

# **AIR QUALITY RESEARCH PROGRAM**

**Texas Commission on Environmental Quality  
Contract Number 582-22-20017  
Awarded to The University of Texas at Austin**

**Quarterly Report  
September 1, 2024 – November 30, 2024**

**Submitted to**

**Jocelyn Mellberg  
Texas Commission on Environmental Quality  
12100 Park 35 Circle  
Austin, TX 78753**

**Prepared by**

**David T. Allen, Principal Investigator  
The University of Texas at Austin  
10100 Burnet Rd. MC R7100  
Austin, TX 78758**

**December 10, 2024**

The preparation of this report was financed through a grant from the Texas Commission on Environmental Quality (TCEQ), administered by The University of Texas at Austin (UT) through the Air Quality Research Program (AQRP). The contents, findings, opinions, and conclusions are the work of the author(s) and do not necessarily represent findings, opinions, or conclusions of the TCEQ.

## TABLE OF CONTENTS

Table of Contents .....	3
Overview .....	4
Program Activities for the quarter .....	4
Background .....	5
Research Project Cycle .....	6
Independent Technical Advisory Committee .....	7
Table 1. Independent Technical Advisory Committee Members .....	8
TCEQ Relevancy Review .....	8
Advisory Council .....	8
Table 2. Advisory Council Members .....	9
Financial Status Report .....	10
Program Administration .....	10
Table 3: Administration Budget (2024-2025 Biennium) .....	10
ITAC .....	11
Table 4: ITAC Budget (2024-2025 Biennium) .....	11
Project Management .....	11
Table 5: Project Management Budget (2024-2025 Biennium) .....	11
Research Projects .....	12
Table 6: 2024-2025 Biennium Research Project Budget .....	12
Appendix A. Contractual Research Projects Approved for Funding (Biennium 2024-2025) .....	13

## **Texas Air Quality Research Program**

### **Quarterly Report**

**September 1, 2024 – November 30, 2024**

#### **OVERVIEW**

The goals of the State of Texas Air Quality Research Program (AQRP) are:

- (i) to support scientific research related to Texas air quality, in the areas of emissions inventory development, atmospheric chemistry, meteorology, and air quality modeling,
- (ii) to integrate AQRP research with the work of other organizations, and
- (iii) to communicate the results of AQRP research to air quality decision-makers and stakeholders.

#### **PROGRAM ACTIVITIES FOR THE QUARTER**

During this reporting period, AQRP focused on drafting subaward agreements, collecting institutional data for contracting, addressing questions and concerns from awarded entities regarding agreement terms and conditions, and issuing agreements for execution.

In October and November, UT Austin issued subaward agreements to all entities except Ramboll (24-003 and 24-004), which is finalizing required audit information for UT's contracting office. Ramboll's subawards are expected to be issued on December 2, 2024, with status updates to follow in the next quarterly report. By November 2024, project abstracts and details were published on the AQRP website (<https://aqrp.ceer.utexas.edu/research/projects/fy-2024-2025>), with supporting documents (Workplan and Quality Assurance Protection Plan) scheduled for publication in December 2024. Appendix A provides details of all awarded projects.

During the subaward contracting phase, Monthly Technical Reports (MTRs) are not contractually required, but some teams submitted MTRs voluntarily as a courtesy. These reports will be included in the subsequent quarterly report following the full execution of subawards. AQRP Project Managers and TCEQ Liaisons reviewed all submitted MTRs.

As part of the AQRP Subaward Agreement requirements, prior biennium project publications citing AQRP-funded research were reviewed by AQRP Project Managers and TCEQ Liaisons.

The Financial Status Report (FSR) section includes accounting data through November 2024.

Throughout the period, the AQRP Program Manager maintained regular communication with the TCEQ Project Manager to discuss deadlines, deliverables, program updates, and the submission of monthly FSRs, and provided additional information as requested.

**BACKGROUND**

Section 387.010 of House Bill (HB) 1796 (81<sup>st</sup> Legislative Session), directs the Texas Commission on Environmental Quality (TCEQ) to establish the Texas Air Quality Research Program (AQRP). The University of Texas at Austin (UT) was selected by the TCEQ to administer the program. A contract for the administration of the AQRP was established between the TCEQ and UT. Consistent with the provisions in HB 1796, up to 10% of the available funding is to be used for program administration; the remainder (90%) of the available funding is to be used for research projects, individual project management activities, and meeting expenses associated with an Independent Technical Advisory Committee (ITAC).

A new AQRP contract was executed for the 2024-2025 biennium and funding of \$750,000 per year was awarded.

