

Quality Management Plan

Project Title:

Measurement & Analyses of Benzene & VOC Emissions in Selected Houston Ship Channel and Surrounding Major Stationary Source Areas with DIAL (Differential Absorption Light Detection & Ranging) Technology to Reduce HAP Emissions Exposure

Revision 2



City of Houston

Bureau of Air Quality Control

7411 Park Place Boulevard

Houston, Texas 77087

January 11, 2008

Measurement & Analyses of Benzene & VOC Emissions in Selected Houston Ship Channel and Surrounding Major Stationary Source Areas with DIAL Technology to Reduce HAP Emissions Exposure (DIAL Project)
Quality Management Plan

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City of Houston
Bureau of Air Quality Control
DIAL Project
Quality Management Plan
January 7, 2008

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I. Management and Organization

A. Statement of Policy on Quality Assurance

The Bureau of Air Quality Control (BAQC) stands committed to Quality Assurance (QA) by maintaining planned and systematic actions to provide reliable air monitoring data. This includes committing equipment and human resources to pursue the Bureau's goals and objectives. QA remains the highest priority for the BAQC.

This Quality Management Plan (QMP) describes the work to be performed by the BAQC regarding the Measurement & Analyses of Benzene & VOC Emissions in Selected Houston Ship Channel and Surrounding Major Stationary Source Areas with DIAL (Differential Absorption Light Detection & Ranging) Technology to Reduce HAP Emissions Exposure (DIAL Project).

Bureau of Air Quality Control

The BAQC represents one of the bureaus within the Health and Human Services Department of the City of Houston. The Bureau's functions include ambient air monitoring, both reviewing of and commenting on air permits applications to the Texas Commission on Environmental Quality (TCEQ), complaint investigations, and inspection of facilities to determine compliance with City ordinances and Federal and State regulations.

The BAQC holds responsibility for operating and maintaining the City's air monitoring system, assessing future monitoring needs and developing plans to meet those needs. The Bureau Chief reports to the Environmental Health Division's Assistant Director. The Assistant Director reports to the Health and Human Services Department Director. The Director in turn reports to the Mayor of the City of Houston. Page 3 details the organizational chart for the Health and Human Services Department while page 4 highlights BAQC's organizational structure. The DIAL Project-specific organizational chart follows on page 5.

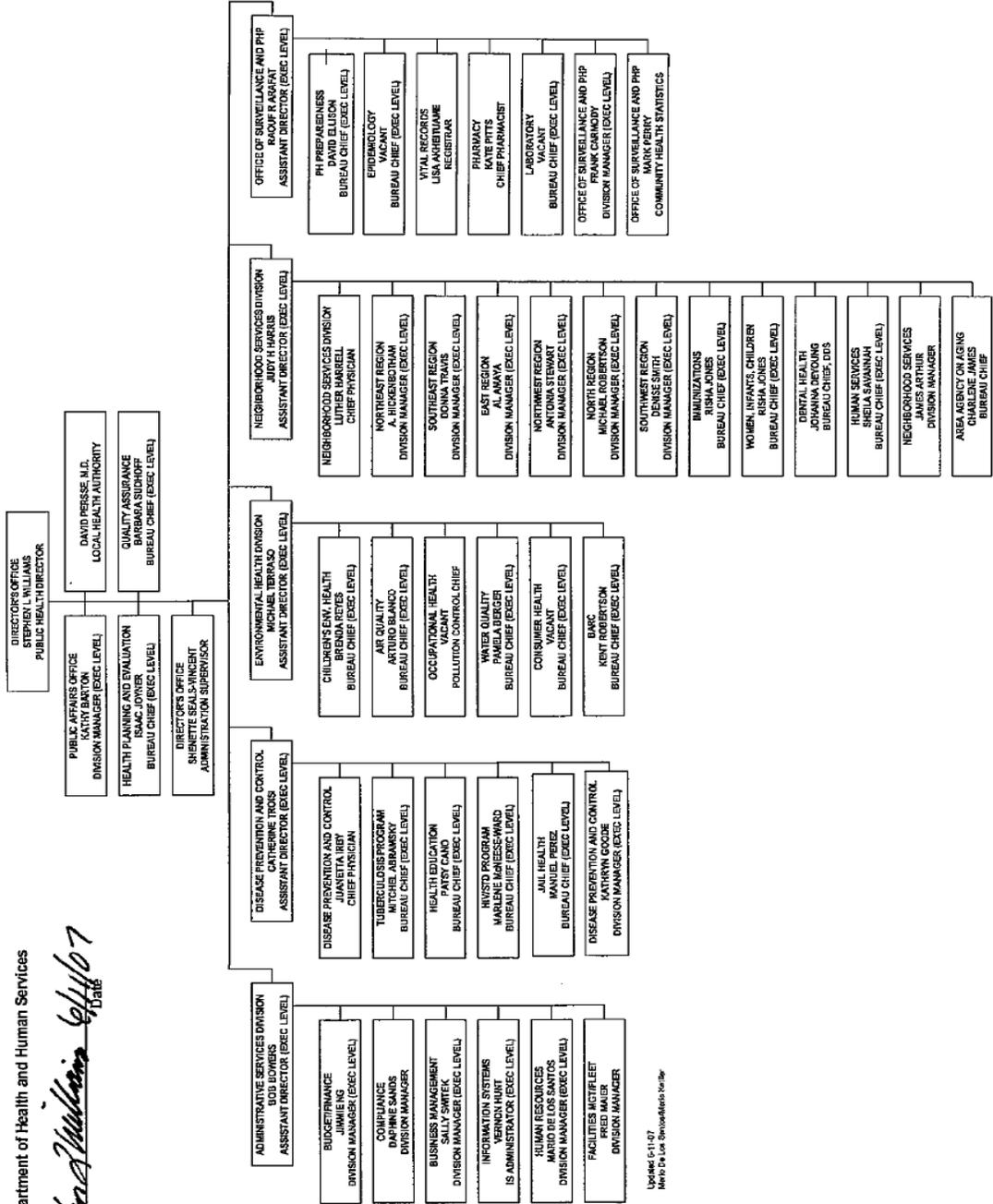
Within BAQC's responsibility for operating and maintaining the City's air monitoring system lays special projects associated with air quality measurements. The DIAL Project represents this category. The primary responsibility of the DIAL Project lies in overseeing the deployment of a DIAL system capable of providing the BAQC and other relevant regulatory agencies with important information about benzene and volatile organic compounds (VOC) emissions in the project location(s). Conceivably, the data generated during the DIAL Project will be used to identify emissions reduction opportunities and to more accurately quantify benzene and VOC emissions from petrochemical plant and/or refinery sources. A second purpose in the establishment of the DIAL Project centers on providing the citizens and businesses in the City of Houston tangible, visible proof of the importance placed by the BAQC and the City of Houston on the improvement of the City of Houston's air quality. In addition, the establishment of the DIAL Project will have national applications as a template for other regulatory agencies to follow in their efforts to address their specific air toxics emissions issues.

