

August 29, 2001

Mr. Louis Blume
Great Lakes National Program Office
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604-3590

G-17J

RE: Response to Review Comments of "Quality Assurance Project Plan (QAPP): GIS-based Contaminated Sediment Database for the St. Louis River Area of Concern" for GLNPO Grant Number GL975363-01

Dear Mr. Blume:

Listed below are my responses to Allison Witt's recommendations for minor revisions of the above quality assurance project plan (QAPP). As we discussed on the phone, a second version of the QAPP will not need to be produced. This memorandum will document the updates to the QAPP. A copy of Ms. Witt's review comments is attached. Both the PDF versions of the QAPP and this memorandum will be added to the Minnesota Pollution Control Agency's (MPCA) Contaminated Sediment Web page at: <http://www.pca.state.mn.us/water/sediments/studies-stlouis.html#assessment>.

General Comment

- A comment was made that page 7 of the QAPP lists 43 Great Lakes Areas of Concern (AOCs), but page 9 lists 42 AOCs. Both statements are correct as written as 43 AOCs were initially designated in 1987 (as written on page 7), but there are currently 42 AOCs (as listed on page 9). One AOC has been cleaned-up and de-listed.

A1. Title & Approval Sheet

- The dated signature of the Great Lakes National Program Office (GLNPO) QA Officer and GLNPO Project Officer have been added to the title and approval sheet.

A4. Project/Task Organization

- Although no changes were noted for this section, I wanted to let you know that my supervisor, Lanny Peissig, has recently retired and our Quality Assurance (QA) Coordinator, James Joslyn, has left the MPCA. Both of these positions are currently vacant. In addition, Megan Hanacek has left MacDonald Environmental Sciences Ltd. (MESL), and David Sims (MESL) will also provide assistance to the GIS portion of the project. MESL will be moving to a new office as of October 1, 2001. Their new address will be:
#24 - 4800 Island Highway North
Nanaimo, British Columbia V9T 1W6
Canada
email: mesl@island.net
Phone: 250-729-9625 Fax: 250-729-9628

A6. Project/Task Description

- A comment was made to include records from QA assessments with the project and QA records and reports. This will be done, and additional detail on these assessments is provided in my response to comments under Section A9.

A7. Quality Objectives and Criteria for Measurement Data

- A comment was made to establish criteria to identify if pre-existing data maintain a high level of quality and if all data used has an equal level of quality. Only sediment quality data collected since 1991 will be included in the database since this corresponds to a time period when the MPCA started preparing QAPPs for federally-funded sediment quality projects in the St. Louis River AOC. We will be using detailed screening criteria developed for the BEDS/SedTox co-occurrence data (Appendix A of the QAPP) and spiked sediment bioassay data (Appendix B of the QAPP) for evaluating sediment chemistry and toxicity data. Appendix A briefly provides a checklist for benthological community data, too. Bioaccumulation data, from 28-d sediment bioaccumulation tests with *Lumbriculus variegatus*, will need to meet the test acceptability requirements of USEPA (2000; Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates, EPA/600/R-99/064). In order for any fish tissue or fish abnormality data to be included in the database, documented methods and results (that provide an indication of the quality of the data) must be available.

A9. Documentation and Records

- A comment was made to state the actual information which is expected to be included in the data report, not just the GIS-based database. A formal project report will not be prepared since a CD of the database is the primary deliverable for this project. However, technical documentation will be retained by the MPCA which contains the following components:
 - A database table with the information compiled during data evaluation (i.e., screening criteria);

- A database table with information regarding the decisions associated with each data set;
- A database table with information regarding all candidate data sets and, for failed data sets, which screening criteria was violated;
- A summary file that outlines the conventions and procedures used in developing the database;
- A database table that provides a summary of the QA checks and database auditing procedures employed; and
- The metadata documents that will be associated with GIS data acquired from other sources.