## RESEARCH PROJECT CYCLE

The Research Program is implemented through a nine-step cycle each biennium. The steps in the cycle are described from project concept generation to final project evaluation for a single project cycle.

- 1) The project cycle is initiated by developing (in year 1) or updating (in subsequent years) the research priorities. The Air Quality Research Program (AQRP) Director, in consultation with the Independent Technical Advisory Committee (ITAC), the Advisory Council (the Council) and the Texas Commission on Environmental Quality (TCEQ), develop research priorities; the research priorities are released along with a Request for Proposals (RFP).
- 2) Project proposals relevant to the research priorities are solicited. The RFP will be found at <http://aqrp.ceer.utexas.edu/> once released.
- 3) The ITAC performs a scientific and technical evaluation of the proposals.
- 4) The project proposals and ITAC recommendations are forwarded to the TCEQ. The TCEQ evaluates the project recommendations from the ITAC and comments on the relevancy of the projects to the State of Texas's air quality research needs.
- 5) The recommendations from the ITAC and the TCEQ are presented to the Council and the Council selects the proposals to be funded.
- 6) All Investigators are notified of the status of their proposals, either intent to fund, not funded, or contingent (not funded at this time, but being held for possible reconsideration if funding becomes available).
- 7) Intent to fund projects are assigned an AQRP Project Manager at UT Austin and a Project Liaison at TCEQ. The AQRP Project Manager is responsible for ensuring that project objectives are achieved in a timely manner and that effective communication is maintained among investigators involved in multi-institution projects. The AQRP Project Manager has responsibility for documenting progress toward project measures of success for each project. The AQRP Project Manager works with the researchers, and the TCEQ, to create an approved work plan for the project.

The AQRP Project Manager also works with the researchers, TCEQ, and the Program's Quality Assurance officer to develop an approved Quality Assurance Project Plan (QAPP) and Work Plan for each project. Subaward Agreements are issued. The AQRP Project Manager reviews monthly, annual, and final reports from the researchers and works with the researchers to address deficiencies.

- 8) The AQRP Director and the AQRP Project Manager for each project describe progress on the project in the ITAC and Council meetings dedicated to on-going project review.
- 9) The project findings are communicated through multiple mechanisms. Final reports are posted to the AQRP web site (<http://aqrp.ceer.utexas.edu/>); research briefings are developed for the public and air quality decision makers; and a bi-annual research conference/data workshop is held.

During this period, the AQRP performed step 7.

## **Independent Technical Advisory Committee**

The Air Quality Research Program (AQRP) funding is to be used primarily for research projects, and one of three groups responsible for selecting the projects is the Independent Technical Advisory Committee (ITAC). The ITAC is composed of between 9 and 15 individuals with scientific expertise relevant to the AQRP. The ITAC is charged with recommending technical approaches, establishing research priorities, and reviewing, commenting, and advising on all projects to ensure that the projects facilitate air quality improvement in Texas. Members of the ITAC consist of the Texas Commission on Environmental Quality (TCEQ) Air Quality Deputy Director (or designee), and representatives with air quality expertise from research institutions with extensive expertise in air quality research in Texas. The members of the ITAC are listed in Table 1. The members of the ITAC are drawn from Texas universities active in air quality research, national laboratories that have participated in air quality studies in Texas, and institutions that have expertise not available in Texas and that have participated in air quality studies in Texas.

The ITAC membership is intentionally drawn from air quality researchers who have experience in Texas. These researchers and their colleagues will likely have interest in responding to the requests for research proposals issued by the AQRP. This raises potential confidentiality and conflict of interest issues, and the contract between TCEQ and the University of Texas at Austin requires that the AQRP maintain and implement an appropriate written policy on conflict of interest. Specifically, for the ITAC, all members are required to certify:

*Confidentiality:* As a member of Independent Technical Advisory Committee (ITAC), I understand that I will have access to proposals submitted to the Air Quality Research Program (AQRP). Subject to any legal requirements, I agree to keep the information in these proposals confidential until the selection process is completed and it is appropriate to release information to the public. I understand that there may be certain information that comes to me in my role as a member of ITAC that retains its confidential nature even after the process is concluded. I also understand that I will review said proposals and may have access to the reviews made by other ITAC members. I agree to keep these reviews and the identity of the reviewers confidential until such time as this information is released to the public. (NOTE: For the reviews and reviewers, this information may never be released.)