HOUSTON DEPARTMENT OF HEALTH AND HUMAN SERVICES

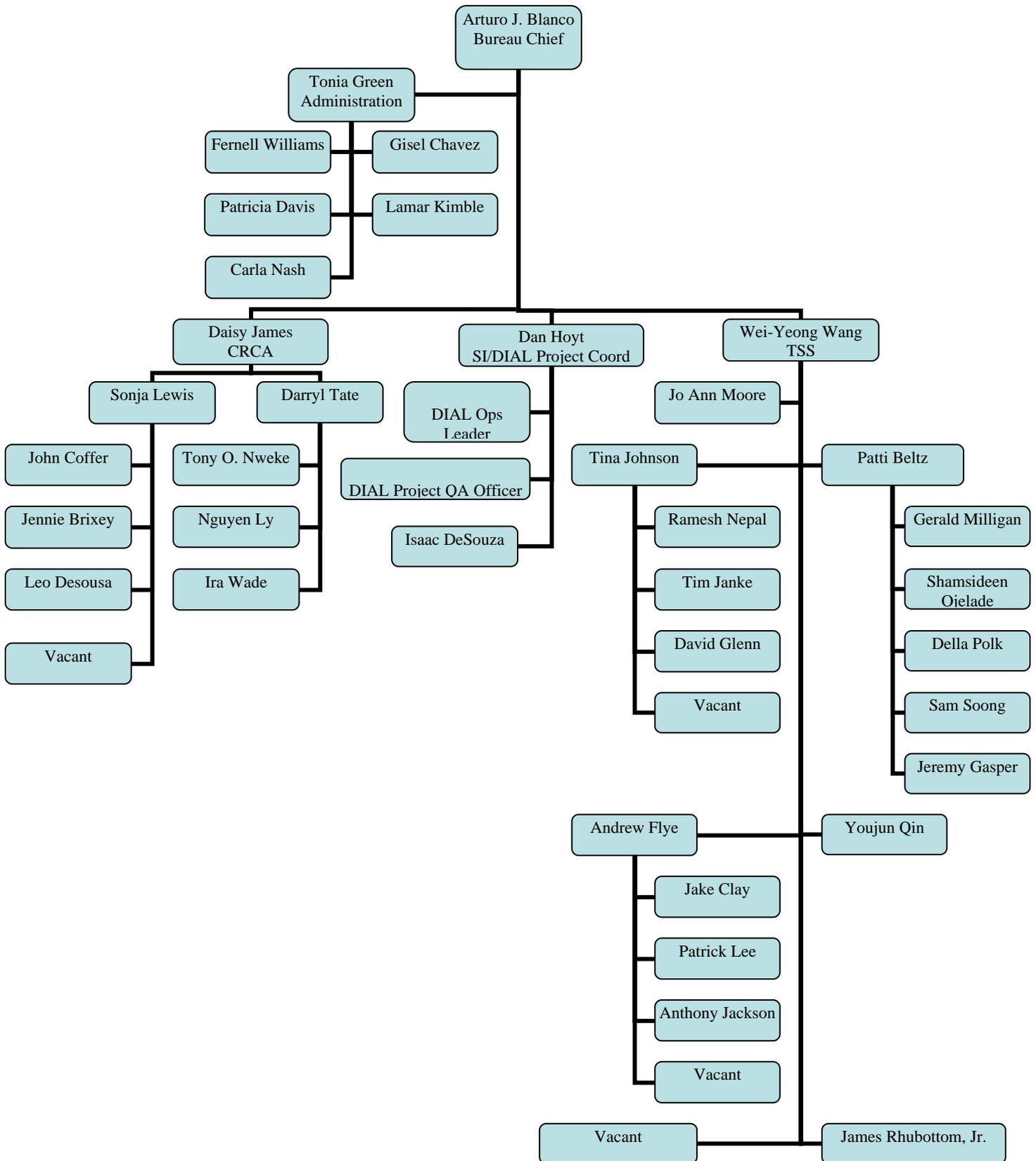
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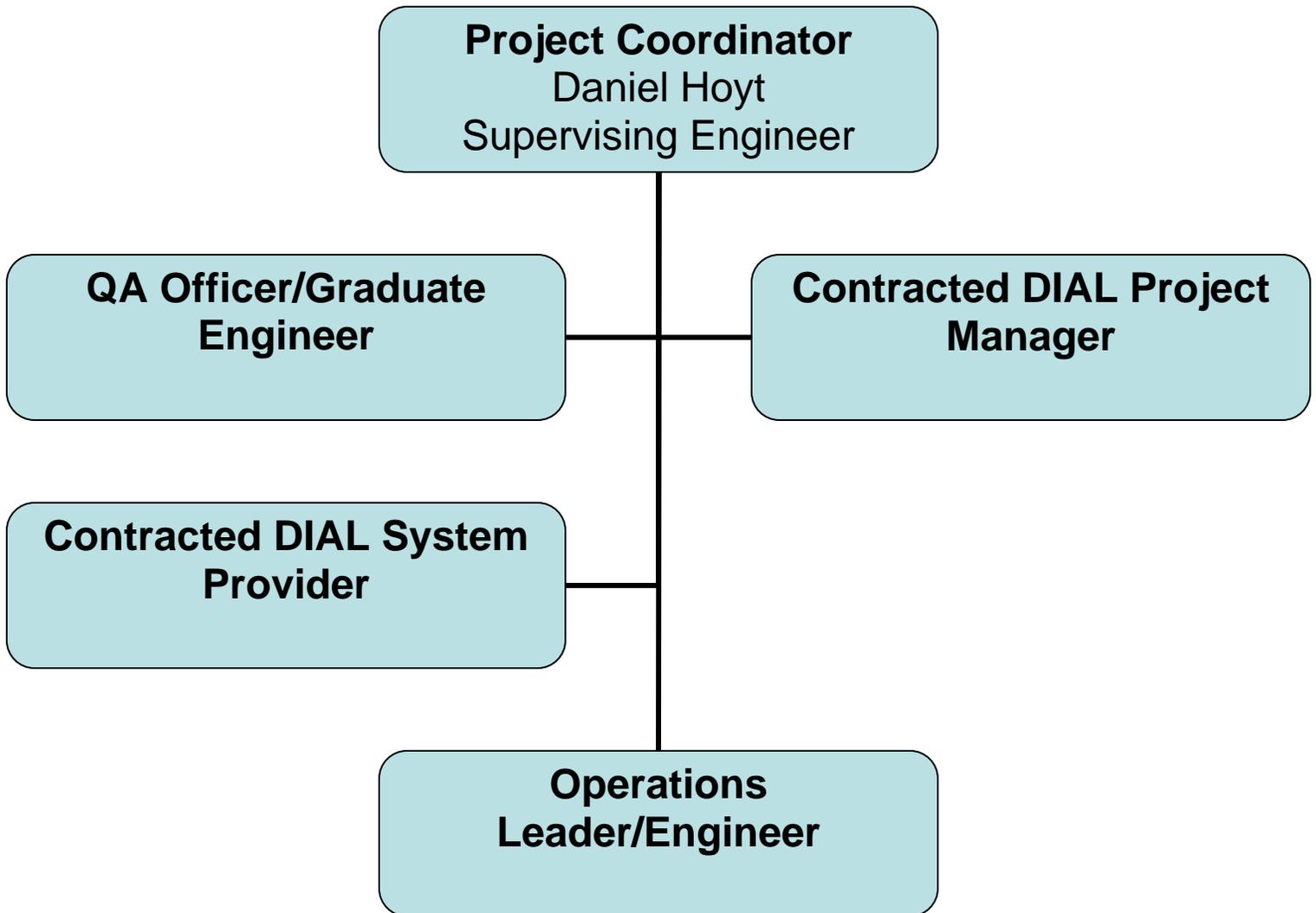
Stephen Williams
 6/11/07



Updated 6-11-07
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**Houston Department of Health and Human Services
Bureau of Air Quality Control
DIAL Project**



C. Responsibilities and Authorities of Quality Assurance Personnel

1. Bureau Chief

The Bureau Chief oversees BAQC and maintains final responsibility for its daily operation. He disseminates information and policies to the staff as necessary. The Bureau Chief meets with the Project Coordinator of the DIAL Project to review operations. The Project Coordinator will confer with the Bureau Chief on all issues regarding operations that cannot be resolved at the Project Coordinator's level. The Project Coordinator makes operational decisions with input from the QA Officer and Operations Leader, as well as from the contracted DIAL Project Manager and DIAL System Provider.

