 (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.

The contractor shall not develop a new QAPP for the economic analysis for subtask 4.3. Instead, the contractor shall follow the base work assignment (4-58) quality assurance plan described in this task.

Deliverables and schedule

1. Monthly reports of QA work performed for all tasks, including subtasks 4.3 and 4.4, (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: 464 is for this amendment

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.

The work described in the following sentence is no longer being performed by the contractor for this WA. Instead, it will be performed by Horsley Witten, for all four subtasks: 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 operation and maintenance (O&M) costs into a stream of future costs over the life of the technologies, and annualize using both 3% and 7% discount rates. While the 3% discount rate estimates will form the basis of EPA's primary estimates of costs for subtask 4.3, the 7% discount rate estimates shall be included in the text and in tables in the body of the report, in order to comply with OMB's Circular A-4 requirements. Unless specifically noted in the subtasks below, the contractor shall not analyze the benefits of achieving the WQSs.

The contractor shall use 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 Economic Analysis document on criteria prepared for each of the rulemakings identified in subtasks below. Note that the documents prepared by another contractor for EPA, which include engineering costs and information on water quality and TMDLs, are also called Economic Analyses, but are not the same economic analyses which the contractor will prepare under this WA. To avoid confusion in this PWS, the Economic Analyses prepared by the other contractor are referred to here as the overall Economic Analyses. The overall Economic Analyses 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 proposed 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 proposed 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 overall Economic Analyses.

The following data will be provided to the contractor by the EPA WACOR for each of the economic analyses:

- Baseline criteria (where available).
- 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, including subtasks 4.3 and 4.4, shall have the following common elements:

1. An appendix at the back of each EA, modeled on the Washington State overall Economic Analysis, 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 overall Economic Analysis 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-13-039.

Only the EPA WACOR has the authority to issue technical direction to the contractor for work under the subtasks in this WA. 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.

All general requirements described in this task also apply to subtasks 4.3 and 4.4.

Subtask 4.1: Economic Analysis for WQS for Missouri Lakes Numeric Nutrients Criteria

Estimated LOE: 985 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 complete work on the draft Economic Analysis begun under WA 3-58 of this contract, 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 final Economic Analysis for the proposed rule. 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 final Economic Analysis for the proposed rule due no later than August 28, 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 December 15, 2017.

Subtask 4.2: Economic Analysis for WQS for Oregon Aluminum Criteria

Estimated LOE: 232 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 complete work on the draft Economic Analysis begun under WA 3-58 of this contract, for the proposed WQS for Oregon for aluminum. 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.

The EPA WACOR will provide revisions and/or comments to the contractor and the contractor shall incorporate the changes into a final Economic Analysis for the proposed rule. 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 final Economic Analysis for the proposed rule due no later than August 28, 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 the proposed rule due no later than Dec. 15, 2017.

Subtask 4.3: Economic Analysis for WQS for California Selenium Criteria

Estimated LOE: 232 hours for this amendment

The proposed aquatic life criteria for California are designed to protect aquatic life and aquatic-dependent wildlife including federally listed threatened and endangered species. Pursuant to Clean Water Act section 303(c) and EPA's implementing regulations at 40 CFR 131.11(a), water quality criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect designated uses; for waters with multiple use designations, the criteria must support the most sensitive designated uses. The selenium criteria are intended to be protective of the State's established aquatic life and wildlife designated uses which include: migration of aquatic organisms; estuarine habitat; spawning, reproduction and/or early development; warm and cold freshwater habitats; wildlife habitat; and rare, threatened or endangered species.

California's existing criteria for the protection of aquatic life were promulgated by EPA in 1992 as part of the National Toxics Rule (40 Code of Federal Regulations 131.36). EPA is proposing to update these criteria to reflect the latest science, including local and regional information, and applicable EPA policies, guidance, and legal requirements.

EPA derived the aquatic life chronic tissue-based criterion elements for egg-ovary, whole-body and/or muscle concentrations in fish, and the aquatic-dependent wildlife chronic tissue-based criterion element for bird eggs. These tissue-based criterion element concentrations were developed to protect aquatic life and aquatic-dependent wildlife taxa from reproductive impairments associated with dietary exposure and maternal transfer to eggs resulting in

mortality, teratogenicity, and decreased hatchability. The tissue-based criterion elements were then used to calculate the proposed chronic water column-based criterion and intermittent water column-based criterion elements for selenium that are protective of both aquatic life and aquatic-dependent wildlife.

The EPA has already finalized the selenium criteria for San Francisco estuary and Bay Delta in California. The contractor has already completed the economic analysis for selenium for that part of California under WA 2-30 of this contract. Under this WA, the contractor shall develop the economic analysis for the selenium criteria for the remainder of California.

The contractor shall develop the economic analysis in collaboration with the Horsley Witten Group who is finishing the engineering cost estimates for selenium for California under WA 1-13, Contract No. EP-C-16-017. The contractor shall prepare the economic analysis using the Horsley Witten' products using 3% and 7% discount rates.

The contractor is not expected to estimate the economic benefits of the criteria under this subtask, even though it is included in this work assignment because EPA cannot determine in advance the need for a benefits assessment. Therefore, the contractor first shall focus on estimating the aggregate costs. However, if the cost estimates exceed $100 million, then benefit assessment will be warranted. The contractor shall discuss the benefits assessment with the EPA WACOR before proceeding with any work on that analysis

For the economic analysis, the Horsley Witten Group, in its selenium report, is expected to provide the following:

- Baseline existing criteria (where available).
- 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 for non-point sources.
- Reasonable potential analysis.
- Existing and incremental exceedances, impairments and TMDLs.

Horsley Witten is expected to have already summarized monitoring data and permit limits for selenium related to the existing aquatic life selenium criteria for California. It is supposed to collect all relevant selenium water quality data (including monitoring data from environmental and conservation groups). For the cost-benefit analysis, it is expected to have identified point and nonpoint source dischargers that may be affected by the revised aquatic life and aquatic-dependent wildlife criteria. The point and nonpoint sources may include, but are not limited to: agriculture, mining, petroleum refineries, power plants, municipal wastewater treatment plants, industrial wastewater, urban storm water, and septic systems. The EA prepared under this subtask will provide the data about the incremental impairments and the expected incremental TMDLs also.

If there are any gaps left in the report by Horsley Witten, the contractor shall fill them, in cooperation with Horsley Witten, in preparing the aggregate overall economic analysis. However, even though Horsley Witten and the contractor are deemed to work together in preparing the economic analysis Technical Support Document, the contractor is ultimately responsible for finalizing the document. The contractor shall use draft EPA criteria documents on selenium, and any other relevant existing analyses, including relevant selenium TMDLs, as a starting point of the cost benefit analysis.

On the basis of the data collected and analyses completed by Horsley Witten, the contractor shall develop an overall economic analysis. The contractor shall focus the analysis on the baseline of water quality given current water quality standards and TMDLs, and incremental change needed to meet the new aquatic life and aquatic-dependent wildlife criteria presented by Horsley Witten. The contractor shall use the estimated incremental change to estimate the costs for point sources and nonpoint sources using an appropriate sample of the regulated entities. The contractor shall also use the estimated incremental change to estimate and describe economic benefits of the revised criteria if requested by the EPA WACOR. The contractor shall discuss all the issues related to this work with the task manager, not the WACOR. However, only the WACOR will issue technical direction, if needed.

If EPA proposes additional options for implementation of the aquatic life criteria, the contractor shall provide estimates of the different incremental changes and use them to provide different cost estimates for each option. For each option, the contractor shall provide a low, high, and reasonable cost estimates, so that a range of costs is presented.

Deliverables and schedule under Subtask 4.3:

4.3a. Draft Economic Analysis for the proposed rule due no later than May 15, 2018, based on technical direction provided by the EPA WACOR.
4.3b. Revised drafts for each set of significant revisions due three calendar days after receipt of written technical direction from the EPA WACOR.
4.3c. Final Economic Analysis for the proposed rule due no later than July 31, 2018.

Subtask 4.4: Economic Analysis for WQS for Idaho Arsenic Criteria

Estimated LOE: 232 hours for this amendment

The Environmental Protection Agency (EPA) is proposing federal Clean Water Act (CWA) human health criteria for arsenic applicable to waters under the State of Idaho's jurisdiction. In 2016, EPA disapproved Idaho's arsenic human health criterion of 10 mg/L, and is under a consent decree deadline to sign for publication in the Federal Register proposed new arsenic criteria for Idaho by Nov. 15, 2018, and sign a notice of final rulemaking on EPA's proposed arsenic criteria for Idaho by July 15, 2019. These proposed water quality standards (WQS) take into account the best available science, including local and regional information, as well as applicable EPA policies, guidance, and legal requirements, to protect human health.

Under this subtask, the contractor shall complete work on a draft Economic Analysis. EPA will provide the contractor with draft EPA criteria documents for arsenic for Idaho, and other updated relevant existing analyses, including relevant TMDLs and analyses completed for this criteria. The EPA WACOR will provide the contractor with updated information on point and nonpoint source dischargers located in Idaho that may be affected by the arsenic criteria.

The contractor shall develop the economic analysis in collaboration with the Horsley Witten Group, who is preparing the engineering cost estimates for arsenic for Idaho under WA 1-13, Contract No. EP-C-16-017. The contractor shall prepare the economic analysis using the Horsley Witten' products using 3% and 7% discount rates.

