PERFORMANCE WORK STATEMENT
FOR

"Quality Assurance and Site Management for the EPA Radiation Monitoring Network"

1. BACKGROUND:

Under the direction of the U.S. Environmental Protection Agency (EPA), Office of Research and Development (ORD), the Ultraviolet Research Monitoring Program is currently operating a nationwide Ultraviolet (UV) monitoring system in cooperation with the National Park Service (NPS) under Interagency Agreement DW14939466-0 1. This network currently employs a particular type of instrument known as the Brewer Spectrophotometer, manufactured by SCI-TEC Instruments (now Kipp and Zonen) in Saskatoon, Saskatchewan (Canada). Presently, there are 21 Brewers operating in this EPA/NPS cooperative network which measure UV radiation, total column ozone, total column sulfur dioxide, optical density of the atmosphere, and provide other measurements from which the stratospheric ozone profile can be derived. The customers for the UV data obtained from the network are ORD, NPS, the National Weather Service (NWS), EPA's Office of Air and Radiation (OAR), and scientists doing ecological and health effects assessment work and atmospheric radiation research.

The UV network is comprised of 21 sites located in 14 U.S. National Parks and 7 urban areas around the U.S. All 21 sites have operational Brewer Spectrophotometers and the current plan is to maintain all 21 sites. The Brewer Spectrophotometer operational configuration includes a computer to collect the UV data and a telephone connection which facilitates data retrieval. A site operator is on duty at each site to perform routine duties related to Brewer operation. All site operators are supplied and funded by EPA or NPS under separate agreements. Turnover of operators may necessitate training by the contractor. Many of the sites are in remote locations of National Parks, presenting logistical problems, and the site operators should not be presumed to have strong technical backgrounds.

Given that a Brewer and a site operator are in place, a successful contractor must manage all aspects of the daily UV data retrieval from the network in order to obtain, in a timely manner, a high capture rate of quality assured data. The contractor must provide regular communication, guidance and support to the site operators involving daily operations, calibrations, and maintenance. On a daily basis, UV data shall be retrieved by telephone from each site, reduced/analyzed, subjected to a first-level of screening for quality, corrected, and stored in a central data base. Potential problems shall be identified and remedial actions taken. Corrected, quality assured data shall be capable of being posted to an FTP site. The contractor must develop efficient and effective methods for managing equipment problems, consumables and spare parts in order to keep the network in operation and producing high quality data.

The U.S. EPA maintains a web site (http://www.epa.gov/uvnet/). This website contains information about each site and it also contains the Level 1-corrected UV data collected from each of Brewer sites. The website does not contain information on the repair/maintenance history/status of the Brewer sites. Repair/maintenance/operational status information about the Brewer sites is given in an e-mailed weekly report (for all sites) and in e-mailed site-specific reports (sent on an as-needed basis) which are distributed to all site operators and to key personnel involved in the management of the UV network. In addition, a set of background material on the EPA/NPS monitoring network will be available on two CDs available to any potential bidder on this contract. The background material on the CDs includes:

(1) all network Standard Operating Procedures
(2) temperature dependency files for all Brewers
(3) cosine response files for all Brewers
(4) all response files and audit response files from 1000W lamp calibrations
(5) Brewer operation and service manuals
(6) example of all raw data files from a Brewer for one day
(7) relevant publications

2. SCOPE:

The contractor shall provide the necessary personnel, facilities, and equipment, except any equipment provided as government furnished equipment (GFE)/government furnished property (GFP). The contractor shall perform all actions necessary to provide quality assurance/quality control, field support, maintenance, data reduction/analysis, and data archiving to a UV monitoring network consisting of 21 Brewer Spectrophotometers. The final output from the contractor shall be a complete, readily-accessible UV data set from the network that has passed the quality assurance/quality control of the Quality Assurance Project Plan developed by the contractor. Specific tasks involved in this support contract are indicated below.

3. TASK DESCRIPTIONS:

3.1 Quality Assurance/Quality Control (QA/QC)

3.1.1 Quality Assurance Project Plan: Within 60 days of award of this contract, the contractor shall complete and submit to the EPA Project Officer for approval a complete Quality Assurance Project Plan (QAPP) in the format required (see www.epa.gov/quality). Within the QAPP, the contractor shall propose to EPA the process/procedures by which they shall meet the following performance standard goals:

(i). Ninety percent raw data collection for each site per month. This includes all data, even those QC/QA data generated by site operator.

(ii). The UV and DUV (Diffey-Weighted Ultraviolet Irradiance) data shall be traceable to 1000W NIST standard lamps and be within +/- 3 percent of the standards for wavelengths above 300 nanometers 85% of the time.

(iii). Ninety-five percent of the recovered UV data shall be QA/QC-ed and corrected within three months after the last response function is determined by calibration at a particular site.

3.1.2 Quality Assurance Reports: The contractor shall send documentation of the QA/QC activities, site operations, and maintenance problems to the EPA Project Officer, the NPS Program Manager, and the Parks Research and Intensive Monitoring of Ecosystems Network (PRIMENet) Program Manager on a weekly basis through e-mail messages and quarterly through written reports.