*Conflict of Interest:* As a member of ITAC, I agree that I will not evaluate, comment on, or vote on proposals in which I or my home institution is involved, including but not limited to, any financial interest, or in which I have another form of conflict of interest. I understand that ITAC members with conflicts of interest must leave the meeting room or the conference line when a proposal with which they have a conflict is discussed, voted on or otherwise being considered. I understand that I must recuse myself from participating in or attempting to influence at any time the ITAC's or the AQRP Council's consideration or decision concerning such proposals. I agree to bring any issues concerning a possible conflict of interest to the attention of the Director of the AQRP or the TCEQ Air Quality Deputy Director. If there is a question of interpretation regarding whether a conflict of interest exists, I agree that the decision regarding whether a conflict of interest exists will be made by the Director of the Air Quality Research Program or the TCEQ Air Quality Deputy Director.

All members of the ITAC agree to abide by these conflicts of interest and confidentiality provisions prior to participating in the review of proposals. Table 1 contains the 2024-2025 Biennium ITAC members.

**Table 1. Independent Technical Advisory Committee Members**

<b>Name</b>	<b>Title</b>	<b>Institution</b>
David Allen	Professor and Director, AQRP	The University of Texas at Austin
Doug Boyer	Technical Specialist	TCEQ, Office of Air Director
Brad Pierce	Director, Space Science and Engineering Center	Univ. of Wisconsin-Madison
Don Collins	Professor	University of California, Riverside
Joost de Gouw	Research Physicist, Cooperative Institute for Research in Environmental Sciences (CIRES) Senior Scientist and Fellow	National Oceanic and Atmospheric Administration (NOAA), University of Colorado Boulder
James Nolan	Technical Specialist	TCEQ, Office of Air Director
Lea Hildebrandt Ruiz	Associate Professor	The University of Texas at Austin
Rebecca Sheesley	Associate Professor	Baylor University
William Vizquete	Professor	University of North Carolina
Yuxuan Wang	Associate Professor of Atmospheric Chemistry	University of Houston
Greg Yarwood	Principal	Ramboll
Renyi Zhang	Distinguished Professor of Atmospheric Sciences, Harold J. Haynes Chair in Geosciences	Texas A&M University

**TCEQ Relevancy Review**

The Texas Commission on Environmental Quality (TCEQ) reviews proposals for relevancy to the State’s air quality research needs. TCEQ approval is required for a project to receive funding from the Program.

**Advisory Council**

The final group responsible for selecting Air Quality Research Program (AQRP) research projects is the Advisory Council (the Council). The Council consists of between 7 and 11 members. Two Council members with relevant scientific expertise are nominated by the Texas Commission on Environmental Quality (TCEQ). As defined in the AQRP contract, up to four members of the Council can be county judges from the Houston-Galveston-Brazoria (HGB) and Dallas-Fort Worth (DFW) non-attainment counties. Additional members should have a general background in air quality and business practices, and can include elected officials, business community representatives, environmental group representatives, and members of the general public. The Council’s responsibilities are to attend meetings with TCEQ Management and the AQRP to understand the statewide project goals for the funding period, to select for funding the projects reviewed by the Independent Technical Advisory Committee (ITAC) and ranked by the TCEQ, and to assist with the presentation of project final results at locations throughout the state. Table 2 contains the 2024-2025 Biennium Advisory Council Members.



**Table 2. Advisory Council Members**

<b>NAME</b>	<b>TITLE</b>	<b>INSTITUTION</b>
Dan Baker	Senior Partner	Environmental Reaction Engineering Experts (E REX)
Beata Czader	Air Modeling Team Leader	TCEQ
Andrew De Candis	Clean Cities & Clean Vehicles and H-GAC Cities Co-Director	Houston-Galveston Area Council (H-GAC)
Lyle Hufstetler	Clean Cities Coordinator	Alamo Area Council of Governments (AACOG)
Chris Klaus	Senior Program Manager	North Central Texas Council of Governments (NCTCOG)
Chris Owen	Senior Technical Specialist	TCEQ
Chris Rabideau	Senior Technical Specialist	Chevron
Cyrus Reed	Conservation Director	Sierra Club

**FINANCIAL STATUS REPORT**

The Air Quality Research Program (AQRP) contract was awarded for FY 24-25 for \$750,000 per year. Funds were distributed across several different reporting categories as required under the contract with TCEQ. The reporting categories are listed below in detail.

Program Administration: Limited to 10% of the overall funding per fiscal year. This category includes all staffing, materials and supplies, and equipment needed to administer the overall AQRP. It also includes the costs for the Council meetings.

ITAC: These funds are to cover the costs, largely travel expenses, for the Independent Technical Advisory Committee (ITAC) meetings.