The Bureau Chief conducts a staff meeting with BAQC staff once a month to discuss the month's activities and upcoming plans. The meeting's agenda also includes relevant safety training issues. The Bureau Chief also conducts weekly meetings with his direct reports to disseminate important information, to provide guidance and feedback and to coordinate planning and other activities.

2. Project Coordinator

The Special Initiatives (SI) Supervising Engineer, responsible for the overall implementation of the DIAL Project, also serves as the Project Coordinator. The Project Coordinator makes use of the collected data to respond to DIAL Project specific requirements. Additionally, the Project Coordinator participates in various Technical Conferences and workgroups as well as maintaining communication with key EPA Region 6 personnel. The Project Coordinator often represents the Bureau in meetings and public outreach events. The Project Coordinator's responsibilities include planning and implementing proper operation of the DIAL Project, including securing contracts for a DIAL Project Manager, DIAL System Provider and other necessary support, procuring equipment for verification monitoring instruments, handling both personnel needs and safety issues, implementing City policies, and addressing the other needs of the DIAL Project. The Project Coordinator holds ultimate responsibility for the quality assurance of the all data obtained through the DIAL Project and that the EPA Region 6 Office receives the collected data as specified in the grant proposal.

The Project Coordinator acts upon current or on-going quality assurance (QA) problems independently identified by the QA Officer that may require additional resources, personnel, or training. Then the Project Coordinator brings these problems to the attention of the Bureau Chief as necessary to ensure meeting project objectives. This process assures that management remains informed on Quality Assurance/Quality Control (QA/QC) issues and the corresponding corrective actions implemented. The Project Coordinator works with the EPA Region 6 Office to develop a better understanding of Houston's air quality problems.

With independent input from the QA Officer regarding QA/QC procedures, the Project Coordinator meets with DIAL Project staff and contracted support personnel on an individual and collective basis to ensure work proceeds as scheduled along with proper implementation of QA/QC procedures. The Bureau Chief receives for resolution unresolved questions regarding the DIAL Project.

3. Quality Assurance Officer

The QA Officer maintains responsibility for all QA/QC procedures and their implementation. These procedures assure proper operation of the instruments and timely collection of valid data. The QA Officer discusses relevant questions with the contracted DIAL Project Manager, DIAL System Provider, Project Coordinator and Operations Leader and identifies potential concerns and solutions regarding data collection or operational protocols.

The QA Officer ensures that both the performance of QA/QC checks and data collection by the DIAL System Provider and assigned BAQC DIAL Project staff occur in a timely manner consistent with requirements, agreements, and policies of the BAQC and the EPA. The QA Officer's principal tasks involve monitoring the DIAL Project from a QA/QC perspective to include such aspects as overseeing QA/QC procedures and documentation, data validation, data concerns, instrument checks, and evaluation of Standard Operating Procedures. As necessary for project goal attainment, the DIAL Project QA Officer may communicate directly with EPA Region 6 personnel such as the Project Officer.

The QA Officer participates in the data review and field monitoring, verification and validation processes as the third of four review levels. The initial review by the DIAL System Provider stands as the first level of review, data review and field monitoring by the independent contracted Project Manager the second and Project Coordinator review the fourth and final level.

The QA Officer reports directly and solely to the Project Coordinator in order to maintain independence of action and freedom from bias throughout the DIAL Project. The QA Officer ensures that the contracted Project Manager has all necessary QA documents for reporting purposes, including DIAL System specifications from the DIAL System Provider as well as calibration and validation documentation for all instruments used for data collection and verification. The QA Officer and the Project Coordinator work together and in concert with the Operations Leader, contracted DIAL Project Manager and DIAL System Provider so that the DIAL Project produces data of known quality.

4. Operations Leader

The DIAL Project Operations Leader represents the Team Leader for the DIAL Project. The Operations Leader participates in the data review and validation process in the field by ensuring adequate training of BAQC DIAL Project staff, ensuring that standard operating procedures are developed, up-to-date, compiled and followed, and QA requirements are satisfied. The Operations Leader tracks instrument performance, certification, and problems. The Operations Leader coordinates with the QA Officer on data collection and DIAL Project analytical methodology oversight, QA/QC check reviews for all instrumentation and data file formatting and report reviews.

The Operations Leader ensures adequate training of all BAQC DIAL Project staff for proper operation of assigned instrumentation and collects relevant training documentation. The Operations Leader ensures that air emissions source process data is collected and provided to the contracted Project Manager, for future analyses and review.

