

**TOWN OF TIMNATH, COLORADO  
RESOLUTION NO. 27, SERIES 2015**

**A RESOLUTION APPROVING AN AIR AND WATER QUALITY MONITORING PLANS**

**WHEREAS**, the Town Council of the Town of Timnath ("Town") pursuant to C.R.S. § 31-15-103, has the power to pass resolutions; and

**WHEREAS**, there is oil and gas drilling activity outside the Town limits; and

**WHEREAS**, the Town Council is committed to protecting the citizens of Timnath and the air quality of the community; and

**WHEREAS**, Colorado State University has the expertise and capacity to conduct air and water quality monitoring for the Town per the attached proposals; and

**WHEREAS**, the Town Council is familiar with these proposals and finds them to be in the best interest of the Town, its residents, and the general public.

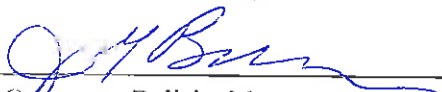
**NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF TIMNATH, COLORADO as follows:**

**Section 1. Approval**

The proposals are hereby approved in substantially the form as attached hereto, subject to technical or otherwise non-substantive modifications, as deemed necessary by the Town Manager in consultation with the Town Planner, Engineer, Legal Counsel, and other applicable staff or consultants.

**INTRODUCED, MOVED, AND ADOPTED BY THE TOWN COUNCIL OF THE TOWN OF TIMNATH, ON APRIL 28, 2015.**

**TOWN OF TIMNATH, COLORADO**

  
\_\_\_\_\_  
Jill Grossman-Belisle, Mayor

**ATTEST:**

  
\_\_\_\_\_  
Milissa Peters, CMC  
Town Clerk

Milissa Peters, CMC  
Town Clerk



**EXHIBIT A**  
**AGREEMENT**



Sponsored Programs  
Fort Collins, CO 80523-2002  
Phone: (970) 491-6355  
Fax: (970) 491-6147

**April 21, 2015**

**TO: April D. Getchius  
ACIP, Town Manager  
Town of Timnath  
[AGetchius@timnathgov.com](mailto:AGetchius@timnathgov.com)**

---

Colorado State University submits a proposal entitled, "Air Quality Monitoring Plan for Timnath".

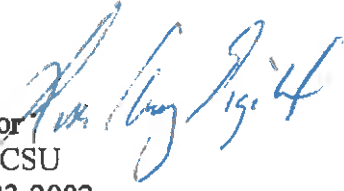
Dr. Jeff Collett will serve as PI.

Project Period: May 1, 2015 – October 31, 2016

The Research Administrators assigned to this project are:

Vincent "Bo" Bogdanski  
Senior Research Administrator  
Sponsored Programs, CSU  
Fort Collins, CO 80523-2002  
(970) 491-5574  
[Bo.Bogdanski@colostate.edu](mailto:Bo.Bogdanski@colostate.edu)

Lisa Anaya Esquibel  
Research Administrator  
Sponsored Programs, CSU  
Fort Collins, CO 80523-2002  
(970) 491-0537  
[Lisa.Anaya@colostate.edu](mailto:Lisa.Anaya@colostate.edu)

A handwritten signature in blue ink, appearing to read "Lisa Anaya Esquibel", is written over the printed name and contact information.

Please direct questions, correspondence or award documents to either individual named above. Thank you.

# Air Quality Monitoring Plan for Timnath

PI: Jeff Collett, Professor and Department Head

Co-PI: Arsineh Hecobian, Research Scientist II

Atmospheric Science Department, Colorado State University

Contact info: [collett@atmos.colostate.edu](mailto:collett@atmos.colostate.edu); 970-491-8697

The development and production of oil and gas reserves can release a variety of compounds to the local atmosphere. Included are numerous volatile organic compounds (VOCs). Methane, the main constituent of natural gas, is a potent greenhouse gas. Other light hydrocarbons, including ethane, propane, butane, and pentane, react in the atmosphere and promote the formation of ground-level ozone. Still other VOCs, such as benzene, are classified as air toxics due to their impacts on human health. These VOCs are also emitted by other source types. Cattle feedlots, for example, can be major methane emitters while vehicle refueling and exhaust are sources of benzene.

Plans to drill and complete new wells and begin oil and gas production just outside Timnath town limits have raised concerns about potential impacts on students attending nearby Bethke Elementary and on nearby residents. In order to assess any impacts from the new wells, the following monitoring activities are proposed.

