



TOWN BOARD WORK SESSION

November 25, 2019 - 5:30 PM

Town Board Chambers, 301 Walnut Street, Windsor, CO 80550

GOAL of this Work Session is to have the Town Board receive information on topics of Town business from the Town Manager, Town Attorney and Town staff in order to exchange ideas and opinions regarding these topics.

Members of the Public in attendance are asked to be recognized by the Mayor before participating in any discussions of the Town Board

AGENDA

1. Air Quality Monitoring Discussion
2. Future Meetings Agenda

The Town of Windsor will make reasonable accommodations for access to Town services, programs, and activities and will make special communication arrangements for persons with disabilities. Please call (970) 674-2400 by noon on the Thursday prior to the meeting to make arrangements.



MEMORANDUM

Date: November 25, 2019
To: Mayor and Town Board
Via: Shane Hale, Town Manager
From: Scott Ballstadt, Director of Planning
Re: Air Quality Monitoring Discussion
Item #: 1.

Background / Discussion:

Please see attached memo and supporting materials.

ATTACHMENTS:

- ▢ Staff Memo
- ▢ Oil, Gas and Air Quality in Windsor - Presentation
- ▢ Extraction Oil & Gas air quality monitoring info



MEMORANDUM

Date: November 25, 2019
To: Mayor and Town Board
From: Scott Ballstadt, Director of Planning
Re: Air Quality Monitoring

Background / Discussion

Town Board will be joined by the following four individuals who will each provide a brief overview of the work they are doing in the area of air quality monitoring, followed by discussion and Q&A with Town Board:

- Jeffrey L. Collett, Jr., Professor and Department Head, Atmospheric Science Department at Colorado State University will review air quality monitoring being conducted for Broomfield and other relevant work. Broomfield has posted the latest Air Quality Monitoring Report at: <https://www.broomfield.org/civicalerts.aspx?aid=1718>
- Detlev Helmig, Associate Research Professor, Institute of Arctic and Alpine Research (INSTAAR) at University of Colorado will review air quality monitoring being conducted for the City of Longmont (<http://www.bouldair.com/longmont.htm>) and for Boulder County (http://instaar.colorado.edu/ar/boulder_reservoir.html).
- Susan Fakharzadeh, Director of Corporate Affairs, Great Western Oil and Gas, will provide an overview of air quality monitoring efforts that Great Western is undertaking at their oil and gas locations.
- Kelli Cox, Extraction Oil & Gas, will provide an overview of the third-party air quality monitoring that Extraction is conducting at their oil and gas sites.

Options for Consideration

- Issue a Request for Proposals from qualified professionals/teams to design an air quality monitoring program including determination of data collection methods, locations, protocols, testing frequency, what to be done with data that is collected, procedures for addressing potential problem readings, project website design and ongoing program maintenance, etc.
- Continue to monitor current rulemaking processes being conducted by the CDPHE Air Quality Control Commission (next hearings scheduled for December 10–19, 2019 - [Rulemaking Hearing Notices](#)) to ensure that proposed local regulations are not redundant or conflicting.

Up Next

Staff is currently reaching out to other jurisdictions and conducting research regarding siting of oil and gas locations. Specifically, staff is looking into what others are doing to address incompatibilities between oil and gas and neighboring residential uses. Staff will be prepared to bring the results of this research before Town Board in January.

Attachments

Presentation materials

cc:

Jeffrey L. Collett, Jr. Atmospheric Science Department at Colorado State University
Detlev Helmig, Institute of Arctic and Alpine Research (INSTAAR) at University of Colorado
Susan Fakharzadeh, Great Western Oil and Gas
Kelli Cox, Extraction Oil & Gas



Oil, gas, & air quality in Windsor

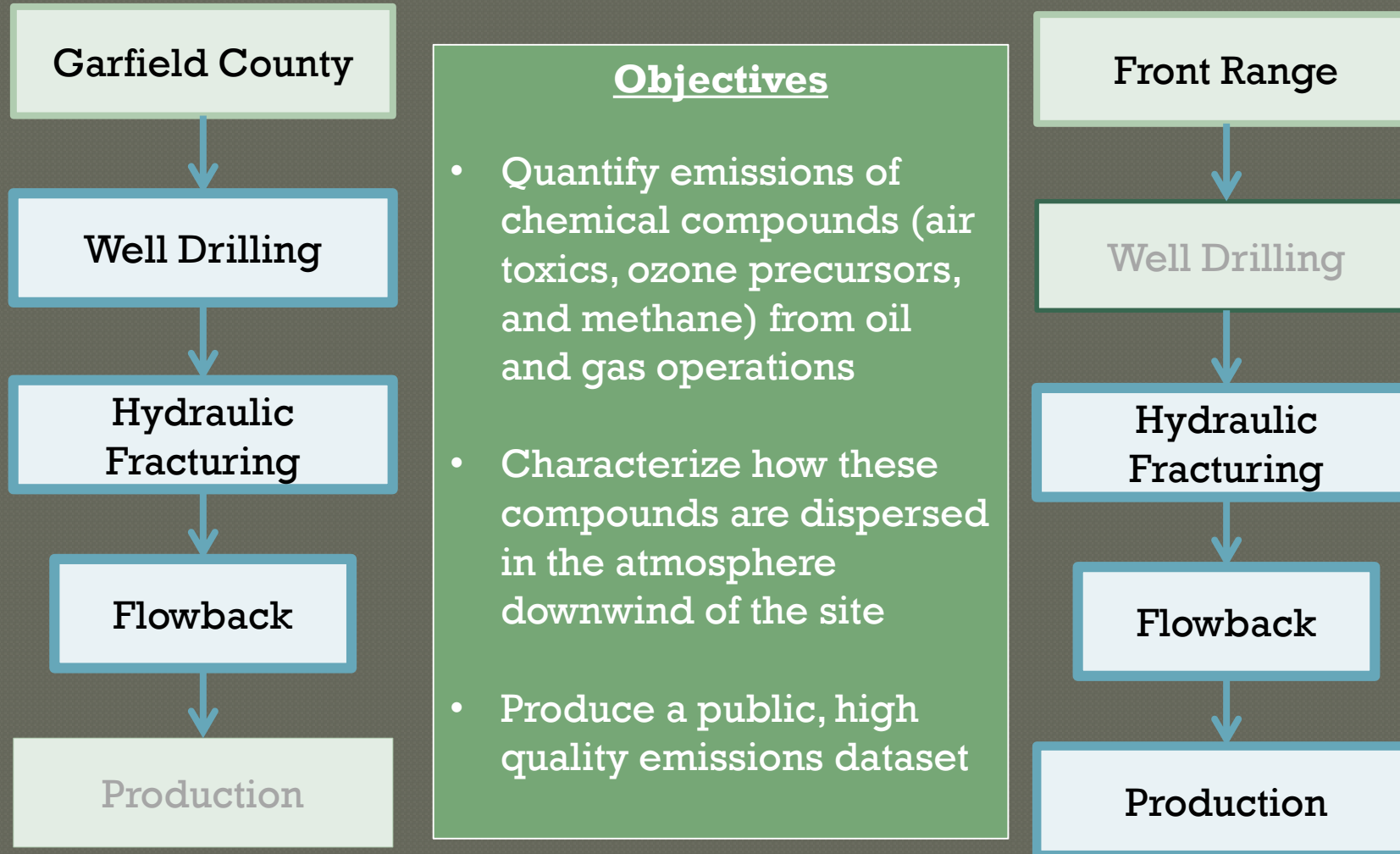
Jeff Collett
Professor and Department Head
Atmospheric Science Department