The Operations Leader refers to the QA Officer for resolution all unresolved questions presented by the DIAL System Provider and/or the independent contracted Project Manager concerning QA/QC check procedures and data validation.

5. Contracted Project Manager and DIAL System Provider

A DIAL System Provider and an independent contracted Project Manager will be enlisted to maintain responsibility for the collection of benzene and VOC emissions data, including proper operation, calibration, maintenance, and documentation of the DIAL System instruments.

The DIAL System Provider will perform standard instrument checks such as calibrations and QA/QC checks that ensure the proper operation and valid data collection by the DIAL System. The independent contracted Project Manager will ensure and compile documentation demonstrating that the standard instrument checks such as calibrations and QA/QC checks for the DIAL System and other verification monitoring equipment have been performed. The DIAL System Provider and contracted Project Manager also hold responsibility for documenting instrument checks and diagnostics as well as other events of note. Documentation occurs in the instruments' daily logbooks, maintenance logs, instrument data files, and other relevant locations as listed in the Quality Assurance Project Plan (QAPP).

The contracted Project Manager and DIAL System Provider immediately relay all deviations from acceptable instrument operation and/or data collection to the Operations Leader and the QA Officer.

II. Quality System and Description

A. Quality Management Plan

This Quality Management Plan (QMP) applies to the DIAL Project of the Bureau of Air Quality Control, Environmental Health Division, Health and Human Services Department of the City of Houston.

QMP development referred to the EPA document entitled EPA Requirements for Quality Management Plans, EPA QA/R-2 to meet all the requirements of EPA Order 5360.1 A2 and 40 CFR 31, "Uniform Administrative Requirements for Grants and Cooperative Agreement to State and Local Governments", as required under state and local contract and grant agreements. The QMP represents a formal document that describes the Quality System by organization structure, management and staff responsibilities, chain-of-command, planning, implementation, assessment, and policies.

The DIAL Project staff, under the supervision of the Project Coordinator, maintains the QMP. The Bureau Chief and the Assistant Director for the Environmental Health Division review and approve the QMP.

The Project Coordinator submits the QMP to the QA Manager for EPA Region 6 for review and approval prior to DIAL Project outset and at least annually as necessary to address changes and/or revisions. Both the Bureau Chief and the Project Coordinator keep a copy of the QMP at 7411 Park Place Boulevard, Houston, TX, with the signed original kept by the EPA Region 6 Quality Assurance Officer.

B. Management Systems Review

The Bureau of Air Quality Control will conduct a Management Systems Review (MSR) at least once per project year to determine the adequacy and function of the management mechanisms. These mechanisms assure the ongoing, proper planning, implementation, and assessment of the QMP.

The QA Officer conducts this MSR independently from project management. The QA Officer sends the original MSR report to the Regional QA Manager for EPA Region 6 with copies distributed to the Bureau Chief and Project Coordinator.

C. Data Quality Objectives Process

DIAL Project personnel designated by the QA Officer formulate Data Quality Objectives (DQOs) for QAPP incorporation with final approval by the Project Coordinator to ensure compliance with the DIAL Project's scope. The DQOs follow the guidelines of the EPA document EPA Guidance for the Data Quality Objectives Process, EPA QA/G-4. At a minimum, the QA Officer shall attend the four-day EPA training course on Quality Assurance. Independent of each other, the QA Officer and the Project Coordinator review the Data Quality Objectives at least once per project year to address the DIAL Project objectives.

D. Quality Assurance Project Plan

The Project Coordinator, with review and approval by the QA Officer, is responsible for the creation of the Quality Assurance Project Plan (QAPP). After review and approval from the QA Officer and the Project Coordinator, the Bureau Chief and the Assistant Director for the Environmental Health Division then review and approve the QAPP.

The QAPP bases its organization on the EPA document EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5. The QA Officer shall have training in the EPA QMP/QAPP Seminar. The QAPP stands as a formal document describing in comprehensive detail the necessary QA/QC and other technical activities necessary to ensure that the results of the work performed will satisfy the stated performance criteria. Information covered in the QAPP includes instrument calibrations and checks, precision checks, data validation and other Standard Operating Procedures.

The DIAL Project Coordinator reviews the QAPP at least annually with submission to the EPA Region 6 Project Officer for review and approval. The Bureau Chief and the Project Coordinator keep copies of the QAPP at 7411 Park Place Boulevard, Houston, Texas, with the original kept at the EPA Region 6 office in Dallas, Texas.

E. Standard Operating Procedures

The QA Officer in coordination with other BAQC staff develops/reviews Standard Operating Procedures (SOPs) for BAQC monitoring instrumentation to be used during the DIAL Project, with oversight by the Project Coordinator. The QA Officer refers to the manufacturer's instrument operation manuals and the EPA document EPA Guidance for the Preparation of Standard Operating Procedures (SOPs) For Quality-Related Documents, EPA QA/G-6 for guidance in developing and reviewing monitoring system SOPs.