B9. Data Acquisition Requirements for Non-Direct Measurements

- A question was raised regarding any additional limitations of data related to the acceptance criteria, besides the limited budget of this project. Other potential limitations would include the cooperation and availability of staff from other agencies (e.g., Wisconsin Department of Natural Resources), organizations (e.g., Fond du Lac Band), and potentially responsible parties to put their sediment quality data in an electronic format which could easily be brought into the GIS-based database. We may also encounter a lack of geo-referenced latitude/longitude information to accompany some of the acceptable sediment quality data. We anticipate that there may be more acceptable sediment quality data available than we will have the resources to enter into the GIS-based database. Therefore, we will be soliciting stakeholder input at a meeting to be held in Duluth on October 22, 2001 and in St. Paul on October 23, 2001, to develop the priority by which acceptable sediment quality data from particular geographic areas in the St. Louis River AOC are entered into the database.

B10. Data Management

- A comment was raised to include data retrieval requirements. Data retrieval relates to the retrieval of sediment quality data obtained from the GIS-based database, as well as the retrieval of supporting documentation used to develop the database. The GIS-based contaminated sediment database for the St. Louis River AOC will be available to users by sending them a CD (upon request from the MPCA). Users familiar with Microsoft™ Access software will be able to design their own retrieval searches of the database. We will also develop database user interfaces (i.e., canned queries) by which someone with little familiarity with Access can run some standard retrieval searches of the database. We anticipate including the following information on the CD which will allow users to retrieve other information about the sediment quality data retained in the database, including:
 - PDF copies of project reports (if they are too large, only the executive summary will be included);
 - PDF copies of project QAPPs;
 - Raw data files (i.e., benthic abundance data);
 - Specific instructions on how to find additional reports; and
 - Qualifier codes for coordinate data.

- The technical documentation mentioned under section A9 of this memorandum will be retained with the project file for this grant (as filed under the GLNPO grant number). MPCA staff will be able to access this information from our project file system. External users can request this information from me, and I will have our support staff retrieve the needed information from the project file, photocopy it, and send the copy to the requester.

C1. Assessments & Response Actions

- A comment was made to include the expected frequency of assessments. As stated in the QAPP, the MESL Project Manager and MPCA Principal Investigator will only conduct general surveillance types of assessments as work products are completed or questions arise. The MPCA's professional and technical contract with MESL specifies that they will provide the following major deliverables to the MPCA:
 - Electronic file (in Microsoft™ Access '97) of the GIS-based contaminated sediment database for the St. Louis River AOC;
 - Electronic file of ArcView projects of the database (or other mutually agreed upon spatial analyst tools);
 - Technical memo containing documentation of the database and accompanying spatial tools;
 - Training workshop on how to use and query the GIS-based contaminated sediment database; and
 - Technical memo containing a comparison of mean probable effect concentration quotients (PEC-Qs) for matching sediment chemistry and toxicity data from the St. Louis River AOC with other sites in the Great Lakes region and in North America.
- Excluding the training workshop, I will review the other work products (thus, four assessments).

C2. Reports to Management

- A section on the results of performance evaluations and audits was not included in the QAPP since no new measurement data will be collected as part of this grant. I associate performance evaluations and audits as activities that would be conducted on analytical or toxicity testing laboratories. However, it is also correct that internal audits of the GIS-based database be conducted as data sets are added to the database. MESL staff will conduct their own internal audits of the database. They will report their audit results verbally to the MESL Project Officer for minor discrepancies and in writing to both me and the MESL Project Officer for major discrepancies.