3.1.3 Instrument Calibration: The contractor shall calibrate the UV intensity measurements of the Brewer instruments on a yearly basis against a NIST-traceable 1000 Watt standard lamp. This calibration shall consist of the Brewer being compared to a NIST standard lamp mounted in the horizontal position. The calibration can be performed in the contractor's laboratory if the Brewer has been shipped there for repair. Normally, this calibration shall be performed at the site by the use of a field calibration unit. A field calibration unit may be transported to the field site by the contractor and a calibration performed on-site. These field calibration units shall have lamps calibrated against NIST standards and shall adhere to the accuracy and precision specified by the Central UV Calibration Facility (CUCF) operated by the National Oceanographic and Atmospheric Administration (NOAA) in Boulder, CO. Once a Brewer is calibrated against a NIST standard lamp and returned to a field site, it must remain there unless it is no longer operational and must be shipped to another location for repair. Yearly audits, site operator lamp checks, and mercury and standard lamp scans built into the daily schedule shall be applied by the contractor to provide sufficient quality control to determine the accuracy of the data for any time frame.

3.1.4 Equipment Quality Assurance Procedures: Each Brewer has a set of 5 external QA/QC lamps that are located at their respective sites. As a means of maintaining an on-site, external to the Brewer, quality control check, a series of two of the five lamps are to be tested every two weeks by the site operator. To maintain continuity and to prevent lamp deterioration, the lamps are rotated with only one of the previous week's lamps being used for the next QA/QC check. The station operator is required to perform these checks biweekly and the contractor shall maintain an up-to-date statistical process control plot (control charts) of these checks on a site-by-site basis and to ensure that the external lamp calibrations are done on the prescribed schedule and take any corrective actions as deemed necessary to maintain QA/QC standards. Quality control charts (statistical process control charts) are used to determine if a process is functioning within specified limit values related to the quality of a product or process.

3.1.5 Ozone Field Calibration: Currently, only the UV monitoring input channel of the Brewer Spectrophotometer is being referenced against a known standard. Within the first three months of award of this contract, the contractor shall investigate the efficacy of using a portable ozone instrument for relating each of the field Brewers to the Atmospheric

Environment Services (AES) Brewer Triad in Toronto, Canada. The contractor shall consult with AES on the development of the Standard Operating Procedure (SOP) for calibrating and operating a portable ozone instrument. During the basic year of the contract, the contractor shall fund one trip for one person up to 2.5 weeks to the AES Triad in Toronto, Canada to develop an SOP for calibrating and operating a portable ozone instrument and to develop a process for comparing the portable ozone instrument to the AES Brewer Triad calibration standard(s). During option year one, the contractor shall fund two trips for one person for up to two weeks to compare the portable ozone instrument to the AES Brewer Triad calibration standard(s) prior to using the portable ozone instrument to calibrate the Brewers in the field for total column ozone measurements. During option year two, the contractor shall fund two trips for one person up to two weeks to compare the portable ozone instrument to the AES Brewer Triad calibration standard(s) prior to using the portable ozone instrument to calibrate the Brewers in the field for total column ozone measurements. Within one year of developing the portable ozone instrument, the contractor shall develop and document the SOP and submit it to the Project Officer for review and approval. If the SOP is approved by the Project Officer and it is successful in providing field calibrations of Brewers for total column ozone measurements, the Brewers shall be systematically calibrated within 18 months of the approval of the SOP.

3.1.6 UV Instrument Intercomparison: The contractor shall participate in an annual interagency instrument intercomparison held by the Central UV Calibration Facility (NOAA, Boulder)laboratory over a two-week period held during the last two weeks of June. Participation shall include operation of a Brewer at the CUCF site. The EPA Project Officer will notify the contractor on the time and date of the intercomparisons at least 4 to 6 weeks in advance of the activity.

3.2 Data Validation, Processing and Analysis

3.2.1 Data Validation: The contractor shall retrieve all data from each site on a daily basis by telephone. The contractor shall review all data, including the QA/QC data, available from each of the Brewer Spectrophotometers on a daily basis. Retrieval of raw data files shall be accomplished during the night. By 10:00Am, local time of the contractor, the contractor shall have all of the previous day's raw data files on a computer system that can be downloaded by EPA or its designee. On a daily basis, the contractor shall maintain current, real-time statistical process control plots (control charts) of these data to detect changes of instrument response and shall devise other, credible, automated scans of the data to detect quality problems. Each out of control occasion shall be documented and the Project Officer notified by e-mail in the Weekly Report.

3.2.2 Data Archival: The contractor shall maintain an archive of all the raw data files derived from daily telephone calls to each Brewer. Every three months the site operators shall send copies of the Brewer files received telephonically to the contractor, and the contractor shall compare the files received telephonically with those received on recorded media (i.e., CD-ROM, floppy disk, etc.) or over the internet. If the telephonically received files are in error, they shall be replaced by those received on recorded media or over the internet.

3.2.3 Calibration Records: The contractor shall also keep a record of all laboratory or field calibrations and the corresponding response files. The contractor shall also keep files that record the temperature dependency of the instrument, the non-ideal cosine response, and any other instrument characteristics that may be useful in correcting the raw data.

3.2.4 Data Correction: The contractor shall process, edit and correct the raw data to produce a final, corrected UV database. The contractor shall fully document the computer programs used in processing the raw data and arriving at the final corrected data base. Those computer programs shall be provided to the EPA Project Officer. The correction programs shall include corrections for:

(i) non-ideal cosine response
(ii) stray light
(iii) temperature dependency
(iv) temporal change in response

All corrections shall be completed within three months following completion of a 1000 W lamp calibration of a Brewer and receipt of raw data from operators.

3.2.5 Site Records: The contractor shall develop and document all information about the sites, measurements, calibrations, and data processing that would allow a future researcher to know exactly what the database represents. Contractor shall maintain an FTP site on which shall reside the validated, corrected data. Access to this site may be controlled by passwords issued by the contractor, but access to the database shall be open to researchers both in and out of government. The contractor shall provide the site records to EPA Project Officer on an quarterly basis.

