



file
Reaches
BC&D
[Signature]

NEW JERSEY COMMERCE & ECONOMIC GROWTH COMMISSION
28 WEST STATE STREET
P.O. BOX 820
TRENTON, NJ 08625-0820
609-777-0885; (FAX) 609-777-4097

CHRISTINE TODD WHITMAN
Governor, Chair

GUALBERTO MEDINA
Chief Executive Officer / Secretary

Please Reply To:
NJ Maritime Resources
PO Box 837
Trenton, New Jersey 08625-0837
(609)984-6694
(609)984-1468

April 7, 1999

Mr. Thomas Wakeman
Dredging Project Manager
Port Authority of New York and New Jersey
One World Trade Center
34 South
New York, NY 10048

Re: Reaches B, C and D, Port Newark/Elizabeth

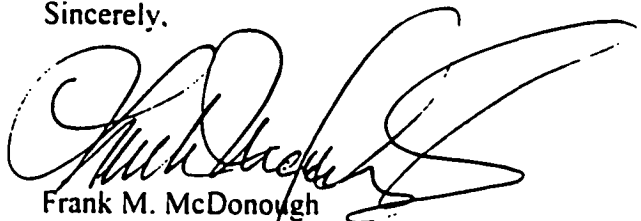
Dear Mr. Wakeman:

As you will recall, this agency requested that the Port Authority of New York and New Jersey enter into an agreement to dispose of contaminated dredged material from Reach A by utilizing the Pennsylvania Mines beneficial use option. Unfortunately, testing revealed that the material from Reach A did not meet the strict requirements of the State of Pennsylvania Department of Environmental Protection.

Accordingly, I am now requesting that the Port Authority utilize the Pennsylvania Mine option for Reaches B, C, and D. The same financial proposal applies. That is, the State of New Jersey utilizing funds available through the Joint Plan funds, or the New Jersey Bond Act, will pay the Port Authority's costs over and above that which was budgeted for disposal of the material dredged from these reaches. ✓

If you have any questions, please feel free to call.

Sincerely,


Frank M. McDonough
Executive Director, NJ Maritime Resources

FMM/mlw

DRAFT
MEMORANDUM OF UNDERSTANDING
CLAREMONT CHANNEL

This Memorandum of Understanding (MOU) made this _____ day of _____, One Thousand Nine Hundred and Ninety-Eight between the New Jersey Commerce and Economic Growth Commission, Office of New Jersey Maritime Resources (NJCEGC/NJMR), acting through the CEO/SECRETARY OF THE NEW JERSEY COMMERCE AND ECONOMIC GROWTH COMMISSION, and HUGO NEU SCHNITZER EAST (HNSE), a Corporation organized under the laws of the State of --- with offices located at One Linden Avenue East, Jersey City, New Jersey, 07305, witnesseth that:

WHEREAS, Claremont Channel is a State-owned navigation channel located in Jersey City just south of Gaven Point; and

WHEREAS, the channel has a variable width and is about 10,000 feet long extending from the main channel in Upper New York Bay westerly towards its terminus just east of New Jersey Route 185; and

WHEREAS, the channel has a current depth of approximately 24 feet at mean low water, with five berths on the southern side of the channel over a distance of 3,300 feet, serving two major dry cargo operations; and

WHEREAS, the United States Army Corps of Engineers, New York District, in a study conducted under the authority of the Water Resources Development Act of 1986, determined that a channel depth of minus 34 feet will enable the ferrous metal exporters on the channel to handle the larger-size vessels utilized in the trade at considerable transportation savings; and

WHEREAS, operations on the channel employ an excess of 300 persons directly and nearly 3,000 indirect jobs through suppliers and longshore support services, the amount of tonnage at the Claremont Terminal has increased by almost 100% since 1990, the number of ship calls has remained relatively constant despite market fluctuations, and the draft requirements of the vessels arriving at the terminal have increased from under 30 feet to almost 33 feet during that same timeframe; and

WHEREAS, studies conducted by the US Army Corps of Engineers in 1986 and the New Jersey Department of Transportation in 1990 have confirmed that channel improvements would enhance our current scrap metal exports which have averaged over 1.5 million long tons per year and are one of the top two exports from the Port of New York and New Jersey; and

WHEREAS, in addition to providing substantial improvement in the movement of scrap iron and steel from Claremont Channel facilities which accounts for a significant percentage of the export scrap metal business in the Port of New York and New Jersey, an improved channel would benefit other operations on the channel; and

WHEREAS, an Environmental Impact Statement for this project was completed in 1987 and the New Jersey Department of Transportation recommended that the State of New Jersey serve as the local cooperating agency for the construction phase of this project; and

WHEREAS, the Port Authority of New York and New Jersey in an agreement between the State of New York and the State of New Jersey earmarked funding for the continuation of studies to determine the design and cost of this project; and

WHEREAS, in 1995 New Jersey Maritime Resources (NJMR), an agency of the New Jersey Commerce and Economic Growth Commission, assumed responsibility for the continuation of the project; and

WHEREAS, NJMR entered into an agreement with the Port Authority of New York and New Jersey to design channel improvements, and with the cooperation of the Harbor pilots, the channel has been successfully redesigned to minimize the cost associated with the maintenance/deepening; and

WHEREAS, the major using tenant of the channel, Hugo Neu Schnitzer East, has agreed to cost share the channel improvements, fully fund the associated terminal improvements, and enter into cooperative agreements with other tenants of the facility to ensure successful completion of the channel improvements; and

WHEREAS, New Jersey Maritime Resources has designated funds from allocations provided by the Port Authority of New York and New Jersey, and agreed to provide funding allocated to New Jersey Maritime Resources by the Dredging Project Facilitation Task Force, to complete this project; and

WHEREAS, New Jersey Maritime Resources has identified innovative technologies for the beneficial use of a portion of the dredged materials removed from the channel, and has designated upland and aquatic disposal options for the remainder; and

WHEREAS, Hugo Neu Schnitzer East has agreed to bid and oversee the implementation and the construction of the project, in cooperation with the Office of New Jersey Maritime Resources; and

WHEREAS, the CEO/Secretary of the NJ Commerce and Economic Growth Commission, under the powers vested in him by law and more particularly set forth in N.J.S.A. 52:27H-6 et. seq., has determined that it is in the State's best interest to enter into this MOU;

NOW, THEREFORE, the parties all agree and are agreed as follows:

1. NJMR, through its agent, the Port Authority of New York and New Jersey, will complete the designs, analysis, and other related activities for the purpose of conducting the maintenance/deepening of the Claremont Channel to minus 34 feet mean low water.
2. NJMR shall provide up to \$5,000,000 to the New Jersey Department of Environmental Protection, Office of Innovative Technologies, for the conduct of the Propat demonstration project utilizing dredged materials with admixtures for the purpose of developing a blended material suitable for site remediation and landfill closure operations.
3. NJMR will provide access for dredged material disposal at the Newark Bay Confined Disposal Facility in an amount not to exceed 150,000 cubic yards.