D1. Data Review, Validation, & Verification

- A comment was made that criteria for accepting, rejecting, or qualifying data were not included in this section. I excluded the standard Data Review, Validation, and Verification subsections of: Sampling Design, Sample Collection Procedures, Sample Handling, Analytical Procedures, Quality Control, and Calibration since no new measurement data were being collected as part of this project. The criteria for accepting or rejecting data to be

included in the GIS-based database is discussed in Section A7 of this memorandum. Acceptable data will be qualified with the qualifiers designated by the laboratories that generated the data. Stakeholder input will be solicited during October 22-23, 2001 for how to treat QA data such as:

- Averaging analytical duplicate data;
 - Averaging field replicate data;
 - Treatment of less than detectable data;
 - Conventions for calculating total values for PAHs, PCBs, chlordane, and DDTs and averaging duplicate and replicate data for these analytes;
 - Including a standardized database list of qualifier codes for analytical and biological effects data;
 - Including averaged and un-averaged data; and
 - Including other QA data (spikes, blanks, etc.).
- A comment was made that project-specific calculations or algorithms may not be applicable to this project. Section D1.2 of the QAPP specified that any manipulations of the data will be double-checked that the formulas were set up correctly. MESL staff will do this task.

D2. Validation and Verification Methods

- The process for data validation was noted as not being included in the QAPP. As specified in Section D2.2 of the QAPP, the MPCA has already validated sediment quality data collected from the St. Louis River AOC as part of their GLNPO and EPA grants of the past ten years (per the requirements of the respective QAPPs for each project). For data sets included in the database from other sources, it is beyond the scope of this project for us to validate number for number each data set submitted to us. Data sets will be “validated” for use in the database by passing the acceptance criteria discussed in Section A7 of this memorandum. We expect to verify approximately 10% of the non-MPCA data sets to ensure the data results presented in electronic data files match the hard copy reports.

D3. Reconciliation with User Requirements

- A comment was made regarding how data limitations will be reported and reconciled. As mentioned in Section A9 of this memorandum, the following database tables will be assembled as part of the technical documentation of this project:
 - A database table containing the information compiled during the data evaluation (i.e., screening criteria);
 - A database table with information regarding the decisions associated with each data set; and
 - A database table with information regarding all candidate data sets and, for failed data sets, which screening criteria was violated.

Mr. Louis Blume

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If you have any further questions over the content of this memorandum, please give me a call at (651) 297-4068. I will let you know when a new QA Coordinator has been hired for the Environmental Outcomes Division of the MPCA. I should find out the identity of my new supervisor by August 30, 2001.

Sincerely,

Judy L. Crane, Ph.D.
Environmental Research Scientist
Environmental Standards and Assessment Section
Environmental Outcomes Division

JLC:jae

Enclosure: GLNPO's Quality Assurance Project Plan Check Sheet

cc w/ enclosure: Allison Witt, GLNPO
Tony Kizlauskas, GLNPO
Don MacDonald, MESL
Shelley Burman, MPCA



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
GREAT LAKES NATIONAL PROGRAM OFFICE
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

TO: ANTHONY KIZLAUSKAS, PROJECT OFFICER
THRU: LOUIS BLUME, QA MANAGER *L. Blume 7/27/01*
FROM: ALLISON WITT, QA INTERN
SUBJECT: REVIEW OF "GIS-BASED CONTAMINATED SEDIMENT DATABASE FOR THE ST. LOUIS RIVER AREA OF CONCERN"
GRANT #: GL975363-01
DATE: JULY 24, 2001

page 7 lists 43 Great Lakes AOC, but page 9 list 42 AOCs. Which is it?

Agree please address issues A7, B9, B10, C1 and D2.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
GREAT LAKES NATIONAL PROGRAM OFFICE
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QUALITY ASSURANCE PROJECT PLAN CHECKSHEET

Revision: 0

QAPP Category:

Project Number: GL975363-01

GRANT TITLE: GIS-Based Contaminated Sediment Database for the St. Louis River Area of Concern

Author/P.I.: Judy Crane

Project Officer: Anthony Kizlauskas

Date Review Submitted: 7/23/01

Date Review Requested:

Date Review Completed: 7/24/01

Reviewed by: A. Witt

Major deficiencies (defined here as the absence of relevant information) were found in the following elements:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Title & Approval Sheet | <input type="checkbox"/> Analytical Methods |
| <input type="checkbox"/> Table of Contents | <input type="checkbox"/> Quality Control |
| <input type="checkbox"/> Distribution List | <input type="checkbox"/> Instrument/Equipment Testing |
| <input type="checkbox"/> Project/Task Organization | <input type="checkbox"/> Instrument Calibration & Frequency |
| <input type="checkbox"/> Problem Definition/Background | <input type="checkbox"/> Inspection/Acceptance for Supplies |
| <input checked="" type="checkbox"/> Project/Task Description | <input checked="" type="checkbox"/> Data Acquisition (Non-Direct) |
| <input checked="" type="checkbox"/> Data Quality Objectives | <input checked="" type="checkbox"/> Data Management |
| <input type="checkbox"/> Special Training/Certification | <input checked="" type="checkbox"/> Assessments & Response Actions |
| <input checked="" type="checkbox"/> Documentation & Records | <input checked="" type="checkbox"/> Reports to Management |
| <input type="checkbox"/> Sampling Process Design | <input checked="" type="checkbox"/> Data Review, Validation, & Verification |
| <input type="checkbox"/> Sampling Method | <input checked="" type="checkbox"/> Validation and Verification Methods |
| <input type="checkbox"/> Sample Handling | <input checked="" type="checkbox"/> Reconciliation with User Requirements |

See attached sheets for discussion comments relative to all elements.

Conclusion/Recommendation:

☐ Acceptable

☒ Acceptable with minor revisions

☐ Unacceptable with major revisions

| | | | | | |
|--|---|---|---|---|--|
| A1. Title & Approval Sheet | | | | | |
| Title | X | | | | |
| Organization's name | X | | | | |
| Dated signature of project investigator | X | | | | |
| Dated signature of QA officer | | | X | | Minor, needed on final copy. |
| Other signatures, as needed | | | X | | Minor, needed on final copy. |
| A2. Table of Contents | X | | | | |
| A3. Distribution List | X | | | | |
| A4. Project/Task Organization | | | | | |
| Identifies key individuals with their responsibilities (e.g., data users, decision makers, project QA manager, Subcontractors, etc.) | X | | | | |
| Organization chart shows lines of authority & reporting responsibilities | X | | | | |
| A5. Problem Definition/Background | | | | | |
| Clearly states problem or decision to be resolved | X | | | | |
| Historical & background information | X | | | | |
| A6. Project/Task Description | | | | | |
| Lists measurements to be made - NOT NEEDED | | | | X | |
| Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives | | | | X | |
| Notes special personnel or equipment requirements | X | | | | |
| Provides work schedule | X | | | | |
| Notes required project & QA records/reports | | X | | | Need to include records from QA assessments. |
| A7. Quality Objectives & Criteria for Measurement Data | | | | | |
| States project objectives and limits, both qualitatively & quantitatively | X | | | | |
| States & characterizes measurement quality objectives as to applicable action levels or criteria | | | X | | Pre-existing data usage does not allow a study to become exempt from quality criteria. Need to establish criteria to identify if pre-existing data maintains a high level of quality and that all data used has an equal level of quality. |
| A8. Special Training Requirements/Certifications | X | | | | |
| A9. Documentation & Records | | | | | |
| Lists information & records to be included in data report (e.g. raw data, field logs, results of QC checks, problems encountered) | | X | | | Need to state the actual information which is expected to be included in data report, not just database. |
| States requested lab turnaround time | | | | X | |
| Gives retention time and location for records and reports | X | | | | |