Project Management: Limited to 8.5% of the funds allocated for Contractual budget category. Each research project is assigned a Project Manager to ensure that project objectives are achieved in a timely manner and that effective communication is maintained among investigators in multi-institution projects. These funds are to support the staffing and performance of project management.

Research Projects / Contractual: These are the funds available to support the research projects that are selected for funding.

**Program Administration**

Program Administration includes salaries and fringe benefits for those overseeing the program, as well as materials and supplies, travel, equipment, and other expenses. This category allows indirect costs in the amount of 10% of salaries and wages.

Dr. David Allen, Principal Investigator and AQRP Director, is responsible for the overall administration of the AQRP. RoseAnna Goewey, AQRP Program Manager, performs program and grant management. Mr. Vincent Torres, AQRP QAPP Manager, reviews and oversees AQRP approval of all project QAPPs.

The University of Texas at Austin’s federally negotiated fringe rates for full-time/benefits eligible employees is 27% in the current fiscal year. Rates are estimated to have a 0.5% increase for full/part-time benefits eligible employees in subsequent years. AQRP projects fully expending the Program Administration budget by August 31, 2025.

**Table 3: Administration Budget (2024-2025 Biennium)**

Budget Category	FY24 Budget	FY25 Budget	Total Budget	Expenses	Remaining Balance
Personnel/Salary	\$53,244.17	\$53,144.51	\$106,388.68	\$52,515.30	\$53,873.38
Fringe Benefits	\$14,482.42	\$14,721.03	\$29,203.45	\$13,733.22	\$15,470.23
Supplies	\$24,706.19	\$1,820.00	\$26,526.19	\$2,568.26	\$23,957.93
Total Direct Costs	\$92,432.78	\$69,685.54	\$162,118.32	\$68,816.78	\$93,301.54
Authorized Indirect Costs	\$5,324.42	\$5,314.45	\$10,638.87	\$5,251.53	\$5,387.34
<b>Total Costs</b>	<b>\$97,757.20</b>	<b>\$75,000.00</b>	<b>\$172,757.19</b>	<b>\$74,068.31</b>	<b>\$98,688.88</b>

**ITAC**

Table 4 details the 2024-2025 Biennium ITAC budget. Through November 2024, ITAC travel for members to attend meetings is accrued. Additional ITAC travel expenses are expected in August 2025 for members to attend the biannual workshop hosted at UT Austin.

**Table 4: ITAC Budget (2024-2025 Biennium)**

<b>Budget Category</b>	<b>FY24 Budget</b>	<b>FY25 Budget</b>	<b>Total Budget</b>	<b>Expenses</b>	<b>Remaining Balance</b>
Travel	\$5,000.00	\$5,000.00	\$10,000.00	\$945.97	\$9,054.03
Supplies	\$625.00	\$625.00	\$1,250.00	\$0.00	\$1,250.00
Total Direct Costs	\$5,625.00	\$5,625.00	\$11,250.00	\$945.97	\$10,304.03
Authorized Indirect Costs	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Total Costs</b>	<b>\$5,625.00</b>	<b>\$5,625.00</b>	<b>\$11,250.00</b>	<b>\$945.97</b>	<b>\$10,304.03</b>

**Project Management**

Table 5 details the 2024-2025 Biennium Project Management Budget. Expenses include Project Manager salaries, fringes, required supplies, and associated Indirect Costs. AQRP projects fully expending the Project Management budget by August 31, 2025.

**Table 5: Project Management Budget (2024-2025 Biennium)**

<b>Budget Category</b>	<b>FY24 Budget</b>	<b>FY25 Budget</b>	<b>Total Budget</b>	<b>Expenses</b>	<b>Remaining Balance</b>
Personnel/Salary	\$38,000.00	\$38,000.00	\$76,000.00	\$38,506.31	\$37,493.69
Fringe Benefits	\$10,336.00	\$10,526.00	\$20,862.00	\$10,106.97	\$10,755.03
Supplies	\$4,114.00	\$3,924.00	\$8,038.00	\$5,735.58	\$2,302.42
Other	\$1,875.00	\$1,875.00	\$3,750.00	\$0.00	\$3,750.00
Total Direct Costs	\$54,325.00	\$54,325.00	\$108,650.00	\$54,348.86	\$54,301.14
Authorized Indirect Costs	\$3,800.00	\$3,800.00	\$7,600.00	\$3,850.63	\$3,749.37
<b>Total Costs</b>	<b>\$58,125.00</b>	<b>\$58,125.00</b>	<b>\$116,250.00</b>	<b>\$58,199.49</b>	<b>\$58,050.51</b>

**RESEARCH PROJECTS**

Research projects have been selected in this reporting period. However, contracting has not been finalized. There are no research expenses to report. Table 6 shows the 2024-2025 Biennium Research Project budget. The budget allocates \$1,255,125.09 for research projects. The budget includes carry forward from the prior biennium. At the time of this report submission, subaward contracts have not been fully executed with awardees.