4. NJMR will provide an amount not to exceed \$6,000,000 for disposal of approximately 150,000 cubic yards of dredged materials at the Penfield Pennsylvania Strip Mine Demonstration Project.
5. NJMR will provide an amount not to exceed \$5,000,000 for processing and application of dredged materials at the Port Liberté Site Remediation project.
6. HNSE will provide private funds in the amount of \$25,000,000 to complete the project and complete all tasks required to complete the dredging including but not limited to: preparation and application for all necessary permits and approvals, contractual arrangements with Liberty National Development Corporation for the placement of processed dredged materials at the Port Liberté site, contracting, processing, transportation, and delivery of amended dredged materials to the Pennsylvania Mines Demonstration project, and other contractual/partnership relationships necessary to complete the project.
7. HNSE will provide and guarantee unrestricted access to areas under its control and contract for the same unrestricted access to other facilities located on Claremont Channel for NJMR, representatives of the Port Authority of New York and New Jersey, and other State and Federal agencies for the purpose of overseeing, inspecting, and conducting activities to ensure the successful completion of the project.
8. HNSE will be the sole responsible party for the construction phase of this project and will provide NJMR and NJDEP with a copy of all results of the demonstration phases of this project upon completion.
9. HNSE and any third parties authorized to conduct projects or studies under this agreement shall release, indemnify, defend, and save harmless the State of New Jersey and the Port Authority of New York and New Jersey, and their officers, agents and employees from and against all damages, losses, claims, demands, suits, costs or expenses, including reasonable counsel fees, which the State of New Jersey and the Port Authority of New York and New Jersey, or their officers, agents, and employees may suffer or sustain or be subject to arising from or out of any negligent act, error, or omission by HNSE or any third party or its agents, servants, employees, or subcontractors in the performance of this project and any studies related thereto.
10. HNSE agrees that HNSE and any third parties conducting studies or projects under this agreement, at their sole risk, cost and expense, shall obtain all permits and approvals which may be necessary to conduct the studies and projects, and shall comply with all Federal and State laws and assume all cost and expense and responsibility in connection therewith, without any liability whatsoever on the part of the State of New Jersey or the Port Authority of New York and New Jersey.
11. HNSE agrees that HNSE and any third party conducting studies or operations on the site shall do so at their own sole risk, cost and expense, shall procure and maintain at their own expense, until at least one year after the completion of the studies, comprehensive liability insurance coverage. The coverage to be provided shall be as broad as the standard, basic, unamended and unendorsed comprehensive general liability policy. The minimum policy shall be \$1,000,000 (one million dollars) for each occurrence including bodily injury and

property damage. In the event that an annual aggregate applies to this policy, said aggregate shall be at least \$2,000,000. The policy shall be obtained from a company authorized to write general liability insurance within the State of New Jersey and shall list the State of New Jersey and the Port Authority of New York and New Jersey as additional insured. Proof of insurance shall be supplied on demand to the State, or the Port Authority of New York and New Jersey, at any time during the term of this Agreement.

12. This Memorandum of Understanding is subject to appropriations by the Port Authority of New York and New Jersey, and the State of New Jersey, as well as the successful preparation and execution of a formal legally binding contract between the State of New Jersey, acting by and through the Director of Purchase and Property in the Department of Treasury for and on behalf of the NJ Commerce and Economic Growth Commission, and the duly authorized representatives of HNSE.
13. This Memorandum of Understanding is subject to execution by the CEO/Secretary of the New Jersey Commerce and Economic Growth Commission, or his designee, and the legally authorized representative, as designated by a corporate resolution approving and funding the project, of Hugo Neu Schnitzer East.

NOW, THEREFORE, for and in consideration of the mutual duties, covenants, obligations and agreements set forth above, the sufficiency of which is hereby acknowledged, the parties hereto agree to the foregoing.

IN WITNESS WHEREOF, each of the parties hereto by its duly authorized representatives has executed and delivered this agreement on the date first written above.

Date: _____

By: _____

Gualberto Medina, CEO/Secretary
New Jersey Commerce and Economic
Growth Commission

Date: _____

By: _____

President
Hugo Neu Schnitzer East

"The aforementioned Memorandum of Understanding has been reviewed and approved as to form."

PETER VERNIERO
ATTORNEY GENERAL OF NEW JERSEY

By: _____

Deputy Attorney General

Date: _____

New York/New Jersey Harbor Estuary Program
Contaminant Assessment and Reduction Project
REQUEST FOR PROPOSALS

QUALITY ASSURANCE AND DATA VALIDATION FOR THE CARP

The Hudson River Foundation (HRF) seeks proposals from qualified individuals and organizations to provide Quality Assurance (QA) and Data Validation functions for the Contaminant Assessment and Reduction Project (CARP) of the NY/NJ Harbor Estuary Program (HEP).

CARP's goal related to data collection is to ensure that all CARP environmental data collection activities are scientifically valid, and that the data so collected are complete, representative, comparable, and of a known and documented quality. This goal will be achieved through implementation of the Quality Management Plan (QMP) and Data Validation Plan (DVP) developed pursuant to this Request For Proposals. The QA contractor will be responsible for developing and implementing the overall QMP and DVP in close coordination with the states' QA program managers and other Principal Investigators.

I. Background

The CARP is an estuary-wide program to measure and model the sources and ambient levels of contaminants in the New York/New Jersey Harbor Estuary system. Components of the program include quantification of sources (sewage treatment plants, combined sewer overflows, tributaries, storm water overflows, atmospheric deposition, etc.) of organic and inorganic contaminants and ambient levels of those contaminants in water, sediments, and biota. The CARP also includes a "trackdown" element, in which the sources of contaminant "hot spots" in the system will be identified by tracing back up a tributary or sewage system to the source. Data collected under this program will be used to make management decisions about dredged material disposal in the Harbor region and to provide a baseline for future monitoring of these parameters to determine ecosystem health.

The sampling and analysis programs of the states of New York and New Jersey, defined in the detailed work plans *Sources and Loadings of Toxic Substances to New York Harbor* (New York's work plan) and the *New Jersey Toxics Reduction Workplan* comprise the majority of the field and laboratory measurements of the CARP. These documents are available from the Hudson River Foundation or by downloading from the HRF web site at www.hudsonriver.org/hep/carp.htm. Resources for the program are being provided by the Port Authority of New York and New Jersey, the US Army Corps of Engineers, the states of New York and New Jersey, and the Hudson River Foundation.

II. List of Tasks

A detailed Request for Proposals is attached. Proposals should include bids for the following tasks:

Preparation of QA documents

- 1.1 Review Quality Assurance Program Plans (QAPPs) and Field Plans of participating agencies; suggest changes to these plans as necessary (all QAPPs and Field Plans must be approved by the QA Officer)
- 1.2 Ensure that all relevant documents are distributed to all affected participants
- 1.3 Ensure that data reporting and deliverable requirements are communicated to all participants
- 1.4 Assist in the development of program Data Quality Objectives (DQOs)
- 1.5 Compile and review Standard Operating Procedures (SOPs) prepared by Principal Investigators, participating agencies, and subcontractors; suggest changes to these plans as necessary (all SOPs must be approved by the QA Officer)
- 1.6 Ensure that all SOPs are distributed to the appropriate CARP participants
- 1.7 Review and coordinate updates of SOPs at least biannually
- 1.8 Prepare and maintain an indexed catalog of all CARP SOPs
- 1.9 Prepare and disseminate overall Quality Management Plan document based on the above that will guide QA activities for the program