Colorado State University

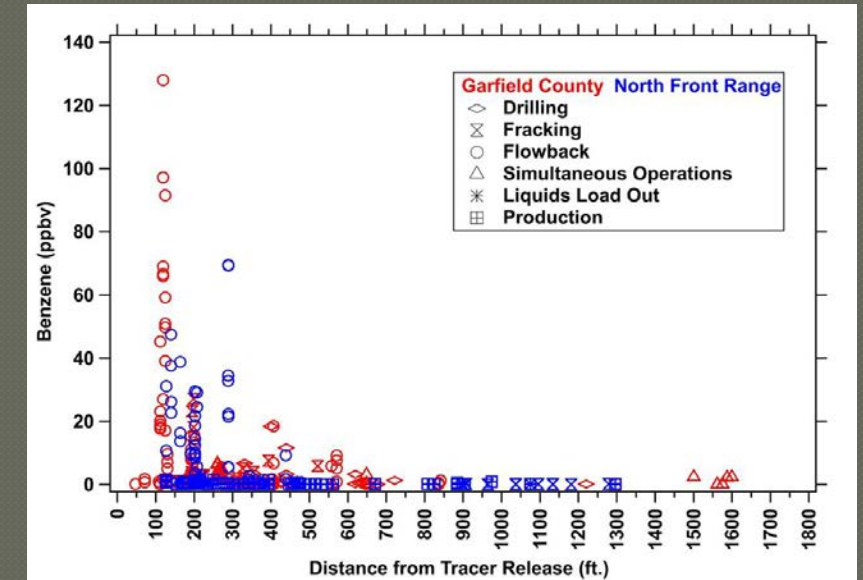
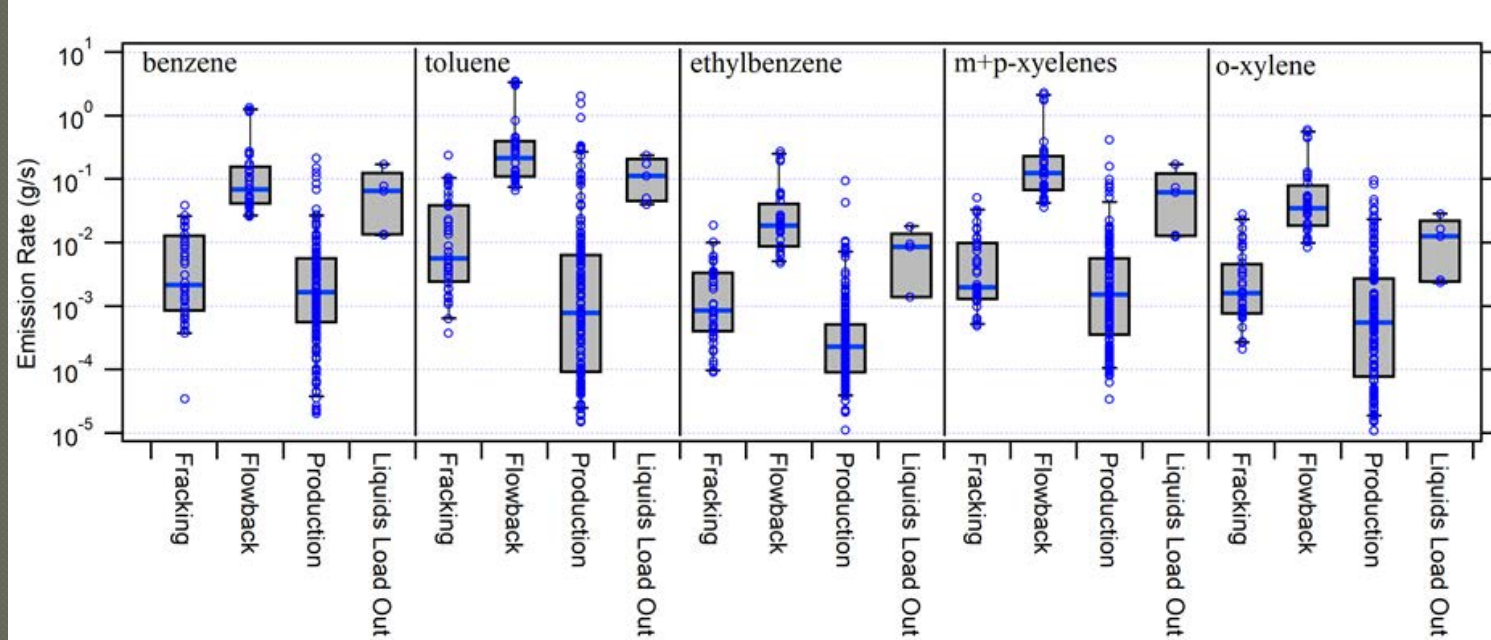
WELL STATUS: NO. OF WELLS	
● PRODUCING (PR):	46,937
● DRILLING (DG):	1,309
● ACTIVE (AC):	319
● SHUT-IN (SI):	3,698
● DRY AND ABANDONED (DA):	20,763
● PLUGGED AND ABANDONED (PA):	15,739
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● OTHER	