3.2.6 Data Maintenance: No data shall be erased from any site computer until a backup media of that data has been received by the contractor and fully verified against the archived data from the telephone polling process.

3.3 Site Management

3.3.1 Field Site Support

3.3.1.1. Maintenance/Operating Procedures: The contractor shall provide site operators with a toll free number to call when problems are encountered. Problems shall be logged in on a daily basis and fixed in a timely manner. Weekly logs shall be provided to the Project Officer or Project Officer designee. A brief description of how the problems were solved shall accompany the

log. Contractor shall maintain an adequate inventory of spare parts to effect a repair at the site with technical assistance from the operator. If the repair cannot be effected by the site operator, the contractor shall be responsible for taking actions necessary to return the site to production of high quality data at the earliest possible time, including a site visit by the contractor or factory representative, or shipment of the Brewer to the factory. The contractor shall distribute to site operators, and periodically revise as necessary for proper operation, the standard operating procedures.

3.3.1.2. Data Retrieval/Data Quality: The contractor shall poll the sites daily to download data and perform QA/QC on the data. If problems are encountered with this polling, and if it is determined that the problem exists at the site, the contractor shall contact the site operator on the same day that the problem was discovered to determine the cause and to effect a timely repair.

3.3.1.3. Site Audits: The contractor shall conduct site audits to ensure site operators understand operational procedures. The sites shall be visited at least once per year. During each visit the contractor personnel shall review the current operational procedures with the site operators and provide the operators with a performance evaluation of his site.

3.3.2 Logistical Support: The contractor shall maintain an inventory of spare parts available for timely shipment to the sites. The contractor shall supply operators with basic consumable supplies needed for the routine operation of the site, including printer paper, cleaning materials (e.g. wipes and solvent), and desiccant packages. Other items that the contractor shall have on hand will be a computer that can act as an immediate substitute for one that has failed in the field. The computer shall have all the associated Brewer software already installed. The contractor shall also have a monitor, printer, and any associated power equipment that may be necessary to replace at a field site. All equipment must be compatible with existing systems.

3.3.3 Government Furnished Equipment and Inventory: The government has furnished and installed a Brewer Spectrophotometer and associated computer, monitor, modem, and printer at 21 sites as specified in Appendix A. The government will also furnish another complete Brewer system to be operated by the contractor at the contractor's site (this Brewer is not part of the UV Network). The contractor shall be expected to furnish all other equipment for performing the tasks above. The contractor shall maintain a complete inventory of the location of each Brewer Spectrophotometer as well as any other equipment that is furnished as accessories or spare parts for the Brewers. This equipment shall include, but is not limited to: computer, software/media, computer monitor, printer, internal tape drives, modems, and all the necessary cables and data transmitters associated with the Brewer site operation.

4. DOCUMENTATION/DATA:

4.1 Raw Brewer Data: (all files produced by the schedule) shall be transmitted to the EPA Project Officer on CD, or other specified hard media, in three-month segments. Data for each site shall be stored on a single CD (one CD for each site), and the CDs shall be sent to the EPA Project Officer within three months after the contractor receives the data from the site operators. For example, the raw data for March through May of a given calendar year would be sent to the EPA Project Officer by September 1 of that same calendar year.

4.2 Corrected Brewer Data: shall be available on a contractor FTP site/website and the contractor shall notify the Project Officer when data are completed and available for transfer. This data shall be made available for access on the EPA UVNET website.

APPENDIX A

NATIONAL PARKS SITES and URBAN SITES

(1) Big Bend National Park, Texas
(2) Everglades National Park, Florida
(3) Virgin Islands National Park, Virgin Islands
(4) Sequoia National Park, California
(5) Rocky Mountain National Park, Colorado
(6) Smoky Mountains National Park, North Carolina
(7) Shenandoah National Park, Virginia
(8) Acadia National Park, Maine
(9) Denali National Park, Alaska
(10) Olympic National Park, Washington
(11) Glacier National Park, Montana
(12) Canyonlands National Park, Utah
(13) Theodore Roosevelt National Park, ND
(14) Hawaii Volcanoes National Park, Hawaii
(15) Chicago, IL
(16) Gaithersburg, MD
(17) Research Triangle Park, NC
(18) Atlanta, GA
(19) Boulder, CO
(20) Riverside, CA
(21) Albuquerque, NM

ATTACHMENT 2

REPORTS OF WORK

UV Network Evaluation Report

1. Evaluation of UV Monitoring Network: The Contractor shall develop a report which identifies and evaluates options for the future configuration of the EPA Ultraviolet Monitoring Network. The report shall demonstrate how the configuration option(s) proposed will maximize the utilization of network resources while maintaining the monitoring capability required by national and international researchers. This report shall be delivered to the project officer NLT 180 days after contract award.

a. The Contractor shall identify a set of specific options that include:

(i). maintaining the current network configuration/design and operating procedures

(ii). minimizing the number of monitoring sites

(iii). relocation of existing monitors

(iv). selection of new monitoring equipment

(v). modification of operating, maintenance and calibration procedures (to include calibrating the existing monitoring equipment for total column ozone)

b. The Contractor shall evaluate the options identified based on the following criteria:

(i). optimum impact on assessment of changes in stratospheric ozone on surface UV radiation

(ii). optimum impact on assessment of changes in tropospheric ozone on surface UV radiation

(iii). optimum impact on assessment of surface UV radiation human to exposure and health effects across the U.S.

(iv). optimum impact on assessment of surface UV radiation to UV-sensitive ecosystems and consequent ecological impacts across the U.S.