The contracted DIAL System Provider will provide SOPs for all relevant DIAL System instruments and analytical techniques employed. In SOP creation, the contracted DIAL System Provider personnel will use as a guide the EPA document EPA Guidance for the Preparation of Standard Operating Procedures (SOPs) For Quality-Related Documents, EPA QA/G-6.

The QA Officer in coordination with the Operations Leader compiles and maintains all SOPs in a binder as part of the QA Manual. Each SOP will have a date, revision number, control number, and name. The SOPs will all have an approval section with reviews on at least an annual basis with appropriate updates as changes necessitate.

The DIAL Project staff follows the SOPs for all aspects of the DIAL Project.

F. Technical Assessments

The QA Officer and the Operations Leader prepare a data report at least once during the project year to include where applicable the precision and accuracy information, data capture and data loss. The Project Coordinator then uses this information to assess QA/QC processes with changes to the QA/QC processes made as necessary. If warranted, the DIAL Project team consults with the Bureau Chief.

The QAPP will include accuracy and precision information for the DIAL Project instrumentation and verification equipment with emphasis placed on meeting DIAL Project objectives.

At least once per project year, the QA Officer and the Project Coordinator will assess the DIAL Project. This assessment includes:

- Verification equipment replacement,
- Verification equipment needs inventory,
- Data capture objectives,
- Data validation procedures,
- Staffing needs,
- Inventory and
- Other qualitative or quantitative elements

Furthermore, the Operations Leader, with input from the Project Coordinator, will assess on a weekly basis whether DIAL Project personnel continue to meet system and siting criteria. Additionally, the QA Officer may review the DIAL Project at least once per project year to determine the continued meeting of system and siting criteria.

III. Personnel Qualifications and Training

The Operations Leader should have the training and knowledge to coordinate all necessary verification monitoring analyses, including calibrations and troubleshooting. BAQC staff members become qualified for verification data collection for the DIAL Project through on-the-job training. Qualification of the Operations Leader occurs after participation in a project-specific training program. The program includes:

- DIAL System theory
- Verification instrument operation,
- General Mobile Laboratory operation,
- Meteorological instrumentation,
- Safety procedures,
- QA/QC procedures,

The Operations Leader or a designated trainer directs on-the-job training of BAQC employees for the DIAL Project. The Operations Leader sets the training schedule for BAQC employees and determines progress as well as the need for additional training. The Operations Leader informs the Project Coordinator and QA Officer of the employee's progress.

The Project Coordinator provides additional on-the-job training to BAQC DIAL Project staff once they have completed the initial training period. It may include:

- Data validation,
- Statistical calculations,
- Purchasing/requisitions

The DIAL Project team will incorporate outside training given by the TCEQ, the EPA, telecourses, internet-based courses, and other classroom instruction into the training process as deemed applicable by the Operations Leader, QA Officer, and/or the Project Coordinator. BAQC follows any relevant training requirements set by the EPA. Other outside training such as courses, seminars, administration, and other skills needed during the course of the DIAL Project provided by the manufacturers of instruments used in the DIAL Project may merit consideration as well to ensure thorough training of all members of the DIAL Project team. This training may also include the four-day EPA Region 6 Quality Assurance training course as deemed appropriate by the Project Coordinator and QA Officer.

The Bureau has a Training Coordination Team that gives each employee a professional development plan (PDP). This plan contains suggested and required training courses for career development, keeping track of on-the-job training and courses taken. The Project Coordinator and Operations Leader work with the Training Coordination Team to identify training needs, resources, and to schedule times for training.

IV. Procurement of Items and Services

The Project Coordinator and Operations Leader review all procured items and services to meet DIAL Project objectives. DIAL Project personnel write procurement specifications in accordance with DIAL Project objectives for necessary items and services.

Equipment and services obtained for the DIAL Project must follow the City of Houston procurement processes. The City procures major equipment and services by bid process (unless designated as a sole source provider) with the specifications written to meet DIAL Project requirements and objectives. Purchases less than \$2,000 do not require three bids. The normal bid process requires three bids for quantities up to \$25,000. Purchases of higher amounts must be approved by City Council before the bid process can begin. The Project Coordinator and Operations Leader review bidder changes in equipment to ensure the changes still meet DIAL Project objectives. The Project Coordinator and Operations Leader have responsibility for ensuring that all procured items arrive in good, operable condition at the BAQC.

Services for the DIAL Project Manager and the DIAL System Provider will be procured through contracts, following City of Houston procurement processes. The procurement process for these services will involve newspaper published requests for proposals, and the proposals will be evaluated based on pre-defined criteria, including but not limited to the previous relevant experience of each proposer, proposed cost and for the DIAL System Provider, whether or not identified data quality objectives will be satisfied. The proposer with the highest evaluation score for each contracted role will be selected for the project.

The DIAL Project Coordinator, Quality Assurance Officer and Operations Leader will be familiar with the contractual obligations of the DIAL Project Manager and the DIAL System Provider and will provide contract oversight, ensuring that contractual obligations, including quality assurance requirements are satisfied. Additionally, the contracted DIAL Project Manager will be familiar with the project's data quality objectives and Quality Assurance Project Plan (QAPP) and will be responsible for ensuring that the DIAL System Provider abides by applicable quality assurance requirements.