CSU Oil and Gas Emissions Studies – 2013-2016



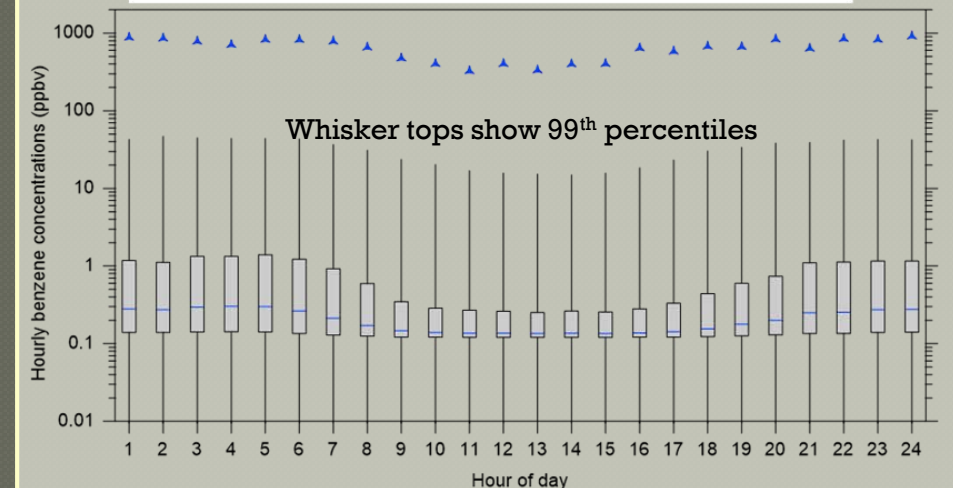
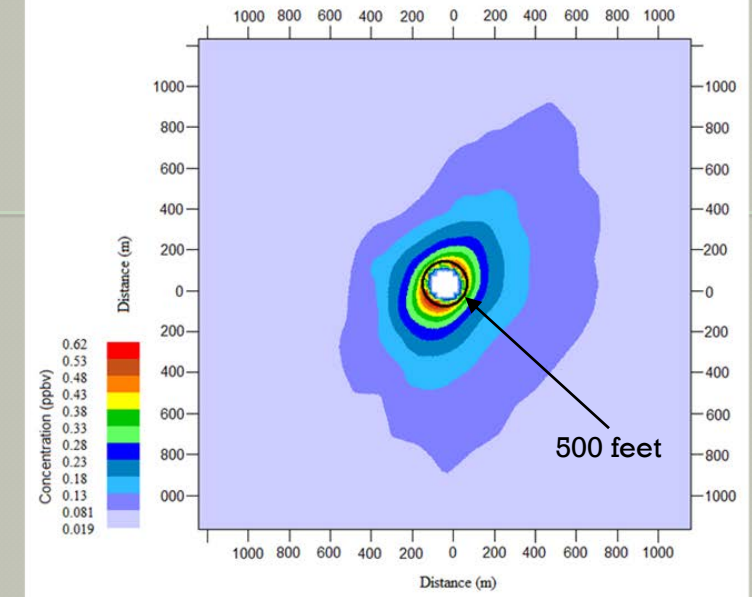
Emission study key findings

- Plumes near sources are dynamic and complex
- Concentrations fall rapidly with distance from source
- Highest air toxics emissions occurred during flowback and lowest during production



Health hazards

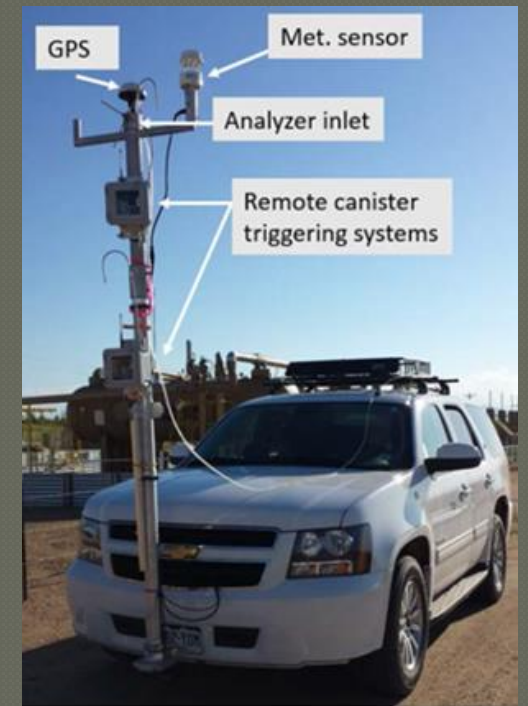
- CSU emissions measurements provided basis for recent ICF/CDPHE health risk assessment
 - Repeated model combinations of measured emissions and archived meteorology to find worst case location as a function of distance
- Benzene poses greatest hazard
 - 3 ppbv chronic and 9 ppbv acute health guideline values
 - Other air toxics less likely to exceed health guideline values
- Short-term exposures more likely to exceed health guidelines than long-term exposures
 - Greatest risk during periods of high emissions and air stagnation