(v). optimum impact of co-location and comparability with other UV radiation, air quality and meteorological observations

(vi). optimum impact on assessment of satellite observations of UV radiation, total column ozone and other atmospheric characteristics

(vii). optimum instrument reliability and data quality

(vii). minimization of capital and operational costs of monitoring equipment

(ix). minimization of duplicate efforts when compared in context with other surface and satellite UV monitoring assets managed under the United States Global Change Research Program

WEEKLY REPORTS

2. Weekly Reports: Weekly reports to the Project Officer every Friday shall include: E-Mail notification on the status of all Brewer instruments in the field. This shall include their location, their usage (field site/ routine monitoring, special study, calibration trip, etc), and their status (fully operational, down for repair, taking only ozone data, etc). The Project Officer can designate others who may receive this report. These reports shall include brief descriptions of the Brewers that are inoperable and what is being done to insure that they are being repaired in a timely fashion. Most repairs should take less than a week, unless they have to be returned from the field, in which case another Brewer from the Contractor shall be shipped to the site.

No. of Copies	Addressee
(1)	Project Officer

QUARTERLY REPORTS

3. Quarterly Report: Quarterly Reports will include a running chart showing plots of the R6 constant of the Brewer, the bi-weekly external lamp calibrations, and as many as three other QA/QC parameters specified by the Project Officer to describe the quality being maintained in the project.

No. of Copies	Addressee
(1)	Project Officer

ANNUAL REPORT

4. Annual Report: In the annual report, the contractor shall address all aspects of the network maintenance, calibrations, data gathering, data processing, and data archiving, with particular attention to the QA/QC applied to the data transferred to EPA. The contractor shall submit the draft annual report to the EPA Project Officer each year within 30 days following the end of the applicable period of performance of the contract. The Project Officer will review the draft report and suggest revisions to the contractor. Within 30 days following receipt of that review, the contractor shall finalize the annual report and provide the Project Officer with five copies plus a diskette in Word Perfect 6.1 format.

No. of Copies	Addressee
(5)	Project Officer
(1)	Administrative Contracting Officer

Computer Files

All computer files shall be transmitted to EPA in a format and medium assigned by the EPA Project Officer. All files shall be consistently named and/or labeled by the contractor to identify the site, applicable dates, and level of validation.

1. Metadata Files: Metadata shall be assembled and transmitted to EPA within the first six months of the contract. The contractor will update the metafiles as changes occur or new information becomes available. Updated metafiles shall be transferred to EPA annually.

2. UV Response Files: Response files for calculating UV irradiance shall be formulated and updated as calibration information is developed. Response files for any particular data segments will be transmitted to EPA as they are updated.

3. Raw Data Files: All raw data files as they come from the Brewers on a daily basis shall be made available for download by EPA by 10:00 A.M. the following day.

4. Validated Data Files: The validated data shall be transmitted to EPA in three-month segments, within 45 days following the receipt of data by tape from all the sites, or written indication by the Project Officer to proceed.

ATTACHMENT 3

INVOICE PREPARATION INSTRUCTIONS

INVOICE PREPARATION INSTRUCTIONS
SF 1034

The information which a contractor is required to submit in its Standard Form 1034 is set forth as follows:

(1) **U.S. Department, Bureau, or establishment and location** - insert the names and address of the servicing finance office unless the contract specifically provides otherwise.

(2) **Date Voucher Prepared** - insert date on which the public voucher is prepared and submitted.

(3) **Contract/Delivery Order Number and Date** - insert the number and date of the contract and delivery order, if applicable, under which reimbursement is claimed.

(4) **Requisition Number and Date** - leave blank.

(5) **Voucher Number** - insert the appropriate serial number of the voucher. A separate series of consecutive numbers, beginning with Number 1, shall be used by the contractor for each new contract. When an original voucher was submitted, but not paid in full because of suspended costs, resubmission vouchers should be submitted in a separate invoice showing the original voucher number and designated with the letter "R" as the last character of the number. If there is more than one resubmission, use the appropriate suffix (R2, R3, etc.)

(6) **Schedule Number; Paid By; Date Invoice Received** - leave blank.

(7) **Discount Terms** - enter terms of discount, if applicable.

(8) **Payee's Account Number** - this space may be used by the contractor to record the account or job number(s) assigned to the contract or may be left blank.

(9) **Payee's Name and Address** - show the name of the contractor exactly as it appears in the contract and its correct address, except when an assignment has been made by the contractor, or the right to receive payment has been restricted, as in the case of an advance account. When the right to receive payment is restricted, the type of information to be shown in this space shall be furnished by the Contracting Officer.

(10) Shipped From; To; Weight Government B/L Number - insert for supply contracts.

(11) **Date of Delivery or Service** - show the month, day and year, beginning and ending dates of incurrence of costs claimed for reimbursement. Adjustments to costs for prior periods should identify the period applicable to their incurrence, e.g., revised provisional or final indirect cost rates, award fee, etc.

(12) **Articles and Services** - insert the following: "For detail, see Standard Form 1035 total amount claimed transferred from Page of Standard Form 1035." Type "COST REIMBURSABLE-PROVISIONAL PAYMENT" or "INDEFINITE QUANTITY/INDEFINITE DELIVERY-PROVISIONAL PAYMENT" on the Interim public vouchers. Type "COST REIMBURSABLE-COMPLETION VOUCHER" or "INDEFINITE QUANTITY/INDEFINITE DELIVERY-COMPLETION VOUCHER" on the Completion public voucher. Type "COST REIMBURSABLE-FINAL VOUCHER" or "INDEFINITE QUANTITY/INDEFINITE DELIVERY-FINAL VOUCHER" on the Final public voucher. Type the following certification, signed by an authorized official, on the face of the Standard Form 1034.