1. Baseline VOC sampling will be conducted prior to the start of drilling. Several air samples will be collected near Bethke elementary and near the Costco fueling station and analyzed by gas chromatography for concentrations of air toxics and of light hydrocarbons (ethane, propane, butane, pentane, etc...) that are associated with air emissions from oil and gas operations. Samples will be collected using VOC sampling canisters and analyzed at Colorado State University. These samples will provide information about typical concentrations of individual VOCs in the local air before local oil and gas development begins.
2. 25 weekly VOC samples will be collected at Bethke spread across a period of one year, beginning with the start of drilling. Sampling weeks will be selected to cover all seasons of the year. Two canisters will be collected during each sampling week. One will sample across the full week. The second will sample only during periods when winds bring air from the well pad toward Bethke. A comparison of VOC concentrations and speciation between these samples will demonstrate whether elevated air toxics occur at Bethke due to emissions from the well pad.
3. Real-time measurements of BTEX and local winds will be made for a period of two weeks at Bethke elementary after the wells go into production. BTEX measurements will be made with a proton transfer reaction mass spectrometer (PTR-MS). By coupling the PTR-MS measurements with co-located meteorological measurements, we can determine the range of BTEX concentrations in the air at Bethke and the relative influence of sources located in different directions. This will include directions corresponding to transport from the well pad, I-25, and the large refueling stations at WalMart and Costco.
4. An advanced weather station will be set up near Bethke and operated throughout well drilling and completion and during at least the first two months of production to continuously monitor local meteorological conditions needed to predict the transport direction and dispersion of any pollutants emitted from the pad. If desired and if internet access is available, wind direction observations can be posted in near real time to a study web site.
5. Additional canisters will be used to collect samples of VOCs during periods when emissions from the well pad are suspected of influencing local air quality. Some of these samples may be collected via cooperation with town officials or representatives of the school or local citizen groups. Additional VOC samples will also be collected from the Costco fueling station to provide a comparison of BTEX levels between this environment and those near Bethke.



VOC concentrations measured during the study will be made publicly available following completion of analysis and quality assurance. Measured concentrations will be provided in the context of typical ranges of VOC concentrations measured in other urban, rural, and oil and gas production environments. The combination of air monitoring approaches planned will provide unprecedented community information about any measurable effects of oil and gas development on local air quality.

Budget:

			Year 1
<b>PERSONNEL SALARIES</b>		PM	
Academic Faculty:			
Jeff Collett	\$17,264.00	0.000	-
			-
Fringe Rate (.2565)			-
Administrative Professional:			
Research Scientist (TBD)	\$5,500.00	3.00	16,500
Research Associate (TBD)	\$4,000.00	0.25	1,000
Fringe Rate (.2565)			4,489
GRA:			
TBD Student	\$2,466.00	2.00	4,932
			-
Fringe Rate (.0811)			400
<b>TOTAL SALARY:</b>			<b>22,432</b>
<b>TOTAL FRINGE:</b>			<b>4,889</b>
<b>TOTAL PERSONNEL:</b>			<b>27,321</b>
<b>DOMESTIC TRAVEL:</b>			<b>500</b>
<b>INTERNATIONAL TRAVEL:</b>			<b>-</b>
<b>MATERIALS AND SUPPLIES</b>			<b>6,539</b>
OTHER DIRECT COSTS			
Equipment use fees			3,500
Other: Computer Network \$42/MM			221
<b>TOTAL OTHER DIRECT:</b>			<b>3,721</b>
<b>SUBCONTRACTS:</b>	<\$25,000		-
	>\$25,000		-
<b>EQUIPMENT:</b>			<b>-</b>
<b>TOTAL DIRECT COSTS:</b>			<b>38,081</b>
<b>MTDC Base</b>			<b>38,081</b>
<b>INDIRECT (F&amp;A) COSTS:</b>	<b>31.30%</b>		<b>11,919</b>
<b>TOTAL:</b>			<b>50,000</b>

## Budget Justification:

### Personnel

Jeff Collett – Prof. Collett and Dr. Arsineh Hecobian will be responsible for the planning and oversight of the project, and they will supervise the work of the Research Scientists, Research Associate and graduate student.