CSU simulations of benzene concentrations around a modeled D-J Basin production facility with average emissions

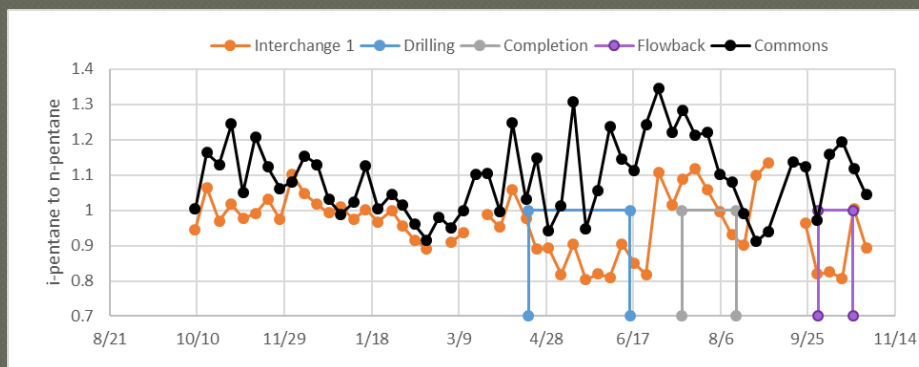
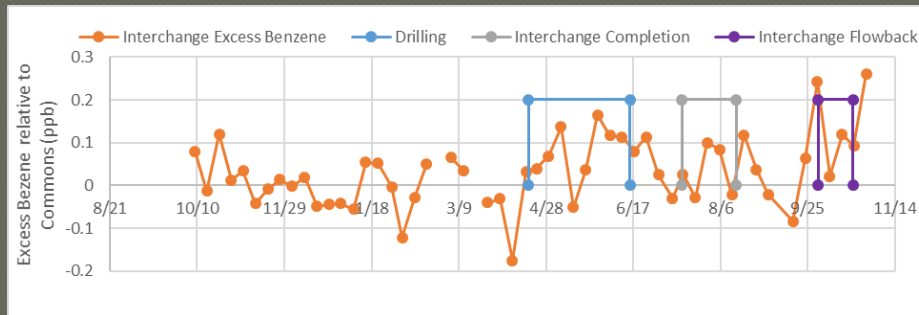
Broomfield air monitoring study

- CSU, Ajax, CDPHE, City and County of Broomfield
- Weekly VOC canisters **VOC = Volatile Organic Compound**
 - measure speciated VOCs (47 compounds, incl. air toxics and source fingerprint compounds) across Broomfield
 - document subchronic (14 day) and chronic (annual) exposure potential
 - “Fingerprint” source type contributions to Broomfield VOCs (spatially and over time)
- CSU Mobile plume tracker
 - Deployed during high emission activities and stagnation periods
 - Find plumes across Broomfield and document peak VOC concentrations
- Potential online VOC monitoring station
 - Hourly concentrations at fixed site
 - Great local information, but not representative of other areas



Broomfield monitoring

- Weekly canisters document
 - chronic exposure, spatial variability, source type contributions
 - local AQ changes during O&G operations



- Benzene similar at Interchange pad and Commons pre-drilling
- Modest benzene increase at Interchange during O&G operations