> "I certify that all payments requested are for appropriate purposes and in accordance with the agreements set forth in the contract."

(Name of Official) (Title)

(13) **Quantity; Unit Price** - insert for supply contracts.

(14) **Amount** - insert the amount claimed for the period indicated in (11) above.

INVOICE PREPARATION INSTRUCTIONS
SF 1035

The information which a contractor is required to submit in its Standard Form 1035 is set forth as follows:

(1) **U.S. Department, Bureau, or Establishment** - insert the name and address of the servicing finance office.

(2) **Voucher Number** - insert the voucher number as shown on the Standard Form 1034.

(3) **Schedule Number** - leave blank.

(4) **Sheet Number** - insert the sheet number if more than one sheet is used in numerical sequence. Use as many sheets as necessary to show the information required.

(5) **Number and Date of Order** - insert payee's name and address as in the Standard Form 1034.

(6) **Articles or Services** - insert the contract number as in the Standard Form 1034.

(7) **Amount** - insert the latest estimated cost, fee (fixed, base, or award, as applicable), total contract value, and amount and type of fee payable (as applicable).

(8) **A summary of claimed current and cumulative costs and fee by major cost element.** Include the rate(s) at which indirect costs are claimed and indicate the base of each by identifying the line of costs to which each is applied. The rates invoiced should be as specified in the contract or by a rate agreement negotiated by EPA's Cost Policy and Rate Negotiation Branch.

(9) The **fee** shall be determined in accordance with instructions appearing in the contract.

NOTE: Amounts claimed on vouchers must be based on records maintained by the contractor to show by major cost element the amounts claimed for reimbursement for each applicable contract. The records must be maintained based on the contractor's fiscal year and should include reconciliations of any differences between the costs incurred per books and amounts claimed for reimbursement. A memorandum record reconciling the total indirect cost(s) claimed should also be maintained.

SUPPORTING SCHEDULES FOR COST REIMBURSEMENT CONTRACTS

The following backup information is required as an attachment to the invoice as shown by category of cost:

Direct Labor - identify the number of hours (by contractor labor category and total) and the total loaded direct labor hours billed for the period in the invoice.

Indirect Cost Rates - identify by cost center, the indirect cost rate, the period, and the cost base to which it is applied.

Subcontracts - identify the major cost elements for each subcontract.

Other Direct Costs - when the cost for an individual cost (e.g., photocopying, material and supplies, telephone usage) exceeds $1,000 per the invoice period, provide a detailed explanation for that cost category.

Contractor Acquired Equipment (if authorized by the contract) - identify by item the quantities, unit prices, and total dollars billed.

Contractor Acquired Software (if authorized by the contract) - identify by item the quantities, unit prices, and total dollars billed.

Travel - when travel costs exceed $2,000 per invoice period, identify by trip, the number of travellers, the duration of travel, the point of origin, destination, purpose of trip, transportation by unit price, per diem rates on daily basis and total dollars billed. Detailed reporting is not required for local travel.

The manner of breakdown, e.g., work assignment/delivery order basis with/without separate program management, contract period will be specified in the contract instructions.

NOTE: For other than small business concerns, amounts claimed for purchased material and subcontracted items should be based on the cash disbursed by the contractor. These costs cannot be billed to the Government until paid for by the contractor. Any of these costs billed to the Government prior to being paid in cash, in addition to their associated indirect costs, will be considered improper charges and will be suspended until evidence of cash payment is provided. Similarly, any costs requiring advance consent by the Contracting Officer will be considered improper and will be suspended, if claimed prior to receipt of Contracting Officer consent. Include the total cost claimed for the current and cumulative-to-date periods. After the total amount claimed, provide summary dollar amounts of cumulative costs: (1) suspended as of the date of the invoice; and (2) disallowed on the contract as of the date of the invoice. The amount under (2) shall include costs originally suspended and later disallowed. Also include an explanation of the changes in cumulative costs suspended or disallowed by addressing each adjustment in terms of: voucher number, date, dollar amount, source, and reason for the adjustment. Disallowed costs should be identified in unallowable accounts in the contractor's accounting system.

SUPPORTING SCHEDULES FOR FIXED-RATE CONTRACTS

The following backup information is required as an attachment to the invoice as shown by category of cost:

Direct Labor - identify the number of hours (by contractor labor category and total) and the total direct labor hours billed for the period of the invoice.

Subcontracts - identify the major cost elements for each subcontract.

Other Direct Costs - when the cost for an individual cost (e.g., photocopying, material and supplies, telephone usage) exceeds $1,000 per the invoice period, provide a detailed explanation for that cost category

Indirect Cost Rates - identify by cost center, the indirect cost rate, the period, and the cost base to which it is applied.

Contractor Acquired Equipment - identify by item the quantities, unit prices, and total dollars billed.

Contractor Acquired Software - identify by item the quantities, unit prices, and total dollars billed.

Travel - when travel costs exceed $2,000 per invoice period, identify by trip, the number of travellers, the duration of travel, the point of origin, destination, purpose of trip, transportation by unit price, per diem rates on daily basis and total dollars billed. Detailed reporting is not required for local travel.

The manner of breakdown, e.g., work assignment/delivery order basis with/without separate program management, contract period will be specified in the contract instructions.