**Table 6: 2024-2025 Biennium Research Project Budget**

<b>2024-2025 Biennium Total Contractual Funding</b>		<b>\$1,222,500.00</b>		
<b>FY 22-23 Contractual Carry Forward</b>		<b>\$32,625.09</b>		
<b>TOTAL CONTRACTUAL BUDGET</b>		<b>\$1,255,125.09</b>		
<b>Project Number</b>	<b>Institution</b>	<b>Amount Awarded</b>	<b>Cumulative Expenditures</b>	<b>Remaining Balance</b>
24-003	University of Houston (Flynn)	\$159,221.00	\$0.00	\$159,221.00
24-003	Ramboll (Lindhjem)	\$47,827.00	\$0.00	\$47,827.00
24-003	FluxSens (Samuelsson)	\$35,000.00	\$0.00	\$35,000.00
24-004	Ramboll (Johnson)	\$229,691.00	\$0.00	\$229,691.00
24-007	University of Houston (Flynn)	\$144,233.00	\$0.00	\$144,233.00
24-007	Baylor University (Usenko)	\$88,951.00	\$0.00	\$88,951.00
24-007	Aerodyne (Fortner)	\$76,519.00	\$0.00	\$76,519.00
24-021	University of Houston (Wang)	\$186,978.00	\$0.00	\$186,978.00
24-024	The University of Texas at Austin (Misztal)	\$280,810.00	\$0.00	\$280,810.00
FY 24 Total Contractual Funding Awarded		\$1,249,230.00		
FY 24 Contractual Funds Expended			\$0.00	
FY Contractual Funds Remaining to be Spent				\$1,255,125.09
<b>Total Contractual Funding</b>		<b>\$1,255,125.09</b>		
<b>Total Contractual Funding Awarded</b>		<b>\$1,249,230.00</b>		
<b>Total Contractual Funding Contingency</b>		<b>\$5,895.09</b>		
<b>Total Contractual Funds Expended to Date</b>			<b>\$0.00</b>	
<b>Total Contractual Funds Remaining to be Spent</b>				<b>\$1,255,125.09</b>

**APPENDIX A. CONTRACTUAL RESEARCH PROJECTS APPROVED FOR FUNDING (BIENNIUM 2024-2025)**

<b>Project #</b>	<b>Project Title</b>	<b>Research Priority</b>	<b>Primary Institution: PI</b>	<b>Collab. Institution: Co-PI(s)</b>	<b>Total Budget</b>	<b>AQRP Project Manager</b>	<b>TCEQ Liaison</b>
<b>24-003</b>	Improving Emission Rates Estimates of Commercial Marine Vessels	Improve emission inventories	<i>University of Houston: Flynn</i>	<i>Ramboll: Lindhjem, FluxSens: Samuelsson</i>	\$242,048	Vincent Torres	Cody McClain
<b>24-004</b>	Evaluating Updates to CAMx and NOx Emission Inventories using TEMPO Measurements over Texas	Photochemical air quality models	<i>Ramboll: Jeremiah Johnson</i>	n/a	\$229,691	Elena McDonald-Buller	Robert Kierstead
<b>24-007</b>	Texarkana Intensive Campaign	Development of an ozone and PM2.5 field study in El Paso	<i>University of Houston: James Flynn</i>	<i>Baylor University: Usenko; Aerodyne Research, Inc.: Fortner</i>	\$309,703	Vincent Torres	Chola Regmi
<b>24-021</b>	Improving WRF representation of coastal, marine, and residual boundary layers and quantifying the effects on ozone prediction	Photochemical air quality models	<i>University of Houston: Yuxuan Wang</i>	n/a	\$186,978	Elena McDonald-Buller	Gabriel Lee
<b>24-024</b>	Novel Observations and Quantified Source Apportionment of Ozone, Particulate Matter and Contributing Precursors in the El Paso Area	Development of an ozone and PM2.5 field study in El Paso	<i>The University of Texas at Austin: Pawel Misztal</i>	n/a	\$280,810	Vincent Torres	Celinda Vallejo-Rodriguez