| | | | | | |
|---|--|--|--|---|--|
| B1. Sampling Process Design (Experimental Design) | | | | | |
| Types and number of samples required | | | | X | |
| Sampling network design & rationale for design | | | | X | |
| Sampling locations & frequency of sampling | | | | X | |
| Sample matrices | | | | X | |
| Classification of each measurement parameter as either critical or needed for information only | | | | X | |
| Validation study information, for non-standard situations | | | | X | |
| B2. Sampling Method Requirements | | | | | |
| Identifies sample collection procedures & methods | | | | X | |
| Lists equipment needs | | | | X | |
| Identifies support facilities | | | | X | |
| Identifies individuals responsible for corrective action | | | | X | |
| B3. Sample Handling & Custody Requirements | | | | | |
| Notes sample handling requirements | | | | X | |
| Notes chain of custody procedures, if required | | | | X | |
| B4. Analytical Methods Requirements | | | | | |
| Identifies analytical methods to be followed (with all options) & required equipment | | | | X | |
| Provides validation information for non-standard methods | | | | X | |
| Identifies individuals responsible for corrective action | | | | X | |
| B5. Quality Control Requirements | | | | | |
| Identifies QC procedures & frequency for each sampling, analysis, or measurement technique, as well as associated acceptance criteria and corrective action | | | | X | |
| References procedures used to calculate QC statistics (e.g., precision, bias, accuracy) | | | | X | |
| B6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements | | | | | |
| Identifies acceptance testing of sampling and measurement systems | | | | X | |
| Describes equipment needing calibration and frequency for such calibration | | | | X | |
| Notes availability & location of spare parts | | | | X | |

| B7. Instrument Calibration & Frequency | | | | | |
|--|---|---|--|---|--|
| Identifies equipment needing calibration and frequency for such calibration | | | | X | |
| Notes required calibration standards and/or equipment | | | | X | |
| Cites calibration records & manner traceable to equipment | | | | X | |
| B8. Inspection/Acceptance Requirements for Supplies & Consumables | | | | | |
| States acceptance criteria for supplies & consumables | | | | X | |
| Notes responsible individuals | | | | X | |
| B9. Data Acquisition Requirements for Non-Direct Measurements | | | | | |
| Identifies type of data needed from non-measurement sources (e.g., computer data bases and literature files), along with acceptance criteria for their use | X | | | | |
| Describes any limitations of such data | | X | | | Are there any limitations of data related to the acceptance criteria? Only mention limited budget. |
| B10. Data Management | | | | | |
| Describes standard record keeping & data storage and retrieval requirements | | X | | | Need to include data retrieval requirements. |
| Checklist or standard forms attached to QAPP | X | | | | |
| Describes data handling equipment & procedures used to process, compile and analyze data (e.g., required computer hardware & software) | X | | | | |

| C1. Assessments & Response Actions | | | | | |
|---|---|---|---|--|--|
| Lists required number, frequency, & type of assessments, with approximate date & names of responsible personnel | | X | | | Include expected frequency of assessments. |
| Identifies individuals responsible for corrective actions | X | | | | |
| C2. Reports to Management | | | | | |
| Identifies the preparer and recipients of reports | X | | | | |
| Identifies frequency and distribution of reports for: | | | | | |
| Project status | X | | | | |
| Results of performance evaluations & audits | | | X | | |
| Results of periodic data quality assessments | X | | | | |
| Any significant QA problems | X | | | | |

| D1. Data Review, Validation, & Verification | | | | | |
|--|--|---|---|--|---|
| States criteria for accepting, rejecting, or qualifying data | | | X | | |
| Includes project-specific calculations or algorithms | | | X | | May not be applicable. |
| D2. Validation and Verification Methods | | | | | |
| Describes process for data validation and verification | | | X | | |
| Identifies issue resolution procedure and responsible individuals | | | | | |
| Identifies method for conveying these results to data users | | | | | |
| D3. Reconciliation with User Requirements | | | | | |
| Describes process for reconciling with DQOs and reporting limitations on use of data | | X | | | How will data limitations be reported and reconciled? |

► QAPP states, "it is beyond the scope of this project to validate all of these data."

I always thought validation + verification methods were a requirement, not an option.

This data should be "validated"

Verification is ~~is not~~ basically what you get

how representative are the data of the natural system.