NOTE: For other than small business concerns, amounts claimed for purchased material and subcontracted items should be based on the cash disbursed by the contractor. These costs cannot be billed to the Government until paid for by the contractor. Any of these costs billed to the Government prior to being paid in cash, in addition to their associated indirect costs, will be considered improper charges and will be suspended until evidence of cash payment is provided. Similarly, any costs requiring advance consent by the Contracting Officer will be considered improper and will be suspended, if claimed prior to receipt of Contracting Officer consent. Include the total cost claimed for the current and cumulative-to-date periods. After the total amount claimed, provide summary dollar amounts of cumulative costs: (1) suspended as of the date of the invoice; and (2) disallowed on the contract as of the date of the invoice. The amount under (2) shall include costs originally suspended and later disallowed. Also include an explanation of the changes in cumulative costs suspended or disallowed by addressing each adjustment in terms of: voucher number, date, dollar amount, source, and reason for the adjustment. Disallowed costs should be identified in unallowable accounts in the contractor's accounting system.

RESUBMISSIONS

When an original voucher was submitted, but not paid in full because of suspended costs and after receipt of a letter of removal of suspension, resubmissions of any previously claimed amounts which were suspended should be submitted in a separate invoice showing the original voucher number and designated with the letter "R" with the copy of the removal of suspension notice. The amounts should be shown under the appropriate cost category and include all appropriate supplemental schedules. NOTE: All disallowances must be identified as such in the accounting system through journal entries.

Voucher resubmittals may also occur as a result of: (1) a new indirect cost rate agreement; or (2) adjustments to previously billed direct cost rates due to audit resolution. Such claims should be submitted in a separate invoice or request for contractor financing payment number. They should include supplemental schedules showing the previously adjusted amounts by contract period. If the resubmission is based on a new rate agreement, a copy of the agreement should be attached. Costs must be identified by delivery order or work assignment where appropriate. If the contract is Superfund-related, voucher resubmittals shall also identify the amount claimed against each Superfund site and non-site-specific activity.

COMPLETION VOUCHERS

Submit a completion voucher when all performance provisions of the contract are physically complete, when the final report (if required) is accepted, and when all direct costs have been incurred and booked. Indirect costs may be claimed at the provisional rates, if final rates are not yet available. Contractors must identify these vouchers by typing "Completion Voucher" next to the voucher number. For contracts separately invoiced by delivery order, provide a schedule showing total costs claimed by delivery order and in total for the contract.

In addition to the completion voucher, the contractor must submit an original and two copies of EPA Form 1900-10, Contractor's Cumulative Claim and Reconciliation showing the total cumulative costs claimed under the contract.

The information which a contractor is required to submit in its EPA Form 1900-10 is set forth as follows:

(1) **Contractor's Name and Address** - show the name of the contractor exactly as it appears in the contract and its correct address, except when an assignment has been made by the contractor, or the right to receive payment has been restricted, as in the case of an advance account. When the right to receive payment is restricted, the type of information to be shown in this space shall be furnished by the Contracting Officer.

(2) **Contract Number** - insert the number of the contract under which reimbursement is claimed.

(3) First voucher number and completion voucher number.

(4) Total amount of cost claimed for each cost element category through the completion voucher.

(5) Total Fee awarded.

(6) Amount of indirect costs calculated using negotiated final indirect cost rate(s) and/or provisional rate(s) as specified in the contract, if final rate(s) are not yet negotiated for any fiscal period.

(7) Fiscal year.

(8) Indirect cost center.

(9) Appropriate basis for allocation.

(10) Negotiated final indirect cost rate(s) or provisional indirect cost rate(s).

(11) Signature.

(12) Official title.

(13) Date.

FINAL VOUCHER AND CLOSING DOCUMENTS

After completion of the final audit and all suspensions and/or audit exceptions have been resolved as to the final allowable costs and fee, including establishment of final indirect cost rate(s) for all periods the contractor shall prepare a final voucher including any adjustments to vouchered costs necessitated by the final settlement of the contract price. Contractors must identify these vouchers by typing "Final Voucher" next to the voucher number. For contracts separately invoiced by delivery order, provide a schedule showing final total costs claimed by delivery order and in total for the contract. The contractor shall also provide an original and two copies of an updated EPA Form 1900-10, Contractors Cumulative Claim and Reconciliation, showing the total negotiated, cumulative costs for the contract. Indirect costs shall be included at the final negotiated rates.

In addition to the final voucher, the contractor must submit an original and two copies of the Contractor's Release; Assignee's Release, if applicable; the Contractor's Assignment of Refunds, Rebates, Credits and other Amounts; the Assignee's Assignment of Refunds, Rebates, Credits and other Amounts, if applicable; and the Contractor's Affidavit of Waiver of Lien, when required by the contract.