It remains the responsibility of the BAQC and its assigned staff to maintain all equipment procured by the City of Houston for use during the DIAL Project. Therefore, the BAQC furnishes any parts for this equipment and remains responsible for obtaining technical support and all repairs for the procured DIAL Project equipment.

V. Documentation and Records

DIAL Project staff rely on EPA documents EPA Requirements for Quality Management Plans, EPA QA/R-2; EPA Requirements for QA Project Plans, EPA QA/R-5; and Guidance for the Data Quality Objectives Process, EPA QA/G-4 for determining what documents need development.

The Project Coordinator, with independent input from the QA Officer, determines if a document needs to be developed or revised. When the need arises, the Project Coordinator assigns one or more DIAL Project staff the responsibility of developing or revising the document in line with EPA requirements. Meetings with the Project Coordinator, QA Officer and DIAL Project staff occur as necessary to assess the progress of the document revision or development. The Project Coordinator has the final approval of the document. The BAQC Chief may review the document depending on its importance or distribution. After the document approval, the QA Officer distributes copies to affected personnel with instructions on its implementation.

The QAPP describes all pertinent DIAL Project documents and records along with the usage of said documents.

The Project Coordinator and QA Officer, with guidance from the EPA Region 6 Office and the Bureau Chief of the BAQC, determine both what records require retention and what timeframe to establish for records storage. Document storage, both hard copies and digitally recorded read-only compact disks (CD ROM), will occur at the BAQC in designated project folders with disposal of said hard copies and CD ROM in accordance with relevant grant requirements.

VI. Computer Hardware and Software

The BAQC remains heavily dependent on computers in the acquisition and dissemination of air quality data. This is true in all parts of the operation.

The acquisition and dissemination of the project data collected during the DIAL Project happens through the computers associated with the DIAL System Provider's instrumentation.

The following represents the process used to manage and control computer operations for BAQC:

1. BAQC consults with reputable vendors and City of Houston Information Technology (IT) personnel before purchasing computer hardware to ensure that the hardware under consideration can perform the required tasks.
2. The BAQC staff does not develop computer software to be used in the project. BAQC consults city computer professionals and/or other technical resources, depending on the level of sophistication desired, regarding the suitability of computer software for the proposed use, when computer software is to be procured.
3. The BAQC Chief exercises general supervision over hardware and software procurement for BAQC. The Project Coordinator oversees and manages the general direction of the computer hardware and software for the DIAL Project team. Where directed by the Project Coordinator, the QA Officer's responsibilities shall include maintenance of software updates, passwords, documentation, and troubleshooting.

The BAQC, in consultation with city computer professionals and/or other technical resources, will be responsible for resolving any data compatibility issues that arise as the result of BAQC software or hardware upgrades.

VII. Planning

The City of Houston, including the BAQC Chief and Project Coordinator maintain the ultimate responsibility for planning the DIAL Project while adhering to all applicable EPA grant approval documentation.

The Project Coordinator adheres to all DIAL Project requirements with oversight by the Bureau Chief. The Project Coordinator conducts meetings at least once per month with the BAQC DIAL Project staff, as well as with the contracted DIAL System Provider and the contracted independent Project Manager, to discuss the DIAL Project operations including all QA issues. The QA Officer and Operations Leader separately and independently review the data and QA/QC checks, bringing any problems or concerns to the attention of the Project Coordinator.

The QAPP documents all QA/QC procedures. The QA Officer reviews all documents for adherence to QA/QC procedures. The QA Officer and Operations Leader review any deviation from the written procedure with a determination made regarding the revision or acceptability of the written procedure in question. In addition, the QA Officer and Operations Leader will review any data obtained resulting from the written procedure in question to determine data acceptability. DIAL Project staff will draft any necessary corrective action reports (CARs) as per the QAPP with oversight by the QA Officer to ensure effectiveness of the CAR. The QA Officer will inform the Project Coordinator of any issues and will assist in determining any potential QA/QC questions or problems.

At least once during the project year, the Project Coordinator will review and approve the QAPP QA/QC procedures. At a minimum, if the QAPP is not revised, each year the QAPP signature page will be resubmitted to the EPA Region 6 Project Officer. If necessary QAPP changes are identified during the Project Coordinator's review, BAQC will update the QAPP and the changes will not be implemented until they have been reviewed and approved by the EPA Region 6 Quality Assurance Manager. DIAL Project staff will maintain documentation for the QA/QC procedures according to the QAPP.

VIII. Implementation of Work Process

The DIAL System will be deployed and operated by the contracted DIAL System Provider. The contracted DIAL Project Manager will collect and compile relevant data for analyses and reporting. The BAQC Mobile Lab will be deployed to obtain metrological and ambient concentration data for benzene and other compounds of interest for verification purposes and to supplement DIAL System data. Additional available instrumentation methodologies, including use of Photoionization Detectors (PID), air sampling canister analyses and open path measurement devices will be used to verify and supplement the DIAL System results. The use of open path measurement devices such as ultraviolet differential optical absorption spectroscopy (UV DOAS) for benzene measurements and Fourier Transform Infrared (FTIR) for VOC measurements is subject to equipment availability.