The contractor is not expected to estimate the economic benefits of the criteria under this subtask, even though it is included in this work assignment because EPA cannot determine in advance the need for a benefits assessment. Therefore, the contractor first shall focus on estimating the aggregate costs. However, if the cost estimates exceed $100 million, then benefit assessment will be warranted. The contractor shall discuss the benefits assessment with the EPA WACOR before proceeding with any work on that analysis

For the economic analysis, the Horsley Witten Group, in its arsenic report, is expected to provide the following:

- 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.
- Reasonable potential analysis.

Horsley Witten is expected to have already summarized monitoring data in permits and permit limits for arsenic related to the existing human health criteria for Idaho. For the cost-benefit analysis, it is expected to have identified point source dischargers that may be affected by the revised human health criteria. The point sources may include, but are not limited to: mining, petroleum refineries, power plants, municipal wastewater treatment plants, industrial wastewater.

If there are any gaps left in the report by Horsley Witten, the contractor will fill them, in cooperation with Horsley Witten, in preparing the aggregate overall economic analysis. However, even though Horsley Witten and the contractor are deemed to work together in preparing the economic analysis, the contractor is ultimately responsible for finalizing the document. The contractor shall use draft EPA criteria documents on arsenic, and any other relevant existing analyses, including relevant arsenic TMDLs, as a starting point of the cost benefit analysis.

The contractor is expected to provide the information for the non-point source part of the analysis, including:

- Baseline existing criteria (where available).

- The cost of any Best Management Practices for non-point sources.
- Existing and incremental exceedances, impairments and TMDLs.

For the cost-benefit analysis, it is expected to have identified nonpoint source dischargers that may be affected by the revised human health criteria. The nonpoint sources may include, but are not limited to: agriculture, urban storm water, and septic systems. The EA prepared under this subtask will provide the data about the incremental impairments and the expected incremental TMDLs as well.

On the basis of the data collected and analyses completed by Horsley Witten for point sources and the data collected and analyses for nonpoint sources competed by the contractor, the contractor will develop an overall economic analysis Technical Support Document (TSD). The contractor shall focus the analysis on the baseline of water quality given current water quality standards and TMDLs, and incremental change needed to meet the new aquatic life and aquatic-dependent wildlife criteria presented by Horsley Witten. The contractor shall use the estimated incremental change to estimate the costs for point sources and nonpoint sources using an appropriate sample of the regulated entities. The contractor shall also use the estimated incremental change to estimate and describe economic benefits of the revised criteria if requested by the EPA WACOR. The contractor shall discuss all the issues related to this work with the task manager, not the WACOR. However, only the WACOR will issue technical direction, if needed.

If EPA proposes additional options for implementation of the human health criteria, the contractor shall provide estimates of the different incremental changes and use them to provide different cost estimates for each option. For each option, the contractor shall provide a low, high, and reasonable cost estimates, so that a range of costs is presented.

The EPA WACOR will provide revisions and/or comments to the contractor and the contractor shall incorporate the changes into a final Economic Analysis for the proposed rule. 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 4.4:

4.3a. Draft Economic Analysis for the proposed rule due no later than April 1, 2018, based on technical direction provided by the EPA WACOR.
4.3b. Revised drafts for each set of significant revisions due three calendar days after receipt of written technical direction from the EPA WACOR.
4.3c. Final Economic Analysis for the proposed rule due no later than May 1, 2018.

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 final EA due August 28, 2017. Revised drafts due 3 calendar days after receipt of comments from EPA WACOR. Final EA due no later than Dec. 15, 2017.
4.2	EA for Proposed Oregon WQS for aluminum	Draft final EA due August 28, 2017. Revised drafts due 3 calendar days after receipt of comments from EPA WACOR. Final EA due no later than Dec. 15, 2017.
4.3	EA for Proposed California selenium criteria.	Draft EA due May 15, 2018. Revised drafts due 3 calendar days after receipt of comments from EPA WACOR. Final EA due no later than July 31, 2018.
4.4	EA for Proposed Idaho arsenic criteria.	Draft EA due April 1, 2018. Revised drafts due 3 calendar days after receipt of comments from EPA WACOR. Final EA due no later than May 1, 2018.

Appendix 1
QA 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. Page references are from Secondary Data Quality Assurance Project Plan for project entitled: Western States Criteria and Rulemaking Support," EPA Contract EP-C-12-006, Work Assignment No. 5-13.

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	
A1. Title & Approval Sheet							
Project title	X						Page 3
Organization's name	X						Page 3
Effective date and/or version identifier	X						Page 3
Dated signature of Organization's project manager	X						Page 3
Dated signature of Organization's QA manager	X						Page 3
Other signatures, as needed (e.g., EAD Project Officer, EAD QA Coordinator)	X						Pages 3-4
Revision History	X						Page 5
A2. Table of Contents							
Includes sections, figures, tables, references, and appendices	X						Pages 6-7
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						Page 7
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						Pages 11

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	
Organization chart shows lines of authority & reporting responsibilities	X						Page 11
Project QA manager position indicates independence from unit collecting/using data	X						Page 11
A5. Problem Definition/Background							
Clearly states problem to be resolved, decision to be made, or hypothesis to be tested	X						Pages 7-8
Identifies project objectives or goals	X						Pages 7-8
Historical & background information		X					
Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives	X						Pages 7-8
A6. Project/Task Description							
List measurements to be made/data to obtain	X						Page 11
Notes special personnel or equipment requirements		X					Pages 12-13
Provides work schedule		X					Work schedule provided in WA
A7. Overall Quality Objectives & Criteria							
States overall quality objectives and limits needed to support the project goals and objectives cited in Element A5.	X						Page 14
A8. Special Training Requirements/ Certifications							
Identifies specialized skills, training or certification requirements	X						Page 15
Discusses how this training will be provided/the necessary skills will be assured and documented	X						Page 15
A9. Project-level Documents & Records							
Describes process for distributing the approved QAPP and other planning documents (and updates) to staff	X						Pages 15-16

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	
Identifies final work products that will result from the project	X						Page 15
Describes the process for developing, reviewing, approving, and disseminating the final work products and individuals responsible for these processes	X						Pages 15-16
B1. Data Needs							
Detailed list/description of the specific data elements needed to support project goals	X						Pages 16-17
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						Pages 16-17
If project includes development or update of a project database, QAPP identifies and defines each database field	X						Pages 16-17
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						Pages 17-18
If literature searches are used, describes the search engines that will be used and key search terms	X						Pages 17-18
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						Pages 17-18
For other potential sources, describe the potential sources and rationale for considering or using each one	X						Pages 18 - 19

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	
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						Pages 18-20
Explains rating system used to evaluate source against each criterion	X						Pages 18-20
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						Pages 18-20
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						Page 20
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						Pages 20
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						Page 20.

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	
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						Pages 20-21 Note – in cases where sources or values were rejected, the EPA WACOR will have the contractor document reasons for rejection.
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						Pages 20-21

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						Page 20
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						Page 20
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						Page 20
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						Page 22. Note -- If standardization of data elements is not needed, the EPA WACOR will ensure that contractor 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.
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						Pages 20-21

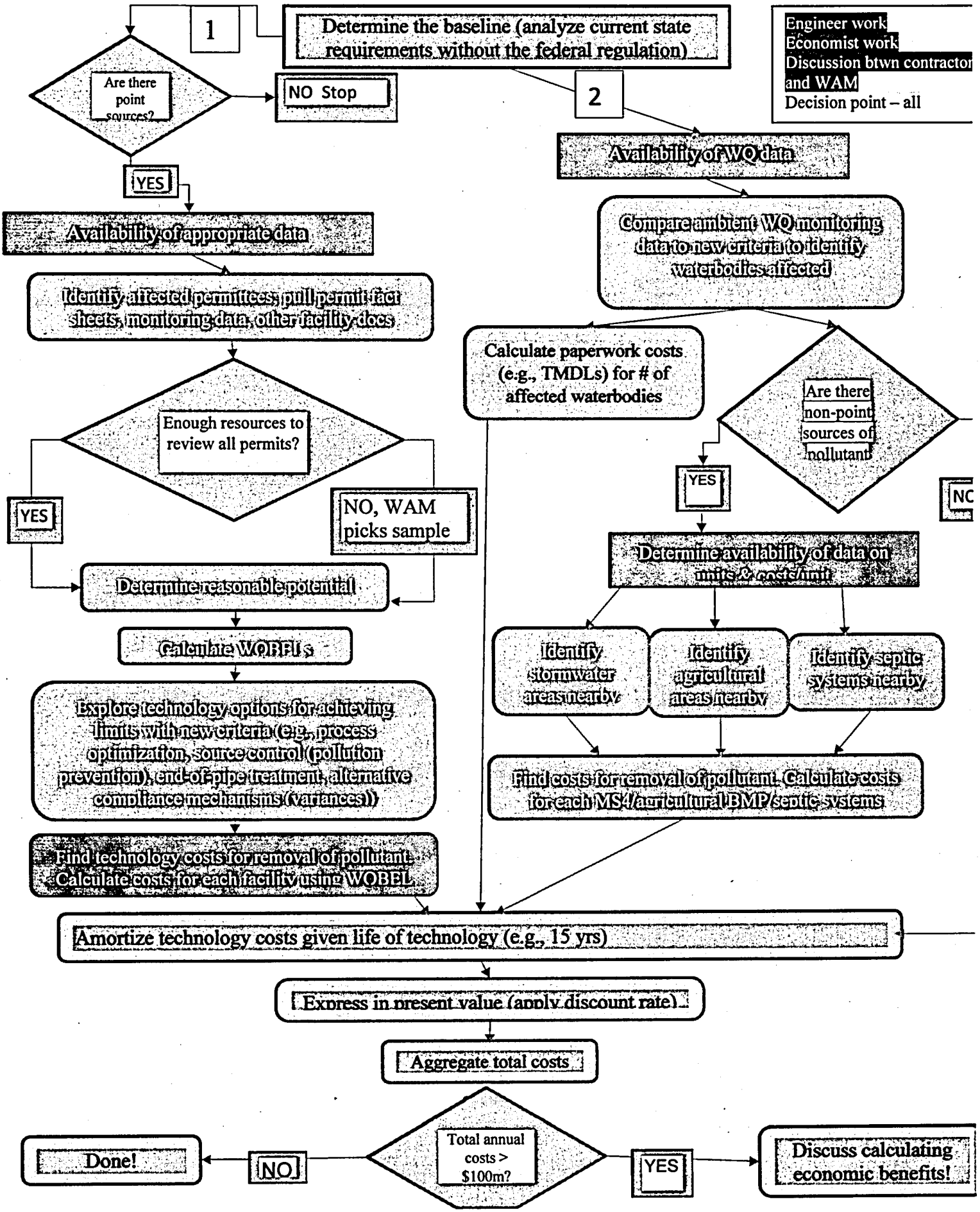
QAPP Element	A = Applicable N/A = Not applicable		Covered in PQAPP?	Covered in SQAPP?	Ac = Acceptable NAc = Not Acceptable		Comments
	A	N/A			Ac	NAc	
C3. Merging or Uploading Electronic Data from Existing Sources							
If data are available electronically and will be uploaded or merged into the project 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						Pages 20-22
C4. Data Review							
Describes the process for ensuring that the data have been recorded, transmitted, and processed correctly	X						Pages 20-22
C5. Data Storage and Manipulation							
Describes how the existing data will be stored	X						Page 20-21
Describes who will be responsible for access to and maintenance of the stored data	X						Page 20-22
Describes how the existing data will be incorporated with other project data to support the project goal/decision to be made	X						Pages 20-22
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						Pages 20-21