Research Scientists – TBD Research Scientists (including Dr. Arsineh Hecobian) with Colorado State University will spend a total of 3 PM (Person Months) on the project during the measurement period. The Research Scientists will set up and collect canister VOC samples, analyze the canister samples in the laboratory, operate the PTR-MS for real-time VOC measurements, analyze all VOC measurements together with meteorological measurements, and work with Prof. Collett on project reporting.

Research Associate – A TBD Research Associate will spend .25 PM on the project to set up and operate the advanced weather station.

Graduate Student – A TBD graduate student will spend 2 PM on the project, assisting with VOC canister collection and analysis.

### Fringe

Fringe benefits for senior personnel cover Medicare, unemployment insurance, worker's compensation, Defined Contribution Plan, and Benefit Pay, excluding sick leave. The estimated rate is 25.65% of salary for senior personnel and 8.11% for students.

### Supplies and Equipment Maintenance

Funds are included to support the installation, operation, and maintenance of the canister samplers and PTR-MS planned for use in the study. These include hardware and tools for sampler installation; calibration gases, regulators, and flow controllers for calibration; and data storage devices/media for instrument operation and data-logging and archival.

### Travel

It is estimated that the TBD Research Scientists and Graduate Student will travel approximately 962 miles to/from the monitoring sites during the project period. The current mileage reimbursement rate for CSU is \$.52/mile.

### Equipment Use Fees

Funds are requested for use of specialized laboratory analysis instrumentation. Charges are assessed for use of these instruments, on a per sample basis to cover costs of instrument maintenance and instrument-specific consumables (pump seals, calibration standards, tubing, gases, etc...). The estimated rate for the 5 channel GC system to be used for canister analysis is \$35/sample with an estimated 100 samples analyzed.

### Computer

ATS Computer charges of \$42/person month are for department Ethernet connections. The computer service charge is a rate developed using Section J-47 (Specialized Service Facility) of OMB Circular A-21 and Colorado State University's internal policy for computing, charging and auditing such Service.

**Indirect** - The approved CSU indirect cost rate for other sponsored activities is 31.1%. The rate is approved in a letter dated July 22, 2013 from the Department of Health and Human Services, Division of Cost Allocation, 415-437-7820. This agreement allows for an indirect charge to be applied to a modified base rate, computed by adjusting total direct costs to exclude tuition, equipment, and subawards over \$25,000.



# Colorado Water Watch

Proposal

## Adding Town of Timnath to the Colorado Water Watch

### WHAT IS IT?

The Center for Energy and Water Sustainability (CEWS) at Colorado State University has developed a real-time groundwater monitoring system in the Denver-Julesburg basin, called the Colorado Water Watch (CWW). The monitoring stations are equipped with real-time water quality sensors and are situated in close proximity to oil and gas operations. They are designed to continuously look for any changes in baseline groundwater quality using surrogate indicators. The real time data is analyzed using advanced anomaly detection algorithms that can examine historical patterns and look for changes in the water quality.

### WHO IS INVOLVED?

The CWW was initially funded by the CO Department of Natural Resources (DNR) through the Oil and Gas Conservation Commission (COGCC). Noble Energy has also provided funding for drilling wells and placing monitoring stations at their well sites. The steering committee consists of former governor Bill Ritter (chair), Jon Dubois-Goldin (president of Western Resource Advocates), Mike King (executive director of DNR), Matt Lepore (director of COGCC) and representatives from industry. Timnath would be the first community to become part of the CWW through an operating MOU.



### WHAT HAPPENS TO THE DATA?

A surface spill or casing breach could trigger a shift from baseline measurements indicating an event. In the case of a detected change in water quality, a CSU team will go to the well-site and collect a sample to be analyzed at an EPA certified lab for the complete suite of water quality parameters required by COGCC Rule 609 (Baseline Groundwater Sampling). If any evidence of oil and gas contamination is present, the results and any further investigation will be turned over to COGCC.



Two wells will be monitored at the Timnath site, one on or near the actual well pad and the second between the well pad and Bethke Elementary. Before placing the monitoring probes the CWW team will collect samples and have them analyzed at an EPA certified lab, data that constitute the baseline. The CWW website ([waterwatch.colostate.edu](http://waterwatch.colostate.edu)) will be updated to include the Timnath site data and analysis. Members of the community can view real-time data and event detection algorithm outputs through this user friendly website and learn more about the risks of oil and gas

activity. The CSU CWW team would also be happy to make this a learning experience to Bethke Elementary students by visiting classes.