ATTACHMENT 4

PROPERTY FURNISHED AS OBJECT OF THE CONTRACT

Property List

Site	Item#	Description	Serial #	Approx. Cost	Approx. Acq. Date
Big Bend, TX	1.	Spectrophotometer	130	$88,000	7/96
(Decal: A02753)	2.	Computer, AST Bravo, 5100 Type		$ 1,200	7/96
	3.	Monitor, Samsung Sync Master 3Ne		$ 350	7/96
	4.	Printer, Panasonic KX-P2023		$ 250	7/96
Great Smokey, TN	5.	Spectrophotometer	154	$88,000	7/98
(Decal: A02760)	6.	Computer, AST Bravo, 5100 Type		$ 1,200	7/98
	7.	Monitor, Samsung Sync Master 3Ne		$ 350	7/98
	8.	Printer, Panasonic KX-P2023		$ 250	7/98
Everglades, FL	9.	Spectrophotometer	135	$88,000	7/96
(Decal: A02749)	10.	Computer, AST Bravo, 5100 Type		$ 1,200	7/96
	11.	Monitor, Samsung Sync Master 3Ne		$ 350	7/96
	12.	Printer, Panasonic KX-P2023		$ 250	7/96
Shenandoah, VA	13.	Spectrophotometer	137	$88,000	7/96
(Decal: A02752)	14.	Computer, AST Bravo 5100 Type		$ 1,200	7/96
	15.	Monitor, Samsung Sync Master 3Ne		$ 350	7/96
	16.	Printer, Panasonic KX-P2023		$ 250	7/96
Canyonlands, UT	17.	Spectrophotometer	133	$88,000	7/96
(Decal: A02747)	18.	Computer, AST Bravo, 5100 Type		$ 1,200	7/96
	19.	Monitor, Samsung Sync Master 3Ne		$ 350	7/96
	20.	Printer, Panasonic KX-P2023		$ 250	7/96
Glacier, MT	21.	Spectrophotometer	134	$88,000	7/96
(Decal: A02754)	22.	Computer, AST Bravo 5100 Type		$ 1,200	7/96
	23.	Monitor, Samsung Sync Master 3Ne		$ 350	7/96
	24.	Printer, Panasonic KX-P2023		$ 250	7/96
Denali, AK	25.	Spectrophotometer	141	$88,000	7/96
(Decal: A02748)	26.	Computer, AST Bravo, 5100 Type		$ 1,200	7/96
	27.	Monitor, Samsung Sync Master 3Ne		$ 350	7/96
	28.	Printer, Panasonic KX-P2023		$ 250	7/96
Olympic, WA	29.	Spectrophotometer	147	$88,000	7/96
(Decal: A02755)	30.	Computer, AST Bravo, 5100 Type		$ 1,200	7/96
	31.	Monitor, Samsung Sync Master 3Ne		$ 350	7/96
	32.	Printer, Panasonic KX-P2023		$ 250	7/96
Acadia, ME	33.	Spectrophotometer	138	$88,000	7/96
(Decal: A02746)	34.	Computer, AST Bravo, 5100 Type		$ 1,200	7/96
	35.	Monitor, Samsung Sync Master 3Ne		$ 350	7/96
	36.	Printer, Panasonic KX-P2023		$ 250	7/96
Virgin Islands	37.	Spectrophotometer	144	$88,000	7/96
(Decal: A02758)	38.	Computer, AST Bravo, 5100 Type		$ 1,200	7/96
	39.	Monitor, Samsung Sync Master 3Ne		$ 350	7/96
	40.	Printer, Panasonic KX-P2023		$ 250	7/96
Rocky Mtn NP, CO	41.	Spectrophotometer	146	$88,000	7/96
(Decal: A02756)	42.	Computer, AST Bravo, 5100 Type		$ 1,200	7/96
	43.	Monitor, Samsung Sync Master 3Ne		$ 350	7/96
	44.	Printer, Panasonic KX-P2023		$ 250	7/96
RTP, NC	45.	Spectrophotometer	087	$79,000	7/92
(Decal: A02739)	46.	Computer, One Step		$ 1,200	7/92
	47.	Monitor, Max Logic		$ 350	7/92
	48.	Printer, Okidata Microline 193		$ 250	7/92

Boulder, CO	49.	Spectrophotometer	101	$79,000	7/94
(Decal: A02744)	50.	Computer		$ 1,200	7/94
	51.	Monitor		$ 350	7/94
	52.	Printer		$ 250	7/94
***Chicago, Ill**	53.	Spectrophotometer	103	$79,000	7/94
(Decal: A02742)	54.	Computer		$ 1,200	7/94
	55.	Monitor		$ 350	7/94
	56.	Printer		$ 250	7/94
Gaithersburg, MD	57.	Spectrophotometer	105	$79,000	7/94
(Decal: A02740)	58.	Computer		$ 1,200	7/94
	59.	Monitor		$ 350	7/94
	60.	Printer		$ 250	7/94
Atlanta, GA	61.	Spectrophotometer	108	$79,000	7/94
(Decal: A02741)	62.	Computer		$ 1,200	7/94
	63.	Monitor		$ 350	7/94
	64.	Printer		$ 250	7/94
Riverside, CA	65.	Spectrophotometer	112	$79,000	7/94
(Decal: A02745)	66.	Computer		$ 1,200	7/94
	67.	Monitor		$ 350	7/94
	68.	Printer		$ 250	7/94
Albuquerque, NM	69.	Spectrophotometer	109	$79,000	7/94
(Decal: A02743)	70.	Computer		$ 1,200	7/94
	71.	Monitor		$ 350	7/94
	72.	Printer		$ 250	7/94
Theodore Roosevelt	73.	Spectrophotometer	131	$88,000	7/96
National Park	74.	Computer		$ 1,200	7/96
(Decal: A02759)	75.	Monitor		$ 350	7/96
	76.	Printer		$ 250	7/96
Sequoia	77.	Spectrophotometer	139	$88,000	7/96
National Park	78.	Computer		$ 1,200	7/96
(Decal: A02751)	79.	Monitor		$ 350	7/96
	80.	Printer		$ 250	7/96
Hawaii Volcanoes					
National Park	81.	Spectrophotometer	140	$88,000	7/96
(Decal: A02757)	82.	Computer		$ 1,200	7/96
	83.	Monitor		$ 350	7/96
	84.	Printer		$ 250	7/96
**University of	85.	Spectrophotometer	114	$79,000	7/94
Georgia-Athens	86.	Computer		$ 1,200	7/94
(Decal: A02761)	87.	Monitor		$ 350	7/94
	88.	Printer		$ 250	7/94
**University of	89.	Spectrophotometer	132	$88,000	7/96
Georgia-Athens	90.	Computer		$ 1,200	7/96
(Decal: A02750)	91.	Monitor		$ 350	7/96
	92.	Printer		$ 250	7/96

A spare part kit was provided initially with each Brewer at a National Park site and for 2 Brewers at Urban sites.