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						Pages 21-22
Describes how these determinations will be documented and reported.	X						Pages 21-22
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						Pages 21-22
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						Page 22
Includes an explanation or list of the information to be calculated and the data elements that will be used to make those calculations	X						Page 22
Includes applicable calculations and equations (if known) or explanations of how they will be developed.	X						Page 22
Includes plans for excluding outliers.	X						
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						Page 22

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						Page 22
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						Page 22
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						Page 22
Describes how the results of this assessment will be documented	X						Page 22
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						Page 22

Appendix 2
Basic Template for Economic Analysis for Water Quality Standards

Note: The color key for the roles and responsibilities of the engineer and economist, and the discussion and decision points, is matched to the background color immediately around the text in each element of the flow chart.


1
Determine the baseline (analyze current state requirements without the federal regulation)
Engineer work
Economist work
Discussion btwn contractor and WAM
Decision point – all
Are there point sources?
NO Stop
2
YES
Availability of WQ data
Availability of appropriate data
Compare ambient WQ monitoring data to new criteria to identify waterbodies affected
Identify affected permittees; pull permit fact sheets, monitoring data, other facility docs
Calculate paperwork costs (e.g., TMDLs) for # of affected waterbodies
Enough resources to review all permits?
Are there non-point sources of pollutant
YES
YES
NO, WAM picks sample
Determine availability of data on units & costs/unit
Determine reasonable potential
Calculate WQBELs
Identify stormwater areas nearby
Identify agricultural areas nearby
Identify septic systems nearby
Explore technology options for achieving limits with new criteria (e.g., process optimization, source control (pollution prevention), end-of-pipe treatment, alternative compliance mechanisms (variances))
Find costs for removal of pollutant. Calculate costs for each MS4/agricultural BMP/septic systems
Find technology costs for removal of pollutant. Calculate costs for each facility using WQBEL
Amortize technology costs given life of technology (e.g., 15 yrs)
Express in present value (apply discount rate)
Aggregate total costs
Total annual costs > $100m?
NO
Done!
YES
Discuss calculating economic benefits!

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-58

☐ 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 4	WA 4-58

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: N/A

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

Period of Performance: From 08/01/2017 To 07/31/2018

Comments:
The purpose of this Amendment is to update the WACOR to Ghulam Ali

☐ 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 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 Nicholas Bisher	(Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name Angela Lower	(Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2036 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-59

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2018

Base Option Period Number 4

Title of Work Assignment/SF Site Name: Development of MCLG for Perchl

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 08/10/2017 To 07/31/2018

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 07/31/2018		0
This Action:		240
Total:		240

Work Plan / Cost Estimate Approvals

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

Work Assignment Manager Name Ahmed Hafez	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-1944 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: Development of MCLG for the Perchlorate Rulemaking

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

II. Work Assignment Number: 4-59

III. Estimated Period of Performance: Date of Issuance through July 31, 2018

IV. Estimated Level of Effort: 240 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Ahmed Hafez
OGWDW/SRMD (4607M)
202/564-1944
202/564-3758 (fax)
Hafez.ahmed@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), 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 BBDR (biologically-based dose-response) 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 3-32 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 3-32 of contract EP-C-13-039).

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 80 percent of the total work assignment funding amount has been depleted. The contractor must also report to the EPA WACOR when 80 percent of the approved Workplan budget has been depleted.

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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 3-8 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. Work on this/these task(s) cannot proceed until the contractor receives notification of PQAPP approval from the WACOR via e-mail. 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/. In addition, the contractor shall prepare a Project Specific Quality Assurance Project Plan (PQAPP), and ensure the quality of secondary data used to complete these tasks. The work plan shall explain when the PQAPP will be submitted based on the specific data requirements of the WA.

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 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 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.

2.a. PQAPP within 7 calendar days of receipt of work plan approval.

Task 3 – Perchlorate Rule

Task 3.1 – Approach Informing the Derivation of an MCLG for the Perchlorate Rule

The contractor shall update the approach for informing the derivation of an MCLG by linking BBDR model outputs to adverse health outcome information developed as part of the literature review that was conducted under WA 3-32 of Abt Contract EP-W-11-003. Under this work assignment, the contractor shall update the MCLG Approach Report assessing the variation in thyroid hormone levels during pregnancy and at what stages thyroid hormones insufficiency has the largest impact on fetus and childhood neurological development.

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.

Deliverables and schedule under Subtask 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 methodologies and analyses for the Perchlorate Proposed Rule

Based on the BBDR model data, the literature review of health effect information, and the results of the assessment of thyroid hormone variability and effect in pregnancy, it may be necessary to make changes to the existing methodology or explore new types of analyses (i.e. meta-analysis to inform the development of the MCLG (Task 3.1 above)). The exact nature and timing of these analyses cannot be foreseen at this time. Making changes to existing methodology or exploration of new lines of inquiry will follow the process outlined below: Once the EPA WACOR has commented on the approach for the analyses for informing the development of an MCLG, the contractor shall produce a memorandum documenting the new methodology or analyses for the MCLG development process.

(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 original analysis in this work assignment), the EPA WACOR will give written technical direction to the contractor. If it is decided that new methodologies or analyses that were outlined in the documentation provided by the contractor should be conducted, then the technical direction will include any EPA comments to the contractor's proposed analysis and specific deadlines for completion of the work.

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.

3.2.a. Methodology and Data Analysis 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 Analysis due dates TBD by written technical direction.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-59

☐ Other ☒ Amendment Number: 000001

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2018
Base Option Period Number 4

Title of Work Assignment/SF Site Name: Development of MCLG for the Pe

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: A2

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

Period of Performance: From 08/10/2017 To 07/31/2018

Comments:
Amendment 1 adding LOE and Task 4 and 5.

☐ 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		240
This Action:		1,238
Total:		1,478

Work Plan / Cost Estimate Approvals

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

Work Assignment Manager Name Ahmed Hafez	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-1944 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 1

I. Title: Development of MCLG for the Perchlorate Rulemaking

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

II. Work Assignment Number: 4-59

III. Estimated Period of Performance: Date of Issuance through July 31, 2018

IV. Estimated Level of Effort: 1238 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Ahmed Hafez
OGWDW/SRMD (4607M)
202/564-1944
202/564-3758 (fax)
Hafez.ahmed@epa.gov

Alternate WACOR:

Erik Helm
OGWDW/SRMD (4607M)
202/566-1049
202/564-3758 (fax)
Helm.erik@epa.gov

VI. Background and Purpose:

Perchlorate
This amendment (No. 1) adds additional level of effort to this work assignment (WA 4-59) in support of EPA's activities related to the regulation of Perchlorate in drinking water. The Maximum Contaminant Level Goal (MCLG) Approach Report that was drafted under WA 3-32 and WA 4-59 is required to support the external Perchlorate MCLG Approach Highly Influential Scientific Assessment (HISA) Peer Review. Work completed under Task 3.1 of this work assignment will be reviewed by the Peer Review panel as well as the public. Given this review, responses to these comments will need to be drafted to support the peer review effort. Additionally, based on recommendations made by the upcoming Peer Review panel, the Biologically Based Dose-Response (BBDR) model and report materials (developed under WA 3-32 and this current work assignment) will have to be updated.

