RESEARCH & DEVELOPMENT PROJECT PLAN
QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)
January 23, 2017

OVERVIEW

1. Participants (*indicates team leads)

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2. Project Funding - $20K

The team anticipates the need for contractor support in collecting and pulling pertinent QA/QC information from program systems. This information will come from both SLT systems and EPA programs. For SLT systems, the need will be most evident around the distribution of the draft compilation and questionnaire through ECOS and collecting results and input from the SLTs in response to that broad, nationwide QA/QC survey. From EPA programs, support will be needed to extract QA/QC system information from participating programs and putting into format that can be considered for use the team's compilation. Also, contractor support for final product development is anticipated to get to a product deliverable that can be distributed and oriented to multiple audiences and outreach options.

Although difficult to predict with certainty the exact number of contractor support hours needed, the team anticipates roughly 300 hrs of support needed related specifically to the SLT QA/QC survey and research. For the EPA program research, synthesis compilation of SLT and EPA programs, and final product development the team anticipates the need of approximately 200 hrs.

Funding for this project will be used to:

- State/Local/Tribal (SLT) program survey design/preparation, collection and synthesis of results
- Research and compilation of EPA program QA/QC procedures, documentation/compilation of merged results for team analysis
- Production of final products/presentations for distribution and outreach

3. How project fits within the larger Combined Air Emissions Reporting (CAER) "future state"?

This project will identify a common set of QA/QC procedures that can be implemented/utilized through a shared electronic service by SLTs and EPA as part of a common emissions reporting system.

4. Project Description

Identification and evaluation of a common set of emissions data QA/QC procedures for shared emission reporting.

5. Project Steps

A. Review, collection and compilation of existing QA/QC protocols used for emissions inventory reporting programs.

1. Using information from Research and Development team members' states and EPA program on their QA/QC procedures, compile a draft consolidated table of QA/QC checks related to point source emissions data inventory reporting and review

   - Include the Emission Inventory System (EIS) data system QA/QC checks; checks within the State and Local Emission Inventory System (SLEIS) emissions inventory system; additional unique QA/QC procedures from SLT emissions programs, and other procedures used by EPA programs such as the Toxics Release Inventory (TRI), and the electronic Greenhouse Gas Report Tool (eGGRT).
   - Compilation should identify source of QA/QC checks and identify unique set of checks through cross-comparison of program QA/QC procedures (e.g., compare NEI QA with state QA and list common checks and differences)

2. Consider any post-hoc point source emissions data QA that program staff use and whether it would be relevant for the compilation and for possible use as part of a new common emissions form (CEF) system as envisioned under CAER

3. Develop questionnaire/solicitation, for distribution by ECOS, for state/local/tribal (SLT's) to review the draft consolidated table of QA/QC checks developed in Step 1

   - Instruct SLT respondents to review their QA/QC systems and checks for point source emissions data against the draft compilation of QA/QC checks/procedures from the R&D team to see if they can add any additional supplemental checks/procedures to the table listing.
   - The Environmental Council of States (ECOS) sends a questionnaire to all SLTs and collects feedback and prepares findings showing commonalities and identifying any of their checks/procedures not included on the draft compilation (NOTE: this effort should be coordinated with the ECOS STAG activity "QA/QC Scoping at the State Level")

4. Using the results of the ECOS study, the team will develop a final compilation table that lists QA/QC checks/procedures for point source emissions data reporting/review, annotating what goes beyond EIS/NEI and describe/explain why each is valuable or why some might be less valuable

B. Investigate, identify and prioritize new or additional emissions-related QA/QC procedures, beyond the results of the compilation in part A, that could be valuable additions to a common set of QA/QC protocols.

1. Such new procedures could involve advanced emission factor checks, sector-specific emissions range checks, and the use of statistical procedures for outlier/trends analyses (e.g., t-test, etc.).

C. Evaluate the extent/potential to which such checks, including both front- and back-end checks, could be automated within an electronic reporting system, and possibly within the framework of a shared, common emissions reporting platform such as demonstrated at the CAER Quick Start workshop.

6. Prior Work

A. RTP Jan. 2016 CAER Workshop Event: Some limited info has already been collected from SLTs on their QA/QC procedures and possible further work -- (see CAER SharePoint site>>Short Term Win-CAER Implementation Plan>>January 2016 In Person)

B. RTP Sept. 2016 Quick Start Event: QA/QC Bullpen Session Notes -- (see CAER SharePoint site>>Quick Start>>Quick Start 09_12_2016_Notes)

C. EIS QA checks – (eis.epa.gov >> QA Checks)

D. SLEIS system data checks (via SC team member)

E. Various state QA/QC procedures provided by R&D team members as start of projected (posted to CAER SharePoint site>>Product Design Team (PDT)>>R&D Project O1_QA and QC>>Background documents

F. TRI and GHG RP program QA/QC procedures (currently being obtained)

7. Deliverables

A. A common set of QA/QC protocol/checks/procedures in tabular type format with sufficient annotation, documentation to describe source and potential applicability

B. An evaluation/recommendation of their use and applicability for an electronically-based, shared system application.

C. A follow-on (i.e., phase 2) to this project could possibly include the actual incorporation of applicable QA/QC checks into a pilot scale application of a common emissions form (CEF) like the Quick Start prototype and/or within a web-based shared services type platform.

8. Expected Workload

Team members should expect to participated in weekly meetings, lasting 1 to 2hrs in length for a period roughly 4 to 6 months, depending on the length of the project. At the start of the project, team members will be expected to collect relevant QA/QC information from their programs to contribute to the compilation effort. Team members should be expected to spend time, beyond the meeting times, at key points in the first two months to review draft compilations of QA/QC checks/procedures and provide input to multiple iterations of the draft compilation. Upon conduct of the ECOS survey/research on QA/QC, team members will need to spend some time considering these results for inclusion. Lastly, in preparation of final products, team members will be expected to provide input to the final product development and in supporting and participating in outreach opportunities (presenting results to PDT, CAER audiences, etc.).

Based on this expected workload, team members can expect to spend, on average, roughly 4 to 6 hours per week on the project. Some members may experience higher workload at time around compilation steps, where data is being centrally pulled together.

DELIVERABLES & EXPECTED COMPLETION DATES

Below is a list of key deliverables and expected completion dates. Dates are estimates and may be affected by the extent and availability of resources. Also, note that the project team plans to update the PDT near the completion dates for major project steps shown below and the project team lead will contact the PDT co-chairs in advance of those dates to set an appropriate report out time and date with the PDT.

Deliverable	Expected Completion Date
A. Draft compilation of R&D team's starting point QA/QC procedures	March 3, 2017

Deliverable	Expected Completion Date
B. Results of survey/questionnaire of SLT QA/QC procedures through ECOS (responses to draft compilation)	April 14, 2017
C. Second order draft of compilation of QA/QC checks/procedures	May 5, 2017
D. Final draft of compilation of QA/QC checks/procedures	May 31, 2017
E. Evaluation of their use in shared application	June 2, 2017
F. An outline of a follow-up project to incorporate common QA/QC procedures into a pilot scale application	June 16, 2017