i/n-pentane ratio reflects source type

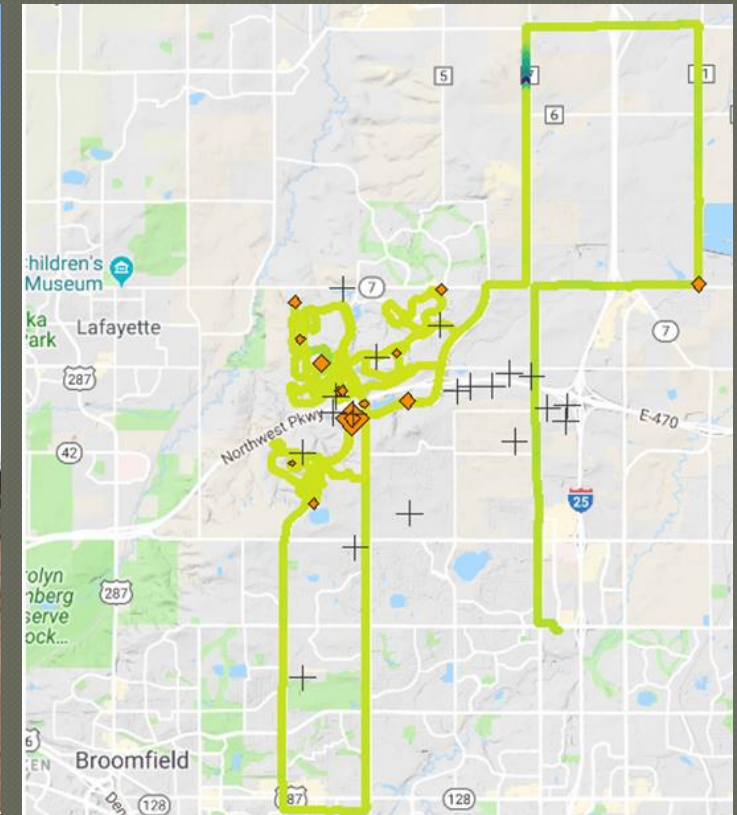
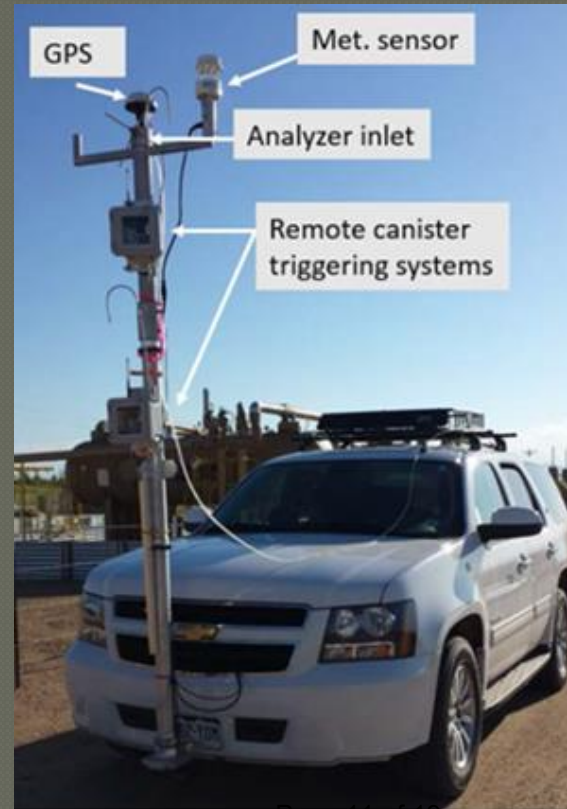
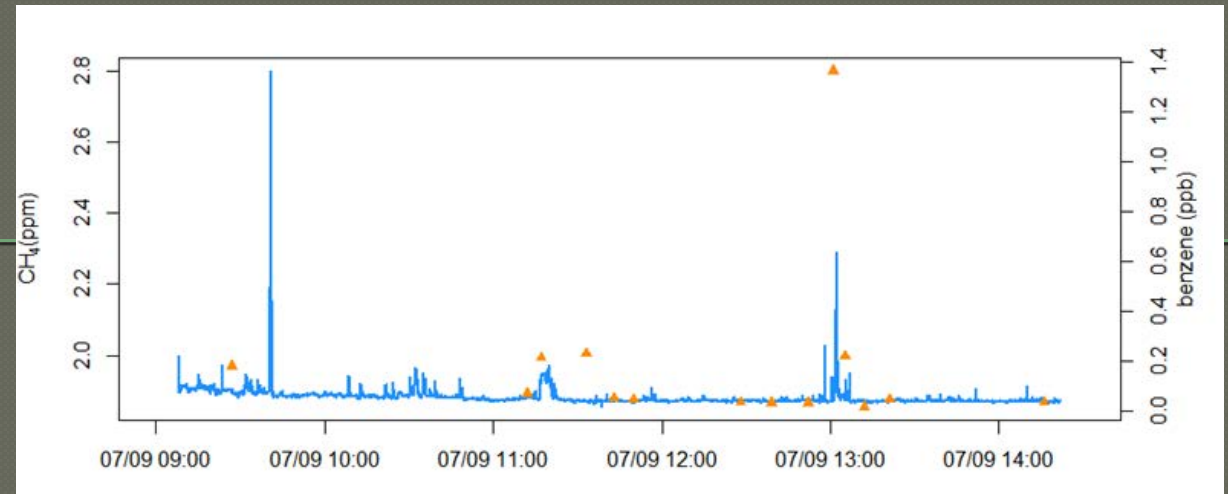
- 0.8-0.9 strong O&G
- >1 increasing combustion