The current approved QAPP is applicable to the additional task requirements in this amendment.

VIII. Performance Work Statement

Task 4 –External Peer Review Support

Task 4.1 – Perchlorate Peer Review Meeting Support

The contractor shall, based on technical direction given by the EPA WACOR, provide technical support related to external Perchlorate MCLG Approach Highly Influential Scientific Assessment (HISA) Peer Review. The contractor may be requested to review public comments on the charge questions and the Perchlorate MCLG Approach Report and prepare draft responses to comments identified by the EPA WACOR. Other such support may include responding to management questions about technical issues concerning the MCLG approaches, preparing briefing and meeting materials (which may include but are not limited to short briefing documents and PowerPoint presentations). For planning purposes, EPA expects that there will be a need for one briefing document and the contractor shall participate in 1 to 2 teleconferences. The contractor shall also be required to attend the external peer review meeting and support responding to technical questions posed at the meeting.

Deliverables and schedule under Task 4.1

4.1.a. Draft deliverables due by January 17, 2018 or delayed by written technical direction.
4.1.b. Final deliverables due January 31, 2018 or delayed by written technical direction.

Task 4.2 – Non-Pregnant and Early Gestation Perchlorate BBDR Model Revisions Support

Based on the recommendations of the external peer review panel, it may be necessary to make changes to the existing non-pregnant and early gestation perchlorate BBDR model. The exact nature and timing of these modifications cannot be foreseen at this time. Supporting the modifications to the existing BBDR model will follow the process outlined below. Once the EPA WACOR has commented on the approach for supporting the BBDR model revisions, the contractor shall produce a memorandum, table, or Power Point documenting the support of the BBDR model revisions.

(1) The EPA WACOR will issue written technical direction to produce a short memorandum, table, or PowerPoint outlining the support for the BBDR model revisions. 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 BBDR model, the EPA WACOR will give written technical direction to the contractor. If it is decided that the support of the modifications that were outlined in the documentation provided by the contractor should be conducted, then the technical direction will include any EPA comments to the contractor's proposed support of the BBDR model revisions and specific deadlines for completion of the

work.

Deliverables and schedule under Task 4.2

4.2.a. Perchlorate BBDR Model Revisions Support Memorandum deliverables and due dates TBD by written technical direction. The contractor will normally be given 7 days or more to complete these deliverables.
4.2.b. EPA WACOR approved changes to Perchlorate BBDR Model Revisions Support due dates TBD by written technical direction.

Task 4.3 – Perchlorate MCLG Approach Report Revisions

Based on the recommendations of the external peer review panel, it may be necessary to make changes to the Perchlorate MCLG Approach Report. The exact nature and timing of these revisions cannot be foreseen at this time. Under this work assignment, the contractor shall update the Perchlorate MCLG Approach Report based on the peer review panels recommendations and any revisions made to the Perchlorate BBDR Model.

Once the EPA WACOR has commented on the revised approach for informing the MCLG, the contractor shall prepare draft deliverable revised Perchlorate MCLG Approach Report for EPA WACOR's 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 Perchlorate MCLG Approach Report incorporating the EPA WACOR's comments.

Deliverables and schedule under Subtask 4.3

4.3.a. Drafts of the Perchlorate MCLG Approach Report due date to be determined TBD by written technical direction.
4.3.b. Final Draft of the Perchlorate MCLG Approach Report due date TBD by written technical direction.

Task 5 – Perchlorate Proposed Rulemaking

Task 5 – Provide Technical Support for Rulemaking Activities

The contractor shall provide technical support related to the regulatory development process, the development of the MCLG, and the health assessment and benefit assessment issues associated with the Perchlorate rulemaking. Such support may include developing regulatory reports, developing health effects documents, responding to management questions about 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 staff 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: 4-59

☐ 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 4	Development of MCLG for Perchl

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A.2

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

Period of Performance: From 08/10/2017 To 07/31/2018

Comments:
This Amendment is for additional LOE on tasks 4 and 6.

☐ 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: 1,478
This Action:		800
Total:		2,278

Work Plan / Cost Estimate Approvals

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

Work Assignment Manager Name Ahmed Hafez	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-1944 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 Angela Lower	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2036 FAX Number:

WORK ASSIGNMENT
Amendment 1 & 2

I. Title: Development of MCLG for the Perchlorate Rulemaking

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

II. Work Assignment Number: 4-59

III. Estimated Period of Performance: Date of Issuance through July 31, 2018

IV. Estimated Level of Effort: Base: 240 hours; Amendment 1: 1238 hours; Amendment 2: 800 hours

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):
Ahmed Hafez
OGWDW/SRMD (4607M)
202/564-1944
202/564-3758 (fax)
Hafez.ahmed@epa.gov

Alternate 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), 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 BBDR (biologically-based dose-response) 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).

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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.

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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/. In addition, the contractor shall prepare a Project Specific Quality Assurance Project Plan (PQAPP), and ensure the quality of secondary data used to complete these tasks. The work plan shall explain when the PQAPP will be submitted based on the specific data requirements of the WA.

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 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 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.

2.a. PQAPP within 7 calendar days of receipt of work plan approval.

Task 3 – Perchlorate Rule

Task 3.1 – Approach Informing the Derivation of an MCLG for the Perchlorate Rule

The contractor shall update the approach for informing the derivation of an MCLG by linking BBDR model outputs to adverse health outcome information developed as part of the literature review that was conducted under WA 3-32 of Abt Contract EP-W-11-003. Under this work assignment, the contractor shall update the MCLG Approach Report assessing the variation in thyroid hormone levels during pregnancy and at what stages thyroid hormones insufficiency has the largest impact on fetus and childhood neurological development.

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.

Deliverables and schedule under Subtask 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 methodologies and analyses for the Perchlorate Proposed Rule

Based on the BBDR model data, the literature review of health effect information, and the results of the assessment of thyroid hormone variability and effect in pregnancy, it may be necessary to make changes to the existing methodology or explore new types of analyses (i.e. meta-analysis to inform the development of the MCLG (Task 3.1 above)). The exact nature and timing of these analyses cannot be foreseen at this time. Making changes to existing methodology or exploration of new lines of inquiry will follow the process outlined below: Once the EPA WACOR has commented on the approach for the analyses for informing the development of an MCLG, the contractor shall produce a memorandum documenting the new methodology or analyses for the MCLG development process.

(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 original analysis in this work assignment), the EPA WACOR will give written technical direction to the contractor. If it is decided that new methodologies or analyses that were outlined in the documentation provided by the contractor should be conducted, then the technical direction will include any EPA comments to the contractor's proposed analysis and specific deadlines for completion of the work.

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.

3.2.a. Methodology and Data Analysis 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 Analysis due dates TBD by written technical direction.

Amendment 1
This amendment (No. 1) adds additional level of effort (Tasks 4 and 5 described below) to this work assignment (WA 4-59) in support of EPA's activities related to the regulation of Perchlorate in drinking water. The Maximum Contaminant Level Goal (MCLG) Approach Report that was drafted under WA 3-32 and WA 4-59 is required to support the external Perchlorate MCLG Approach Highly Influential Scientific Assessment (HISA) Peer Review. Work completed under Task 3.1 of this work assignment will be reviewed by the Peer Review panel as well as the public. Given this review, responses to these comments will need to be drafted to support the peer review effort. Additionally, based on recommendations made by the upcoming Peer Review panel, the Biologically Based Dose-Response (BBDR) model and report materials (developed under WA 3-32 and this current work assignment) will have to be updated.

The current approved QAPP is applicable to the additional task requirements in this amendment.

Amendment 2
This amendment (No. 2) adds additional level of effort (specifically to Tasks 4.3) to this work assignment (WA 4-59) in support of EPA's activities related to the regulation of Perchlorate in drinking water. In addition, this amendment adds Task 6 to estimate the contribution of perchlorate from food. The Maximum Contaminant Level Goal (MCLG) Approach Report that was drafted under WA 3-32 and WA 4-59 is required to support the external Perchlorate MCLG Approach Highly Influential Scientific Assessment (HISA) Peer Review. Work completed under Task 3.1 of this work assignment was reviewed by the Peer Review panel as well as the public. Given this review, the Peer Review panel provided recommendations on the BBDR model and the MCLG approaches. Based on those recommendations, the revisions to the MCLG Approach report require an additional level of effort above that anticipated in the current PWS and Amendment 1. A significant amount of work must take place within the new and amended tasks during WA 4-59's period of performance.

The current approved QAPP is applicable to the additional task requirements in this amendment.

Task 4 –External Peer Review Support

Task 4.1 – Perchlorate Peer Review Meeting Support

The contractor shall, based on technical direction given by the EPA WACOR, provide technical support related to external Perchlorate MCLG Approach Highly Influential Scientific Assessment (HISA) Peer Review. The contractor may be requested to review public comments on the charge questions and the Perchlorate MCLG Approach Report and prepare draft responses to comments identified by the EPA WACOR. Other such support may include responding to management questions about technical issues concerning the MCLG approaches, preparing briefing and meeting materials (which may include but are not limited to short briefing documents and PowerPoint presentations). For planning purposes, EPA expects that there will be a need for one briefing document and the contractor shall participate in 1 to 2 teleconferences. The contractor shall also be required to attend the external peer review meeting and support responding to technical questions posed at the meeting.