* - originally located in Boston Massachusetts
**-located at incumbent contractor facility (one spectrophotometer is in the network and the other is in the laboratory). An inventory of the assets was last performed on 31 January 2003.

ATTACHMENT 5

QUALITY ASSURANCE SURVEILLANCE PLAN

Item	Required Service	PWS	Performance Standard (PS)	Lot Size	Method of Surveillance	AQL *	Percentage Deduction **	% TCP/ mo
1	Maintain Brewer sites and network for raw data collection	3.1.1 (i)	Data is collected 90% of available time***	# of days in the month	Analysis of weekly reports	10%	x% of total monthly payment if PS is not met	60%
2	Ultraviolet (UV) and Diffey-weighted Ultraviolet Irradiance (DUV) data shall be traceable to 1000W NIST standard lamp	3.1.1 (ii)	Within +/- 3% of the standards for wavelengths above 300 nanometers	All record data	Analysis of calibration reports	15%	x% of total monthly payment if PS is not met	15%
3	Recovered UV data shall be QA/QC-ed and corrected	3.1.1 (iii)	Within 3 months after the last response function is determined by calibration at a particular site	All record data	Review of quarterly CD Rom and associated report from Contractor	5%	x% of total monthly payment if PS is not met	20%

* The maximum allowable degree of deviation from the standard which will be permitted by the Government before performance is deemed to be unsatisfactory.

** Amount that will be deducted from monthly invoice charges. Note that "x" equals the percentage of time that the standards was not met.

*** Available time includes all but the following: two to three days per Brewer for annual on-site Absolute Irradiance Calibration, 1/2 day per Brewer for bi-weekly QA procedures, down-time of two weeks for the Brewer located in Boulder, CO during the annual Table Mountain Workshop, the first 48 hours after being notified that a Brewer is down to allow time to get instruction to the operator, any down-time due to act-of-God or on-site operators delay, and up to four weeks for major overhauls which require that the Brewer be sent to Athens for repair (incidences requiring over four weeks will be considered on a case-by-case basis).

Evaluation Procedures: The Project Officer (PO) may conduct inspection on all services (100%) or randomly select performance requirements to be inspected based on the level of surveillance deemed appropriate.

TCP= Total current price for CLINS 0001A, 0002A and 0003A
PWS= Performance Work Statement
AQL= % Acceptable Quality Level (percentage of allowable defects). Note that a deduction from the monthly payment will be made only if the AQL is exceeded.

MONTHLY PAYMENT ANALYSIS FORM
QUALITY ASSURANCE AND SITE MANAGEMENT FOR THE EPA RADIATION MONITORING NETWORK

REQUIRED SERVICE: Maintain Brewer sites and network for raw data collection

SUMMARY FOR THE PERIOD

_____ THROUGH _____

A.	Unit Price from Section B	_____
B.	Relative Value of Required Service to the Total Unit Price	60%
C.	Value of Required Service (A x B)	_____
D.	Observed Defective Rate (ODR)	_____
E.	Value of Unsat. Work (C x D)	_____
F.	Payment Deduction*	_____

* Payment Deductions taken only when the Observed Defect Rate (ODR) exceeds the Acceptable Quality Level (AQL).

_____ _____
Project Officer Date

MONTHLY PAYMENT ANALYSIS FORM
QUALITY ASSURANCE AND SITE MANAGEMENT FOR THE EPA RADIATION MONITORING NETWORK

REQUIRED SERVICE: UV and Diffey-Weighted UV Irradiance (DUV) data shall be traceable to 1000W NIST standard lamp

SUMMARY FOR THE PERIOD

_____ THROUGH _____

A.	Unit Price from Section B	_____
B.	Relative Value of Required Service to the Total Unit Price	15%
C.	Value of Required Service (A x B)	_____
D.	Observed Defective Rate (ODR)	_____
E.	Value of Unsat. Work (C x D)	_____
F.	Payment Deduction*	_____

* Payment Deductions taken only when the Observed Defect Rate (ODR) exceeds the Acceptable Quality Level (AQL).

_____ _____
Project Officer Date

MONTHLY PAYMENT ANALYSIS FORM
QUALITY ASSURANCE AND SITE MANAGEMENT FOR THE EPA RADIATION MONITORING NETWORK

REQUIRED SERVICE: Recovered UV data shall be QA/QC-ed and corrected

SUMMARY FOR THE PERIOD

_____ THROUGH _____

A.	Unit Price from Section B	_____
B.	Relative Value of Required Service to the Total Unit Price	20%
C.	Value of Required Service (A x B)	_____
D.	Observed Defective Rate (ODR)	_____
E.	Value of Unsat. Work (C x D)	_____
F.	Payment Deduction*	_____

* Payment Deductions taken only when the Observed Defect Rate (ODR) exceeds the Acceptable Quality Level (AQL).

_____ _____
Project Officer Date

ATTACHMENT 6

DEPARTMENT OF LABOR WAGE DETERMINATION

DEPARTMENT OF LABOR WAGE DETERMINATION

This contract is subject to the Service Contract Act. The Contracting Officer has requested that the Department of Labor (DOL) allow the rates set by the University of Georgia to represent the wage and Health and Welfare determination for this contract. As of the date of contract award, this request has not been finalized. Should the Department of Labor deny the request, the prevailing DOL wage determination will be incorporated into the contract, and if necessary, the price for CLIN 0001A will be adjusted.