Broomfield monitoring

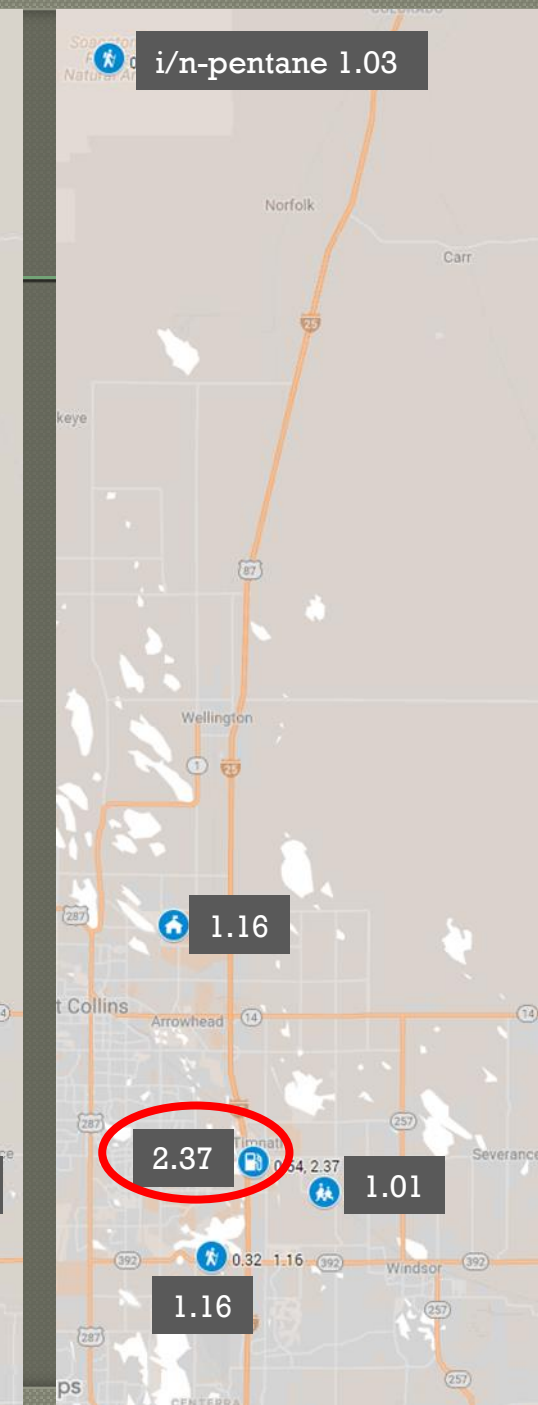
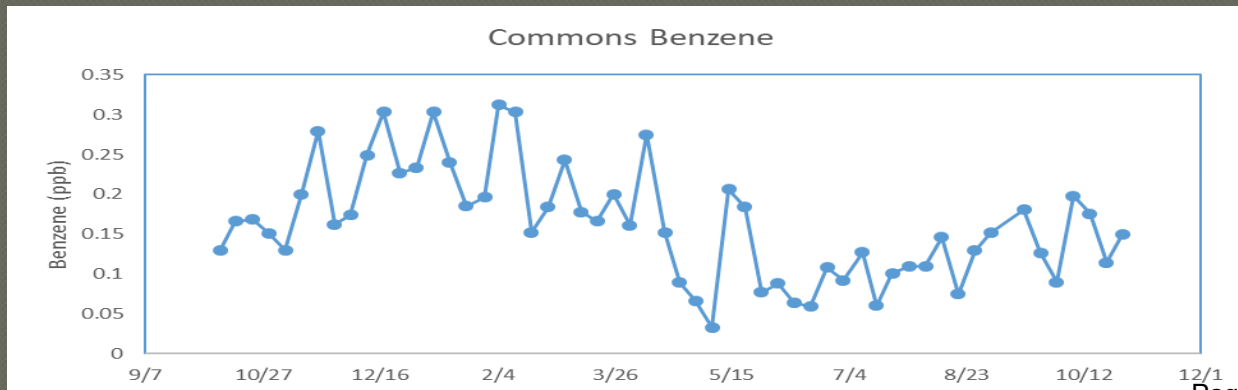
CSU Mobile plume tracker

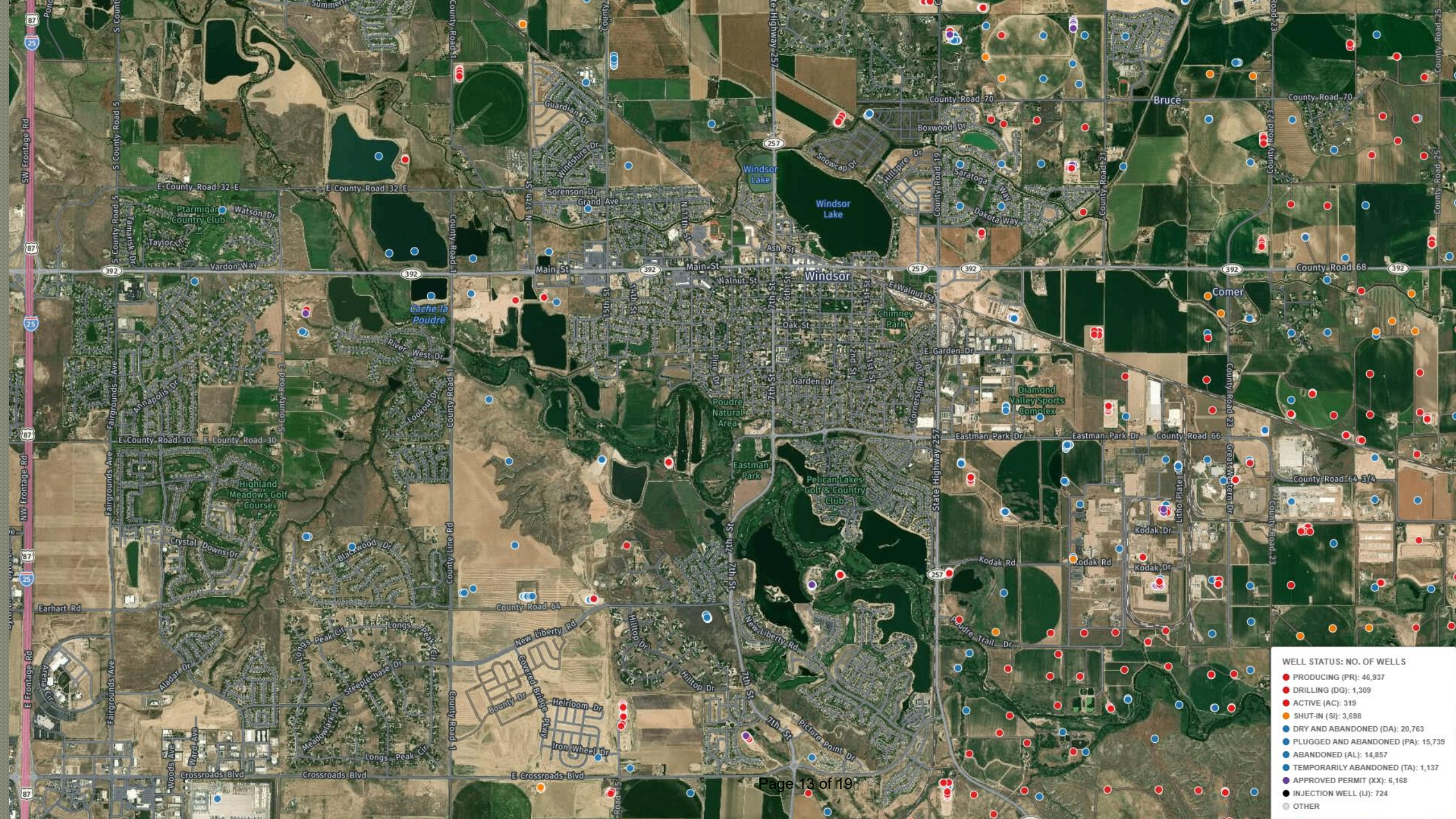
- On-board (1 sec) methane measurements to find plumes anywhere in CCOB
- VOC canisters collected in plumes to document peak concentrations
- Deployed during
 - High emission activities
 - Odor complaints
 - Air stagnation periods