Deliverables and schedule under Task 4.1

4.1.a. Draft deliverables due by January 17, 2018 or delayed by written technical direction.
4.1.b. Final deliverables due January 31, 2018 or delayed by written technical direction.

Task 4.2 – Non-Pregnant and Early Gestation Perchlorate BBDR Model Revisions Support

Based on the recommendations of the external peer review panel, it may be necessary to make changes to the existing non-pregnant and early gestation perchlorate BBDR model. The exact nature and timing of these modifications cannot be foreseen at this time. Supporting the modifications to the existing BBDR model will follow the process outlined below. Once the EPA WACOR has commented on the approach for supporting the BBDR model revisions, the contractor shall produce a memorandum, table, or Power Point documenting the support of the BBDR model revisions.

(1) The EPA WACOR will issue written technical direction to produce a short memorandum, table, or PowerPoint outlining the support for the BBDR model revisions. 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 BBDR model, the EPA WACOR will give written technical direction to the contractor. If it is decided that the support of the modifications that were outlined in the documentation provided by the contractor should be

conducted, then the technical direction will include any EPA comments to the contractor's proposed support of the BBDR model revisions and specific deadlines for completion of the work.

Deliverables and schedule under Task 4.2

4.2.a. Perchlorate BBDR Model Revisions Support Memorandum deliverables and due dates TBD by written technical direction. The contractor will normally be given 7 days or more to complete these deliverables.
4.2.b. EPA WACOR approved changes to Perchlorate BBDR Model Revisions Support due dates TBD by written technical direction.

Task 4.3 – Perchlorate MCLG Approach Report Revisions

Based on the recommendations of the external peer review panel, it is necessary to make changes to the Perchlorate MCLG Approach Report. Under this work assignment, the contractor shall update the Perchlorate MCLG Approach Report based on the peer review panels recommendations and any revisions made to the Perchlorate BBDR Model.

The contractor shall perform and updated literature search and re-group the studies identified based on new quality criteria. The study quality of each of these identified studies shall be evaluated by the contractor using a systematic method approved by the EPA WACOR. Additionally, the contractor shall explore other distributions shapes for the thyroid hormone fT4. One of those shapes examined shall be a normal distribution. Furthermore, once a final distributional shape is identified and approved by the EPA WACOR, the contractor shall re-evaluate the dose-response relationship of Korevaar et al. (20016) as identified by the Peer Review panel.

Once the EPA WACOR has commented on the revised approach for informing the MCLG, the contractor shall prepare draft deliverable revised Perchlorate MCLG Approach Report for EPA WACOR's 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 Perchlorate MCLG Approach Report incorporating the EPA WACOR's comments.

Deliverables and schedule under Subtask 4.3

4.3.a. Drafts of the Perchlorate MCLG Approach Report due date to be determined TBD by written technical direction.
4.3.b. Final Draft of the Perchlorate MCLG Approach Report due date TBD by written technical direction.

Task 5 – Perchlorate Proposed Rulemaking

Task 5 – Provide Technical Support for Rulemaking Activities

The contractor shall provide technical support related to the regulatory development process, the development of the MCLG, and the health assessment and benefit assessment issues associated with the Perchlorate rulemaking. Such support may include developing regulatory reports, developing health effects documents, responding to management questions about 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 staff 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.

Task 6 – Estimating the Contribution of Perchlorate in Food

The contractor shall provide technical support related to estimating the contribution of perchlorate in food to the total dose of perchlorate. In addition to perchlorate in drinking water, the total dose of perchlorate includes exposure to perchlorate in food. If a only the total dose of perchlorate is known, to determine the amount of perchlorate coming from drinking water alone, an estimate of the amount of perchlorate coming from food is needed.

The contractor shall estimate the dose of perchlorate coming from food in women of childbearing age. The contractor shall also describe the available data and potential methods for summarizing perchlorate intake from food. To estimate the amount of perchlorate consumed in food for women of childbearing age, the contractor shall combine data from the following source:

- The National Health and Nutrition Examination Survey (NHANES) is run by the CDC's National Center for Health Statistics (NCHS) and was designed to collect information on

the health and nutritional status of the U.S. civilian, non-institutionalized population through in-home interviews and physical examinations.

- What We Eat in America (WWEIA) data are 24-hour food diary data that are collected as part of NHANES, and serve as the dietary intake measurement component of the survey.

- FDA's Total Diet Study (TDS) is an ongoing FDA program that collects information on levels of various contaminants, including perchlorate, that occur in food and beverages commonly consumed by the U.S. population.

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 1 summary memorandum (5-10 pages), multiple-page spreadsheets, and 1 slide deck presentation.

Deliverables and schedule under Task 6

6.a. Draft deliverables are due no later than April 30, 2018.
6.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: 4-59

☐ Other ☒ Amendment Number: 000003

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2018
Base Option Period Number 4

Title of Work Assignment/SF Site Name: Development of MCLG for the Pe

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: 2A

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

Period of Performance: From 08/10/2017 To 07/31/2018

Comments:
This Amendment changes the primary WACOR to Rajiv Khera

☐ 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		2,278
This Action:		0
Total:		2,278

Work Plan / Cost Estimate Approvals

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

Work Assignment Manager Name Rajiv Khera	(Signature)	(Date)	Branch/Mail Code:
		Phone Number: 202-564-4881
		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 Angela Lower	(Signature)	(Date)	Branch/Mail Code:
		Phone Number: 513-487-2036
		FAX Number:

WORK ASSIGNMENT
Amendment 3

I. Title: Development of MCLG for the Perchlorate Rulemaking

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

II. Work Assignment Number: 4-59

III. Estimated Period of Performance: Date of Issuance through July 31, 2018

IV. Estimated Level of Effort: Base: 240 hours; Amendment 1: 1238 hours; Amendment 2: 800 hours; Amendment 3 no additional hours required

V. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Rajiv Khera
OGWDW/SRMD (4607M)
202/564-4881
202/564-3758 (fax)
Khera.Rajiv@epa.gov

Alternate WACOR:

Erik Helm
OGWDW/SRMD (4607M)
202/566-1049
202/564-3758 (fax)
Helm.erik@epa.gov

VI. Purpose:

The purpose of Amendment 3 is to add Rajiv Khera as the primary WACOR for this work assignment. No change to leave of effort or Task requirements is being made under this work assignment amendment.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-59

☐ Other ☒ Amendment Number: 000004

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 4	Development of MCLG for Perchl

Contractor	Specify Section and paragraph of Contract SOW
ABT ASSOCIATES INC.	A.2

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

Period of Performance: From 08/10/2017 To 07/31/2018

Comments:
This Amendment is for a 200 hour no-cost increase in the level of effort (LOE) ceiling, arising from differences in the labor mix used to complete the work in contractor's initial workplan. This is an increase in the LOE ceiling from 2,278 to 2,478, at no 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 07/31/2018		2,278
This Action:		200
Total:		2,478

Work Plan / Cost Estimate Approvals

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

Work Assignment Manager Name Rajiv Khera	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-564-4881 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 Harold D. Hincks	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2146 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-60

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2018

Base Option Period Number: 4

Title of Work Assignment/SF Site Name: Support for Sci Data Base Mgmt

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: C.7. Database Development and Management

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

Period of Performance: From 10/25/2017 To 07/31/2018

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 07/31/2018 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: Lynne Petterson
(Signature) (Date)
Branch/Mail Code:
Phone Number: 919-541-3582
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: Support for Scientific Data Base Management: Enhancing and Improving Policy Implementation, Guidance, and Processes

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

II. Work Assignment Number: 4-60

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

IV. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Lynne Petterson
ORD/OSIM/IMSD
919/541-3582
919-541-0962 (fax)
Email: petterson.lynne@epa.gov

V. Background and Purpose:

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. Additionally, EPA is required to comply with the White House's Office of Science and Technology Policy (OSTP) memorandum entitled "Increasing Access to the Results of Federally Funded Scientific Research," issued February 22, 2013. EPA is also required to comply with Office of Management and Budget (OMB) Open Data Policy (M-13-13), issued May 9, 2013.

A major goal in EPA's Office of Research and Development (ORD) is to ensure ORD's data and databases are accessible, usable, and discoverable. The purpose of this work assignment is to support the enhancement and refinement of a consistent organizational approach for managing ORD's scientific data and scientific databases. Such an approach supports the accessibility and usability of ORD's scientific data.

This effort includes, but is not limited to: Enhancing and implementing procedural guidance; Supporting the development of scientific data management (SDM) tools, and; Identifying pertinent standard operating procedures (SOPs) for each phase of the research project life cycle and/or data life cycle. It also includes the identification of roles, responsibilities, and processes to

support consistent and efficient scientific data management in ORD.

Under this work assignment, the contractor shall not conduct analyses requiring the collection and manipulation of data and models. Rather, the contractor shall:

- Revise SDM guidance materials
- Provide input regarding workflows, roles, and responsibilities to systems with SDM components such as ScienceHub and Research Approval and Planning Implementation Tool (RAPID)
- Develop and conduct SDM outreach and training
- Identify SDM roles and responsibilities and establish SDM workflows

VI. 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 80 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 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 the need for non-local travel by contractor employees to support the scope of this work assignment. Any such travel must first be approved by the EPA CL-COR.

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.

VII. 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 a performance statement of work signed by the CO or 15 calendar days after the start of the contract period, whichever is later. 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 CO. The contractor shall prepare a revised workplan incorporating the CO's comments, if required.