The Project Coordinator and QA Officer oversee and maintain the level of performance and quality of work. The DIAL Project QAPP contains all instrument specifications regarding QA checks and verifications. BAQC DIAL Project staff, including BAQC Mobile Lab Chemists will perform instrument calibrations onsite with calibration results evaluated by criteria incorporated into the computer programs affiliated with each instrument. All QA procedures will have warning and control limits determined for each analyte or parameter as appropriate for the analysis in question. The Operations Leader and Chemists review all QA checks no later than the day after performance of the checks. Additionally, the Operations Leader and Mobile Lab Chemists investigate any failures or warning messages and discuss them with the QA Officer and/or Project Coordinator as deemed relevant. The QA Officer or designated BAQC DIAL Project staff draft the necessary CARs. After the CAR receives the QA Officer's approval, the implementation of the corrective action follows with oversight by the QA Officer to ensure the effectiveness of the corrective action in addressing the noted problem.

The BAQC DIAL Project staff shall be trained on the current procedures and perform all analyses based on these established guidelines. If a BAQC DIAL Project staff member updates a procedure to enhance and improve the process, the Project Coordinator, QA Officer, and Operations Leader may provide consultation in developing the improved procedure. The process review with the Project Coordinator, QA Officer, or designee follows until the completion of the procedural update. The QA Officer communicates the revised procedure to the DIAL Project staff with appropriate reviews and modifications, if necessary, prior to final implementation. The Project Coordinator approves the final procedure.

The Project Coordinator, QA Officer, Operations Leader, and Mobile Lab Chemists conduct meetings at least monthly to discuss problems, current activities, safety topics and/or concerns, and other issues of note in addition to project progress.

IX. Assessment and Response

BAQC management determines the assessment of programs in BAQC such as the DIAL Project.

The BAQC Project staff conduct reviews on the DIAL Project instruments as part of the BAQC commitment to the production of quality data from the DIAL Project. The QA Officer conducts a Management System Review (MSR) at least once during the project year that includes assessment of management. The QA Officer includes the Operations Leader and other BAQC DIAL Project staff in the technical assessment of the program during the MSR.

The Project Coordinator may assign additional personnel to oversee an assessment process. The assigned staff conducts an analysis with full cooperation of all DIAL Project staff. Upon undertaking an assessment process, said assessment personnel would then prepare a recommendation based on findings. As deemed necessary, the Project Coordinator would evaluate the recommended changes. The Project Coordinator and QA Officer will advise the Bureau Chief on all recommendations prior to the implementation of the recommended changes.

The Project Manager and the QA Manager for EPA Region 6 receive the results of the MSR, using these results to assess the progress and performance of the DIAL Project. The Project Coordinator prepares an evaluation of the DIAL Project and submits it to the EPA Region 6 Project Officer, the Bureau Chief, and other key DIAL Project stakeholders.

X. Quality Improvement

The Project Coordinator holds responsibility for overall management of the Quality System. The QA Officer monitors day-to-day QA activities. Through the performance of project-specific QA protocols, the QA Officer and Operations Leader, in conjunction with the DIAL Project staff, spot irregularities as soon as circumstances warrant. The DIAL Project staff identifying any irregularities in collected data, instrument performance, or other project-related activities will immediately bring the noted irregularities to the attention of the Operations Leader and the QA Officer. The QA Officer then informs the Project Coordinator of the observed irregularities. After determining what corrective action to implement, the QA Officer delegates appropriate DIAL Project staff to apply the corrective action and draft the corresponding Corrective Action Report (CAR) that shall include a narrative of the problem, the corrective action implemented, and whatever follow-up measures deemed necessary to assure problem elimination. This activity must see completion within ten (10) business days of the discovered irregularity with the completed CAR subsequently filed in its designated log/binder after dissemination to all DIAL Project staff. Deviations from this timeline must have the written approval of the QA Officer. In addition, the QA Officer will confirm the effectiveness of the CAR in addressing the noted problem through monitoring the area(s) covered by the CAR.

At least monthly, a meeting within the DIAL Project Team occurs to cover the operation of the monitoring process, including QA issues, safety, schedules, SOPs, and other issues that might affect the DIAL Project. The Bureau Chief remains informed on DIAL Project implementation.

Selected personnel from the DIAL Project staff as designated by the Project Coordinator will attend the four-day EPA Region 6 Quality Assurance training course in addition to other pertinent EPA Region 6 conferences as deemed relevant. All pertinent QA issues discussed may see incorporation into the DIAL Project's QMP and or the QAPP as deemed necessary and appropriate by the Project Coordinator in consultation with the QA Officer. Based upon the QA Officer's recommendations and independent observations, the Project Coordinator will address specific improvements needed in all QA documents and procedures. In addition, the QA Officer will include in the MSR a review of the DIAL Project QA/QC.