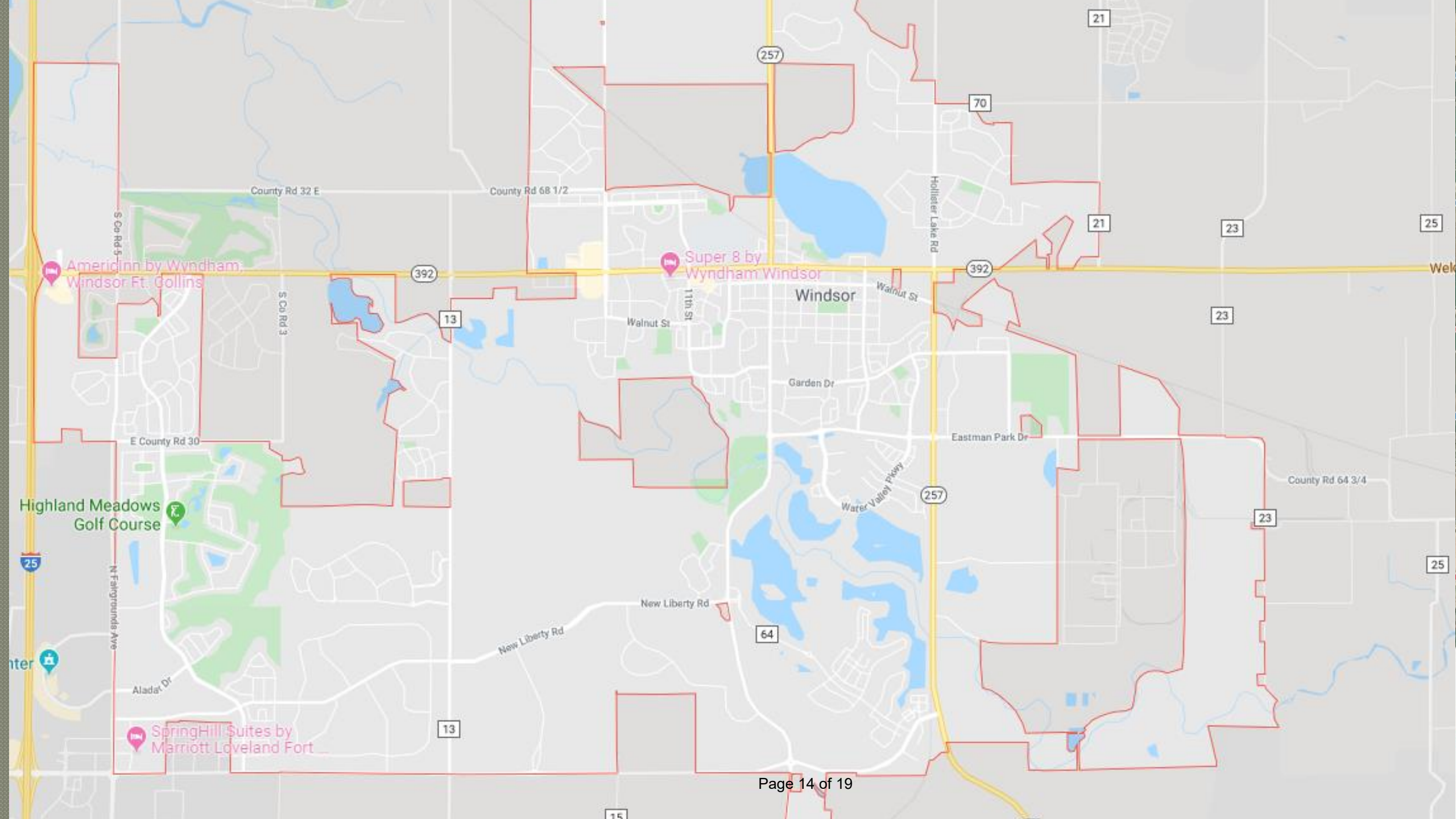
What do we know about VOCs in Northern Colorado?

- Average benzene ~ 0.1-0.3 ppbv
 - < 3 ppbv chronic health guideline
 - Higher in winter
 - Spatially varying
 - Traffic and O&G sources
- Mix of urban/traffic and O&G sources
 - i/n-pentane ratio ~1.0-1.2
 - Increasing O&G signature toward Weld County





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Windsor air quality monitoring options

Goal	Recommended Strategy		Notes
Chronic air toxics exposure potential across Windsor	Weekly canisters w/speciated VOCs		• Easy to deploy • No power required • Low capital investment • Easily scaled to add or remove sites • Cost scales with number of samples • Does not provide acute exposure info
Source contribution analysis	Weekly canisters w/speciated VOCs		
Acute air toxics exposure potential across Windsor	Mobile plume tracker (online methane w/canister VOCs)		• Ready to deploy, but only part-time • Excellent spatial coverage • Little new capital investment • Cost scales with number of deployments
Comprehensive source and exposure analysis at fixed location	Online VOC speciation monitor (Gas Chromatograph)		• Climate controlled shelter required • Significant capital investment • Always-on, hourly measurements • Does not provide spatial information

VOC canister samples can also be collected by Windsor officials or residents during AQ episodes

CLEARING THE AIR IN COLORADO

EXTRACTION'S BEST-IN-CLASS DEVELOPMENT: LEADING THE WAY

Extraction Oil & Gas is committed to safely and responsibly developing the energy we all use while protecting the air we breathe. We take our commitment seriously and have brought the most advanced and innovative facility designs to our development in Broomfield.

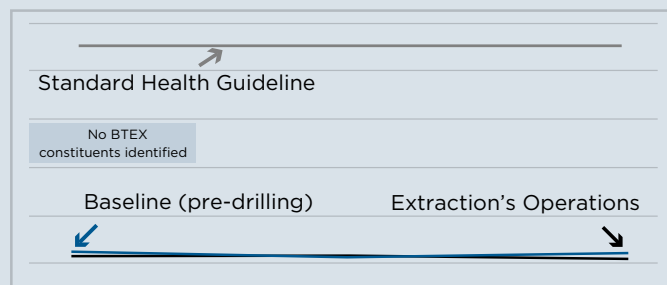
Extraction's tankless facilities, use of electric power during drilling and completions, and revolutionary flowback techniques are so advanced and air-tight that Colorado's own public health and environment regulator does not require Extraction have air permits for our Broomfield operations. We protect the air and science confirms it.

THREE RECENT STUDIES USING ACTUAL DATA FIND ZERO IMPACT ON BROOMFIELD'S AIR AND HEALTH



Each of the three studies, using actual data, found that Extraction's operations **do not result in local air quality changes** in the Broomfield community.

Colorado State University and Ajax Analytics teamed up to analyze data from 19 air monitoring stations throughout Broomfield, finding that emissions concentrations **"remained well below standard health guidelines."**



Colorado's Department of Public Health and Environment's (CDPHE) analysis of Broomfield's air quality found that air samples taken in the vicinity of Extraction's operations **"indicate a low risk of short-term and long-term harmful health effects."** The CDPHE's analysis is in line with its decision that Extraction does not need air permits since our operations are so air tight.



Air experts at consulting firm CTEH studied **15,000 total Broomfield air samples** during operations, finding that 98% of the measurements for volatile organic compounds (VOCs) were "non-detects," meaning the VOC concentrations were not present or were less than one part per billion. This detection limit is **"well below federal health guideline levels for short- and long-term adverse health effects."**

Extraction is proud of our track record of continually raising the bar when it comes to emissions reduction and elimination. Through our use of electric-powered drilling rigs, cutting-edge completions, revolutionary flowback practices and innovative tankless facility design that reduce emissions sources, we are safely and responsibly developing the energy Coloradans use every day.





MEMORANDUM

Date: November 25, 2019
To: Mayor and Town Board
Via: Shane Hale, Town Manager
From:
Re:
Item #: 2.

ATTACHMENTS:

- ▢ Future Meetings Agenda



FUTURE TOWN BOARD MEETINGS

December 2, 2019 6:00 p.m.	Town Board Work Session Envisio Presentation
December 9, 2019 5:30 p.m.	Town Board Work Session Board/Manager/Attorney Monthly Meeting Meet the Board
December 9, 2019 7:00 p.m.	Town Board Regular Meeting – Last Regular Meeting of the Year!
December 16, 2019 6:00 p.m.	Town Board Work Session Town Attorney, Town Manager and Town Board Social
January 6, 2020 6:00 p.m.	Town Board Work Session Outside Agency Funding Requests Public Art Plan
January 13, 2020 5:30 p.m.	Town Board Work Session Board/Manager/Attorney Monthly Meeting Transportation Master Plan
January 13, 2020 7:00 p.m.	Town Board Regular Meeting Kern Board
January 20, 2020 6:00 p.m.	Town Board Work Session Land Use Code Update Oil and Gas Location Requirements
January 27, 2020 6:00 p.m.	Town Board Work Session
January 27, 2020 7:00 p.m.	Town Board Regular Meeting
February 3, 2020 6:00 p.m.	Town Board Work Session
February 10, 2020 5:30 p.m.	Town Board Work Session Board/Manager/Attorney Monthly Meeting
February 10, 2020 7:00 p.m.	Town Board Regular Meeting
February 17, 2020 6:00 p.m.	Town Board Work Session – CANCELLED due to President's Day

February 24, 2020 6:00 p.m.	Town Board Work Session Transportation Master Plan
February 24, 2020	Town Board Regular Meeting

Additional Events

November 26-27, 2019	Thanksgiving Holiday – Administrative Offices Closed
December 5, 2019	Transportation Master Plan Open House, WSFR Station No. 1, 4:00-7:00 p.m.
December 5, 2019	MPO Council Meeting, Windsor Public Works Facility, 4:00-8:30 p.m. attending: Bennett, Rennemeyer, Wilson
December 7, 2019	Transportation Master Plan Intercept Event in conjunction with Windsor Wonderland
December 19, 2019	4 th Quarter Regional Elected Meeting, Larimer County Human Services Building, Fort Collins, CO 5:30-9:30 p.m. – attending: Baker, Rennemeyer, Jones, Wilson, Sislowski, Bennett
December 21, 2019	Coffee with the Mayor, Senior Jalapeno, Windsor, CO 7:30-9:00 a.m. – attending: Melendez, Sislowski, Rennemeyer, Wilson

Future Work Session Topics

- Investment Strategy Discussion
- Land Use Code Update meeting with Planning Commission (next code section in series) – Planning
- Economic development/retail needs at 60,000 population
- Parks and Recreation Strategic Plan