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

Deliverables and schedule under Task 1

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

Task 2 - Quality Assurance

No environmental measurements, environmental data, nor models are being developed in this work assignment (WA). As such, the contractor shall only be required to use, if necessary, the Programmatic Quality Assurance Project Plan (PQAPP) developed under WA 0-01 of this contract for the activities conducted in responding to 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 – Identify, Develop, and Refine New Processes and Approaches for Researchers to Manage Their Scientific Data and Databases (C.7. Database Development and Management).

The contractor shall identify and develop revised processes and approaches for researchers to manage their scientific data. This may include, but is not limited to the following:

- Develop new fact sheets
- Refine training materials, including but not limited to briefing materials, posters, announcements, tombstones etc.
- Gather feedback
- Workflow enhancements in support of RAPID, ScienceHub 2, Integrated Rule-Oriented Data System (Integrated Rule-Oriented Data System (iRODS), web services, and distributed or centralized repositories.

Deliverables and schedule under Task 4:

4. Total of three (3) one-page documents describing new processes and approaches for researchers to manage their scientific data and databases within nine (9) months of receipt of work assignment.

Task 5 – Revise SDM Guidance Materials (C.7. Database Development and Management).

The contractor shall revise SDM guidance materials. This may include, but are not limited to, the following:

- SDM websites
- SDM portions of ScienceHub website
- Comprehensive SDM guidance document
- Abbreviated guidance document
- SDM Guidance Factsheets

Deliverables and schedule under Task 5:

5. Total of three (3) SDM guidance materials no later than nine (9) months after the receipt of this work assignment.

Task 6: Develop SDM Training and Outreach Materials (D.1. Public and Industry Outreach Activities).

The contractor shall develop training and outreach materials.

Training and outreach may include, but are not limited, the following:

- ORD@work announcements
- Tombstone announcements
- Emails regarding SDM Community of Practice (COP)
- Fact sheets
- Infographics
- Updated storyboard
- Training materials
- Infographics
- Fact sheets

Deliverables and schedule under Task 6:

6. Total of three (3) outreach and training materials no later than nine (9) months after the receipt of this work assignment.

Summary of Deliverables and Dates:

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

2 and 4. Total of three (3) one-page documents describing new processes and approaches for researchers to manage their scientific data within nine (9) months of receipt of work assignment. An equivalent requirement applies to Task 4.

And 53. Total of three (3) SDM guidance materials no later than nine (9) months after the receipt of this work assignment. An equivalent requirement applies to Task 5.

4 and 6. Total of three (3) outreach and training materials no later than nine (9) months after the receipt of this work assignment. An equivalent requirement applies to Task 6.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-60

☐ Other ☒ Amendment Number: 000001

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2018

Base Option Period Number: 4

Title of Work Assignment/SF Site Name: Support for Sci Data Base Mgmt

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: C.7. Database Development and Management

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

Period of Performance: From 10/25/2017 To 07/31/2018

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: 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: Lynne Petterson
(Signature) (Date)
Branch/Mail Code:
Phone Number: 919-541-3582
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: Harold D. Hincks
(Signature) (Date)
Branch/Mail Code:
Phone Number: 513-487-2146
FAX Number:

WORK ASSIGNMENT

I. Title: Support for Scientific Data Base Management: Enhancing and Improving Policy Implementation, Guidance, and Processes

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

II. Work Assignment Number: 4-60 Amendment 1

III. Estimated Period of Performance: Date of issuance through July 31, 2018

IV. Key EPA Personnel:

Work Assignment Contracting Officer Representative (WACOR):

Lynne Petterson
ORD/OSIM/IMSD
919/541-3582
919-541-0962 (fax)
Email: petterson.lynne@epa.gov

VI. Background and Purpose:

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. Additionally, EPA is required to comply with the White House's Office of Science and Technology Policy (OSTP) memorandum entitled "Increasing Access to the Results of Federally Funded Scientific Research," issued February 22, 2013. EPA is also required to comply with Office of Management and Budget (OMB) Open Data Policy (M-13-13), issued May 9, 2013.

A major goal in EPA's Office of Research and Development (ORD) is to ensure ORD's data and databases are accessible, usable, and discoverable. The purpose of this work assignment is to support the enhancement and refinement of a consistent organizational approach for managing ORD's scientific data and scientific databases. Such an approach supports the accessibility and usability of ORD's scientific data.

This effort includes, but is not limited to: Enhancing and implementing procedural guidance; Supporting the development of scientific data management (SDM) tools, and; Identifying pertinent standard operating procedures (SOPs) for each phase of the research project life cycle and/or data life cycle. It also includes the identification of roles, responsibilities, and processes to

support consistent and efficient scientific data management in ORD.

Under this work assignment, the contractor shall not conduct analyses requiring the collection and manipulation of data and models. Rather, the contractor shall:

- Revise SDM guidance materials
- Provide input regarding workflows, roles, and responsibilities to systems with SDM components such as ScienceHub and Research Approval and Planning Implementation Tool (RAPID)
- Develop and conduct SDM outreach and training
- Identify SDM roles and responsibilities and establish SDM workflows

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 80 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 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 the need for non-local travel by contractor employees to support the scope of this work assignment. Any such travel must first be approved by the EPA CL-COR.

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 Workplan

The contractor shall prepare a workplan within 15 calendar days of receipt of a performance statement of work signed by the CO or 15 calendar days after the start of the contract period, whichever is later. 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 CO. The contractor shall prepare a revised workplan incorporating the CO's comments, if required.

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

Deliverables and schedule under Task 1

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

Task 2 - Quality Assurance

No environmental measurements, environmental data, nor models are being developed in this work assignment (WA). As such, the contractor shall only be required to use, if necessary, the Programmatic Quality Assurance Project Plan (PQAPP) developed under WA 0-01 of this contract for the activities conducted in responding to 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 – Identify, Develop, and Refine New Processes and Approaches for Researchers to Manage Their Scientific Data and Databases (C.7. Database Development and Management).

The contractor shall identify and develop revised processes and approaches for researchers to manage their scientific data. This may include, but is not limited to the following:

- Develop new fact sheets
- Refine training materials, including but not limited to briefing materials, posters, announcements, tombstones etc.
- Gather feedback
- Workflow enhancements in support of RAPID, ScienceHub 2, Integrated Rule-Oriented Data System (Integrated Rule-Oriented Data System (iRODS), web services, and distributed or centralized repositories.

Deliverables and schedule under Task 4:

4. Total of ~~three (3)~~ two (2) one-page documents describing new processes and approaches for researchers to manage their scientific data and databases within ~~nine (9)~~ four (4) months of receipt of work assignment.

Task 5 – Revise SDM Guidance Materials (C.7. Database Development and Management).

The contractor shall revise SDM guidance materials. This may include, but are not limited to, the following:

- SDM websites
- SDM portions of ScienceHub website
- Comprehensive SDM guidance document
- Abbreviated guidance document
- SDM Guidance Factsheets

Deliverables and schedule under Task 5:

5. Total of ~~three (3)~~ two (2) SDM guidance materials no later than ~~nine (9)~~ four months after the receipt of this work assignment.

Task 6: Develop SDM Training and Outreach Materials (D.1. Public and Industry Outreach Activities).

The contractor shall develop training and outreach materials.

Training and outreach may include, but are not limited, the following:

- ORD@work announcements
- Tombstone announcements
- Emails regarding SDM Community of Practice (COP)
- Fact sheets
- Infographics
- Updated storyboard
- Training materials
- Infographics
- Fact sheets

Deliverables and schedule under Task 6:

6. Total of ~~three (3)~~ two (2) outreach and training materials no later than ~~nine (9)~~ four (4) months after the receipt of this work assignment.

Summary of Deliverables and Dates:

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

2 and 4. Total of ~~three (3)~~ two (2) one-page documents describing new processes and approaches for researchers to manage their scientific data within ~~nine (9)~~ four (4) months of receipt of work assignment. An equivalent requirement applies to Task 4.

And 53. Total of ~~three (3)~~ two (2) SDM guidance materials no later than ~~nine (9)~~ four (4) months after the receipt of this work assignment. An equivalent requirement applies to Task 5.

4 and 6. Total of ~~three (3)~~ two (2) outreach and training materials no later than ~~nine (9)~~ four (4) months after the receipt of this work assignment. An equivalent requirement applies to Task 6.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-61

☐ Other ☐ Amendment Number:

Contract Number: EP-C-13-039	Contract Period: 09/11/2013 To 07/31/2018 Base Option Period Number 4	Title of Work Assignment/SF Site Name: R7 TRI Workshop 2018
Contractor: ABT ASSOCIATES INC.	Specify Section and paragraph of Contract SOW: Section III para D.1 and D.2	

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

Period of Performance: From 08/01/2017 To 07/31/2018

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 07/31/2018 — 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: Kristy Throckmorton (Signature) (Date)	Branch/Mail Code: Phone Number: 913-551-7965 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: Harold D. Hincks (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2146 FAX Number:	

WORK ASSIGNMENT

I. **Title:** R7 2018 Toxic Release Inventory (TRI) - Workshop

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

II. **Work Assignment Number:** 4-61

III. **Period of Performance:** Date of issuance through July 31, 2018

IV. **Key EPA Personnel:**

Work Assignment Contracting Officer Representative (WACOR):
Kristy Throckmorton, Program Analyst
Immediate Office/Air and Waste Management Division, Region 7
Ph: 913-551-7965
Fax: 913-551-9965
eMail: throckmorton.kristy@epa.gov

V. **Background and Purpose:**

Under Executive Orders 12866 and 13563, EPA is required to estimate the potential benefits and costs to society. EPA also administers regulations that require facilities to report information about their release of toxics as well as their pollution prevention activities. Under Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), certain facilities that meet statutory and regulatory requirements must file annual reports on their toxic releases and other waste management activities associates with listed toxic chemicals. In addition, Section 66007 of the Pollution Prevention Act of 1990 requires that pollution prevention information be reported. EPA compiles the information collected each year in the Toxics Release Inventory (TRI) data base and makes the data available to the public.