Oversight of QA Program

- 2.1 Perform on-site inspections of all field operations and analytical laboratories at the start of each project phase and periodically thereafter
- 2.2 Ensure that all personnel are adhering to QAPP protocols and SOPs
- 2.3 Implement and ensure adherence to reporting protocol that will allow for QA review of all technical activities
- 2.4 Document problems as they occur, define corrective action to address immediate problems, and identify modifications to procedures that will minimize future occurrences of the same problem
- 2.5 Coordinate project-specific intercomparison studies between laboratories
- 2.6 Conduct periodic reviews of field and laboratory records to ensure that QA protocols are being followed
- 2.7 Collect, summarize, and present to CARP Management Committee programmatic progress, problems, and suggestions for changes

Data Validation Activities

- 3.1 Develop Data Validation Plan
- 3.2 Ensure compliance with Data Validation Plan by all participating entities through audits and inspections
- 3.3 Assess data usability by conducting data validation on each data batch

III. Criteria for Evaluating Proposals

Proposals will be evaluated using the following criteria:

- Demonstrated ability and qualifications of the organization/individual to perform tasks outlined in RFP, including statement of other relevant work, both completed and ongoing.
- Merit of proposed approach to accomplishing objectives outlined in the RFP
- Likelihood of success in meeting stated objectives
- Cost

IV. Proposal Submittal Information

Proposals should be no longer than 20 pages and include the following elements:

- Cover Page (please use attached form)
- Main body of proposal – should be responsive to the RFP and should outline how all above tasks will be carried out
- Qualifications and CV(s) of project personnel (personnel minimum requirements are listed in the RFP)
- Statement of related experience of the contractor
- Budget broken down in two ways (on two attached budget forms)

Contract period: The contract duration will be one year, renewable for one year, and up to four six-month option year contracts may be awarded thereafter.

Deadline: Proposals (original plus 10 copies) must be received by the office listed below by close of business on XXXXX.

Contacts: Submit proposals to:

Dr. Dennis Suszkowski
Hudson River Foundation
40 West 20th Street
9th Floor
New York, NY 10011

For more information contact Dr. Suszkowski at (212) 924-8290 or dennis@hudsonriver.org.

Bidder Conference: All proposers are requested to attend a bidders conference at the office of the Hudson River Foundation on XXXX, at which further information will be distributed and questions addressed. Please call Dr. Suszkowski or Nancy Steinberg at the Hudson River Foundation for more information.

**Contaminant Assessment and Reduction
Program (CARP)**

Quality Assurance and Data Quality Assessment

DRAFT Request for Proposals

March 12, 1999

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Abbreviations and Commonly Used Terms

CARP - Contaminant Assessment and Reduction Program
CCMP - Comprehensive Conservation Management Plan
DQO - Data Quality Objectives
EPA - U.S. Environmental Protection Agency
MC - CARP Management Committee
MDL - Method Detection Limits
NYSDEC - NY State Department of Environmental Conservation
DMMIWG - Dredged Material Management Integration Work Group
HEP - Harbor Estuary Program
NJ - New Jersey
NJMR - Office of New Jersey Maritime Resources
NY - New York
NYCEDC - New York City Economic Development Corporation
NYD - New York District Corps of Engineers
PANY/NJ - Port Authority of New York and New Jersey
NJDEP - NJ Department of Environmental Protection
NJHDG - NJ Harbor Dischargers Group
PI - Principal Investigators
QAPP - Quality Assurance Project Plan
QMP - Quality Management Plan
RFP - Request for Proposal
SOP - Standard Operating Procedures
USACE - U.S. Army Corps of Engineers
USEPA - U.S. Environmental Protection Agency

1.0 CARP PROGRAM

1.1 CARP SCOPE AND OBJECTIVES

New York and New Jersey, with the support of federal and local agencies and private organizations interested in the improvement of New York-New Jersey Harbor, are conducting a contaminant identification and track-down program based extensively on the work of the Harbor Estuary Program ("HEP") in establishing a "Contaminant Assessment and Reduction Program" ("CARP")¹.

The ultimate objective of the CARP is to clean up the Harbor by reducing both contaminant loads in the Harbor and inputs into the Harbor. The goals will be accomplished through several key objectives:

- Quantify inputs of the contaminants of concern identified in the water, sediment, and biota

¹ In this document CARP refers to the estuary-wide contaminant reduction program. The sampling and analysis programs of the two states, defined in the Sources and Loadings of Toxic Substances to New York Harbor and the New Jersey Toxics Reduction Workplan are considered to fall under the umbrella of the CARP initiative. These work plans provide the basic template for the majority of the work being performed by the two states.

- Determine the relative importance of existing and future loadings of these contaminants in controlling bioaccumulation and sediment concentrations
- Provide dredged material managers with preliminary estimates of how long it will take for the quality of dredged sediments to improve
- Identify (track down) sources of the contaminants of concern and reduce associated discharges to the harbor estuary system
- Meet EPA and State contaminant regulations
- Develop Total Maximum Daily Loads (TMDLs) for the contaminants of concern
- Improve sediment quality (i.e., reduce the levels of contaminants present in sediments)
- Improve human and ecological uses of the estuary
- Produce data for natural Resource Damage Claims
- Develop and begin a long-term harbor monitoring program

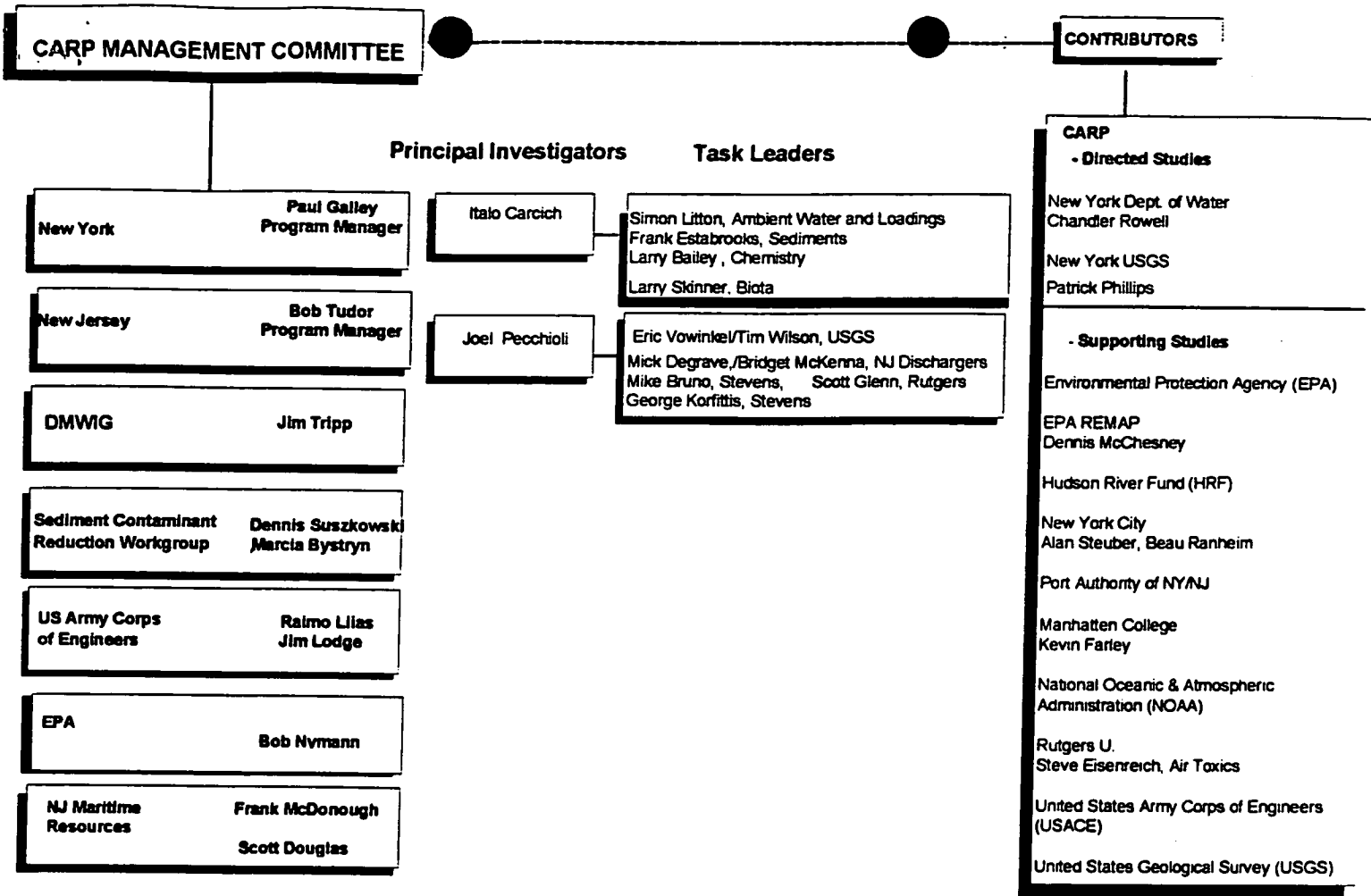
The scope of the CARP is to collect synoptic samples over a 24 – 48 month period in the New York and New Jersey Harbor estuary and tributaries. Water, sediment, and biota samples will be analyzed to determine the presence and concentrations of PCBs, dioxin, PAHs, and other contaminants of concern (Table 1.).

1.2 CARP Quality Assurance and Data Validation--Request for Proposal

The Quality Assurance Officer and Data Validation positions for the CARP program will be filled by the contracting person or firm selected from the proposals submitted under this request. Parties responding are required to present a plan for developing and implementing a Quality Assurance and Data Validation plan consistent with the tasks and standards specified below. The plan should detail the specific roles, responsibilities and interactions among contracting team members and CARP participants. Proposals should include detailed cost breakdowns specific to the task list of Appendix A. Costs should be broken down by years and where applicable by unit costs. It is expected that a one year contract will be awarded in May 1999, and May 2000, thereafter up to four six months option year contracts may be awarded. References below to the CARP QA officer should be deemed to refer to the person or firm (the "Contracting Party") that will fulfill both the QA and Data Validation responsibilities outlined below.

1.3 CARP ORGANIZATION

Clear lines of communication and definition of responsibilities are essential to the successful implementation and completion of this program. The CARP organization is composed of a Management Committee that oversees the activities of several participating agencies and Contributor organizations that are not directly represented on the Management Committee but who will contribute data and technical expertise to the CARP. Figure 1. details the participating members and organizations of the CARP program.



1.3.1 CARP QA OFFICER

It is the responsibility of the Quality Assurance Officer to ensure that all CARP participants are implementing the approved quality assurance program. The Quality Assurance Officer (QAO) administers the QA program. In this role the QAO monitors the implementation of the New York and New Jersey toxics reduction workplans, in order to assess compliance with the program. The QAO periodically reports the results of compliance to the respective states program management. The CARP Quality Assurance Officer shall carry out these responsibilities by assuring, under the direction of the Program managers that the participating agencies/contractors (i.e., the Project Managers and Sample Custodians) follow the quality assurance and data validation plan established pursuant to this RFP.

1.3.2 Project Coordinators

Project Coordinators are responsible for coordinating work between agencies and among projects to ensure consistency, and for communicating results, and management /implementation decisions, between the Management Committee (MC), the Principal Investigators (PI) and others.

1.3.3 Principal Investigators

The CARP Principal Investigators or their designees are responsible for ensuring that the policies and standards described in the QMP (Quality Management Plan) are implemented for CARP. Specifically, they ensure that

- an adequate Quality Assurance Project Plan (QAPP) is in place prior to the initiation of technical activities and has been distributed to the CARP team
- the requirements of the QAPP and QMP are implemented through effective organizing and planning to meet quality requirements
- SOPs which describe current practices are written, approved, available to staff, and provide training to ensure proficiency
- training needs are identified and addressed
- sufficient resources, both time and staff, are available to meet technical and quality objectives of projects
- All deficiencies identified by the QA Officer are adequately addresses
- all analytical laboratory data products are reviewed and approved according to CARP QMP guidelines before being released

1.3.4 Task Leaders

In most cases, Task Leaders will be assigned to supervise the day-to-day activities for CARP projects. Task Leaders are responsible for

- Organizing equipment, staff, and materials
- Providing technical direction in the performance of tasks
- Resolving day-to-day problems
- Directing task activities and monitoring performance to ensure adherence to technical and quality standards, budgets, and schedules
- Reviewing records and data associated with the tasks under their direction for accuracy, validity, and completeness
- Communicating problems, progress, and needs to the agency Principal Investigators

1.3.5 Laboratory Managers

Private contractor laboratories will conduct much of the analytical work being performed for CARP.

Each Laboratory Manager is responsible for:

- ensuring that the analytical procedures and QA activities conform with the requirements of the Carp Sops and/or the NYSDEC Analytical Services Protocols
- ensuring that a QA program is documented and implemented at the laboratory
- managing laboratory resources (staff, facilities, and equipment) to achieve the successful completion of CARP project in the laboratory
- reviewing the work performed by laboratory personnel who work on CARP samples, including preparation technicians and analysts
- ensuring that laboratory personnel are adequately trained to perform their CARP-related tasks
- reviewing the quality of the data products produced in the laboratory
- making sure that data deliverables conform in content and format to the requirements of the CARP SOPs and the CARP data management system.

2.0 CARP QUALITY ASSURANCE

Quality Assurance is a management tool whose purpose is to provide evidence to the producer or user of a product or service that it meets defined standards of quality with a stated level of confidence.[1] As such, the design of a QA program should be tailored to meet the needs of the program. Proposals must describe the quality control activities and procedures that will be used to produce consistent and reliable data, and the quality assessment activities and procedures that will be used to evaluate the quality of data produced. The quality assurance and quality control programs would be evaluated to ensure that all CARP environmental data collection activities are scientifically valid, and that the data so collected are complete, representative, comparable, and of a known and documented quality. These procedures, collectively, comprise the "Quality Assurance System" described below.

[1] Taylor, J.K., *Quality Assurance of Chemical Measurement*. (Chelsea, MI: Lewis Publishers, 1987)

2.1 QAO Officer Minimum Requirements

The Quality Assurance Officer (QAO) monitors the implementation of the CARP QA program, in order to assess compliance with the program objectives and the data quality objectives and reports the results of compliance to the program management. The CARP Quality Assurance Officer shall carry out these responsibilities by assuring, with the assistance of the Management Committee where necessary, that the participating agencies/contractors (i.e. the Project Managers, Principal Investigators, Task Leaders, Laboratory Managers and Sample Custodians) follow the quality assurance and data validation plan established pursuant to this RFP.

The bidder must specifically identify the personnel who will be dedicated to this QA program and these personnel must meet the following qualifications:

1. Be independent of the technical work being performed for the program
2. Have a masters or higher degree in chemical, physical, or environmental science from an accredited institution

3. Have professional affiliations and training in the quality assurance profession
4. Have at least 5 years of experience as the QA officer of large environmental programs.
5. Have at least 6 months experience in either generating or reviewing high resolution mass spectrometry/GC (with isotopic dilution) data
6. Have a minimum of 1 year experience either generating or reviewing data from the analytical procedures used by both states (see the workplans appended to this RFP)

2.2 Deliverables needed for the program

In establishing the comprehensive CARP Quality Assurance and Data Validation Plan discussed in Section 1 above, there are a number of tasks, documents and reports that will need to be generated and/or reviewed by the contracting party. These tasks, documents and reports are listed in the following subsections and described in greater detail in section 2.3, below entitled "Quality Assurance System."

2.2.1 Prepare and/or review Quality Assurance Documents

In conjunction with the two states, prepare the Quality Management Plan (QMP) and review the Quality Assurance Project Plans (QAPPs), Field Plans, Standard Operating Procedures (SOPs) relating to the field and laboratory work being performed by the participating agencies. Provide additional efforts such as:

- Suggest revisions to these documents as needed
- Ensure that program documents are distributed to all effected participants
- Assist in refining the program Data Quality Objectives (DQOs) and required Method Detection Limits (MDLs) if necessary
- Ensure that data reporting and deliverable requirements are adequately defined and communicated to the laboratories and that statistical control has been achieved.

2.2.2 Provide for the Implementation of the QA Program

The CARP QA Officer must provide for the implementation of the QA Program described in the QMP by communicating program requirements to the Principal Investigators or the state's QA Officer, and by reviewing QAPPs and actual field and lab practice to ensure that the procedures are consistent with the respective CARP and State programs and policy. The QA Officer must also establish procedures for assessment and review the effectiveness of the QA Program to identify areas for modification or improvement.

2.2.3 Prepare and/or review of Standard Operating Procedures

Review the Standard Operating Procedures (SOPs) relating to the field and laboratory work being performed by the participating agencies. Provide additional efforts such as:

- Compile and review program-wide standard operating procedures
- Review contractor SOPs to ensure that they are accurate, technically sound, of sufficient detail, and consistent.
- Perform audits of technical activities to ensure that technical activities are being performed in compliance with the requirements of the SOPs, and report any identified nonconformance to the program manager.
- Develop and implement a system that provides for all involved parties to approve/sign-off on all SOPs and any subsequent revisions

2.2.4 Manage the Quality Control Program

Manage the Quality Control Program including:

- Coordinate project-specific intercomparison studies between laboratories
- Ensure that labs participate in a performance testing program where the lab measurement process is stabilized, evidenced by the ability of the data to attain a limiting mean and a stable variance of individual values about it. This process will involve looking for measurement violations such as instabilities, drifts, and similar malfunctions.
- Establish and maintain quality control charts to assess data acceptance against the program criteria and to monitor quality control trends

2.2.5 Oversee program documentation

Manage and maintain the necessary QA and Data Validation documents including:

- A system that provides for all involved parties to approve/sign-off on all SOPs and any subsequent revisions.
- Establish and administer a document control program
- For the database, ensure that a change-control program is implemented
- Ensure that a comprehensive database dictionary is developed and maintained
- Ensure that the CARP data base is accurately maintaining all needed information

2.2.6 Manage Data Quality Assessment and Data Validation Activities

The QAO will oversee the data quality assessment described in detail in section 3 including:

- Oversee routine verification activities
- Perform field and lab audits
- Perform program-wide validation

2.3 QUALITY ASSURANCE SYSTEM

At a minimum the CARP quality assurance system is comprised of a:

- Quality Management Plan that defines the program QA policies and procedures
- task or matrix-specific QAPPs that define the specific technical procedures that will be used to collect data for the CARP
- standard operating procedures that document how technical procedures will be performed for the program
- data quality objectives (DQOs) that establish uniform acceptance criteria, and therefore data comparability, where ever possible
- a detailed deficiency tracking system and corrective action program to document compliance with the QMP, QAPPs, Field Plans, and SOPs

2.3.1 QUALITY MANAGEMENT PLAN

The QAO must prepare, in conjunction with CARP PIs, a Quality Management Plan (QMP) which defines the QA program. This QMP will reference the individual components, QA policies and procedures that together make up the QA program.

2.3.2 REVIEW OF QAPPS

The CARP QA Officer will review the QAPPs submitted by participating agencies to identify areas of comparability, potential non-uniformity and completeness, and will otherwise assure establishment of, and compliance with, appropriate QAPPs.

- The QAPP identifies the roles and responsibilities of personnel who are responsible for implementing the technical procedures defined in the QAPP.
- The QAPP identifies the specific technical procedures that will be used to accomplish the objectives of the project. Routine procedures are described in approved SOPs. Modifications to standardized procedures (SOPs) are specified in the QAPP. Unique (non-routine) procedures are either described in detail in the QAPP or by reference to the scientific literature.
- Training requirements are identified by the agency Principal Investigator, Task Leaders, or Laboratory Manager during development of the QAPP.

2.3.3 STANDARD OPERATING PROCEDURES

Standard operating procedures must exist for all field and laboratory procedures used for CARP. The need for SOPs at the program level is identified during preparation of the QAPP because SOPs must be cited in the QAPP for all technical procedures. The CARP QA Officer will review the SOPs submitted by participating agencies to identify areas of comparability, potential non-uniformity, and completeness, and will otherwise assure establishment of and compliance with appropriate SOPs. Activities that must be performed uniformly by more than one participant (e.g., analytical procedures) must be described in one SOP or approved method that is followed by all participants. In other cases it is expected that each organization will prepare SOPs that define internal procedures (e.g, sample receipt and custody).

2.3.3.1 Responsibilities for the Preparation and Management of Standard Operating Procedures

The CARP QA Officer is responsible for:

- identifying the need for program-wide SOPs and for facilitating the review and approval process
- reviewing SOPs to ensure that they are complete, and approving completed SOPs
- maintaining a catalog of all approved SOPs with an index
- ensuring that CARP-wide SOPs are distributed to all appropriate participants and to the State QA Officers
- ensuring that CARP-wide SOPs are reviewed at least biannually and updated as needed
- establishing procedures that allow for control of CARP-wide SOPs such that outdated SOPs can be tracked and replaced with updated versions

2.3.4 DATA QUALITY OBJECTIVES (DQOs)

A primary goal of the CARP QA program is to assist in the establishment of uniform DQOs and in the verification of compliance with the QMP, QAPPs, Field Plans, and SOPs (as appropriate) to ensure that data produced for the program will be statistically sound: quantitatively accurate, representative of the population parameter, complete and comparable. This is particularly

important with the advent of performance based methods because method comparability will be assessed on the basis of quality control criteria rather than strict conformance to the method

Data quality objectives will be defined for each analysis based on the needs of the data users and analytical capabilities of the methods. A major responsibility of the QA Officer is to verify that the DQOs are being met, and if they are not being met, to communicate same to the respective state Program Manager. Corrective actions must be documented to identify when deficiencies were first observed and the subsequent actions taken to correct them. The QAPP will define the quality control samples and acceptance criteria for each technical activity. Each QAPP must include a table that specifies the acceptance criteria for quality control samples on a matrix, compound (or compound class), and QC sample basis (e.g., water, naphthalene, duplicate), and the corrective action that will be implemented if DQOs are not attained.

2.4 PROCUREMENT OF ITEMS AND SERVICES

Each QAPP should define the level of quality required for goods and services purchased for use on CARP. The QA officer will ensure that the procurement of items and services are consistent with the applicable QAPP.

2.5 DOCUMENTATION, RECORDS AND DATABASE

The QA officer should ensure that the documentation of all technical activities be sufficient to provide a complete written history of each sample. In order to ensure that data are traceable and legally verifiable documentation for field records, sample labeling, chain of custody, handling, processing, analysis, and data reduction, and database management must be complete, consistent, and prescriptive. A responsibility of the QA Officer will be to verify that the field data collection procedures specified in the applicable QAPP are correctly implemented. In addition, the contractor must develop and implement a deficiency-reporting system, which includes a record-keeping component.

The data produced under this program, the CARP database, is maintained and managed by Battelle. Organizations responsible for generating data within CARP are expected to submit their findings for inclusion in the CARP data base. Field teams will report sample collection information, such as date, time, location, collection details, sample characteristics and custody information. Results from automated sampling devices, such as current meters, will be reported by Principal Investigators. Laboratories will report electronic versions of their findings.

2.6 FIELD DATA

The QAO, working with the particular CARP PI, should ensure that each field collection trip record the necessary information and that the applicable QAPP are correctly implemented. In addition, the contractor must ensure that the required information is reported and stored in the CARP database.

2.7 LABORATORY DATA

The QA Officer should ensure that the laboratory records include the necessary information as outlined in the SOPs. The QA Officer will be responsible for developing a QA/QC SOP component to review the laboratory records. The QA Officer must ensure that the Laboratories are reporting their findings and the necessary information is accurately maintained in the electronic versions maintained in the CARP Database.

2.8 PERFORMANCE REVIEW AND FUTURE PLANNING EFFORTS

Program reviews and planning efforts will be initiated by the CARP Management Committee to assess progress, identify problems, and integrate QA planning as corrective action for future work. The QA officer will collect, summarize and present CARP program wide information to the CARP group quarterly, detailing program progress and problems. In the event that a problem require immediate attention, the QAO must alert the particular PI within 72 hours, in order that the problem can be expeditiously resolved.

2.9 QUALITY IMPROVEMENT

2.9.1 PREVENTING AND MINIMIZING PROBLEMS

The QA officer will strive to prevent and minimize problems through the development of a thorough QMP, and detailed QAPPs, field plans and SOPs. Each agency participating in the CARP will strive to prevent and minimize problems by requiring appropriate planning and training before technical activities begin.

2.9.2 DETECTING AND CORRECTING PROBLEMS

The QA Officer in conjunction with the Principal Investigator must review QA project activities at the beginning of each project phase, and routinely throughout the project to ensure that the project is meeting the stated DQO objectives. Staff performing technical activities must review work products, including quality control results, so that analytical problems can be detected within 72 hours of their appearance, so that the resultant analytical problems can be addressed and corrective action taken. Staff should report internal audits and problems to the QA Officer for review. The QA Officer is responsible for reporting all problems that might impact data quality to the State Program Managers and the CARP Management Committee.

Data audits and Performance Evaluation Samples detect calculation and analytical errors. The data review process assesses the technical validity of a study. The validation procedures (Section 3) identify data quality and usability problems. The QA Officer is responsible for developing nonconformance reports for any and all problems encountered. These reports will be filed simultaneously with the respective state Principal Investigator(s) and Program Manager(s). The Principal Investigator(s) is responsible for taking actions to correct the nonconformance, and reporting these actions to the Program Manager. The QA Officer will review the implementation of these corrective actions to ensure they are being done, and will report back to the Program Manager. Quarterly CARP MC reviews will identify global program issues that should be addressed for the program.

2.9.3 CORRECTIVE ACTION PROGRAM

Although problems are unavoidable, they may be regarded as learning tools and opportunities for improvement if effective correction is implemented to prevent reoccurrence. The QA Officer will ensure that project personnel document problems as they occur, define corrective action to address the immediate problem, and identify modifications to procedures that will minimize future occurrences of the same problem. The QA Officer should review any third-party audits of the field work and/or laboratory analyses (including laboratory or investigator self assessments and contracted assessments). This includes round-robin testing and standard reference materials analyses required as part of the certification to any state or federal agency. Any observed problems should be reported to the appropriate state Program manager within 72 hours. The

effectiveness of the corrective action program is maximized when problems and solutions are communicated to the rest of the CARP team so that similar problems are avoided by other team members.

3.0 DATA QUALITY ASSESSMENT

3.1 TECHNICAL ASSESSMENTS

In order to assure comparability of data generated by participating agencies, technical assessments must be incorporated into the QA system. Four types of assessment are identified.

3.1.1 Self-Assessments

Each laboratory and participating agency is responsible for the technical review of data submitted to the CARP (Battelle) data management system. Technical review includes assessment of data "reasonableness" and a review of entire data sets for a station of sampling period to identify outliers or anomalies that require further investigation.

Each lab and participating agency is also responsible for performing management assessments. During these assessments, the QA system is reviewed vs. issues identified during other audits or assessments in order to judge the effectiveness of the quality system and corrective action program.

Management assessments should be performed in each laboratory by the laboratory's management. Reports generated by the laboratory should be sent to the QA Officer for review.

3.1.2 Independent Assessments

Each laboratory is responsible for the quality of data it produces. The laboratory is responsible for ensuring that data audits are performed so that calculation and transcription errors are identified and corrected. Ideally, a person acting in the quality assurance role who is independent of the analyses performs these audits.

Independent data reviews are a critical component of any environmental program. Data reviews are accomplished at two levels, data audits (verification) and data assessment (data validation). Thus, the responsibility for these reviews is shared between the facility that generates the data and the data user where the data user reviews the data for accuracy and attainability. Reports generated by the laboratory should be sent to the QA Officer and to the appropriate PI responsible for the Lab contract for review.

3.2 Data Verification and Validation

3.2.1 Data Verification

Data accuracy and completeness are assessed through routine data audits, a requirement for each participating laboratory. An independent Quality Assurance officer at each laboratory must perform these audits. The laboratory is responsible for verifying that data are reported for all samples that are received (completeness) and that the data reported are traceable and correct (accurate). The laboratory is responsible for assigning data qualifiers to data that do not meet the DQOs defined in the QAPP.

In addition to the verification performed by the laboratories, the NY DEC QA Officer intends to review the first three isotopic dilution data packages submitted by each laboratory to verify conformance with the method, appropriate documentation, and to assess the effectiveness of the internal laboratory review. Once three packages from a laboratory are found acceptable then every tenth package will receive a secondary review by NY DEC.

The above described QA activities will be implemented by the CARP QA Officer in association with the two states' QA representatives. For example, the CARP QA Officer will assist QA representatives from New York and/or New Jersey in the conduct of on-site audits of field/sampling teams and analytical laboratories participating in the CARP Program. The CARP QA Officer will prepare written summaries of audit findings and recommendations for corrective actions, which will be forwarded to the appropriate project investigator and NY or NJ QA representative. The state QA representative will be responsible for preparing a response to the noted deviations, stating how corrective actions have been implemented, or why such corrective actions are not being implemented. The CARP QA Officer will summarize the results of this process, including a discussion of outstanding issues, for the CARP Management Committee and the state Program Managers, on a regular basis.

3.2.2 Data Validation

The QA officer will coordinate and manage the Data Validation program. This includes the development and implementation of a Data Validation Plan. The purpose of data validation is to assess data quality as it relates to "usability." Data of very poor quality may be faithfully reported but may be of little validity if the quality control data are unacceptable. Data validation encompasses two broad categories: the assessment of data for contractual compliance, and an assessment of data usability. The former activity is primarily the responsibility of the laboratory although for CARP the CARP QA Officer will independently validate compliance through audits and inspections; the latter is the direct responsibility of the Program QA Officer.

3.3 Suggested Frequency of Data Verification and Validation Activities

Each laboratory must have a documented procedure for conducting data audits. For CARP, every data deliverable must be audited.

The CARP QA Officer along with representatives from New York and/or New Jersey will conduct laboratory and field inspections for compliance validation. These inspections must be performed at a frequency sufficient to ensure that the program requirements are being met. Therefore, it is suggested that field and laboratory inspections be conducted within the first three months of the program for each type of field survey (e.g., TOPS deployment and collection, benthic community grab sample collection) and each critical analysis. [The QAPP outline (Draft Quality Management Plan 9/23/98), suggested that data be identified as critical and non-critical]. A second inspection should be conducted every six months thereafter unless the audit and inspection results indicate that additional follow-up is needed.

Data validation should be conducted on every new data batch received from CARP participants and may be implemented using the tiered approach suggested in Table 1. Validation should be a combined electronic-manual process depending on the data tier. Supporting data gathered during the data verification activities will be used to assign the final data validation qualifiers.

3.4 Implementation of Data Validation Plan

Data validation should be performed under the direction of the CARP QA Officer. The results of quality control data and QC qualifiers are reviewed for each analytical batch and compared with the associated field data. Data are determined to be acceptable, usable with caution, or unusable based on the results of this review. The data validation procedures and the data assignment of validation qualifiers will be semi-automated and described in a Standard Operating Procedure that should be prepared by the CARP QA Officer.

3.5 Prerequisites for Data Validation

The intensity of data validation for CARP is based on the intended use of the data. Development of a data validation plan will follow the program design. Therefore, the following program elements must be defined by the States:

1. The intended use of the data
2. The analytical methods
3. The data quality objectives (which may differ depending on the intended use and analytical method).

3.6 Intended Use of the Data Generated for CARP

The intended use of the CARP data are identified in section 1.1 and are documented in individual plans (supporting documents A and B). Identification of appropriate analytical methods should be based on the required accuracy, precision, and method detection limits. In addition, data quality objective should be determined by the intended use, not by expected method performance. Once these elements are defined then the validation criteria for compliance and data usability can be established. The data validation procedures will be designed to meet the program goals and requirements for data quality. The proposed validation plan for CARP is outlined in Section 3.7. The application of each validation activity is illustrated in Table 1 for the three generic data uses.

3.7 Validation Activities

The level of effort that data validation will require is based on the total number of analytical batches and the number of critical analyses. It is anticipated that some level of validation will be performed on every batch. Table 1 illustrates an example of a tiered approach.

3.7.1 Validation for Compliance

Compliance validation activities will include:

1. Independent data audits of subset of reported data (electronic deliverable vs. raw data)
2. Independent audits (inspections) of field and lab activities

3.7.2 Validation for Data Usability

Data usability assessments will include:

1. A data assessment for “reasonableness and comparability.” CARP Oracle Database including SDG results within 1 week of completed results from labs
2. Review of data completeness vs. the field collection records and the required database field
3. Compliance with quality control requirements:
 - <20 field samples/batch
 - Results are reported for the QC samples that are required for each batch
 - Results of QC samples met the program DQOs
4. The analytical batch met the minimum QC requirements
Data for a sample processing batch are rejected if the method blank, laboratory control sample [also called blank spike or operating precision and accuracy (OPR) sample], or standard or certified reference material (SRM/CRM) analysis fail or if any three quality control criteria fail for a sample or batch.
5. Verify that samples were extracted and analyzed within the required holding times.
6. Review the results of performance evaluation samples.
7. Review of laboratory QA/QC narrative and determine the affects of quality control issues or deviations on data usability.
8. Review control charts for out-of-control results.
9. Assign validation qualifiers (acceptable, usable with caution, or unusable) based on the results of data validation.

Table 1. Implementation of Data Validation for CARP using a 3-Tiered Approach

Validation Activity	Intended Data Use		
	TIER 1 Compliance Testing Litigation Support	TIER 2 Rule, Regulation, or Policy-making	TIER 3 Feasibility Studies Preliminary Assessments Monitoring Studies
VALIDATION FOR PROGRAM COMPLIANCE			
1. Data audits	✓	✓	✓
2. Field and lab inspections	✓	✓	
VALIDATION FOR DATA USABILITY			
1. Reasonableness review ²	✓	✓	✓
2. Completeness			

² ⚙ Indicates that this validation activity can be automated.

review ☉	✓	✓	✓
3. Quality control sample compliance ☉	✓	✓	✓
4. Quality control sample acceptability ☉	✓	✓	✓
5. Holding times ☉	✓	✓	✓
6. Review performance evaluation results ☉	✓	✓	✓
7. Review of QA/QC narrative	✓	✓	
8. Control charts review	✓		
9. Assign validation qualifiers	✓	✓	☉✓

4.0 LOGISTICS

4.1 Schedule for QA RFP

March 10	Complete RFP review
March 16	RFP finalized
March 18	RFP released to known interested parties, environmental websites and Environmental Testing and analysis Journal.
April 1	Bidders Conference at Hudson River Foundation
April 16	Proposals due
April 20	Proposal selection committee meeting
April 25	QA RFP awarded
60 days from award	Preparation of the QMP
30 days from award	Review of existing SOPs
30 days from QMP approval	Preparation/review of the QAPPs
30 days from award	Review of the Field Plans
90 days from award	Preparation of the Data Usability SOP
90 days from award	Preparation of the Data Validation Plan

4.2 Bidders Conference

The Bidders Conference is scheduled for April 1. This is the opportunity for interested parties to ask questions to clarify the RFP. The conference will be held in New York at the Hudson River Foundation, 40 west 20th St. New York, NY. Parties may attend in person (limit three people / proposal package) or through conference call arranged by Nancy Steinberg (212) 924- 8290. Parties still interested in submitting proposal packages must submit this intention in writing by March 25.

4.3 Selection Criteria

- 1. Professional affiliations, training and experience of the personnel who will be performing the work outlined in the RFP, the amount of time each personnel will dedicate to this quality assurance program, and the organizational structure of the responding party.**
- 2. Ability and previous experience with regard to large scale Quality Assurance projects.**
- 3. Approach and technical design of the QA program.**
- 4. Ability to design, integrate and manage a multi-disciplinary approach to the QA requirements outlined in the RFP.**
- 5. A proven design including documentation of past strategies and logistics used to accomplish similar tasks within established timeframes.**
- 6. Cost**

CARP Quality Assurance and Data Quality Assessment Tasks

Task	Sub-Task	Hours / week	# of weeks	Cost/HR	Cost	
Preparation of QA Documents	1	Review QAPPs and Field Plans of participating agencies; suggest changes to these plans as necessary (all QAPPs and Field Plans must be approved by the QA Officer)	10	10	\$70.00	\$7,000.00
	2	Ensure that all relevant documents are distributed to all affected participants	2	8	\$70.00	\$1,120.00
	3	Ensure that data reporting and deliverable requirements are communicated to all participants	6	4	\$70.00	\$1,680.00
	4	Assist in the development of program DOOs	6	8	\$70.00	\$3,360.00
	5	Complete and review SOPs prepared by PAs, participating agencies, and subcontractors; suggest changes to these plans as necessary (all SOPs must be approved by the QA Officer)	6	12	\$70.00	\$5,040.00
	6	Ensure that all SOPs are distributed to the appropriate CARP participants	2	4	\$70.00	\$560.00
	7	Review and coordinate updates of SOPs at least biannually	8	4	\$70.00	\$2,240.00
	8	Prepare and maintain an indexed catalog of all CARP SOPs	2	12	\$70.00	\$1,680.00
	9	Prepare and disseminate overall Quality Management Program document based on the above that will guide QA activities for the program	6	18	\$70.00	\$7,560.00
Oversight of QA Program	10	Perform on-site inspections of all field operations and analytical laboratories at the start of each project phase and periodically thereafter	8	70	\$70.00	\$39,200.00
	11	Ensure that all personnel are adhering to QAPP protocols and SOPs	8	12	\$70.00	\$8,720.00
	12	Implement and ensure adherence to reporting protocol that will allow for QA review of all technical activities	8	4	\$70.00	\$2,240.00
	13	Document problems as they occur, define corrective action to address immediate problems, and identify modifications to procedures that will minimize future occurrences of the same problem	8	12	\$70.00	\$8,720.00
	14	Conduct periodic reviews of field and laboratory records to ensure that QA protocols are being followed	8	12	\$70.00	\$8,720.00
	15	Collect, summarize, and present to CARP Management Committee programmatic progress, problems, and suggestions for changes	16	8	\$70.00	\$8,960.00
Data Quality Assessment (QA OFFICER)	16	The CARP QA Officer along with representatives from New York and/or New Jersey will conduct laboratory and field inspections for compliance verification	16	18	\$70.00	\$20,160.00
	17	Prepare written summaries of audit findings and recommendations for corrective actions	8	18	\$70.00	\$10,080.00
	18	Create the Data Validation Plan including the development of SOPs for the data validation procedures and the data assignment of validation qualifiers	8	24	\$70.00	\$13,440.00
Total Cost:					\$131,320.00	
	Sub-Task	Auditable Units	Hours	Cost/Hr.	Cost	
Task	19	Perform a data assessment for "reasonableness and comparability." (May be submitted through links to the CARP Oracle Database) including SDQ results within 1 week of completed results from site	1180	0.5	\$70.00	\$41,300.00
Data Quality Assessment (Data Validation Personnel)	20	Review of data completeness vs. the field collection records and the required database field	1180	0.25	\$70.00	\$20,650.00
	21	Assess compliance with quality control requirements	1180	0.25	\$70.00	\$20,650.00
	22	Verify that the analytical batch met the minimum QC requirements	1180	0.25	\$70.00	\$20,650.00
	23	Verify that samples were extracted and analyzed within the required holding times	1180	0.25	\$70.00	\$20,650.00
	24	Review the results of performance evaluation samples	1180	0.5	\$70.00	\$41,300.00
	25	Review of laboratory QA/QC narrative and determine the effects of quality control issues or deviations on data usability	1180	0.25	\$70.00	\$20,650.00
	26	Review control charts for out-of-control results	1180	0.5	\$70.00	\$41,300.00
	27	Review instrument calibration results	1180	0.5	\$70.00	\$41,300.00
	28	Assess Data Reasonableness	1180	0.5	\$70.00	\$41,300.00
	29	Assign validation qualifiers (acceptable, usable with caution, or unusable) based on the results of data validation	1180	0.5	\$70.00	\$41,300.00
	30	Write QA narrative	1180	0.75	\$70.00	\$61,950.00
Hours/Batch:				5	Total Cost:	\$413,000.00
Program Total:					Cost	\$644,320.00

		Sub-Task	Auditable Units	Unit/Cost	
Task	19	Perform a data assessment for "reasonableness and comparability." (May be automated through links to the CARP Oracle Database) including SDG results within 1 week of completed results from labs	1180		
Data Quality Assessment (Data Validation Personnel)	20	Review of data completeness vs. the field collection records and the required database field	1180		
	21	Assess compliance with quality control requirements	1180		
	22	Verify that the analytical batch met the minimum QC requirements	1180		
	23	Verify that samples were extracted and analyzed within the required holding times	1180		
	24	Review the results of performance evaluation samples	1180		
	25	Review of laboratory QA/QC narrative and determine the affects of quality control issues or deviations on data usability	1180		
	26	Review control charts for out-of-control results	1180		
	27	Review instrument calibration results	1180		
	28	Assess Data Reasonableness	1180		
	29	Assign validation qualifiers (acceptable, usable with caution, or unusable) based on the results of data validation	1180		
	30	Write QA narrative	1180		
				Total Cost	
				Program Total Cost	

4.4 Number of samples and estimation of auditable groups.

The table below represents the current estimate for the number of samples. It does not include any estimation for NJ Phase 2 or Phase 3 samples.

Auditable Units Calculation							
Program		samples	samples/ba tch	Batches	Auditable Batches (Round Up)	Tested Contaminant Groups	Total Auditable Batches
NY Biota	Zooplankton	45	20	2.25	3	7	21
	Inverts	216	20	10.80	11	7	77
	Fish	1530	20	76.50	77	7	539
	Cormorants	80	20	4.00	4	7	28
		40	20	2.00	2	2	4
NY Sediment 2000	Surfical	50	20	2.50	3	6	18
	Cores	250	20	12.50	13	6	78
NY Sediment 2001	Surfical	63	20	3.15	4	6	24
	Cores	250	20	12.50	13	6	78
NY Water	Grab	112	20	5.60	6	3	18
	XAD/TOPS	112	20	5.60	6	3	18
	TOPS Filters	112	20	5.60	6	3	18
	POTW/CSO	112	20	5.60	6	3	18
	PISCES	514	20	25.70	26	2	52
NJ Water Phase 1	Grab+ QA(76)	314	15	20.93	21	3	63
	XAD/TOPS Filters+ QA(76)	314	15	20.93	21	3	63
	TOPS Filters + QA(76)	314	15	20.93	21	3	63
Total							1180

4.5 Oversight of QA and Preparation of QA Documents Task List