EPA provides industries with guidance on how to collect and file relevant information on the reporting forms. Further, EPA provides EPCRA/TRI Training that cover all aspects of EPCRA Section 313 reporting requirements, including information on new statutory and regulatory developments. The EPCRA program provides web-based and with available funding live in-person training covering both the fundamentals of reporting under the EPCRA 313 program and a more advanced training for those facilities that have more complex reporting scenarios.

As such, this Work Assignment (WA) is for a contractor to provide experienced personnel to administer a one day TRI Training Workshop comprising of a 3-hour Basic Concept Block, a 3.5-hour Advanced Concept Block, and a 1.5-hour Industry Question Block. The Workshop shall provide instructions on how to determine if compliance with EPCRA Section 313 is necessary, how to maintain appropriate records, how to complete and file the reporting forms

pursuant to Section 313 of EPCRA, on how to use the TRI-Made Easy (TRI-ME) web application as well as the Central Data Exchange (CDX) submission process to file the reporting forms.

The contractor shall provide one trainer to provide course delivery. The trainer should have 10 years of experience in the TRI Program to include experience using TRI-ME software and CDX-Web and the EPA TRI reporting system that Facilities use to report to EPA (TRI Forms R and A submittal procedure for reporting year 2017), and 3 years teaching experience.

No materials development is needed for the Basic TRI block -- EPA HQ's will provide training materials (slides and handouts) in an appropriate electronic format.
https://www.epa.gov/sites/production/files/2017-01/documents/ry16_basic_concepts.notes__0.pdf

The following slides and handouts will be used for Advanced TRI block -- EPA HQ's will provide training materials (slides and handouts) in an appropriate electronic format.
https://www.epa.gov/sites/production/files/2017-01/documents/ry16_advanced_concepts.notes_.pdf

Material development will be required for the following Region 7 designated tasks: Storybook (scenario) emissions calculations, to include

A. Metal Calculations at a farm machinery manufacturing plant

B. Fermentation Calculations at an ethanol manufacturing plant

Fourteen days prior to the workshop, the contractor shall provide to EPA Region 7 the training material that will be used. Seven days prior to the workshop, EPA Region 7 will provide the contractor with any suggested changes to the training materials. Three days prior to the workshop, the contractor shall submit to EPA the final web-based training materials.

The contractor shall perform the registration of all participants. The contractor shall establish a website, and/or utilize other suitable web locations, for registrants to register for the Workshop. The contractor shall provide registrants with an email confirmation. The contractor shall provide the number of registrants five days prior to the workshop to EPA so that appropriate facilities may be arranged, as well as a digital list of attendees five days after the workshop.

The contractor shall request that each training participant complete the TRI Outreach & Compliance Assistance Workshop Evaluation form at the end of the training workshop. The contractor shall collect and submit all completed evaluation forms to the Region 7 EPA.

VI. General Requirements of the Work Assignment and Schedule

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

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. 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 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: The contractor shall be required to travel under this WA to the workshop location for the duration of the workshop.

Deliverable Formatting: The contractor shall provide draft copies of all training materials prior to the training event in a searchable format, i.e. PDF or PowerPoint, to allow for EPA comments and feedback. All EPA comments and feedback must be addressed or incorporated prior to the training event to ensure that the topic has been covered at an appropriate level. All final materials are to be provided to the EPA WACOR prior to the training workshops. All final materials will be formatted to be in compliance with the Section 508 Amendment to the Rehabilitation Act of 1973.

VII. 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 – Registration and Attendance
Applicable Contract Level PWS section: III.D. Training and Logistical Support

The contractor shall prepare a website, and/or utilize other suitable web locations, for registrants to register for the Workshop. The contractor shall provide a registration confirmation email for all registrants. Attendance records shall be collected and delivered to the WACOR upon training completion that includes, minimally, the following data about each attendee: name, job title, associated company or agency, contact information such as email and phone number, and years of experience with the TRI database. The contractor shall provide either printed or digital

training completion certificates to all students upon successful course completion. All submissions of materials to the EPA shall adhere to the deliverable formatting outlined above.

Deliverables and schedule under Task 1

1a. Five days prior to the workshop, a total number of registrants will be provided to the EPA WACOR via email.

1b. Five days after the workshop, the contractor shall provide a complete list of all attendees to the EPA WACOR.

Task 2 – Development of Emissions Calculations Training Scenarios
Applicable Contract Level PWS section: III.D. Training and Logistical Support

The contractor shall develop materials for use in conjunction with the EPA provided materials that detail, minimally, two specific scenarios allowing for attendees to practice the calculations and deepen their understanding of the subject matter. These scenarios shall include metal calculations at a farm machinery manufacturing plant, and fermentation calculations at an ethanol manufacturing plant. The scenarios should be developed to reflect likely industry practices. All submissions of materials shall adhere to the deliverable formatting outlined above.

Deliverables and schedule under Task 2

2a. Fourteen days prior to the workshop the contractor shall provide to the EPA WACOR a copy of the developed training scenarios in digital format to allow for EPA comments and feedback.

2b. Seven days prior to the workshop the EPA will provide the comments and feedback on the training scenarios.

2c. Three days prior to the workshop the contractor shall provide the final copy of the training scenarios to the EPA WACOR for verification that all comments and feedback have been addressed or incorporated.

Task 3 – Conduct Toxic Release Inventory Workshop – Basic and In-Depth for Industry
Applicable Contract Level PWS section: III.D. Training and Logistical Support

The contractor shall provide one trainer to provide course delivery. The trainer should have 10 years of experience in the TRI Program to include experience using TRI-ME software and CDX-Web and the EPA TRI reporting system that facilities use to report to EPA (TRI Forms R and A submittal procedure for reporting year 2017), and three years of teaching experience. The contractor shall deliver the workshop on an agreed upon Wednesday of April or May, 2018, at the R7 EPA Regional Office in Lenexa KS. With an expected nine-hour duty day, the workshop shall be comprised of a three-hour Basic Concept Block, a 3.5-hour Advanced Concept Block, and a 1.5-hour Industry Question Block, with the instructor available to answer any relevant questions as well as guide any discussions pertinent to the subject. All submissions of materials

shall adhere to the deliverable formatting outlined above. Region 7 will be responsible for securing a Region 7 conference room and all the necessary audiovisual equipment for delivery of the course.

Deliverables and schedule under Task 3

3a. Conduct workshop on date provided by WACOR.

Task 4 – TRI Outreach & Compliance Assistance Workshop Evaluation
Applicable Contract Level PWS section: III.D. Training and Logistical Support

The contractor shall request that each training participant complete the TRI Outreach & Compliance Assistance Workshop Evaluation form at the end of the training workshop. The contractor will collect and submit all completed evaluation forms to the Region 7 EPA WACOR within seven days after the workshop completion.

Deliverables and schedule under Task 4

4a. Within seven days of the completion of the workshop, the contractor shall provide all the collected evaluation forms to the EPA WACOR.

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EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-63

☐ 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 4	Wrkshp Research Env Economics

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section III, A.6 (method dvlp)+D.2 (logistic supp)

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

Period of Performance: From 06/29/2018 To 07/31/2018

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 07/31/2018		0
This Action:		68
Total:		68

Work Plan / Cost Estimate Approvals

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

Work Assignment Manager Name Brett Snyder	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-2261 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 Angela Lower	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2036 FAX Number:

WORK ASSIGNMENT

I. **Title:** Workshop on Advances in Applied Research in Environmental Economics

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

II. **Work Assignment Number:** **4-63**

III. **Estimated Period of Performance:** Date of Issuance through July 31, 2018

IV. **Estimated Level of Effort:** **68 hrs**

V. **Key EPA Personnel:**

Work Assignment Contracting Officer Representative (WACOR):
Brett Snyder
OA/OP/NCEE/BAMDD (1809T)
202/566-2261
202/566-2363 (fax)

Contract Level COR:
Ahmar Siddiqui
Project Officer, OW, OST, EAD
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

VI. **Background and Purpose:**

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 economic benefits, costs and impacts to society. Among the economic methods and studies prepared to answer these questions, examples include econometric techniques, input-output models, partial and general equilibrium models, financial models, employment impact analyses, revealed and stated preference methods and studies, and benefits transfer analyses. The USEPA's National Center for Environmental Economics supports the development and communication of new research and applied analyses in the field of environmental economics, including research and studies used by the Agency to implement provisions of the Clean Water Act. One effective

method to assemble and communicate information on environmental economic research and methods supporting the Agency's requirements for this information is through helping to support workshops organized by the environmental economics profession. This approach has proven to be value to EPA and the environmental economics and policy analysis research community - supporting the development of improved analytic methods through facilitating presentations of new research findings and providing opportunities for more cooperative engagement within the environmental economic profession to produce more applied analytical studies that meet the Agency's information needs.

These types of workshops serve as teaching and training experiences, and are frequently organized by professional organizations and individuals having expertise on the topic at hand with knowledge of others who are pursuing research and developing studies on these methods and topics. The persons presenting materials and leading discussions at these workshops are recognized expert practitioners, either from the academic community or well-regarded non-academic research institutions, who have a sound theoretical understanding of the topic as well as experience with the practical difficulties typically faced in conducting applied work in these fields of study. The workshops serve not only the education needs of the academic community, but also professional staff employed in the nonprofit sector, the private sector and the government sector at the federal, state or local level. Materials prepared for these workshops are aimed at individuals having good foundations in environmental economics, yet offer opportunities for individuals to learn about a topic they have not yet studied in detail as part of their formal academic training or work responsibilities (e.g., as a research or teaching assistant, or as part of their duties early in their professional career as government or contract employees).

Purpose and Objectives:

The Workshop supported under this contract is intended to provide guidance and training on topics and tools of importance in the field of environmental economics. The main theme(s) of the workshop will address policy relevant issues, and deliver important educational content to students and practitioners in the field of environmental economics. The workshop is organized to accomplish the following: develop the theoretical basis for guidance of correct analytical approaches; identify best practices that have been used by respected practitioners; identify useful data sources used in the conduct of environmental economic research and analyses; describe and discuss potential problems typically faced by analysts; and generally, to educate an inexperienced audience about the activity. The workshop provides participants a shared understanding of techniques - defining the process of deriving empirical information from existing research products and helping them to make use of this information to inform new analyses on other important environmental issues. The workshop will also provide a valuable opportunity for early career professionals and isolated researchers (i.e., individuals working in academic positions or governmental offices where they may be the sole practicing environmental and natural resource economist) an opportunity to identify and develop potential collaborative professional relationships with other Workshop attendees.

By way of example, some of the types of workshops hosted around the country that serve to meet these purposes include the Occasional Workshop Series on Environmental and Resource Economics (hosted at University of California, Santa Barbara); the Heartland Environmental and Resource Economics Workshop (hosted at University of Illinois, Urbana-Champaign); the CU Environmental and Resource Economics Workshop (hosted by University of Colorado at Boulder), and the Center for Environmental and Resource Economic Policy, Camp Resources series (hosted by North Carolina State University). These illustrative workshop series have served to mentor attendees in new researcher methods, presentations, and learning tutorial sessions.

Better understanding of the research and analytic issues raised at this kind of envisioned workshop can help federal, state, tribal, and local governments effectively allocate resources to quantify the economic consequences of environmental policies. Support for presentations of this kind of work helps these institutions to identify ways to achieve the most efficient and effective level of environmental and health protection and improvement.

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 80 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 may be required to travel under this Work Assignment. Travel may be to meet with EPA to discuss 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 PO 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 (QA) Requirements: The Contractor shall not be required to submit with their technical proposal a written Quality Assurance Project Plan since this project does not involve collection, generation, use and/or reporting of new or existing environmental data and information.

VIII. Performance Work Statement

The tasks to be performed under this work assignment are consistent with the contract Performance Work Statement. This work falls under key program areas established for contract EP-C-13-039 including: preparation for and conduct of public meetings and workshops and providing expert speakers for conference and symposia in section III.D.2; and research new methods for economic analysis, investigating innovative and streamlined approaches to conduct cost-benefit analysis, economic impact analysis, cost-effectiveness analysis, equity analysis and other regulatory and non-regulatory programs and initiatives in section III.A.6 of the 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.

IX. Statement of Work Tasks

Task 1 - Prepare Workplan

The Contractor shall prepare a workplan within 15 calendar days of receipt of a performance statement of work signed by the CO or 15 calendar days after the start of the contract period,

whichever is later. 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.

Deliverables and schedule under Task 1

1a. Work Plan within 15 calendar days of receipt of Work Assignment.
1b. Revised Work Plan within 7 calendar days of receipt of comments from the Contracting Officer, if required.

Task 2 – Provide logistical support for organizing and arranging location of Workshop.

Substantial planning for logistics are required in advance of the expected dates the Workshop will be held. The Contractor shall: identify between 20-30 speakers/discussants having expertise in the subject matter Workshop topics selected, and identify 3-5 mentors/facilitators to provide valuable feedback and foster useful engagement by attendees on presented materials; prepare and/or distribute materials soliciting persons to present papers and attend the Workshop; select and provide in its draft plan speakers and materials submitted for consideration in response to the solicitation about the Workshop; develop an approach to register persons for both events, contact registrants on changes to the agendas and recommended logistics for attending the events (e.g., including suggestions for travel, lodging and meals); and disseminate materials to participants in advance of the Workshop up to the conclusion of the contract period, and not beyond that date. Communication with individuals submitting abstracts and proposing to attend the Workshop shall primarily be handled via email and the Internet.

The Contractor shall follow all applicable EPA policies and other Federal regulations that address the conduct of EPA co-sponsored workshops.

Total attendance at the Workshop is expected to be in the range of 60-80 registered attendees. The Contractor shall suggest mentors/facilitators (with appropriate technical qualifications) for the Workshop, based upon the selection of topic(s) constituting the primary themes of the Workshop program and sessions.

As a feature of the Workshop, the Contractor shall identify a lecture topic and a speaker to deliver a lecture to Workshop attendees. The topic will focus on pertinent new emerging analytic economic methods useful to attending environmental and natural resource economics professionals, many of whom are primarily engaged in the study and development of applied economic analyses of policy options and programs. The materials for the lecture shall be prepared to meet the particular skill levels and professional experience of persons registered to attend the Workshop, or otherwise the types of persons expected to attend this type of Workshop

event, based on information obtained through the registration process and from prior hosted environmental economics Workshops organized for similar purposes. All effort undertaken under this contract to identify and arrange for the speaker, and efforts by the speaker to prepare materials to be presented at the Workshop, shall be completed by the end of the contract period. The contractor shall make no arrangements nor enter into any obligations under this work assignment for costs incurred outside the period of performance.

The Contractor shall identify facilities suitable for cost-effectively supporting the Workshop, including provision of audiovisual equipment. The Workshop shall be held in August in the mid-Atlantic region (i.e., state encompassed in EPA Region 3 or Region 4). The Contractor shall identify temporary suitable accommodations required for attendees (e.g., with hotel supporting Workshop, or with other nearby hotels proximate to the location of the site of the Workshop).

The Contractor shall prepare materials that will be distributed to persons attending the Workshop that enable attendees to evaluate and provide feedback on the quality of the Workshop and measure whether the Workshop was able to successfully accomplish the goals of the Workshop organizers and the attendees. Information that the survey will collect shall focus on the technical quality of the Workshop, including the selection of topics presented, substance of research presented, delivery of research in written materials and presentations, discussions and feedback from attendees. The survey shall also evaluate the selection of facilities, accommodations, and other factors likely to affect the rating of the event by attendees that would be useful for assisting EPA in designing and organizing future workshops events.

This Task is to only provide for development of the survey materials in advance of the Workshop, but not administration of the survey at the conclusion of the Workshop. The administration of the survey, collection of information obtained, and analysis of the results will not be performed under this contract, because this contract is expected to conclude prior to the date of the Workshop.

Deliverables and schedule under Task 2

2a. Draft plan for location of Workshop, draft registration materials, draft website used for registration by attendees, draft lecture topic and suggested speakers, and draft survey to support evaluation of the Workshop within 5 calendar days of revised workshop agenda under Task 1b.

2b. Revised plan for location of Workshop, registration materials, website for registration, lecture topic and speaker, and survey within 5 calendar days of receipt of comments from the WA-COR on Task 2a.

<u>Summary of Deliverables</u>

Task	Deliverable	Form and Quantity	Schedule
Task 1	1a) Work Plan	Electronic Document	Within 15 calendar days of work assignment receipt
	1b) Revised Work Plan	Electronic Document	Within 7 calendar days of receiving comments from CO
Task 2	2a) Draft plan for workshop location, registration materials, website, lecture topic and speaker	Electronic Document	Within 5 calendar days of approved work plan under Task 1b)
	2b) Revised plan for workshop location, registration materials, website, and lecture topic and speaker	Electronic Document	Within 5 calendar days of receiving comments from WA-COR on Tasks 2b)

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 4-63

☐ Other ☒ Amendment Number: 000001

Contract Number: EP-C-13-039

Contract Period: 09/11/2013 To 07/31/2018

Base Option Period Number: 4

Title of Work Assignment/SF Site Name: Workshop Research EnvEconomics

Contractor: ABT ASSOCIATES INC.

Specify Section and paragraph of Contract SOW: Section III, A.6 (method dvlp)+D.2 (logistic supp)

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

Period of Performance: From 06/29/2018 To 07/31/2018

Comments:

Stop work in accordance with FAR Clause 52.242-15, Stop-Work Order, for this work assignment effective 7/19/2018. No additional costs shall be incurred without the prior written consent of the Contracting Officer.

☐ 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		68
This Action:		0
Total:		68

Work Plan / Cost Estimate Approvals

	Cost/Fee	LOE
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Brett Snyder	(Signature)	(Date)	Branch/Mail Code:
			Phone Number: 202-566-2261
			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: Nicholas Bisher	(Signature)	(Date)	Branch/Mail Code:
			Phone Number:
			FAX Number: