TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Meeting Agenda

Town Council

Tuesday, May 20, 2025 | **6:30 PM** | **Council Chambers**

Special Meeting at 6:30 p.m.

Link to Watch or Comment Virtually: https://bit.ly/4iYwQgh

I. Call Meeting to Order and Pledge of Allegiance

6:30 p.m.

II. Roll Call

III. Approval of the Agenda

IV. General Business

25-329 Update to Building Code - Sprinkler Requirement for Residential

Attachments: Presentation

6:45-7:30 p.m.
Presenter(s): Joel Champagne, Deputy Building Official
Morgan Cullen, HBA of Metro Denver
Doug Saba & Michelle Kelly, Mountain View Fire Protection District

25-318 Future Parks Funding Options and Direction

Attachments: Presentation

7:30-8:00 p.m.
Presenter(s): Luke Bolinger, Director of Parks & Recreation

25-312 Air Quality Monitoring Discussion

Attachments: Staff Presentation

Boulder AIR Presentation

Ajax Analytics Presentation

Bouder AIR Anchor Station Cost Proposal

Boulder AIR Dispersed Summa Canister Sampling Network Cost Proposal

Ajax Analytics Dispersed Summa Canister Sampling Network Cost Proposal

8:00-8:45 p.m.
Presenter(s): David Frank, Director of Environmental Services
Detlev Helmig, Boulder AIR

Brent Buck & Morgan Frazier, Ajax Analytics

25-171 Discussion of Oil and Gas in Erie

Attachments: List of Plugged and Abandoned Wells by Date Plugged

Oil and Gas Presentation

8:45-9:30 p.m.
Presenter(s): David Frank, Director of Environmental Services
Ben Kellond, Environmental Analyst

V. Adjournment

9:30 p.m.

(The Town Council's Goal is that all meetings be adjourned by 10:30pm. An agenda check will be conducted at or about 10:00 p.m., and no later than at the end of the first item finished after 10:00 p.m. Items not completed prior to adjournment will generally be taken up at the next regular meeting.)

Town Council

Board Meeting Date: 5/20/2025

File #: 25-329, **Version:** 1

SUBJECT:
Update to Building Code - Sprinkler Requirement for Residential

DEPARTMENT: Planning & Development

PRESENTER(S): Joel Champagne, Deputy Building Official
Morgan Cullen, HBA of Metro Denver
Doug Saba & Michelle Kelly, Mountain View Fire Protection District

TIME ESTIMATE: 45 minutes

POLICY ISSUES:
The policy under consideration is whether to retain the requirement for fire sprinklers for all residential units. Town Council will weigh the benefits and impacts of retaining this requirement within the context of housing costs, effectiveness, and safety.

STAFF RECOMMENDATION:
Staff requests Council direction.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
The Town of Erie held a roundtable on Dec. 3, 2024 to discuss multiple development-related topics with the Home Builders Association (HBA) of Metro Denver, development community, and neighborhood HOAs. Additional details on the roundtable purpose and resulting action items are outlined on the Town's website: www.erieco.gov/2475/Fees-Rates-Roundtable <http://www.erieco.gov/2475/Fees-Rates-Roundtable>.

One of the action items identified at the roundtable was a suggestion to remove the prescriptive residential automatic fire sprinkler system provision for single family detached and attached homes from the adopted 2021 International Residential Code (IRC). The prescriptive provision requiring an automatic fire sprinkler system within one and two-family dwellings and townhomes was introduced in the 2009 edition of the IRC after evaluation, deliberation, and consensus voting during a 3-year building code development process by the International Code Council (ICC), publishers of the IRC. The sprinkler provision remains in the IRC up to and including the 2024 edition.

The Town has both removed and included the provision with past building code updates. On Dec. 10,

2019, the Board of Trustees passed Ordinance No. 46-2019 adopting the 2015 edition of the IRC with direction to remove, by amendment, the prescriptive provision requiring an automatic fire sprinkler system within one and two-family dwellings and townhomes. However, on the most recent update to the code on Dec. 13, 2022, the Board of Trustees passed Ordinance No. 20-2022 adopting the 2021 edition of the IRC with direction to retain the prescriptive provision as written requiring an automatic fire sprinkler system within one and two-family dwellings and townhomes.

As presented to the Board of Trustees in 2022, and which will be discussed in conjunction with the HBA and Mountainview Fire District, there are both benefits and drawbacks to the inclusion of fire sprinklers for single family detached and attached homes.

Potential Benefits of Requiring Sprinkler Systems

- Reduced fire separation distance of rated and non-rated exterior walls - 2021 IRC Table R302.1(2), which reduces building separation requirement and allows for more efficient use of land.
- Reduced fire rated wall separation between two-family dwelling units - 2021 IRC R302.3 Exception 1, which may reduce cost of construction for attached units.
- Elimination of fire protection of floors - 2021 IRC R302.13 Exception 1, which may reduce the cost of construction.
- Possible improvement of Town's Insurance Services Office (ISO) Building Code Effectiveness Grade (BCEGS).

Potential Drawbacks of Requiring Sprinkler Systems

- Possible reduction of Town's ISO BCEGS.
- Potential increase in cost of construction in relation to fire rated wall systems.
- Added cost of fire sprinkler systems

Representatives from the HBA and MVFD will join Town staff at the study session to provide perspective and answer questions from Council.

COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Safe and Healthy Community

ATTACHMENT(S):

1. Presentation

Update to Building Code - Sprinkler Requirement for Residential

Town Council Study Session

Joel Champagne, Deputy Building Official
Ed Kotlinski, Building Official
Morgan Cullen, Director of Government Affairs HBA of Metro Denver
Doug Saba & Michelle Kelly, Deputy Fire Marshals, MVFPD

May 20, 2025

Purpose of Discussion

Inform

- Background and policy history
- Review benefits and challenges of adoption
- Compare Erie to neighboring jurisdictions
- Share input from HBA & MVFPD

Receive Direction

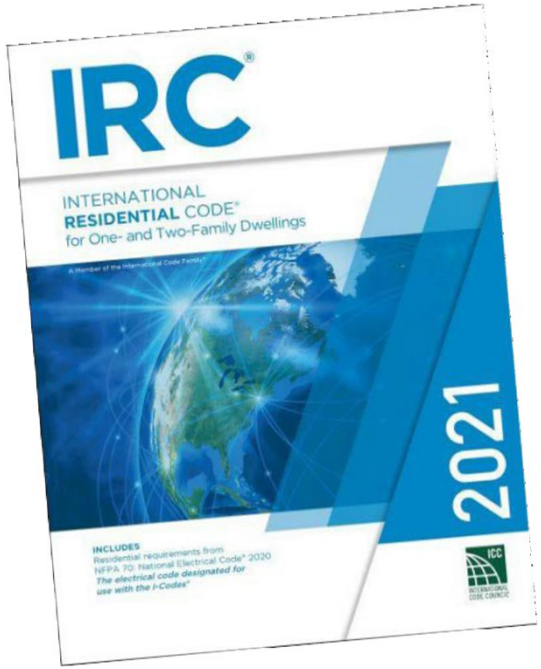
- Determine whether to update Town building code

Code History in Erie

- 2006 IRC: Did not require residential sprinkler
- 2009 IRC: Introduced sprinkler requirement
- 2015 IRC: Adopted via Ordinance 46-2019 with amendment to exempt sprinklers
- 2021 IRC: Adopted via Ordinance 20-2022 with full sprinkler requirement retained
- 2024: Stakeholder roundtable led to request for repeal consideration

Sprinkler Provision in IRC

- Applies to new one -and- two family dwellings and townhomes
- Mandated by ICC since 2009 IRC
- Still present in 2024 IRC edition



Potential Benefits & Drawbacks

- Design trade-offs:
  - Reduced exterior wall fire separation (2021 IRC Table R302.1(2))
  - Reduced wall separation in two-family dwellings (IRC R302.3 Exception 1)
- Need for floor protection (IRC R302.13 Exception 1)
- Impact to Town's ISO BCEGS score

Comparison to Other Municipalities

Jurisdiction	*Require Automatic Fire Sprinklers*		
	Single Family	*Duplex*	*Townhome*
Boulder (City)	Yes	Yes	Yes
Broomfield	Yes	Yes	Yes
Castle Pines	No	No	Yes
Centennial	No	No	Yes
Firestone	Yes	Yes	Yes
Fort Collins	No	Yes	Yes
Lafayette	No	No	No
Longmont	No	No	Yes
Louisville	No	No	Yes
Loveland	No	No	No
Northglenn	No	No	No
Superior	Yes	Yes	Yes
Thornton	No	No	No
Weld County	No	No	No
Westminster	Yes	Yes	Yes

HOME BUILDERS ASSOCIATION of METRO DENVER®

- The Erie Fire Sprinkler Requirement has significantly impacted housing attainability in Erie – costing aspiring homeowners $4.50 per sf or approximately $10,000 to the price of a single-family home.
- Additional Costs include – 1” tap ($1,000), architectural drawings ($2,500), financing, builder profits, permitting delays and annual system testing.
- Total cost to the homeowner = $13,500. This is direct cost to the builder. With overhead and profit, it is over $16,000.
- This cost is in addition to other fees and mandates imposed on new homeowners by the town since 2023:
  - IECC Code - $5,500
  - Metro Districts - $5,000
  - Water Tap Fee - $20,235

Total cost of new fees & mandates to new homeowners in Erie over last two years - $46,735

HOME BUILDERS ASSOCIATION of METRO DENVER®

- Vast Majority of front range municipalities and counties continue to amend residential sprinkler requirements out of their codes.
- Fire Sprinkler Systems are not designed to protect homes from wildfires.
- The number of home fires and fire deaths continue to decline as more new housing stock is constructed since new homes are built requiring superior safety code standards. (Ex. fire resistant building materials & better smoke detection systems.)
- Industry challenges – Interest rates, tariffs, workforce challenges are all contributing to make house affordability more challenging in Colorado and across the county.
- According to NAHB, for every $1,000 increase in price, an additional 2,373 households are priced out of the market in the State of Colorado.
- Town of Erie has seen a 45% decrease in total number of assessed residential building permits in 2025 compared to this time last year. (Increased Costs related to new fees & mandates likely a significant factor)

Fire Sprinkler

- In **2023**, Over 332,000 home-structure fires were reported. These home structure fires caused 2,890 civilian deaths (79% of all reported fire deaths), 10,190 civilian injuries (77% of all reported fire injuries) and $11B in direct property damage (62% of all fire property damage) in the United States.*
- From **2017-2021** fire sprinklers in reported home fires resulted in an annual average of 22 civilian deaths (1% of all home fire deaths), 550 civilian injuries (5%) and $249M (3%) in direct property damage.**
- Home fire sprinklers can reduce the risk of dying in a fire by 89 percent and can 89 percent and can reduce property loss by 70 %.**

**NFPA Journal- "Fire Loss in United States 2023" Winter 2024 Edition*

***NFPA Research-"Us Experience with Sprinklers" April 2024*

Fire Sprinkler

- From **2017-2021** in 85% of home fires with operating sprinkler systems, only one sprinkler operated to suppress the fire; in 99.2% of home fires 5 or fewer sprinklers activated. Sprinklers kept the fire to the room of origin 96% of the time.**
- A single fire sprinkler head operates at 13-17 gallons per minute. A single hose stream used by firefighters during fire operations uses 120-180 gallons per minute.
- Keeping the fire isolated to the area of origin minimizes fire, smoke, and water damage; allowing the occupants to reoccupy in a significantly reduced time frame, usually weeks, as opposed to months, years or ever.

**NFPA Journal- "Fire Loss in United States 2023" Winter 2024 Edition*

***NFPA Research-"Us Experience with Sprinklers" April 2024*

Fire Sprinkler

- An average cost (material and labor) in Erie is about $1.75 per square foot. This cost is about the same as upgraded cabinets, counter tops or carpet. The cost for a fire sprinkler system in a 4,000 sq ft home in Erie is an additional $7,000 with a MVFR Permit Cost of $175 in this example.

- MVFR has issued over 1,800 Residential Fire Sprinkler Permits since 2017

- Homeowners can see a reduction in Home Insurance Premiums as much as 12% when a home is protected with an automatic fire sprinkler system.

Council Direction

Town Council

Board Meeting Date: 5/20/2025

File #: 25-318, **Version:** 1

SUBJECT:
Future Parks Funding Options and Direction

DEPARTMENT: Parks & Recreation

PRESENTER: Luke Bolinger, Director of Parks & Recreation

TIME ESTIMATE: 30 minutes

FISCAL SUMMARY:
N/A

POLICY ISSUES:
Tonight's discussion will focus on receiving Council direction on funding Erie's unfinished parks and present that direction as part of the 2026 Budget process.

STAFF RECOMMENDATION:
Staff request Council's direction on how to proceed with presenting park funding options.

BACKGROUND OF SUBJECT MATTER:
At the March 13, 2025 Study Session, staff requested direction on which Capital Improvement Plan (CIP) projects to incorporate into the 2026 Budget. Although Council engaged in a robust conversation, Parks & Recreation staff did not receive clear direction on two parks that continue to surface in Council discussions: the proposed neighborhood parks in the Compass and Morgan Hill subdivisions.

In 2015, the developer of the Compass neighborhood dedicated 10 acres of park space without contributing funding for its development. In 2020, staff negotiated a fee-in-lieu agreement with the current Compass developer that provided seed funding for park construction. However, the funds remain insufficient to complete the project. That same year, the Morgan Hill developer dedicated 14.3 acres for a neighborhood park but was only obligated to cover the costs for grading, grass, and irrigation for 4.19 acres. Staff later negotiated a fee-in-lieu agreement to replace that scope of work and help support the park's design and construction.

As part of the 2022 Parks & Recreation Work Plan, staff organized community conversations and

engagement events to shape conceptual designs for the park sites. In March 2023, staff presented both park concepts to Council. Council approved the concepts and directed staff to prepare design and engineering documents. Given the Compass neighborhood's maturity, Council designated it as the higher construction priority. Council also directed staff to focus on completing the full Schofield Farm Open Space project, as outlined in the 2018 Schofield Farm & Open Space Master Plan. As a result, the 2024 Budget included only the design and engineering phase for the Compass park, advancing plans to the design development level.

The current Capital Improvement Plan schedules completion of construction documents for the Compass park in 2027, with construction targeted for 2028. For the Morgan Hill site, design development begins in 2028, followed by construction in 2029. The Town plans to fund both projects through the Parks Improvement Impact Fund (PIIF), contingent on available resources.

The graphic below illustrates projected revenues and expenditures within the PIIF. This projection excludes anticipated fee-in-lieu contributions from future developments.

Park Improvements	2023 Actuals	2024 Actuals	2025 Budget	2026 Forecast	2027 Forecast	2028 Forecast	2029 Forecast
Beginning FB	**$ 8,713,107**	**$ 12,170,509**	**$ 5,881,606**	**$ 7,532,546**	**$ 9,266,033**	**$ 10,786,194**	**$ (187,637)**
Revenues	$ 3,873,479	$ 3,114,358	$ 1,650,940	$ 1,733,487	$ 1,820,161	$ 1,911,169	$ 2,006,728
Expenditures	$ 416,078	$ 9,403,261	$ -	$ -	$ 300,000	$ 12,885,000	$ 15,300,000
Ending FB	**$ 12,170,509**	**$ 5,881,606**	**$ 7,532,546**	**$ 9,266,033**	**$ 10,786,194**	**$ (187,637)**	**$ (13,480,909)**

Timeline Options

Parks & Recreation staff request direction as the 2026 Budget process begins. If Council desires to revise project timelines, staff will need clear guidance that reflects funding realities, staff capacity, and operational commitments.

Staff pose the following questions:

- Should staff maintain the current schedule for both parks as outlined in the Capital Improvement Plan?
- Should staff begin phased design efforts for both parks in 2026, using available funds to build portions of each?
- Should staff present options to accelerate construction using alternative funding sources, such as the General Fund?
- Should staff prioritize one park for full funding and construction and defer the other to a later cycle?

Phasing park construction allows the Town to deliver community benefits sooner while distributing costs over multiple years. This approach can ease budget pressure, align with available funding, and give staff time to manage individual components and assess community use to guide future phases.

However, phasing can raise overall costs due to inflation, repeated mobilization, and potential redesigns. It may also delay full functionality, frustrating residents if key amenities remain incomplete. If Council shifts funding priorities in future years, the Town could leave a park only

partially built or indefinitely postponed, falling short of community expectations and the original vision.

TOWN COUNCIL PRIORITY(S) ADDRESSED:

☒ Attractive Community Amenities
☒ Engaged and Diverse Community
☐ Prosperous Economy
☐ Well-Maintained Transportation Infrastructure
☒ Small Town Feel
☐ Safe and Healthy Community
☒ Effective Governance
☐ Environmentally Sustainable
☒ Fiscally Responsible

ATTACHMENT(S):

1. Presentation

Future Parks Funding Op? ons and Direc? on

Erie Town Council

May 20, 2025

Luke Bolinger, Director of Parks & Recreation

Agenda

1. Timeline
2. Conceptual Plans
3. Phasing Options
4. Questions & Discussion

Timeline

Compass

- 2015 – Compass neighborhood developer dedicates 10 acres
- 2020 – Staff negotiate a fee in lieu of $770,000
- 2022 – Staff conduct community engagement to plan the site
- 2023 – Town Council adopts conceptual plan
- 2024 – Town completes 100% design development docs

Morgan Hill

- 2020 – Morgan Hill developer dedicates 14.3 acres for park
- 2022 – Staff negotiate a fee in lieu of $356,008 equivalent to 4.19 acres per development agreement
- 2022 – Staff conduct community engagement to plan the site
- 2023 – Town Council adopts conceptual plan

Conceptual* Plan - Compass

**Conceptual design illustrates the park's general layout, features, and intent but remains flexible to adapt based on site conditions, programming trends, utilities, and budget.*

Conceptual* Plan – Morgan Hill

**Conceptual design illustrates the park's general layout, features, and intent but remains flexible to adapt based on site conditions, programming trends, utilities, and budget.*

Phasing Options

1. Should staff maintain the current schedule for both parks as outlined in the Capital Improvement Plan?

2. Should staff begin phased design efforts for both parks in 2026, using available funds to build portions of each?

3. Should staff present options to accelerate construction using alternative funding sources, such as the General Fund?

4. Should staff prioritize one park for full funding and construction and defer the other to a later cycle?

Current Schedule

*Revenue growth forecasted at 3%

Park Improvements	2023 ACFR	2024 Actuals	2025 1st Supp.	2026 Forecast	2027 Forecast	2028 Forecast	2029 Forecast
Beginning FB	**$8,713,107**	**$12,170,509**	**$15,055,676**	**$7,532,547**	**$9,233,015**	**$10,684,497**	**($396,476)**
Revenues*	$3,873,479	$3,114,358	$1,650,940	$1,700,468	$1,751,482	$1,804,027	$1,858,148
Expenditures	$416,077	$229,191	$9,174,069	$0	$300,000	$12,885,000	$15,300,000
Ending FB	**$12,170,509**	**$15,055,676**	**$7,532,547**	**$9,233,015**	**$10,684,497**	**($396,476)**	**($13,838,328)**

Projects in ClearGov

Funding Source Request Title		FY2026	FY2027	FY2028	FY2029	Future
Parks Improvement Impact Fund - 320						
	Colliers Hill Filing 6 Park			$335,000.00	$3,000,000.00	
	Morgan Hill			$550,000.00	$12,300,000.00	
	Compass Park		$300,000.00	$12,000,000.00		
Total Parks Improvement Impact Fund - 320		**$0.00**	**$300,000.00**	**$12,885,000.00**	**$15,300,000.00**	**$0.00**

**These tables are just for the Parks Improvement Impact Fund and do not include Schofield*

Phased Approach

Compass – Phase 1

- Design – 2026 – $300,000
- Construction – 2027 – $4,235,000

Morgan Hill – Phase 1

- Design – 2026 – $550,000
- Construction – 2027 – $5,179,000

Compass – Phase 2*

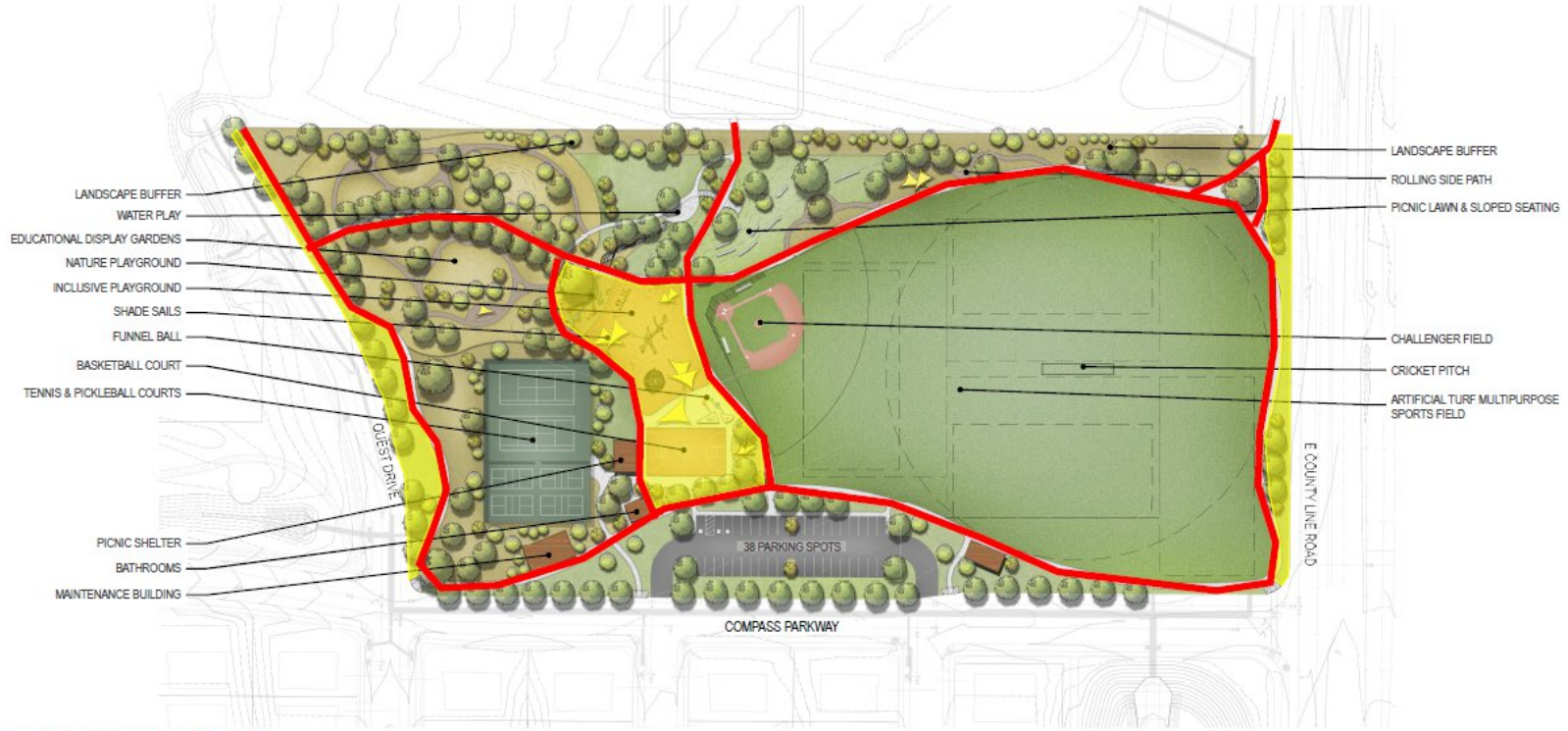
- Construction – 2028/2029 – $7,915,000

Morgan Hill – Phase 2*

- Construction – 2028/2029 – $7,271,000

**Remaining phases dependent on funding availability and may change due to inflationary costs*

Phased Approach - Compass



Compass Neighborhood Park - Phase 1
- Primary Park Paths
- Playground & Shelter
- Minimal ROW Landscaping
- Primary Utilities
- Overlot Grading & Native Seed

Phased Approach – Morgan Hill

In-Progress and Planned Capital Projects

This preliminary timeline outlines a range of active capital projects, funded through various sources and at different stages of approval. It does not include the significant maintenance projects also planned during this timeframe.

Project	2025	2026	2027	2028	2029
ECP Maintenance Building	Design/Const.	Construction			
Coal Creek Restoration & Trail Reach 3	Construction				
Coal Creek Restoration & Trail Reach 2	Design	Construction			
CCT Airport Taxiway Crossing	Design	Construction			
Allan Farms Trail Connections	Design	Construction			
Coal Creek Bridge & Colliers Hill Trail Connection	Design/Const.	Construction			
Schofield Farm (Site Improvements, Makerspace, Barn, Other Buildings)	Design/Const.	Design/Const.	Construction		
Sunset Area Plan	Design/Const.	Design/Const.	Construction	Construction	
Drainage Trail Relocation	Design	Design	Construction		
Trail Wayfinding Signs	Plan/Install	Plan/Install	Plan/Install	Plan/Install	Plan/Install
Wise Open Space Planning		Design			
Pickleball Courts at ECP		Design/Const.			
Compass Neighborhood Park			Design	Construction	
Morgan Hill Neighborhood Park				Design	Construction
Colliers Hill Filing 6 Neighborhood Park				Design	Construction
Country Fields Park Renovation				Plan	Design

Questions & Discussion

Town Council

Board Meeting Date: 5/20/2025

File #: 25-312, **Version:** 1

SUBJECT:
Air Quality Monitoring Discussion

DEPARTMENT: Environmental Services

PRESENTER(S): David Frank, Director of Environmental Services
Detlev Helmig, Boulder AIR
Brent Buck & Morgan Frazier, Ajax Analytics

TIME ESTIMATE: 45 minutes

POLICY ISSUES:
To enhance and supplement monitoring provided by the State, the Town implemented this program four years ago. The data from the program has been valuable in helping identify impacts from oil and gas operations and other emission sources both inside Erie's boundaries and from outside. These data have enabled Town staff to provide compelling information to State regulatory agencies, making the industry more aware of their impact on air quality in Erie, and promoting more effective responses to minimize pollution.

Having collected data for four years, it is time to assess the scope of the program and refine operations to provide more focus. Staff recognizes the budgetary impacts of the program and anticipates a reduction of scope, should this reflect current Council priorities, while minimizing impacts on the effectiveness of the program. Thus, several potential options are here provided to Council for discussion and consideration.

STAFF RECOMMENDATION:
Staff would appreciate policy guidance from Council to determine the form and scope of the Air Quality Monitoring Program for the second half of 2025 and beyond. All options have both positive and negative aspects for Council to consider, and staff looks forward to a discussion about the programs goals and costs to ensure that a fiscally responsible path is found that best serves the residents of Erie.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
In May 2021, the Board of Trustees for the Town of Erie approved funding for two contracts enabling the deployment of Air Quality Monitoring stations to be operated by Boulder AIR and Ajax/CSU which

would gather data regarding air quality in Erie. This monitoring is intended to compliment and coordinate with air quality monitoring programs conducted by the City and County of Broomfield, City of Longmont, and Boulder County. The initial contracts included monitoring through the calendar year 2023, and updated contracts have continued the program through June 2025 with negligible changes.

Following four full years of data collection, the Town may consider scaling back the program to better fit Town Council priorities. It is not feasible nor economically wise to continue large scale data collection on air quality when much of the data is representative of regional data collected by the State of Colorado and other adjacent local governments.

The current 2025 Budget includes $93,336 in appropriated funds for continuation of portions of the program from July through the end of the year. This study session is intended to analyze the effectiveness of the program's elements to date and what portions of the program should continue to determine overall funding and second half 2025 and 2026 contract(s).

The combined program for Erie using both contractors consist of the following elements:

- An Anchor Site operated by Boulder AIR providing reference grade continuous monitoring of Ozone, specific volatile organic compounds (VOCs), Methane, particulates, and meteorological variables. View reporting from Boulder AIR's AirLive Combined Northern Colorado Front Range website and includes data from the Erie Community Center station: <https://www.bouldair.com/erie.htm> Archived data are available at: <https://bouldairtools.com/interactive/>
- Ten apis sensors operated by Ajax/CSU deployed at locations across Town, with sensors located west of Kenosha Farms, two north of the Colliers Hill neighborhood near the Mae J/Papa Jo/Yellowhammer pads, three around the Front Range Landfill and near the Coyote well pad, and near Red Hawk Elementary School. These monitors provide continuous monitoring of relative total VOCs and auto-triggered quantitative canister sampling if total VOCs exceed specified levels. These stations also provide continuous monitoring of particulates and NO/NO_2. Ajax/CSU also operates a mobile plume tracking vehicle that can be deployed to identify and track specific emission plumes. Finally, Ajax/CSU also supplies the Town with up to two grab canisters per month to deploy in other locations and analysis of samples taken with those canisters. The Ajax data are available at https://app.ajax-analytics.com/p/program-overview#program=Erie <https://app.ajax-analytics.com/p/program-overview> with quarterly reports at <https://trello.com/b/3zmnSBUG/erie-air-quality-event-reports>.

The apis total volatile compound (TVOC) sensors detect increases and decreases of a group of more than 900 volatile organic compounds. This indicator measurement does not identify which compounds are in the air, nor exactly how many parts per billion (ppb) are in the air at any given point. What these sensors do show are how VOC levels change on a minute-by-minute basis during different types of activities happening in an area. If the TOVC Indicator detects total VOCs above certain levels, it triggers a sample that is then analyzed for specific compounds at the ppb level.

COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Engaged and Diverse Community
- ✓ Safe and Healthy Community
- ✓ Effective Governance
- ✓ Environmentally Sustainable
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Staff Presentation
2. Boulder AIR Presentation
3. Ajax Analytics Presentation
4. Bouder AIR Anchor Station Cost Proposal
5. Boulder AIR Dispersed Summa Canister Sampling Network Cost Proposal
6. Ajax Analytics Dispersed Summa Canister Sampling Network Cost Proposal

Town of Erie – Air Quality Monitoring Update

Erie Town Council

May 20, 2025

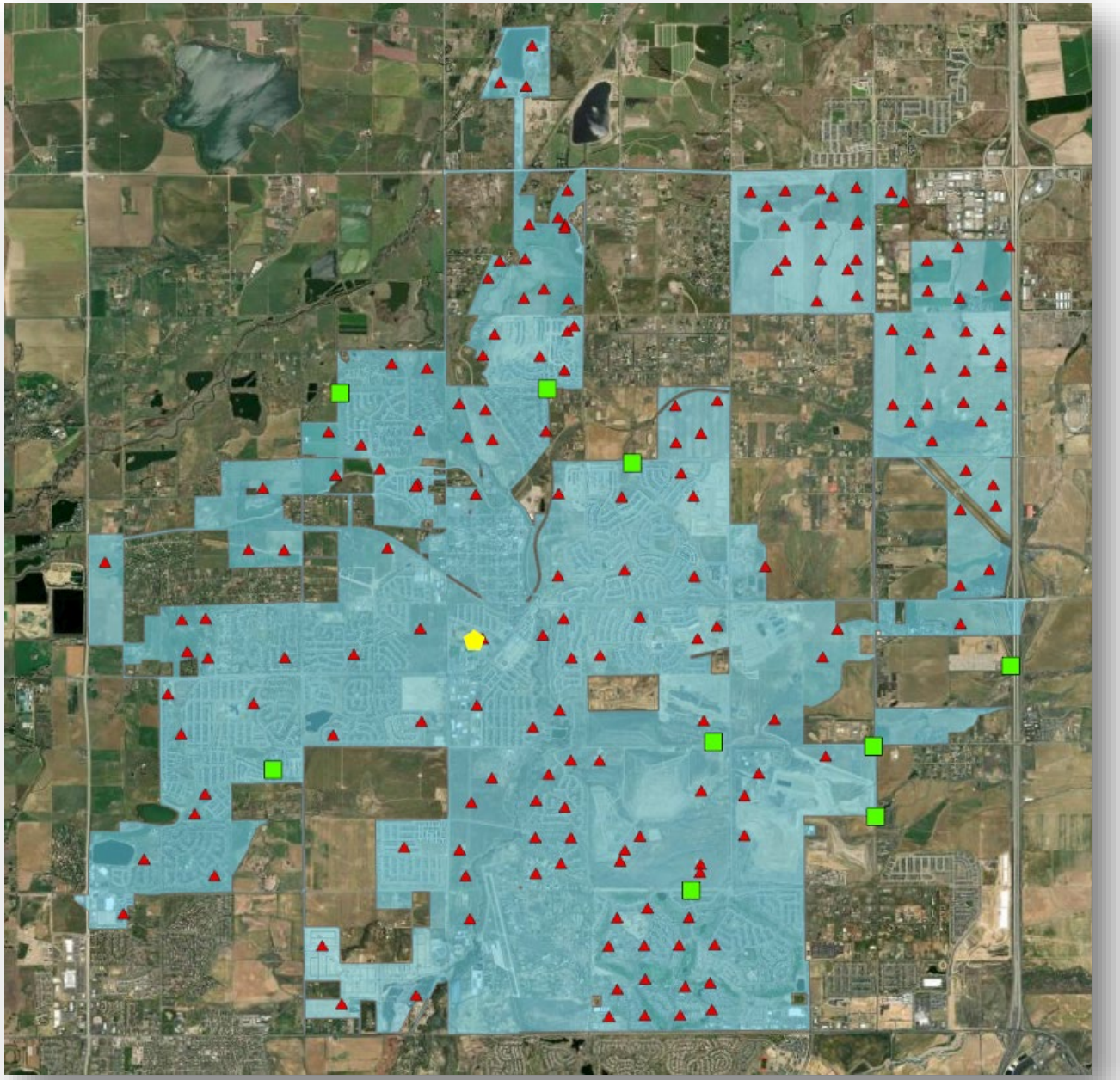
David Frank, Director of Environmental Services

Agenda

1. General Overview of the Air Quality Monitoring Network
2. Presentation from BoulderAIR
3. Presentation from Ajax Analytics
4. Budget Impacts
5. Questions and Discussion

Air Quality Monitoring

- BoulderAIR
- Ajax/CSU



BoulderAIR

Equipment in Service

- One real-time monitoring station located at ECC

- Part of Front Range Monitoring network – Five (5) total stations

Data Collected

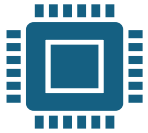
- Volatile Organic Compounds (VOCs), Particulate Matter (PM), Methane (CH4), Ozone (O3) and meteorological data

Data Implementation

- Data is available to public and for scientific uses

- Data is utilized by other local governments

Ajax/CSU



Equipment in Service

- Nine real-time monitoring stations

- One “mobile” station to respond to events (ex. Irregular operations)

Data Collected

- Total Volatile Organic Compounds (TVOCs), Particulate Matter (PM), Nitrogen Oxides (NOx) and meteorological data

- Automatically triggered summa canisters

- Continuous 7-day duration, whole-air canister samples (Collected at four sites)

Data Implementation

- Quarterly reports posted to public facing website

- All data made available through Ajax dashboard

Air Quality Monitoring Costs and Budget Impacts

Current 2025 Budget has allocated a total of $498,587 for the Air Quality Monitoring Program

Existing contracts for Jan-June monitoring totaled $405,251

- $113,620 for BoulderAIR Station at ECC (~1% increase from 2024)
- $291,631 for 10 Ajax Stations and associated work (~17% increase from 2024)

$93,336 remaining for the second half of the year without additional appropriation

BoulderAIR

Costs of the existing program (real-time monitoring station at ECC Ballfields)

- $224,734 in 2024 (12 months of monitoring)
- $113,620 first half of 2025 (6 months)

Ajax/CSU

Costs of the existing program (10 triggered suma canister stations with 4 collecting weekly samples)

- $495,854 in 2024 (12 months of monitoring)
- $291,631 first half of 2025 (6 months)

Total

Costs of the existing program

- $XXX in 2024 (12 months of monitoring)
- $XXXX first half of 2025 (6 months)

Options for Council's Consideration

Option 1 – Continue the existing program - unchanged

- 2025 Budget impact of $405,251 ($405K needing to be appropriated in Second Supplemental)
- 2026 Budget impact of ~$835,000
- Provides near real-time air quality data to residents
- Continued focus on impacts from multiple specific sources & individual oil and gas locations
- Would provide independent monitoring of the Draco Pad in pre-production
- Great flexibility to relocate Ajax stations when known maintenance activities are planned
- Complete continuity with existing data
- Very large fiscal impact

Options for Council's Consideration

Option 2 – Eliminate existing BoulderAIR station and continue Ajax Suma Canister network unchanged

- 10 stations placed across the Town of Erie
- 2025 Budget impact of $294,888 ($201K needing to be appropriated in Second Supplemental)
- 2026 Budget impact of ~$575,533
- Would provide independent monitoring of the Draco Pad in pre-production
- Broadly focused monitoring of existing oil and gas locations, landfill, other emission sources
- Able to relocate stations when known maintenance activities are planned
- Would not provide near real-time air quality data to residents
- Some continuity with existing data
- Large fiscal impact

Options for Council's Consideration

Option 3 – Eliminate existing BoulderAIR station and continue a reduced Ajax Suma Canister network

- 5 stations placed strategically near known emission sources
- 2025 Budget impact of $198,168 ($105K needing to be appropriated in Second Supplemental)
- 2026 Budget impact of $396,336
- Would provide independent monitoring of the Draco Pad in pre-production
- Provides focused monitoring of specific sources or individual oil and gas locations
- Would not provide near real-time air quality data to residents
- Limited ability to relocate stations when known maintenance activities are planned
- Some continuity with existing data
- Moderate fiscal impact

Options for Council's Consideration

Option 4 – Eliminate all Suma Canister Stations and continue the existing BoulderAIR station

- 2025 Budget impact of $113,620 ($20K needing to be appropriated in Second Supplemental)
- 2026 Budget impact of ~$226,958
- Provides near real-time air quality data to residents
- Does not focus on impacts from specific sources or individual oil and gas locations
- Would not provide independent monitoring of the Draco Pad in pre-production
- No ability to relocate stations when known maintenance activities are planned
- Some continuity with existing data
- Low fiscal impact

Options for Council's Consideration

Option 5 – Eliminate all existing stations and add BoulderAIR operated Suma Canister network

- 5 stations placed strategically near known emission sources
- 2025 Budget impact of $102,438 ($10K needing to be appropriated in Second Supplemental)
- 2026 Budget impact of $204,875
- Would provide independent monitoring of the Draco Pad in pre-production
- Provides focused monitoring of specific sources or individual oil and gas locations
- Would not provide near real-time air quality data to residents
- Limited ability to relocate stations when known maintenance activities are planned
- Likely learning curve and trial-and-error, first effort by BouderAIR with type of network
- Loss of continuity with existing data
- Lowest fiscal impact

Questions & Discussion

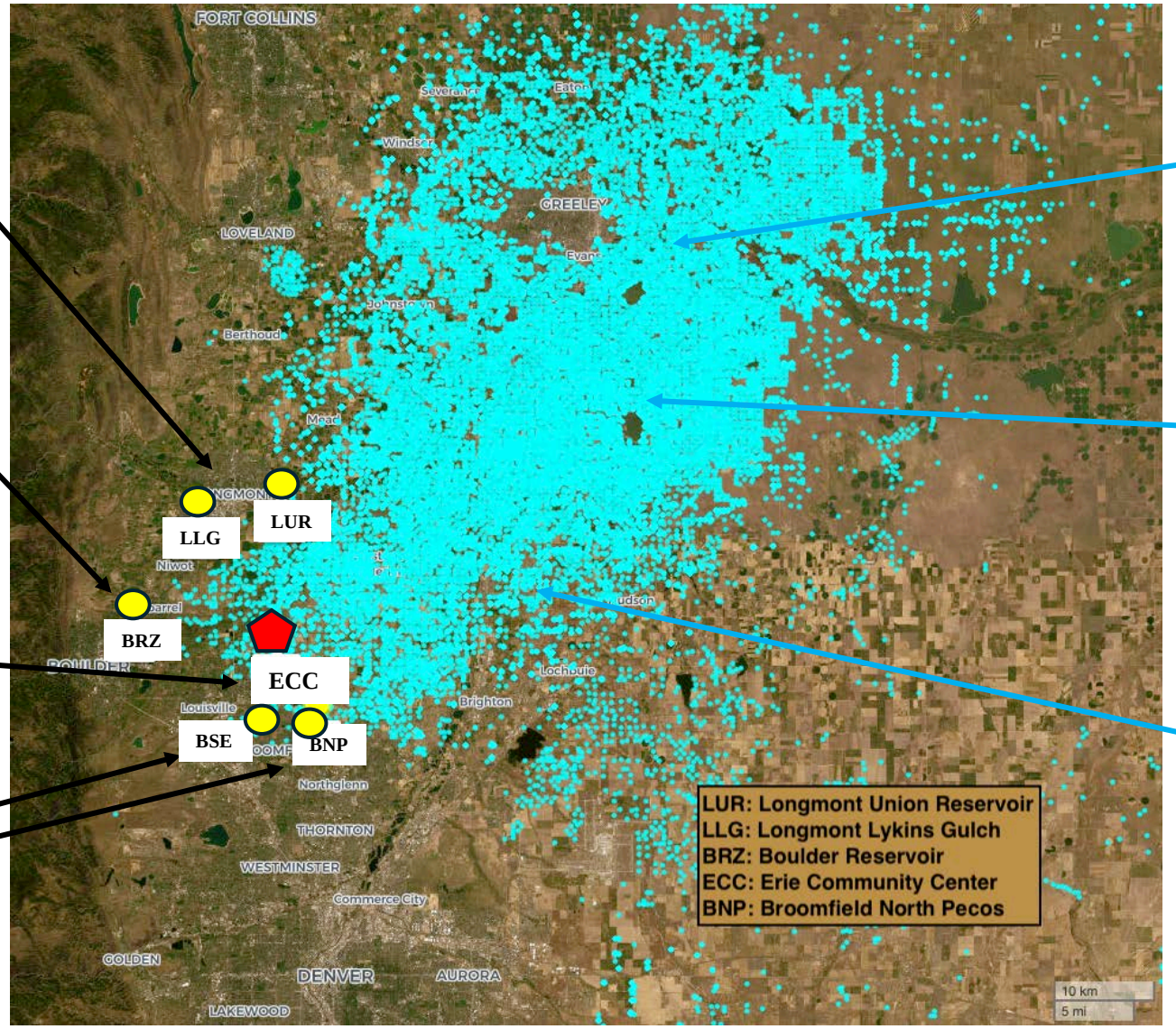
Selected Findings and Outcomes from the Air Quality Monitoring at the Erie Community Center

Detlev Helmig

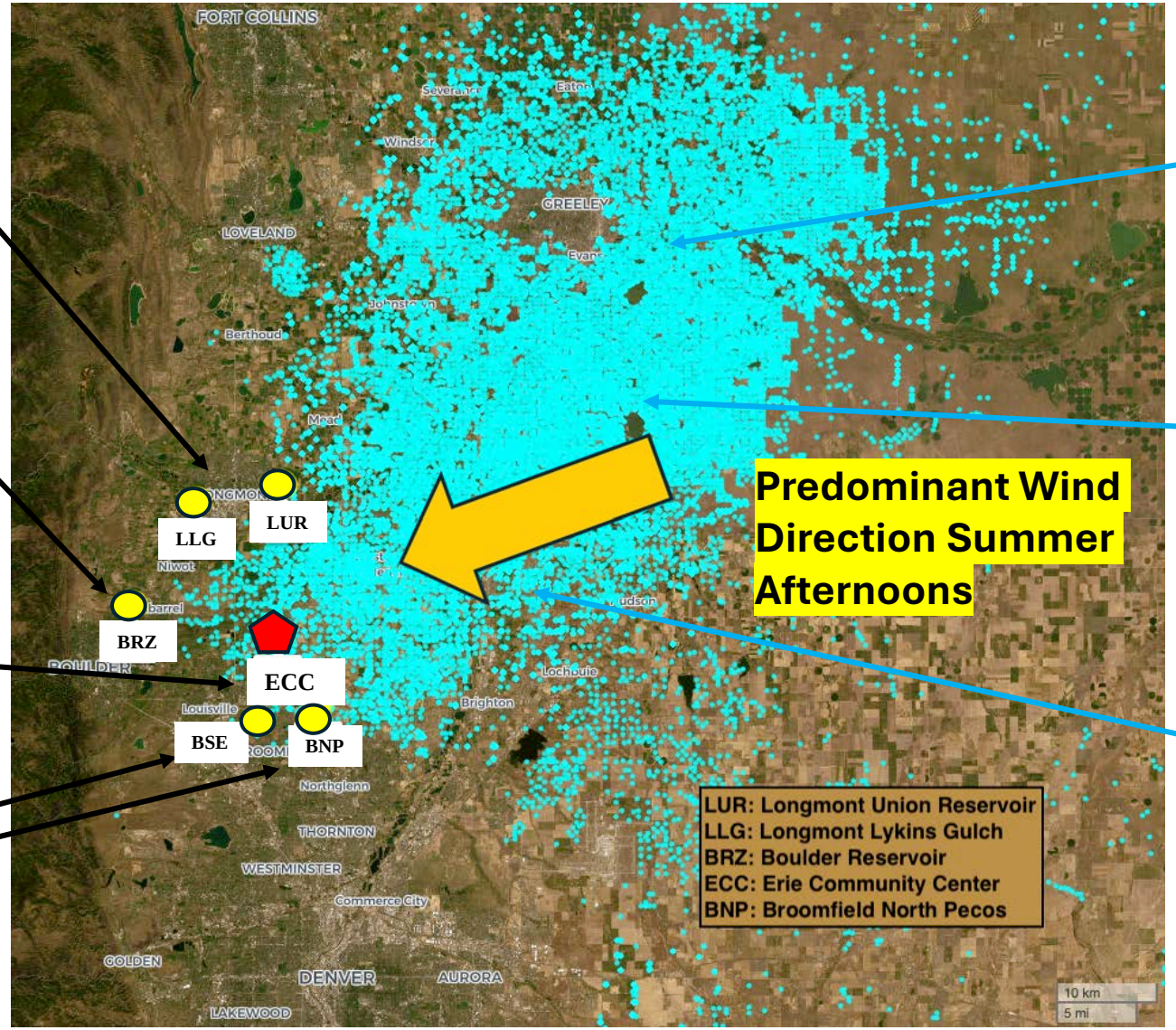
Dani Caputi, Jacques Hueber, Gabriel Greenberg, Kat Potter,
Susan Simoncic, Michel Stahli

1. Monitoring Program Introduction
2. Data Examples and Highlights
3. Impact

Local Government Air Quality Monitoring Programs and Oil and Gas Operations



Local Government Air Quality Monitoring Program and Oil and Gas Operations

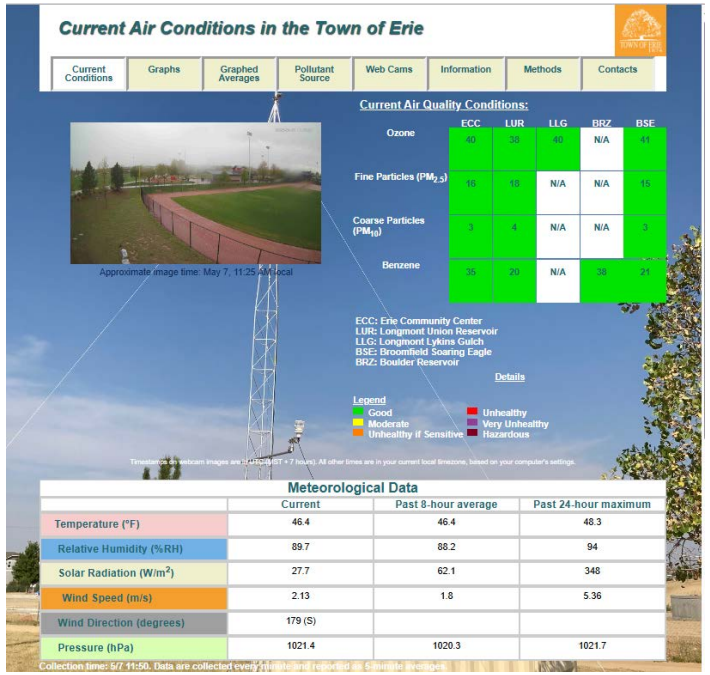


Erie Community Center (ECC) Air Monitoring Station

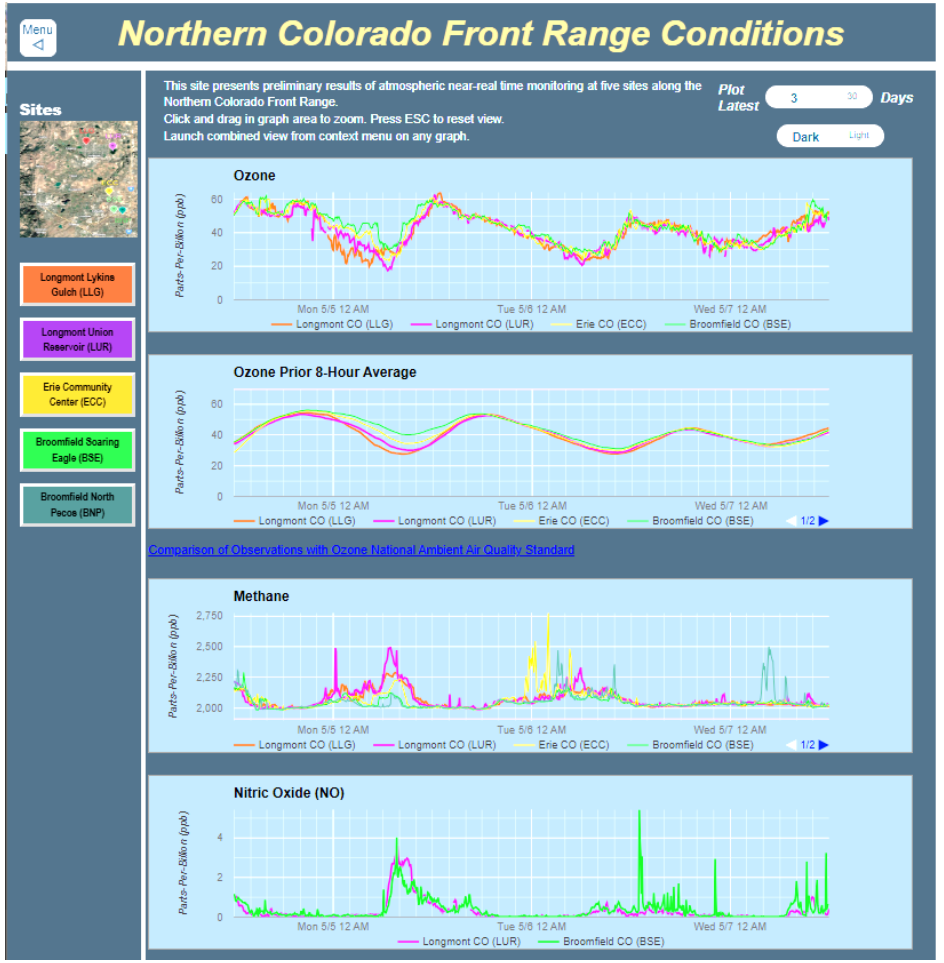
Monitored Variables:

- Methane
- Ozone
- Volatile Organic Compounds (Ethane, propane, .., acetylene, benzene,…. 20 VOCs total)
- Airborne small particles (PM2.5, PM10)
- Webcam Images
- Wind Speed
- Ambient Temperature
- Relative Humidity
- Solar Radiation

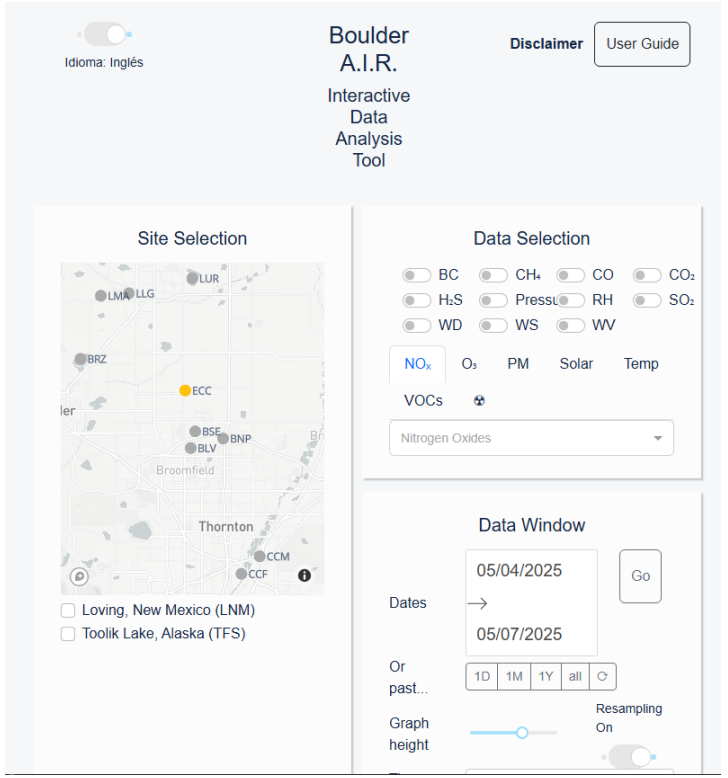
Real-Time Data Reporting and Data Access



https://www.bouldair.com/erie.htm;
6,958 website visits

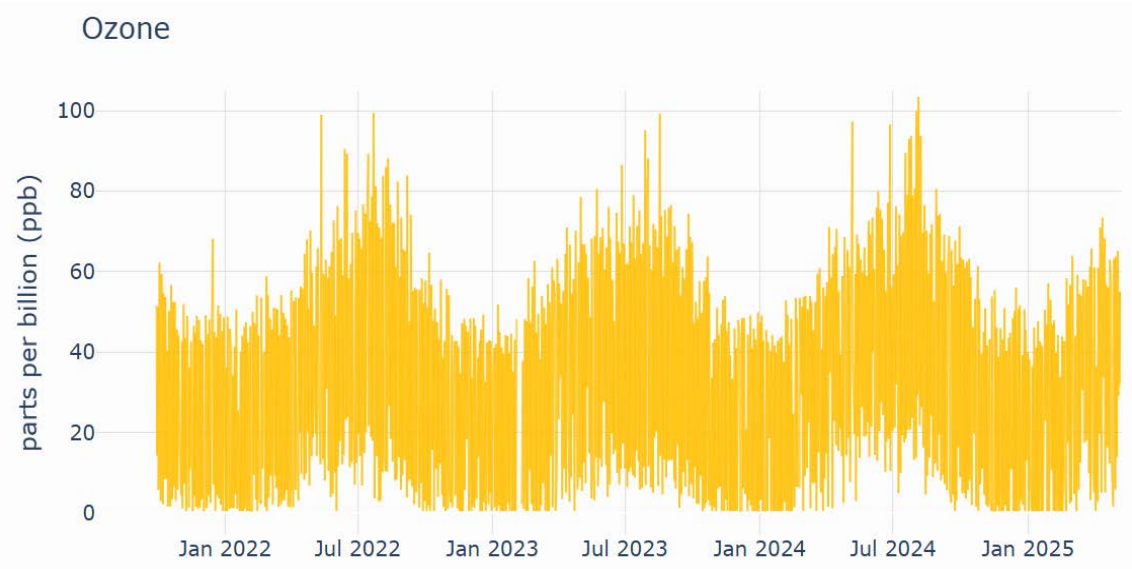


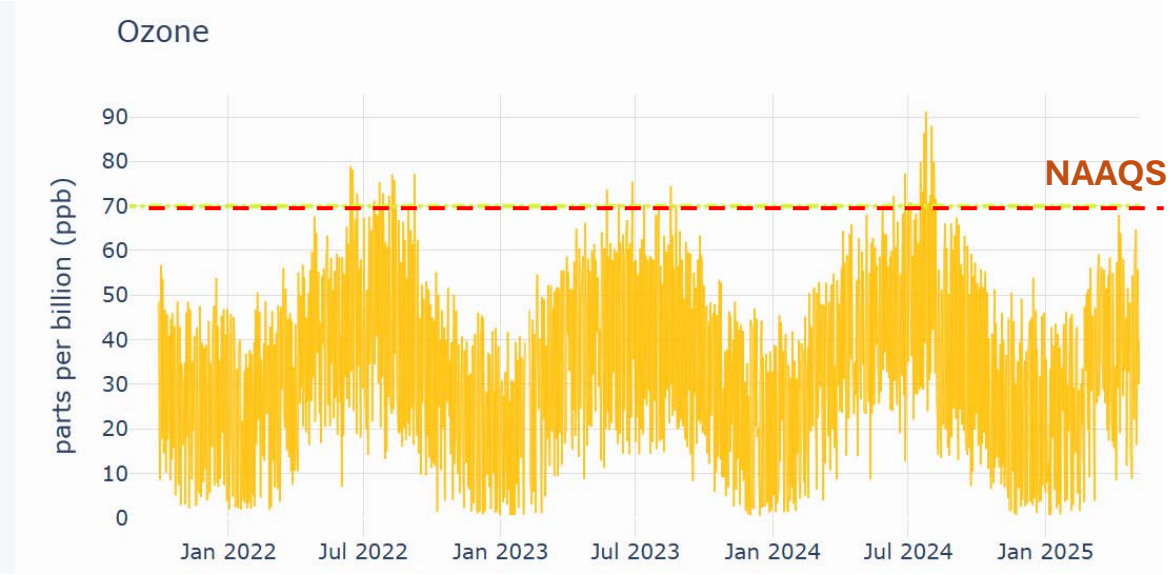
https://www.bouldair.com/NoCoFrontRange.htm;
19,013 website visits



https://bouldairtools.com/interactive/

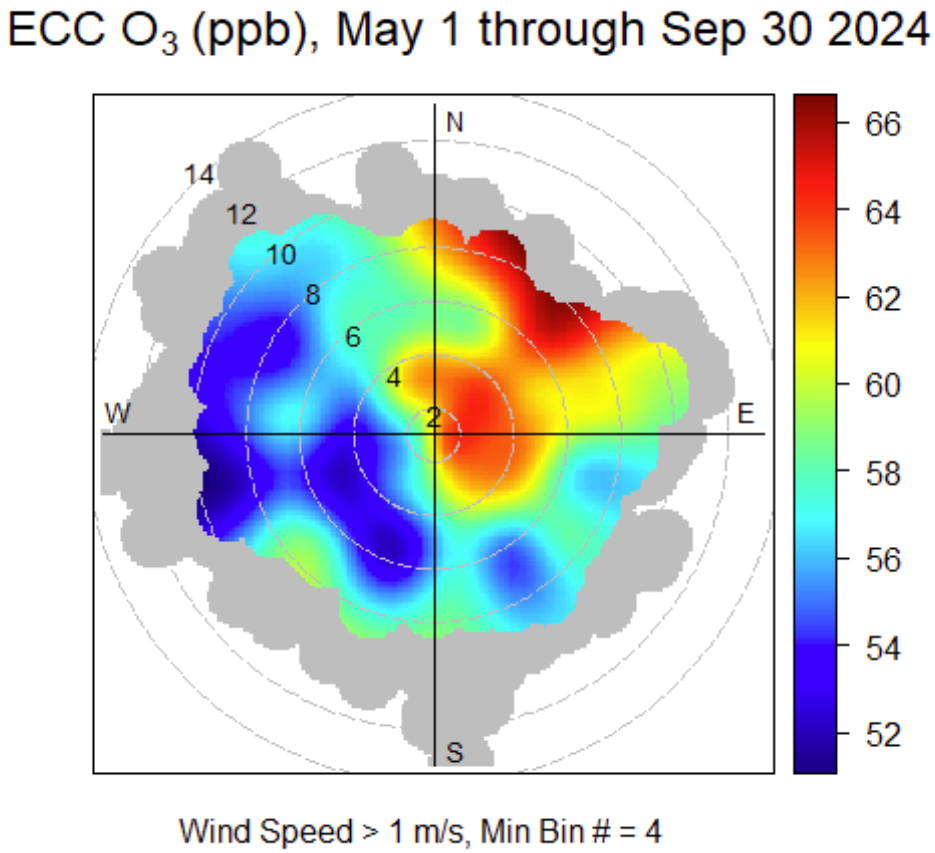
Ozone Monitoring at the Erie Community Center



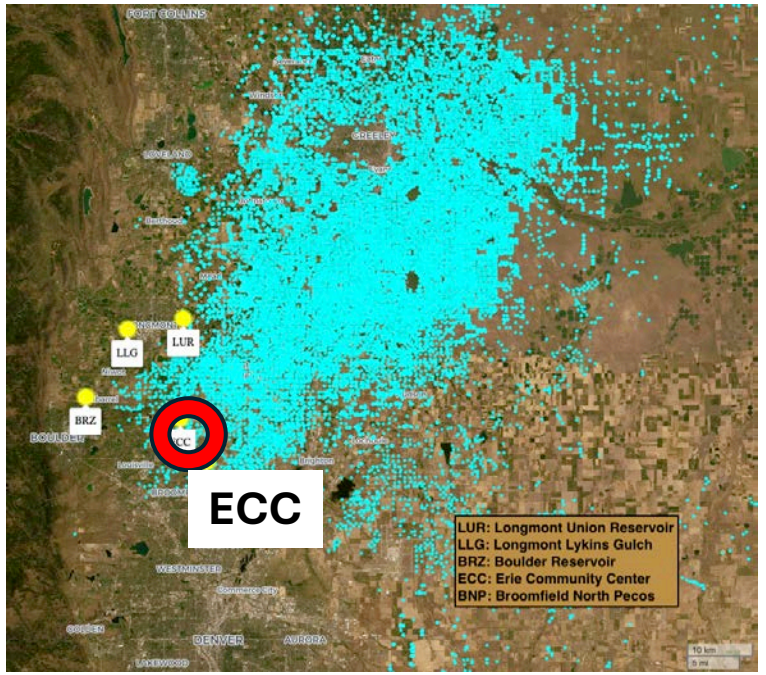


- Ozone is an EPA-classified priority pollutant.
- Northern Colorado Front Range has been downgraded to a severe ozone health standard non-attainment area. One of the ten most polluted ozone areas in the U.S.
- Elevated ozone is estimated to cause 84,000 emergency department visits every year.
- A 2021 study estimated 14,000 annual premature deaths in the US due to elevated ozone.
- The US National Ambient Air Quality Standard (NAAQS) is one of the least protective compared to other developed countries.
- In Erie, the NAAQS has been exceeded 13, 3, 20 times per year since 2022.

Ozone Monitoring at the Erie Community Center



- High ozone occurrences in Erie are most commonly associated with air transport from the north to southeast air sector.



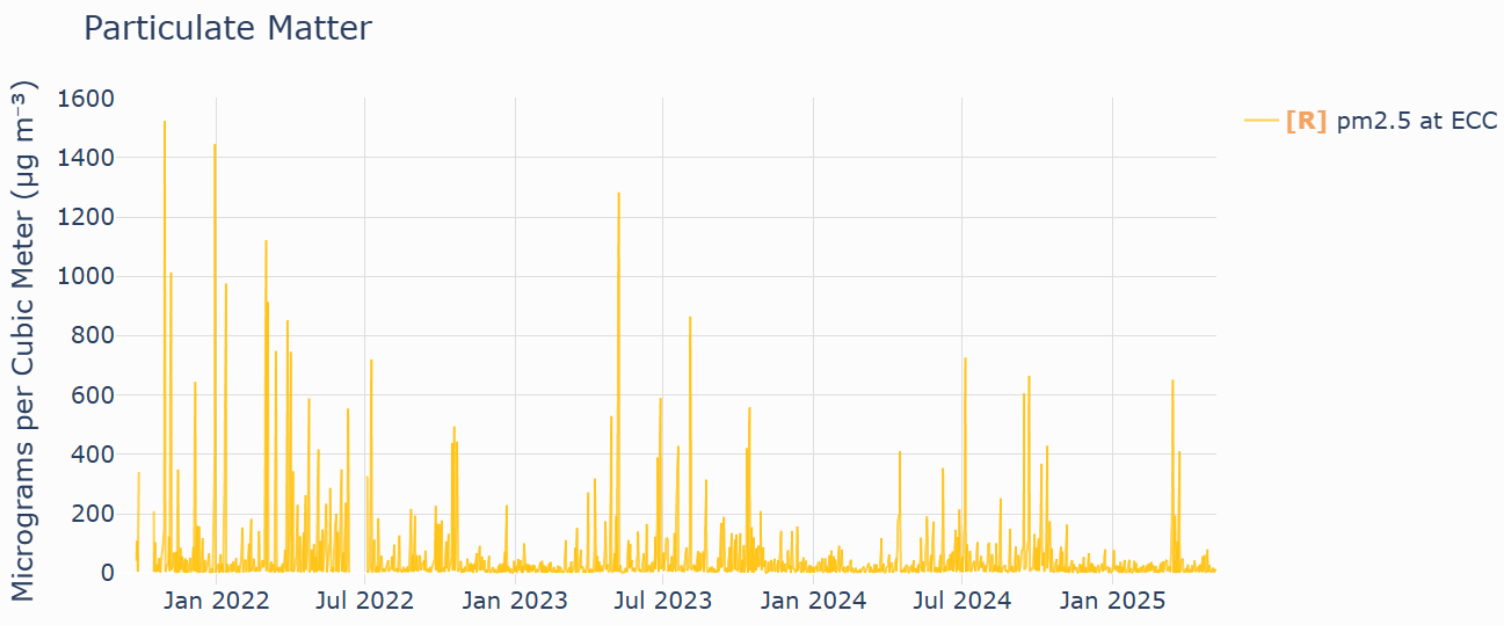
Occurrences of High Loadings with Airborne Particulate Matter at the Erie Community Center

National Ambient Air Quality Standard for 24-hour averaged PM2.5 exposure.

May 17, 2023, at 12:13 p.m. with PM 2.5 at 4 µg/m^3.

May 19, 2023, at 12:13 p.m. with PM 2.5 at 117.6 µg/m^3.

Occurrences of High Levels of Airborne Particulate Matter at the Erie Community Center Compared to Neighbor Communities



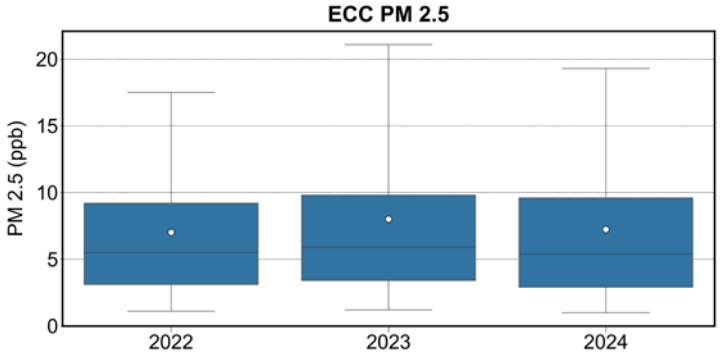
- Occurrences with high PM loading are observed throughout the year, though wildfire events have been the most long-lasting ones.
- Erie consistently sees the highest levels in small (PM2.5) and coarse (PM10) particle pollution compared to Broomfield and Longmont.
- Pollution from particulates shows signs of improvement for most extreme events, but other than that hasn't changed much.

Number of hours PM > 100 µg/m^3

	PM 2.5			PM 10		
Year	ECC	LUR	BSE	ECC	LUR	BSE
2021 [a]	1.2	0.3	0.2	63.8	13.0	7.6
2022	3.1	0.6	0.3	57.9	36.2	13.4
2023	9.6	2.4	2.4	79.6	15.5	15.7
2024	1.7	5.5	0.2	74.7	42.2	13.4
2025 [b]	0.5	0.4	0.0	13.9	5.1	0.9
Total	16.0	9.2	3.0	289.9	112.0	50.9

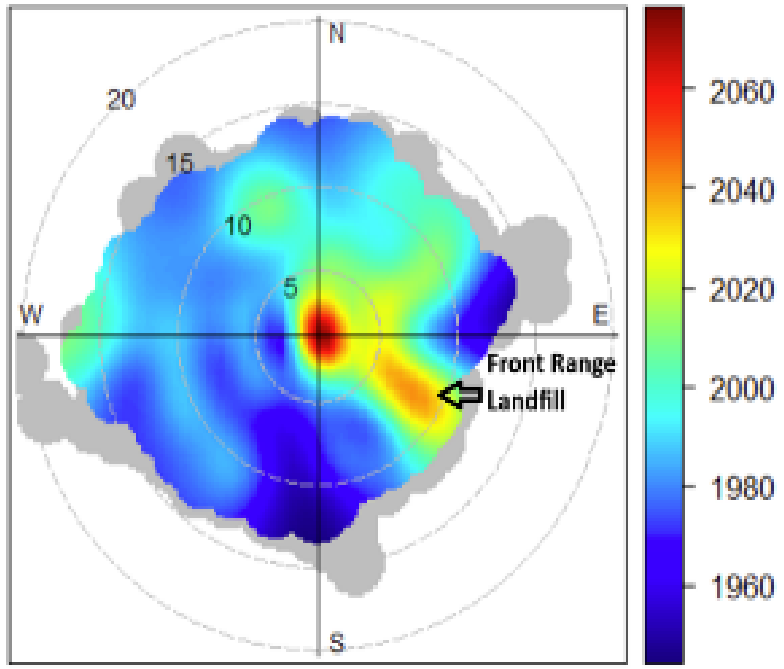
[a] 1 Oct - 31 Dec

[b] 1 Jan - 30 Apl



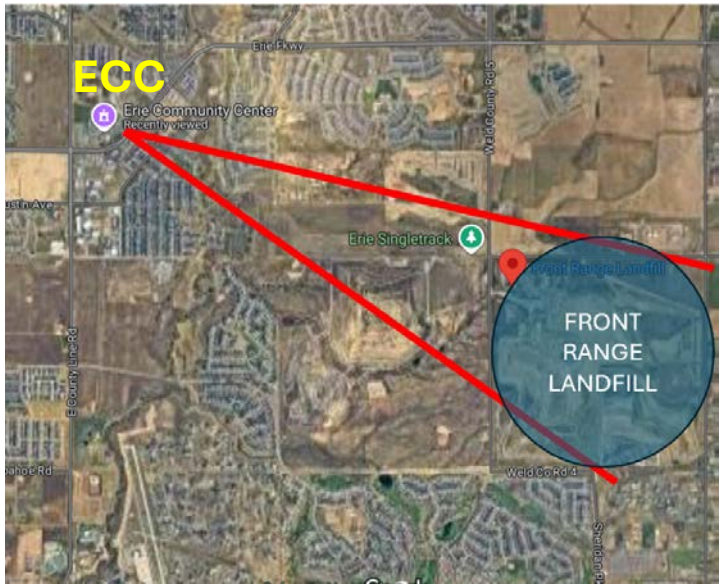
Methane at the Erie Community Center

ECC CH_4 (ppb), Oct 2021 through Aug 2024



Wind Speed > 1 m/s, Min Bin # = 2

- Methane is a strong greenhouse gas, about 40 times more potent per molecule than CO_2.
- Atmospheric methane has more than doubled from human-caused emissions.
- Erie data show two main source types: 1. Oil and gas production regions in Weld Country. 2. Erie landfill.
- High methane plumes at Erie more frequent than at other sites.



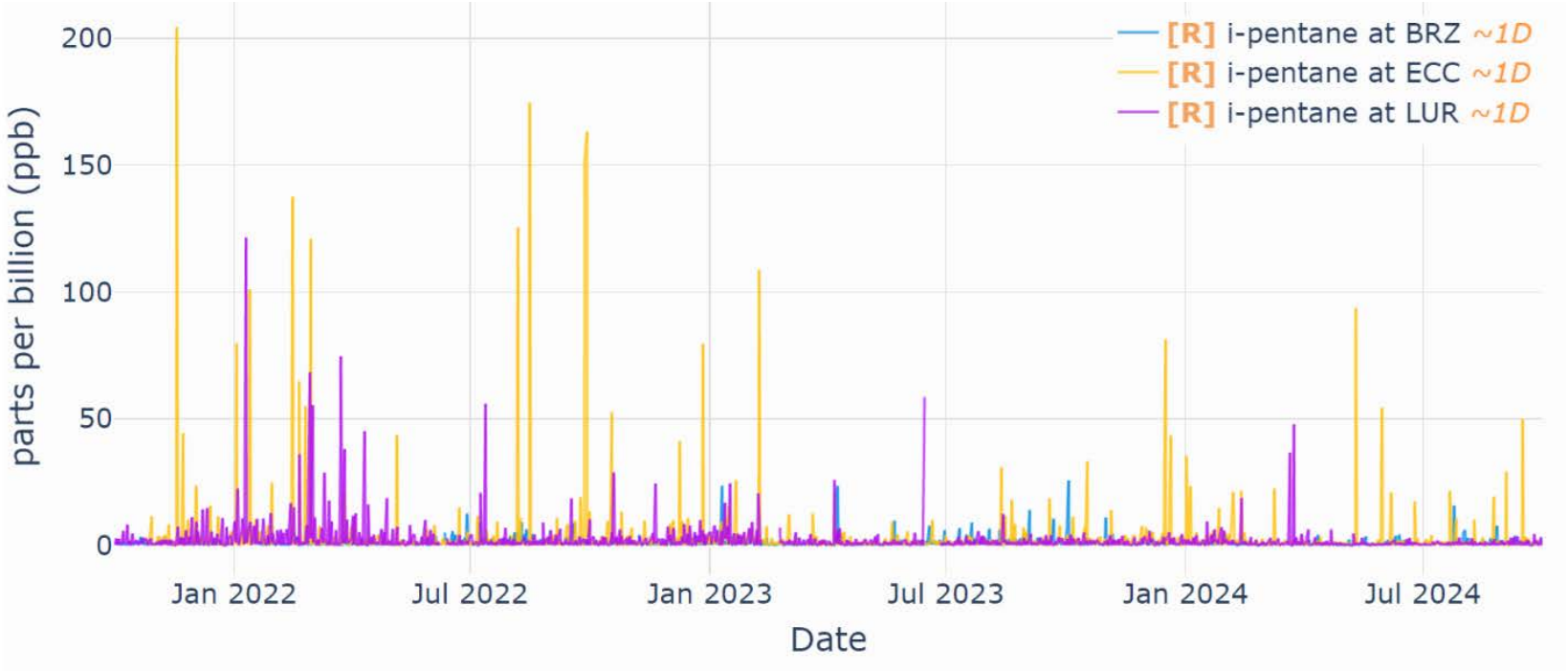
Number of hours methane > 4 ppm

Year	ECC	LUR	LLG	BRZ	BNP
2021 [a]	6.6	1.0	0.0	0.0	2.6
2022	22.0	4.6	0.0	0.3	6.0
2023	28.9	3.1	0.0	0.0	11.8
2024	13.5	1.1	0.5	0.0	1.9
2025 [b]	5.3	0.4	0.0	-	2.6
Total	76.3	10.2	0.5	0.3	24.9

[a] 1 Oct - 31 Dec

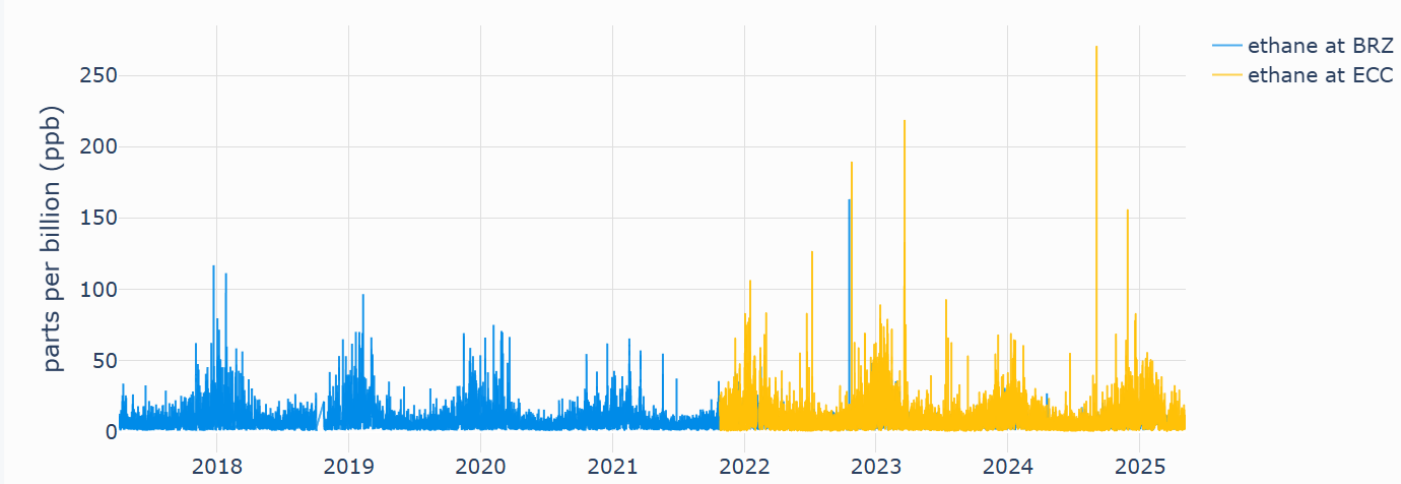
[b] 1 Jan - 30 Apl

Volatile Organic Compounds as Indicators of Petroleum Hydrocarbon Emissions

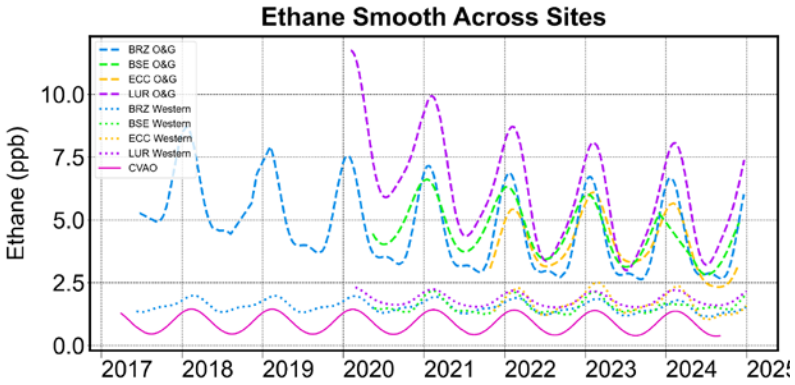


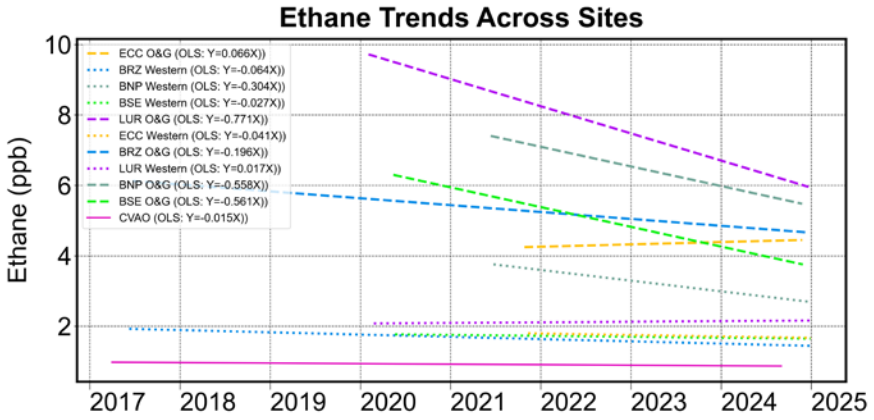
- Erie consistently sees higher frequency and higher maximum concentrations of volatile organic compounds, iso-pentane here as an example, than at the Longmont and Boulder Reservoir comparison sites.
- Frequency and maximum levels of pollution plumes appear to be slowly declining.

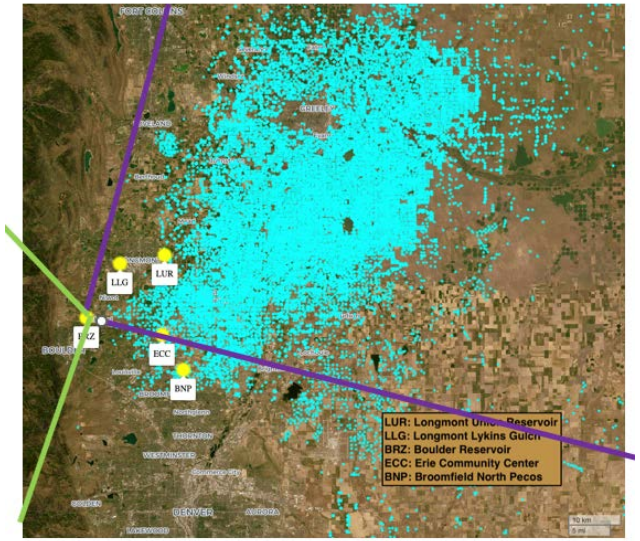
Results from Trends Analysis Project



- Ehane is a selective tracer for oil and gas emissions.
- Trend analyses show that ethane has been declining at Boulder, Longmont, Broomfield sites in air flow from oil and gas sector. Only exemption is Erie, where thus far the data do not show a downwards trend.







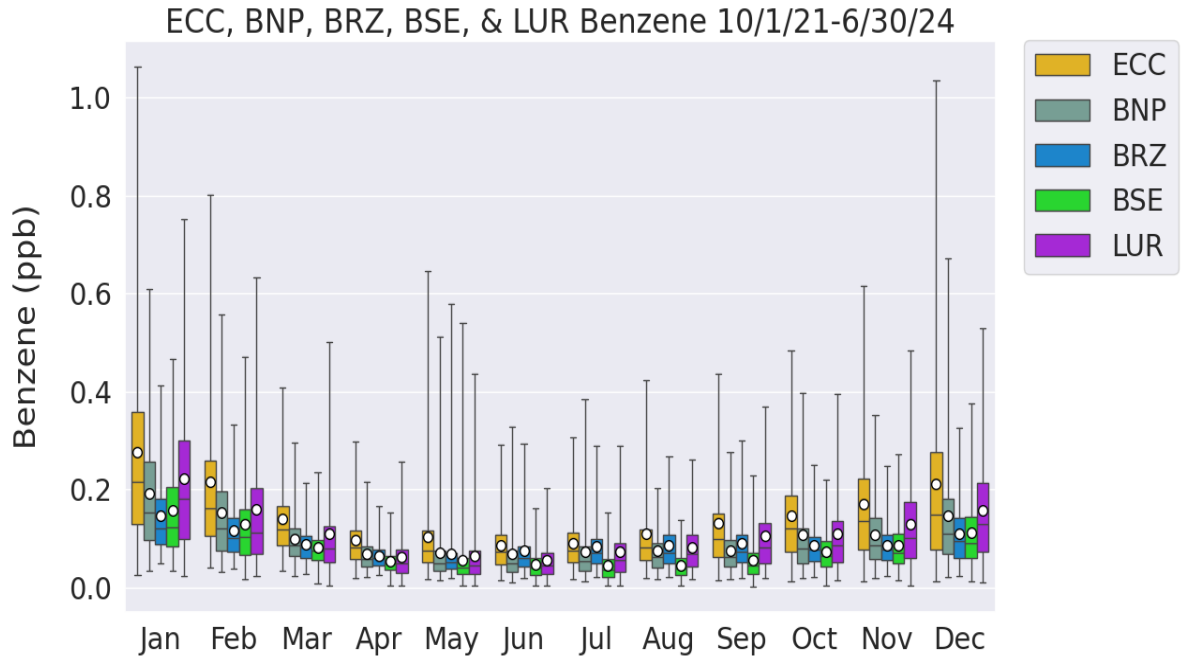
Benzene in Erie Air Monitoring Data

Number of times benzene > 0.9 ppb

Year	ECC	LUR	BRZ	BNP	BSE
2021 [a]	5	1	0	**9**	3
2022	**55**	28	4	9	1
2023	**51**	4	4	15	1
2024	**16**	10	2	0	0
2025 [b]	1	2	-	0	1
Total	128	45	10	33	6

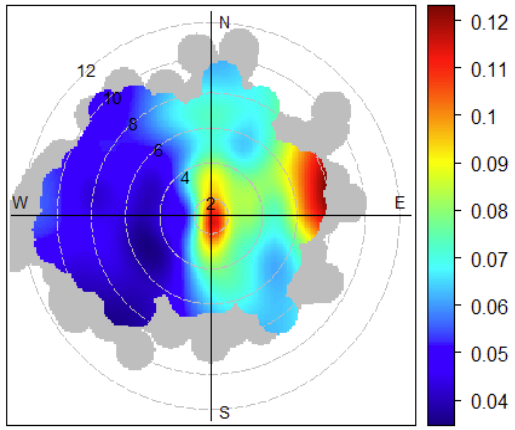
[a] 1 Nov - 31 Dec

[b] 1 Jan - 30 Apl



- Benzene is an airborne carcinogen, e.g. can cause leukemia.
- No safe lower threshold level.
- Benzene levels in Erie are higher throughout the year than at comparison sites.
- Higher benzene is transported in air flow from the north to south sector than from the west.

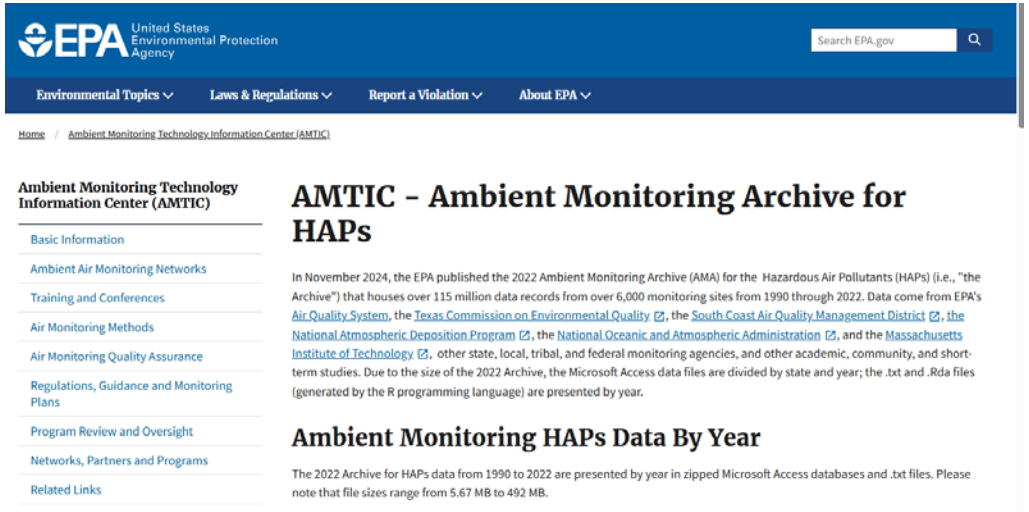
ECC benzene (ppb), Oct 2021 through Aug 2024



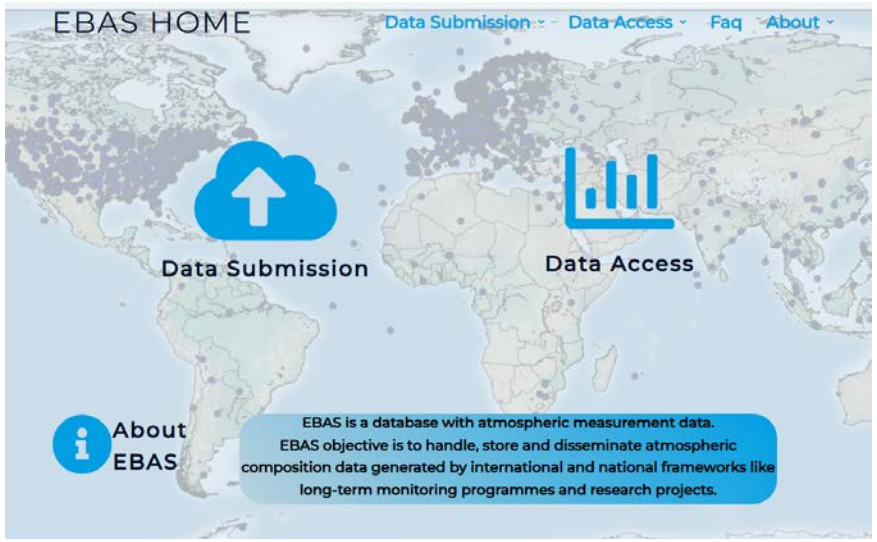
Wind Speed > 1 m/s, Min Bin # = 2

Dissemination and Use of Erie Air Monitoring Data

EPA



Global



National Labs and Universities

NOAA

NCAR

Colorado State University

University of Colorado Boulder

State

Peer-Reviewed Publications Building on Local Government Coalition Air Monitoring

2025

Helmig, D., and Caputi, D. (2025) Top-Down versus Bottom-Up Atmospheric Emission Estimates from Oil and Natural Gas Operations. Manuscript submitted for publication.

Caputi D., Helmig D., Darby L. S., Greenberg G., Hueber J. Ortega J., and Simoncic S. (2025) Late Winter Ozone and PM 2.5 NAAQS Exceedance in the Northern Colorado Front Range in Relation to Oil and Natural Gas Emissions. Geophys. Res. In press.

Helmig D., Greenberg G., Hueber J., Blanchard B., Chopra J., Simoncic S., Angot H., Darby L. S., Ortega J., and Caputi D. (2025) Methane and volatile organic compounds and their influence on air quality in Boulder, Colorado. Elem Sci Anth. 12, DOI: https://doi.org/10.1525/elementa.2023.00117.

2024

Langford A. O., Alvarez II R. J., Aikin K. C., Baidar S., Brewer W. A., Brown S. S., Coggan M. M., Cullis P. D., Gilman J., Gkatzelis G. I., Helmig D., Johnson B. J., Knowland K. E., Kumar R., Lamplugh A. D., McClure-Begley A., McCarty B. J., Middlebrook A. M., Pfister G., Peischl J., Petropavlovskikh I., Rickley P. S., Rollins A. W., Sandberg S. P., Senff C. J., and Warneke C. (2024) An unusual winter ozone event in Colorado. EGUsphere. DOI: https://doi.org/10.5194/egusphere-2024-1938.

Helmig D., Nobel J., Caputi D., Brown D., Daly R. W., Darby L. S., Doe P. T., Gonzalez O., Greenberg G., Hueber J., Potter K., Schade G. W., Simoncic S., Stahli M., and Subra W. (2024) Elevated airborne radioactivity downwind of a Colorado oil refinery. J. Air&Waste Manag. Assoc. 1-12, DOI: https://doi.org/10.1080/10962247.2024.2393194.

2022

Helmig D., Fangmeyer J., Fuchs J., Hueber J., and Smith K. (2022) Evaluation of selected adsorbents for passive sampling of atmospheric oil and natural gas non-methane hydrocarbons. J. Air & Waste Management Association 72, 235-255, DOI: 10.1080/10962247.2021.2000518.

2021

Rossabi S., Hueber J., Wang W., Milmoe P., and Helmig D. (2021) Spatial distribution of atmospheric oil and natural gas volatile organic compounds in the Northern Colorado Front Range. Elem. Sci. Anthro. 9, DOI: 10.1525/elementa.2019.00036.

Pollack I.B., Helmig D., O'Dell K., and Fischer E.V. (2021) Weekend-weekday implications and the impact of wildfire smoke on ozone and its precursors at Boulder Reservoir, Colorado between 2017 and 2019. J. Geophys. Res. 126, DOI: 10.1029/2021JD035221.

Oltmans S.J., Cheadle L.C, Helmig D., Angot H., Petron G., Montzka S.A., Dlugokencky E.J., Miller B., Hall B., Schnell R.C., Kofler J., Wolter S., Crotwell M., Siso C., Tans P. and Andrews A. (2021) Atmospheric oil and natural gas hydrocarbon trends in the Northern Colorado Front Range are notably smaller than inventory emissions reductions. Elem. Sci. Anthro. 9, DOI: 10.1525/elementa.2020.00136.

Darby L.S., Senff C.J., Alvarez R.J. II, Banta R.M., Bianco L., Helmig D., and White A.B. (2021) Spatial and temporal variability of ozone along the Colorado Front Range occurring over two days with contrasting wind flow. Elem. Sci. Anthro. 9, DOI: 10.1525/elementa.2020.00146.

Pollack I.B., Helmig D., O'Dell K., and Fischer E.V. (2021) Seasonality and source apportionment of non-methane organic compounds at Boulder Reservoir Colorado, between 2017-2019. J. Geophys. Res., DOI: 10.1029/2020JD034234.

Asher E., Hills A.J., Hornbrook R.S., Shertz S., Gabbard S., Stephens B.B., Helmig D., and Apel E.C. (2021) Unpiloted aircraft system instrument for the rapid collection of whole air samples and measurements for environmental monitoring and air quality studies. Environ. Sci. Technol., doi:10.1021/acs.est.0c07213.

2020

Pozzer A., Schultz M.G., Helmig D. (2020) Impact of U.S. oil and natural gas emission increases on surface ozone is most pronounced in the Central United States. Environ. Sci. Technol. 54, 12423–12433. https://dx.doi.org/10.1021/acs.est.9b06983

Helmig D. (2020) Air quality impacts of oil and natural gas development in Colorado. Elem. Sci. Anth. 8, 1-33. http://doi.org/10.1525/elementa.398

2019

Tzompa-Sosa Z. A., Henderson B. H., Keller C. A., Travis K., Mahieu E., Franco B., Estes M., Helmig D., Fried A., Richter D., Weibring P., Walega J., Blake D. R, Hannigan J. W., Ortega I., Conway S., Strong K., Fischer E. V. (2019) Atmospheric implications of large C2-C5 alkane emissions from the US oil and gas industry. J. of Geophys. Res. 124, 1148-1169. DOI: 10.1029/2018JD028955

Oltmans S. J., Cheadle L. C., Johnson B. J., Schnell R. C., Sterling C., Thompson A. M., Helmig D., Cullis P., Hall E., Jordan A., McClure-Begley A., Sullivan J. T., McGee T. P., and Wolfe D. (2019) Boundary layer ozone in the Northern Colorado Front Range in July-August 2014 during FRAPPE and DISCOVER-AQ from vertical profile measurements. Elem. Sci. Anth. 7, 1-14.

2018

Tzompa-Sosa Z., Richter D., Henderson B., Travis K., Keller C., Mahieu E., Franco B., Estes M., Helmig D., Fried A., Weibring P., Walega J., Blake D., Hannigan J., Ortega I., Conway S., Strong K., and Fischer E. (2018) Atmospheric implications of large light alkane emissions from the U.S. oil and gas industry. J. Geophys. Res. 124, 1148-1169.

Bien T. and Helmig D. (2018) Changes in the summertime ozone chemistry in Colorado during 2000 – 2015. Elem. Sci. Anth. 6, 1-25, doi: 10.1525/elementa.300.

Monks S. A., Wilson C., Emmons L. K., Hannigan J., Helmig D., Blake N. J., and Blake D. R. (2018) Using an inverse model to reconcile differences in simulated and observed global ethane concentrations and trends between 2008 and 2014. J. Geophys. Res. 123, 11,262-11,282, doi:10.1029/2017JD028112.

Rossabi S., Choudoir M., Helmig D., Hueber J., and Fierer N. (2018) Volatile organic compound emissions from soil following wetting events. J. Geophys. Res. Biogeosciences, 123, 1988-2001, doi:10.1029/2018JG004514.

McKenzie L. M., Blair B., Hughes J., Allshouse W. B., Blake N. J., Helmig D., Milmoe P., Halliday H., Blake D. R., and Adgate J. L. (2018) Ambient nonmethane hydrocarbon levels along Colorado's Northern Front Range: Acute and chronic health risks, Environ. Sci. Technol. 52, 4514-4525, doi:10.1021/acs.est.7b05983.

Rossabi S., and Helmig D. (2018) Changes in atmospheric butanes and pentanes and their isomeric ratios in the Continental United States. J. Geophys. Res. 123, 3772-3790, doi:10.1002/2017JD027709.

Dalsøren S.B., Myhre G., Hodnebrog Ø., Myhre C.L., Stohl A., Pisso I., Schwietzke S., Höglund-Isaksson L., Helmig D., Reimann S., Sauvage S., Schmidbauer N., Read K.A., Carpenter L.J., Lewis A.C., Punjabi S., and Wallasch M. (2018) Discrepancy between simulated and observed ethane and propane levels explained by underestimated fossil emissions. Nature Geosci. 11, 178–184.

Research Building on Erie Data and Supported by External Sources

"Air quality trends in Texas and Colorado as associated with unconventional oil and gas development (UOG)"; submitted by Texas A&M University and Boulder AIR, awarded by the Health Effects Institute (HEI), 2024.

"Comprehensive Ozone Source Location Analysis"; prepared by the Local Governments Air Monitoring Coalition and awarded by the Colorado Air Quality Enterprise, 2024.

"How much of the Denver Metro Northern Front Range Ozone is Produced from Isoprene?"; prepared by Boulder AIR and awarded by the Colorado Air Quality Enterprise, 2024.

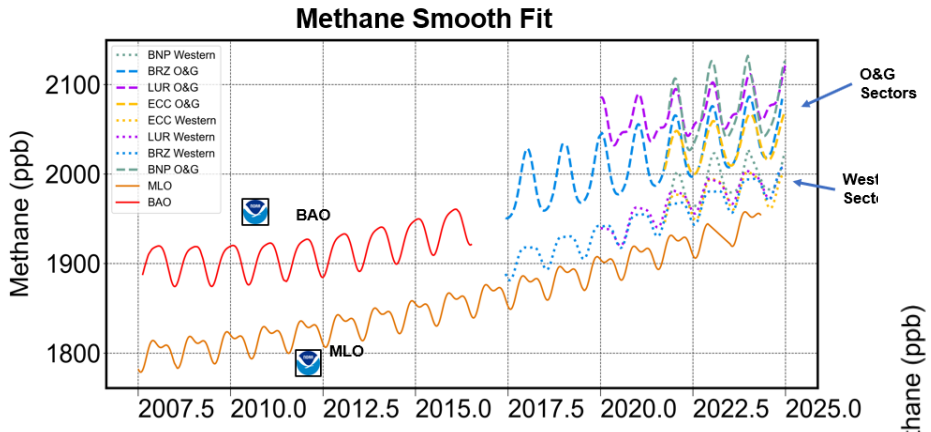
"Erie Landfill Air Emissions and Community Exposure Study", prepared in partnership by Town and Erie and Boulder Air. Submitted in April 2025 to the Mountains and Plains Environmental Justice Program. Proposal was rejected and funding program was withdrawn by federal government.

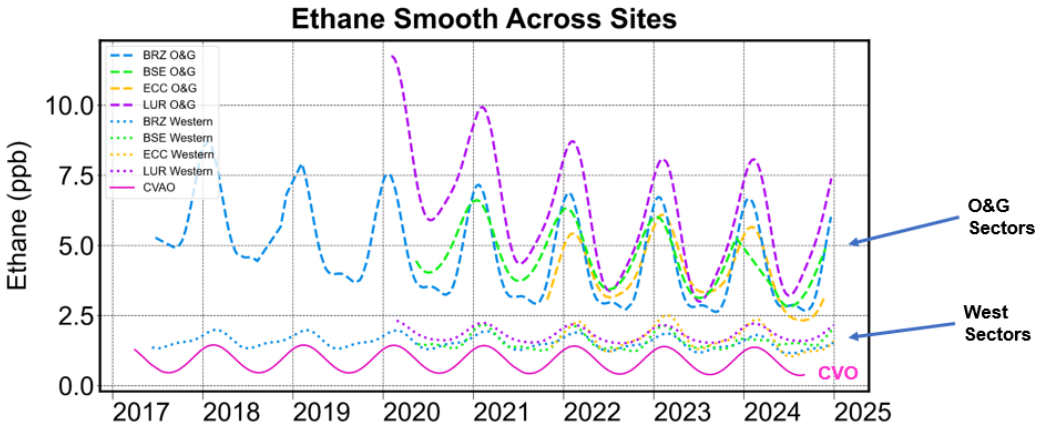
Impact - Colorado Legislations Targeting Oil and Gas Industry Emissions

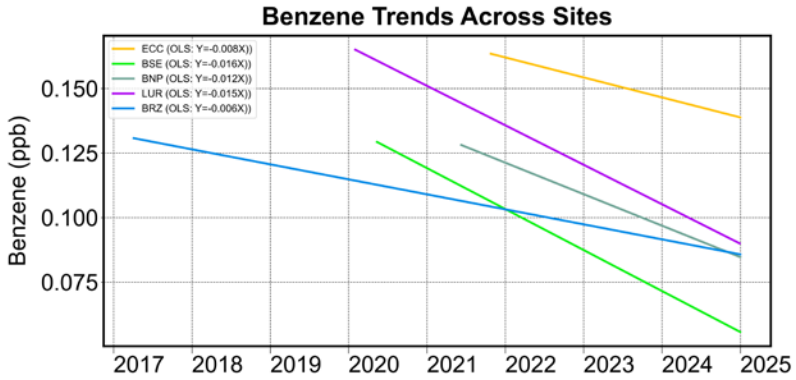
Year Introduced	Bill or Commission	Effective Date	Policy/Action
2007	HB07-1298	May 1, 2009	Suite of new regulations passed which included requirements for emission control devices on certain equipment near communities.
2007	HB07-1341	Jul. 1, 2007	Reconstructs the Colorado Oil and Gas Conservation Commission (COGCC) to have more representation from outside of the oil and gas industry.
2011	COGCC	Apr. 1, 2012	Hydraulic fracturing sites must disclose all chemicals used in a public database.
2013	SB 13-202	Jul. 1, 2014	Requires a greater frequency of inspections at oil and gas wellheads, prioritized based on risk level of a wellhead experiencing excess emissions based on its phase of development.
2013	COGCC	Jan. 9, 2013	Setbacks for drilling increased to 500 feet for homes and 1000 feet for high occupancy buildings such as schools and hospitals.
2014	CDPHE AQCC	Feb. 23, 2014	Colorado Air Quality Control Commission adopts a series of policies to reduce methane emissions, making Colorado the first state to do so.
2015	COGCC	Feb. 14, 2015	Penalties increased for all emission violations.
2019	SB19-181	Jan. 15, 2021	Enables local governments to have HB1041 powers over oil and gas mineral extraction areas without restriction, including the ability to inspect any facility. Setbacks increased from 500 to 2000 feet.
2019	HB19-1261	May. 30, 2019	Colorado implements a goal to reduce greenhouse gas emissions by 26% and 50% of what was observed in 2005, by 2025 and 2030, respectively.
2020	SB20-204	Jan. 1, 2021	Air Quality Enterprise established to conduct high-quality scientific studies on air pollution in Colorado.
2021	HB21-1189	Jan. 1, 2023	“Regulate Air Toxics Act” implements fenceline monitoring requirement for hydrogen sulfide, hydrogen cyanide, and benzene at four major facilities. Community monitoring is also now required.
2022	HB22-1244	Jan. 1, 2023	Allows the Air Quality Control Commission to designate "toxic air contaminants" to be regulated more stringently than the Clean Air Act and requires these emissions to be reported.
2022	SB22-193	Jun. 30, 2022	Clean Air Grant Program funds public and private entities $25M for projects to reduce industry-related air pollution.
2023	CHPHE AQCC REG 7	Jun. 14, 2025	Operators must directly measure GHG emissions and comply with facility-level standards using approved monitoring technologies.

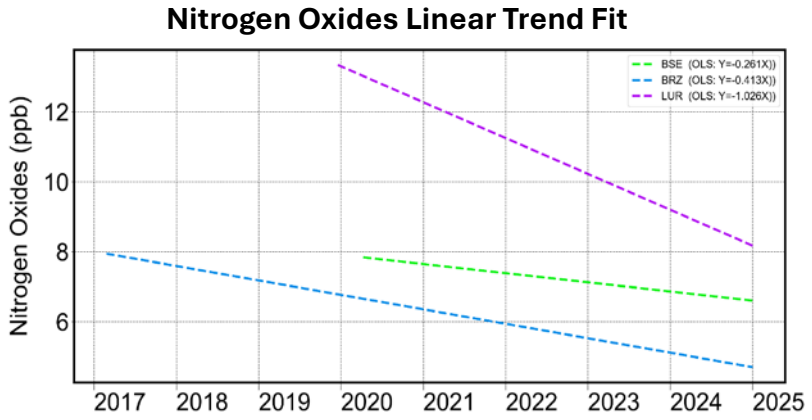
Legislation co-directed by Front Range Local Government Coalition Air Monitoring and Research Program

Summary: Impact, the Big Picture, and Some Good News





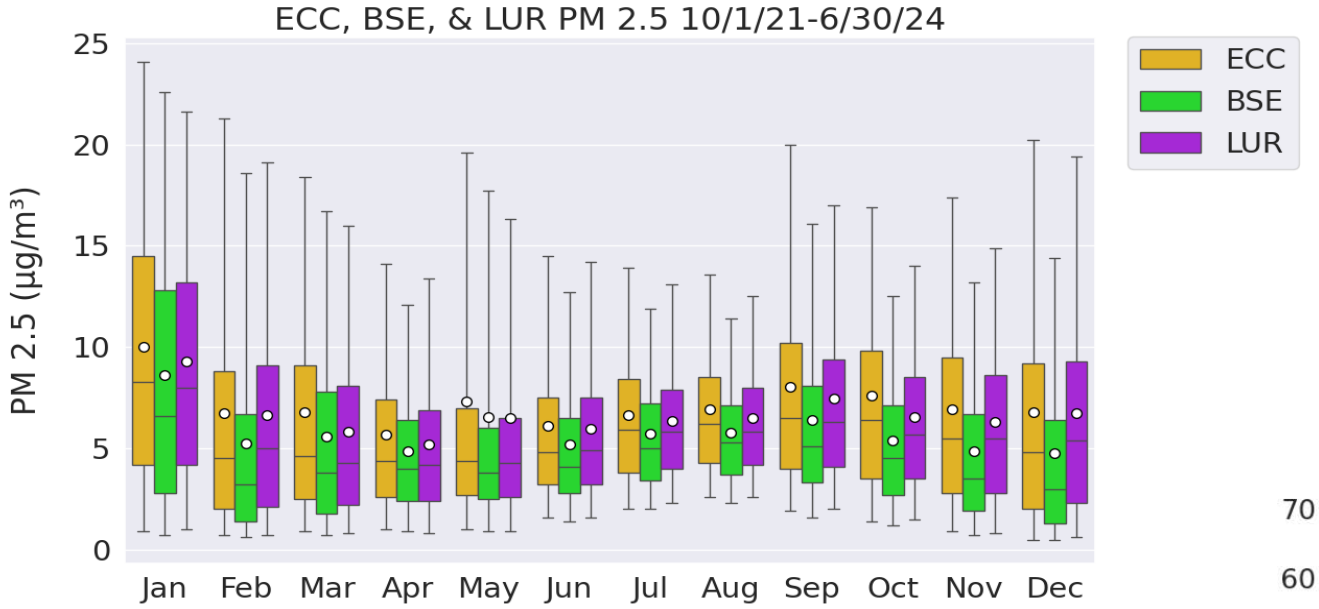


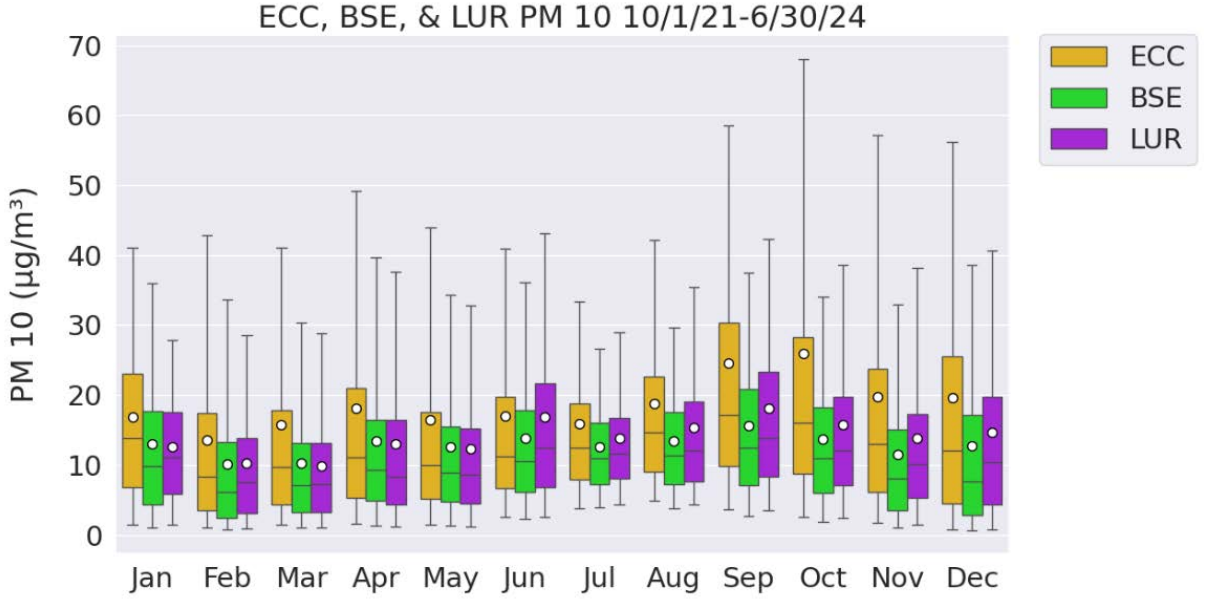


- Methane increase is slower than in the global background –> sign for declining methane emissions.
- Ethane levels are declining at most sites (except ECC) -> sign for declining O&G VOCs emissions.
- Nitrogen Oxides levels are dropping -> pathway for improving ozone pollution.
- Erie remains the most pollution impacted community in the Front Range.

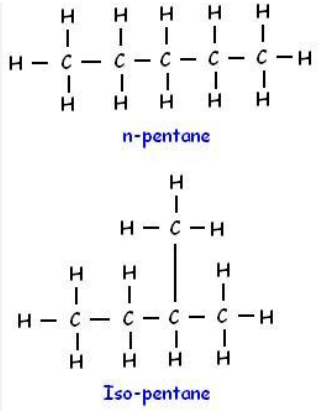
Q&A Slides

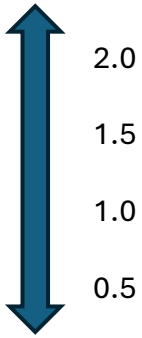
PM2.5 and PM10 Sites Comparison

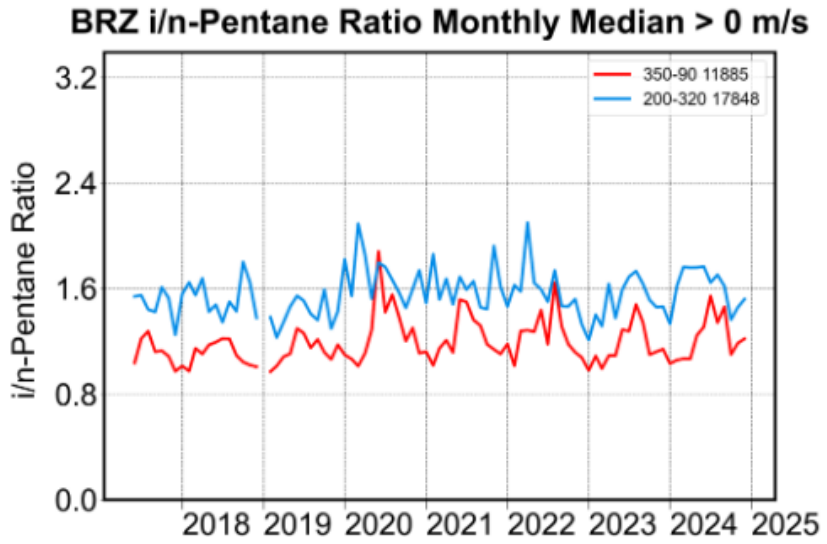


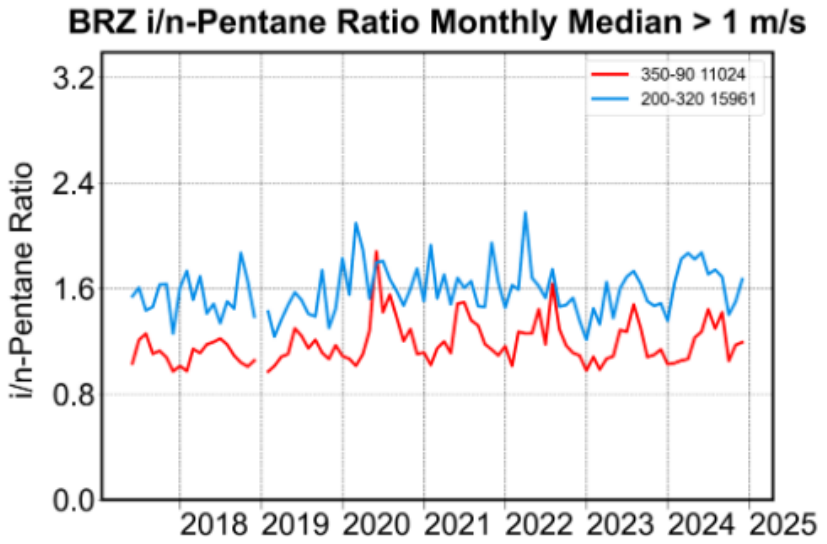


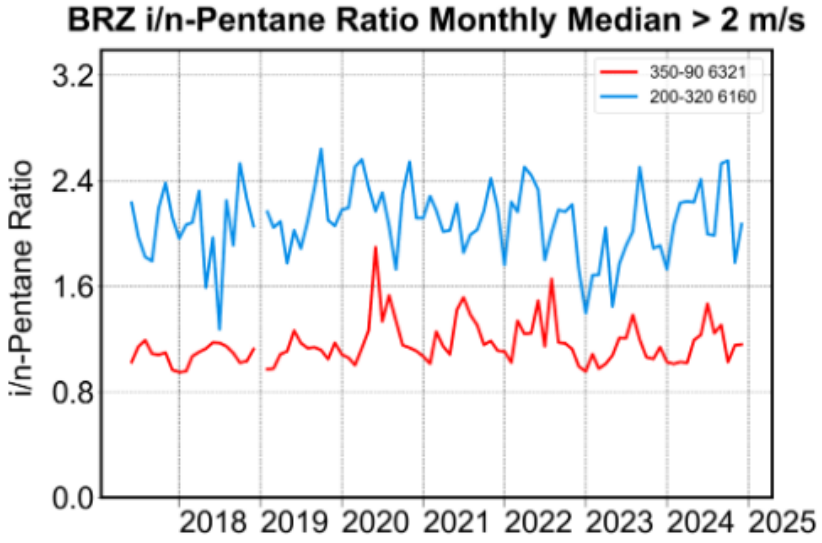
Trend Analyses – Isomeric Pentane Ratio Differentiated by Wind Speed

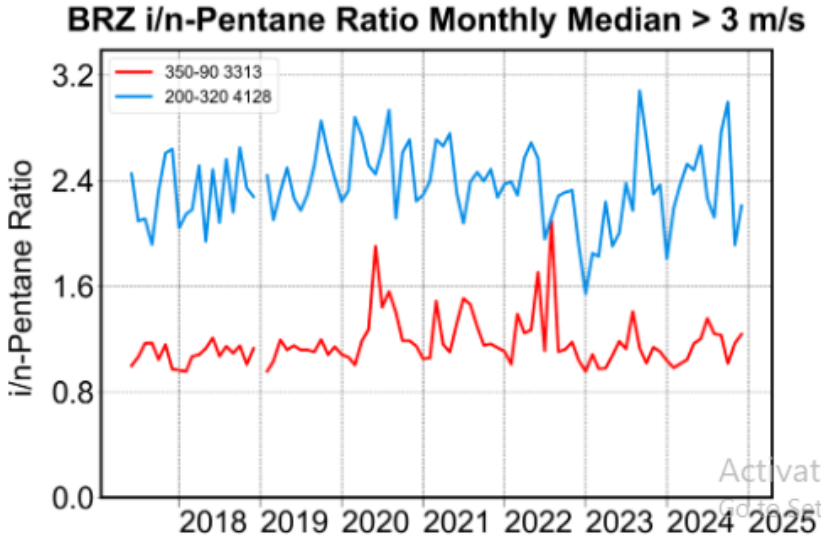




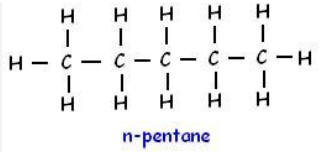


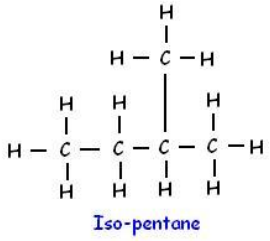


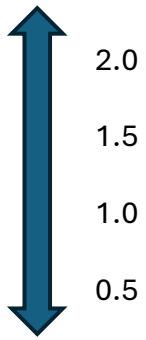


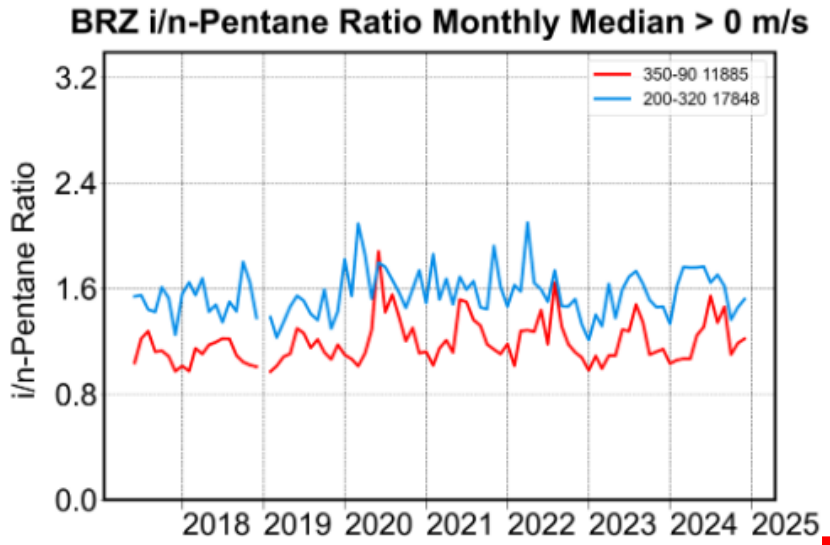


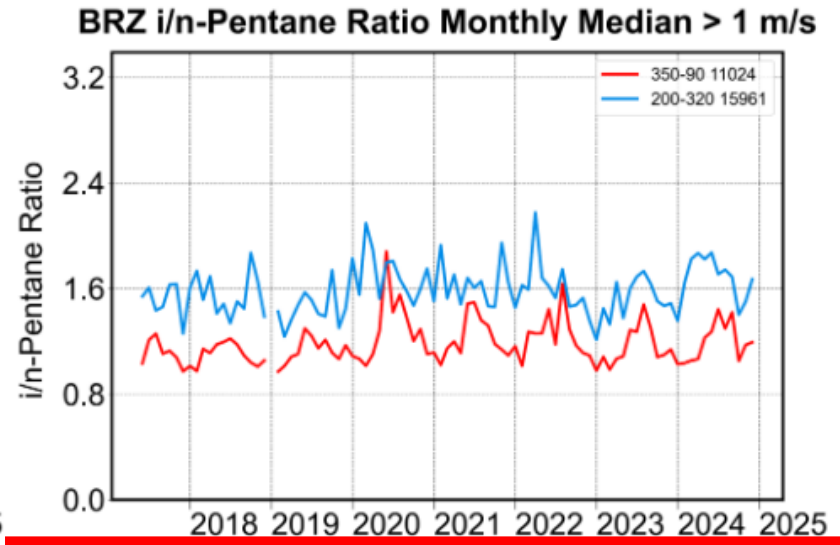
Trend Analyses – Isomeric Pentane Ratio Differentiated by Wind Speed

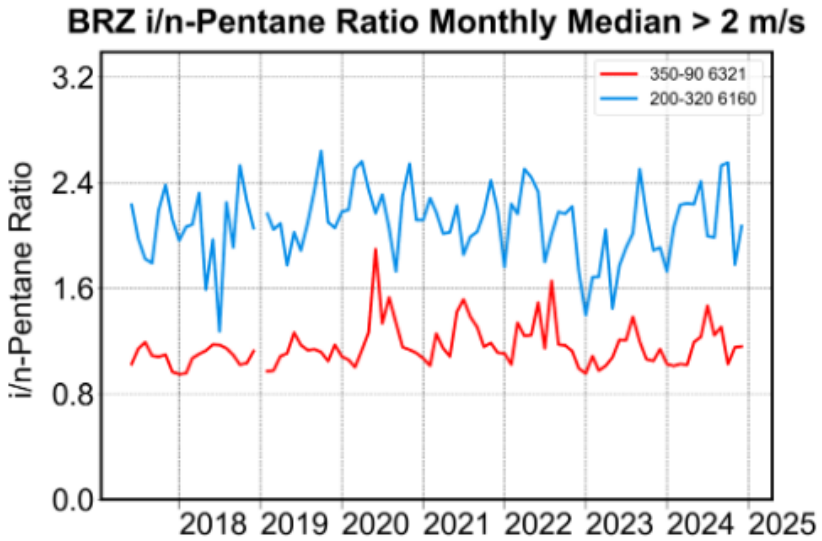


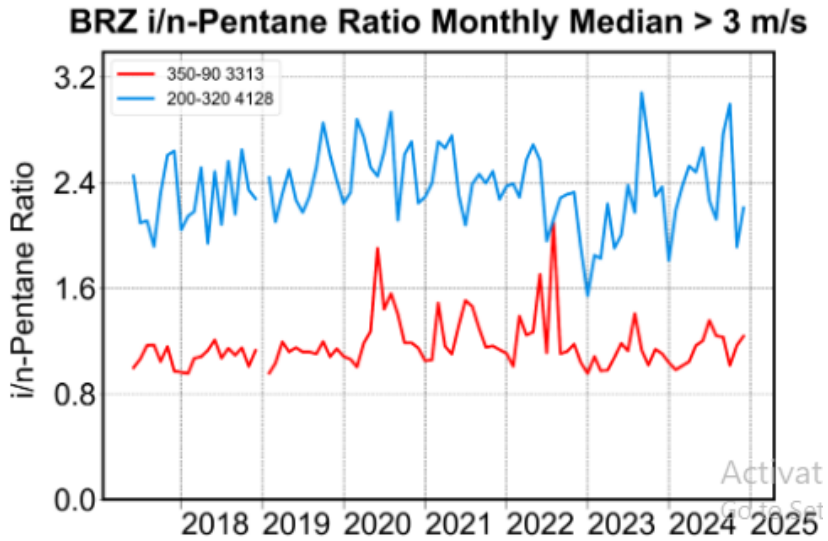












Plus 2/3 of data in prior and post hour from within same sector

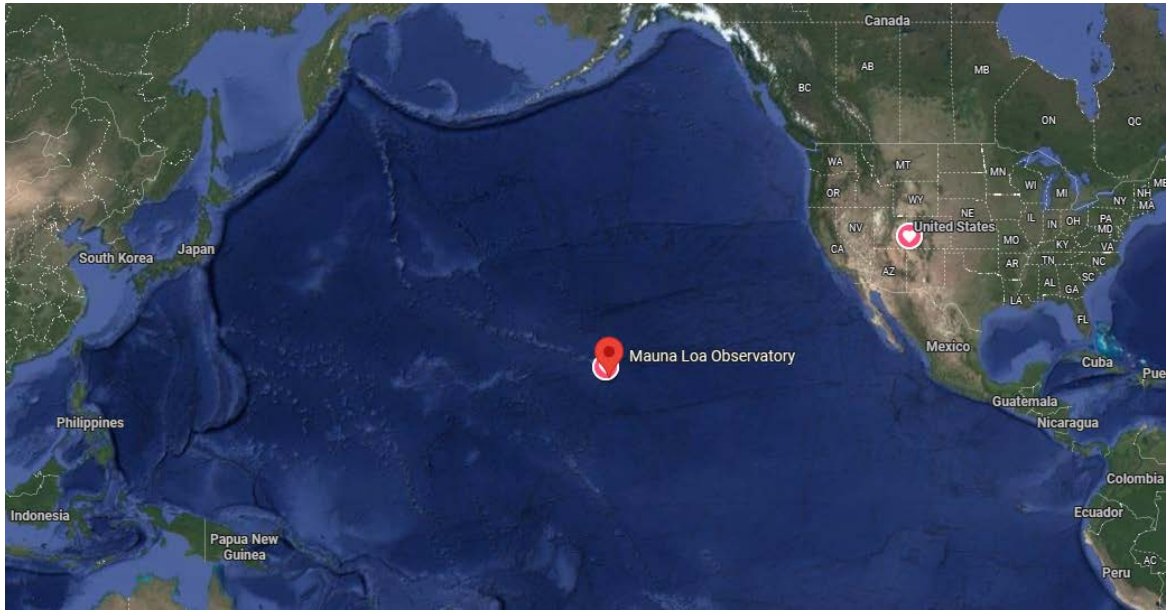
Trend Analyses – Background Reference Data

Mauna Loa Observatory (MLO)

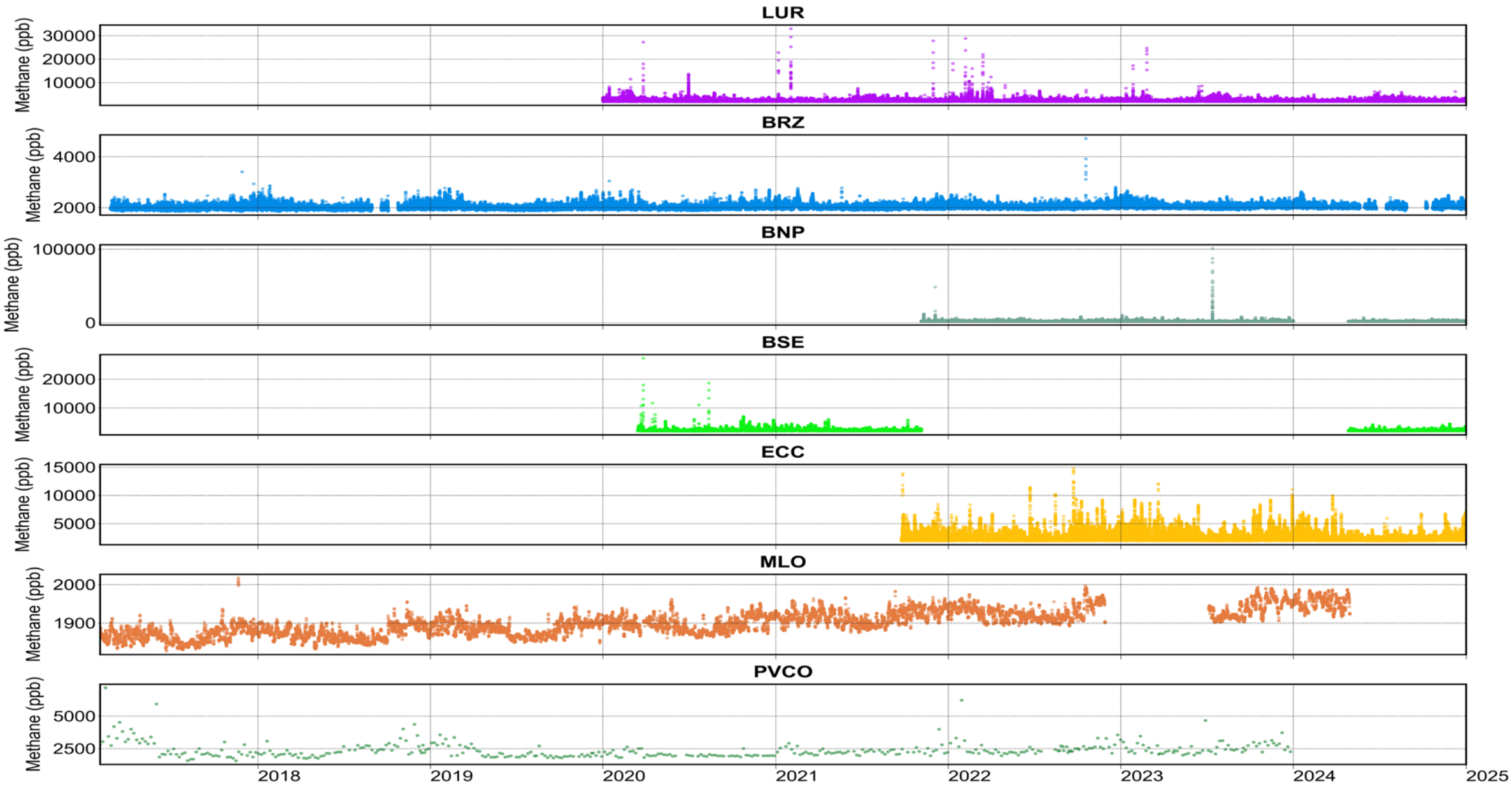
(Methane)

Cape Verde Observatory (CVO)

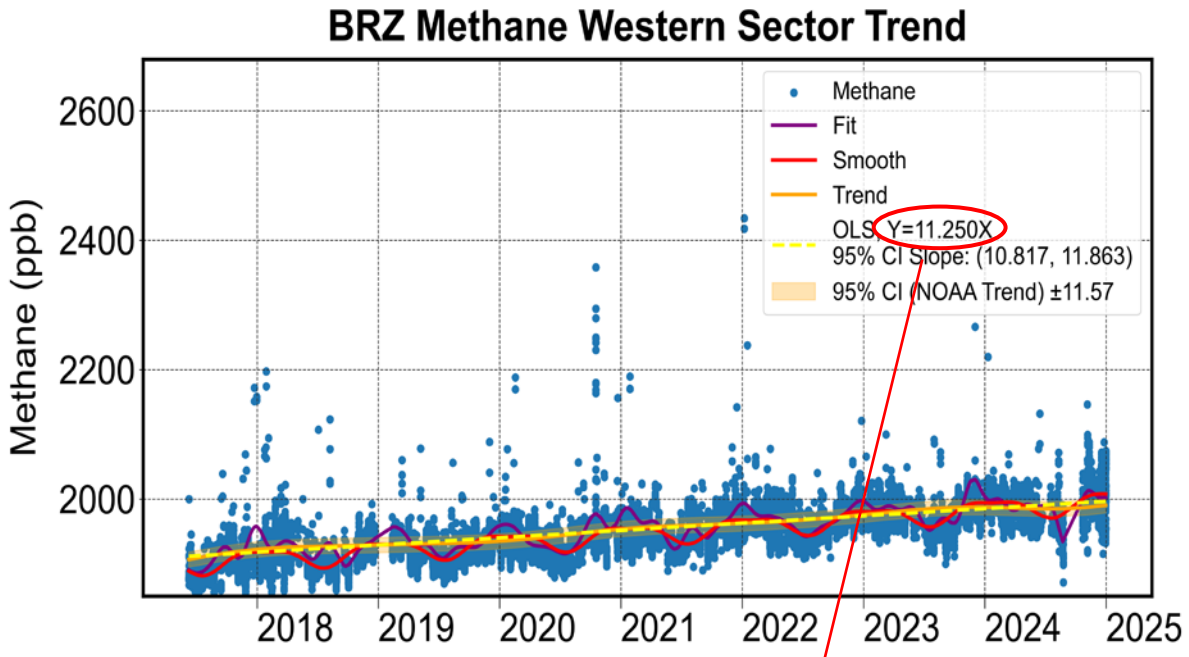
(Ethane)



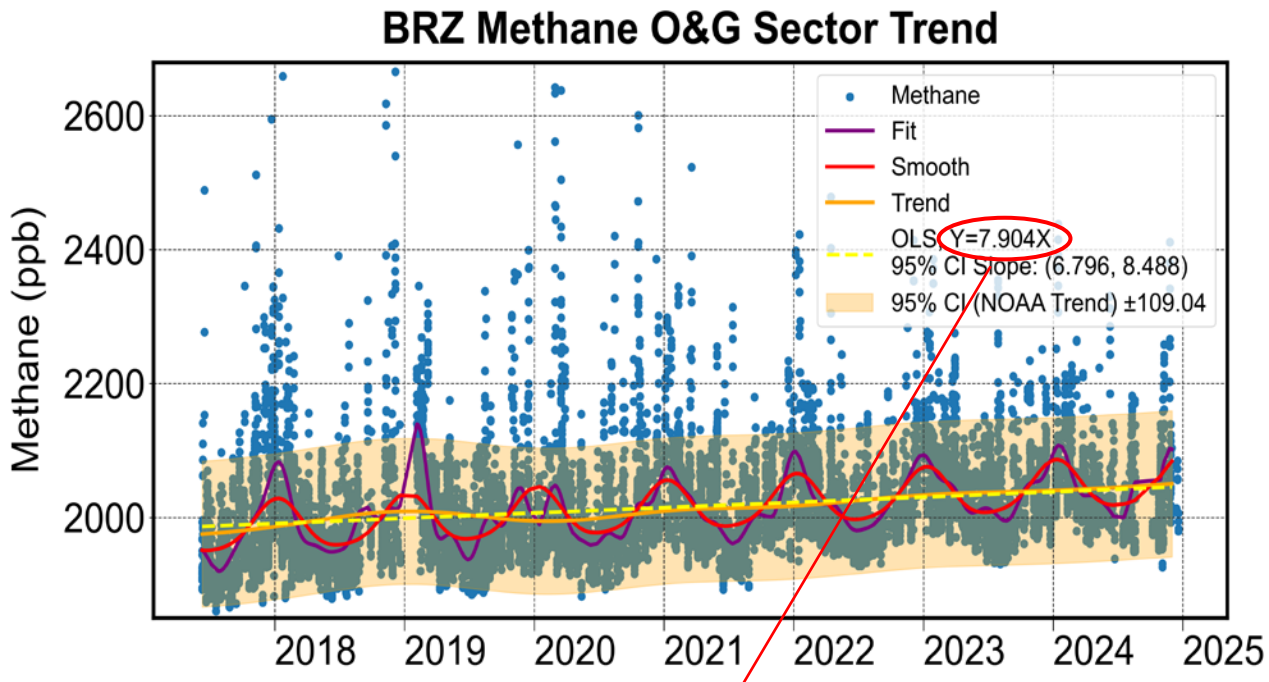
Methane Data Records



Methane Trend Analyses Results – Boulder Reservoir

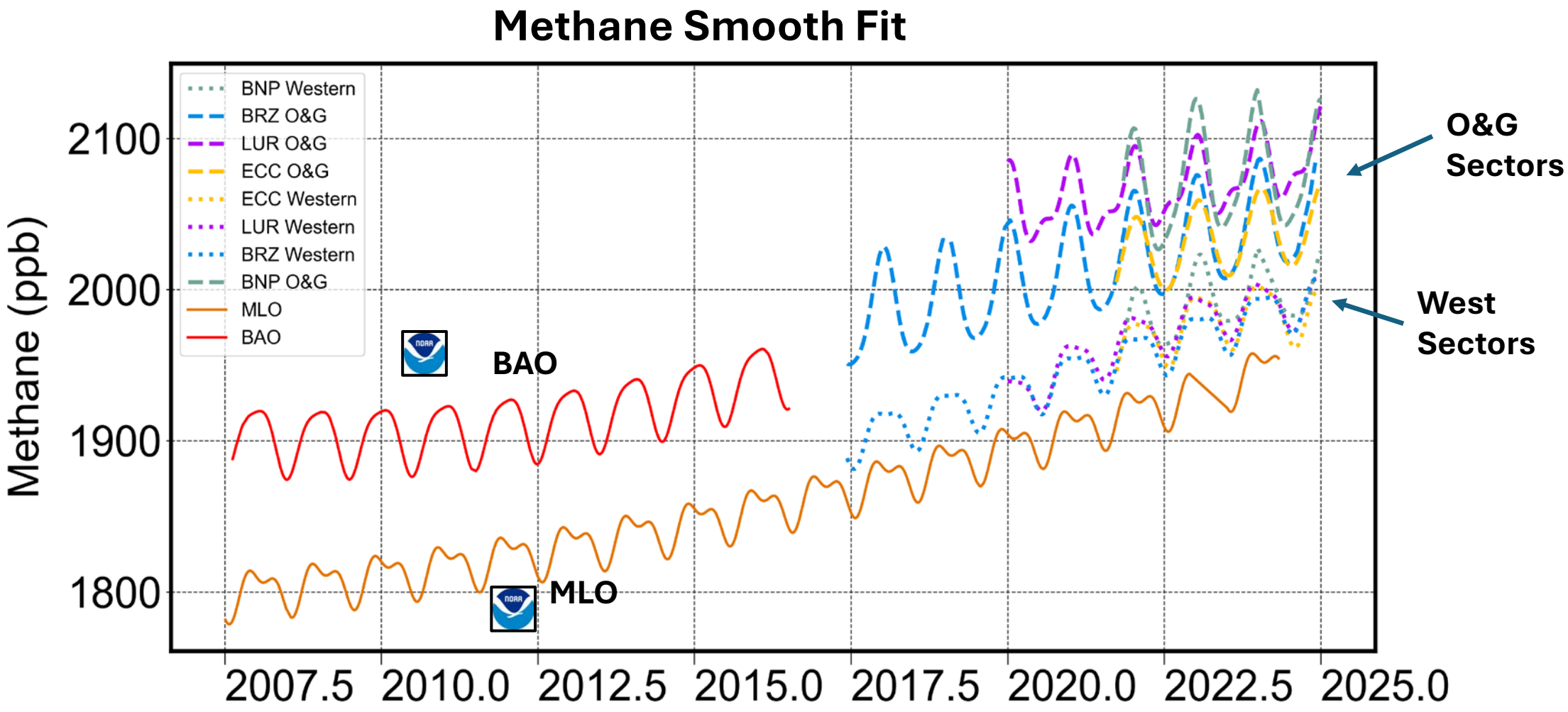


Growth Rate: 11.25 ppb/yr

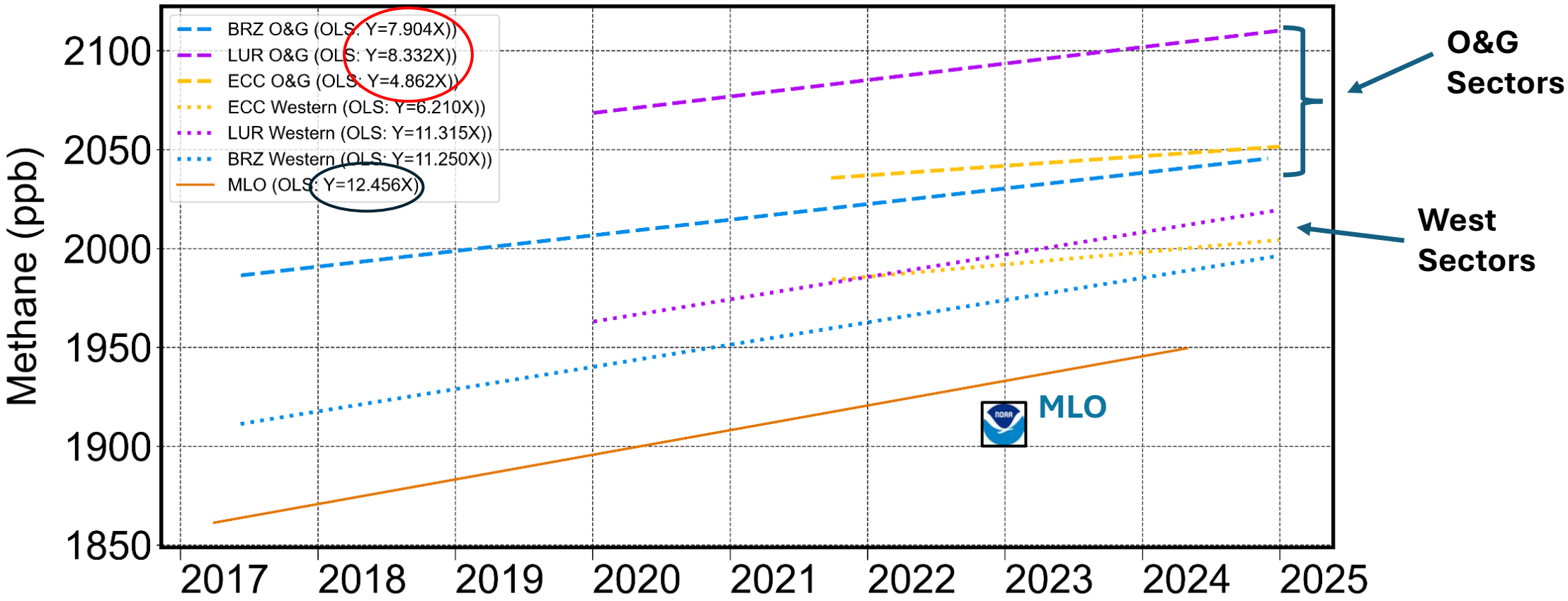


Growth Rate: 7.90 ppb/yr

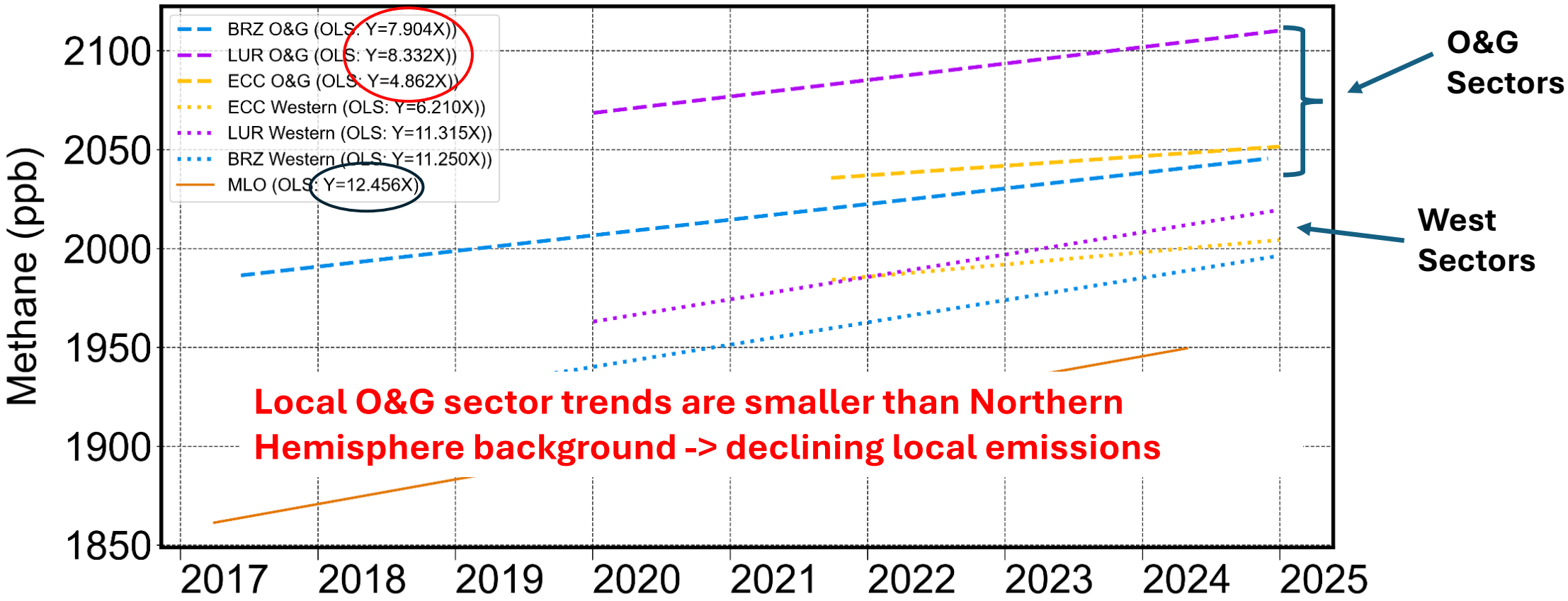
Methane Trend Analysis Results – All Sites



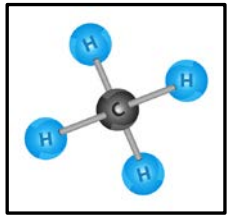
Methane Trend Analyses – Linear Fits all Sites



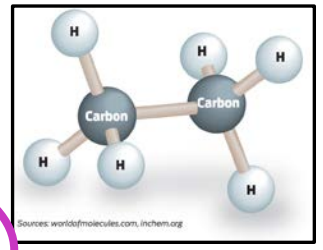
Methane Trend Analyses – Linear Fits all Sites



Trend Analyses – Ethane as Oil and Natural Gas Tracer



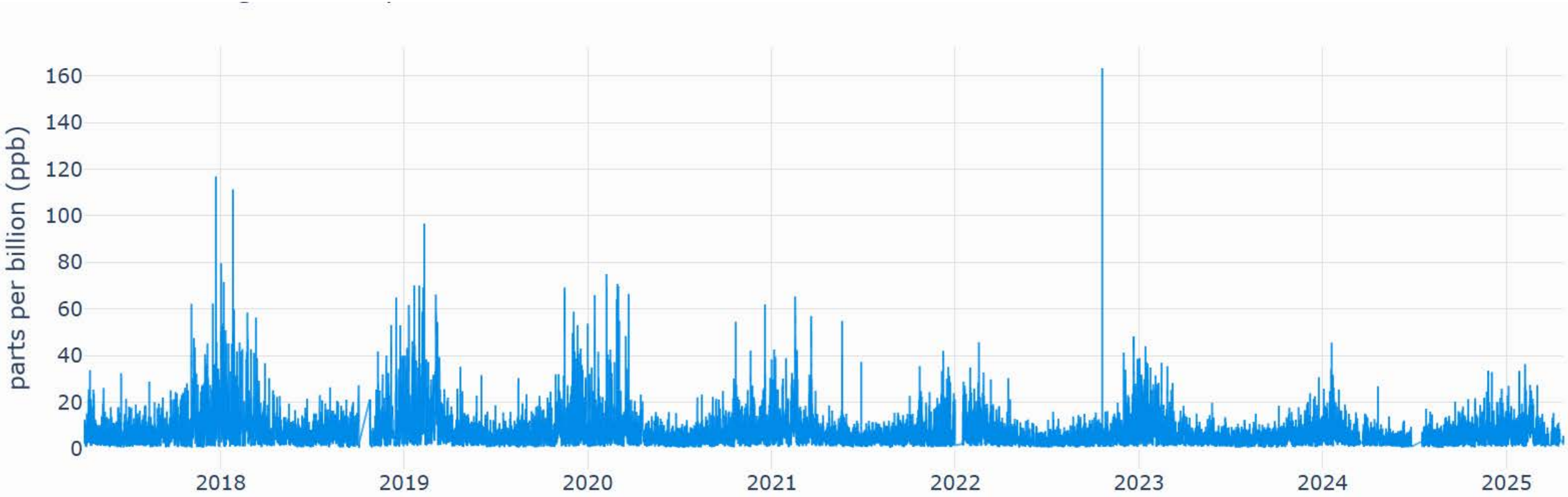
Ethane



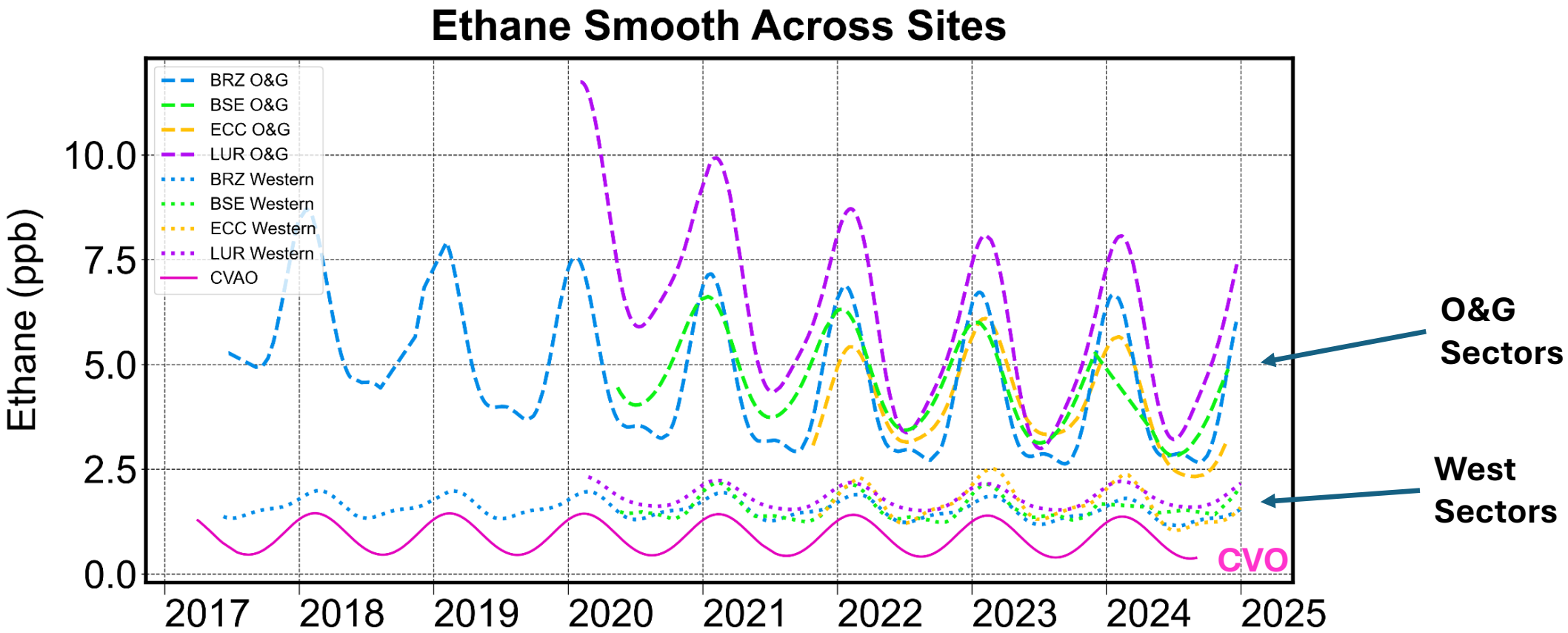
Methane

Nitrogen Oxides (NOx)

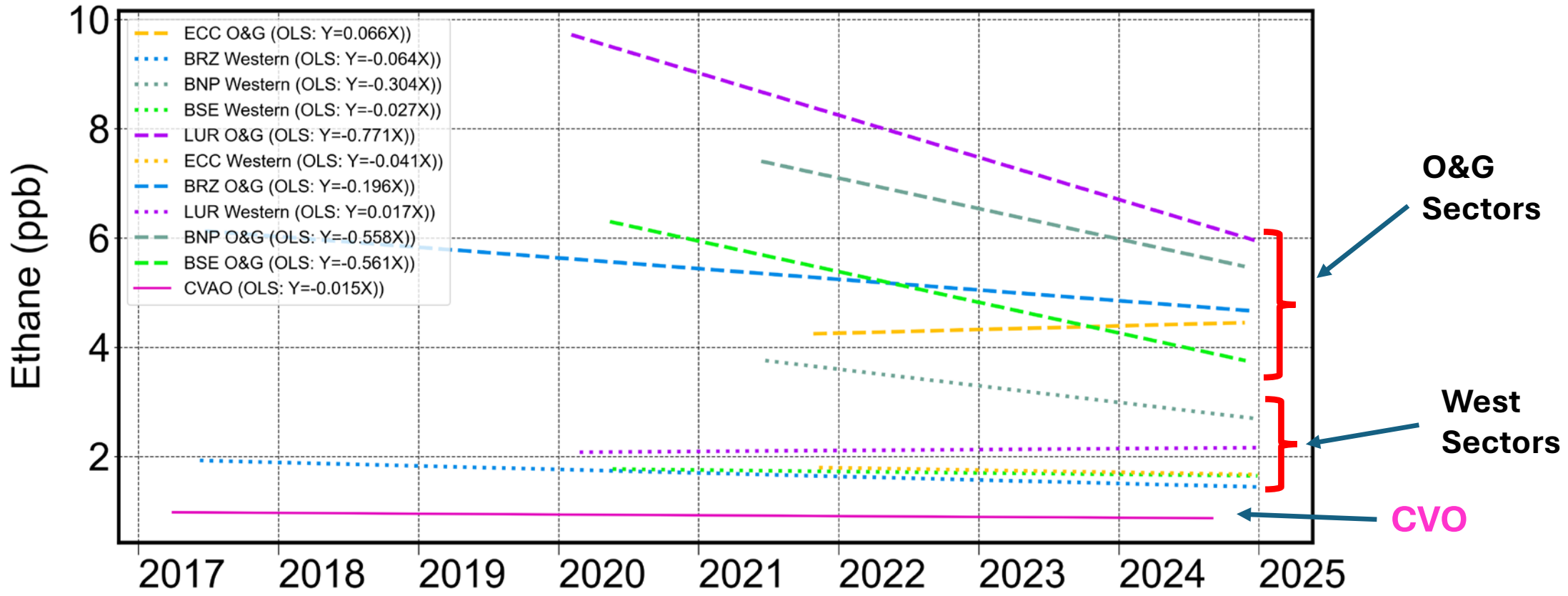
Ethane Trend Analysis – Boulder Reservoir Data Record



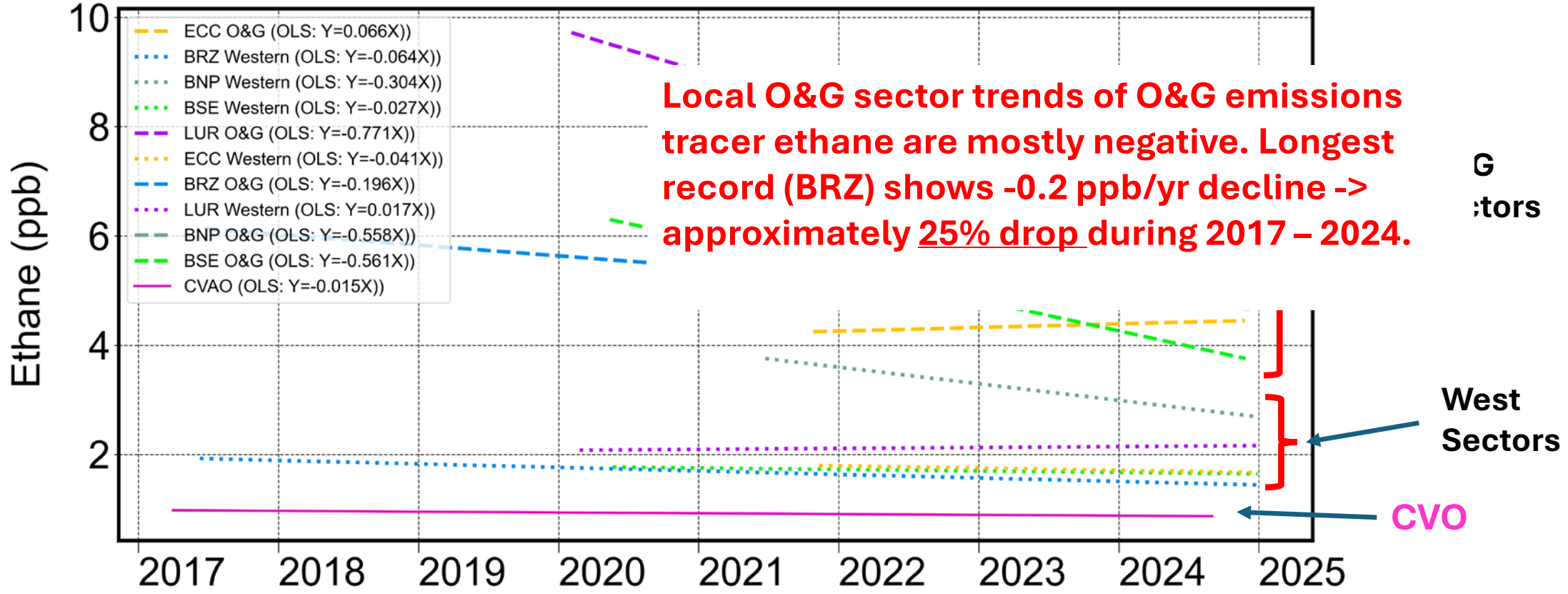
Ethane Trend Analyses



Ethane Linear Trend Analysis Results

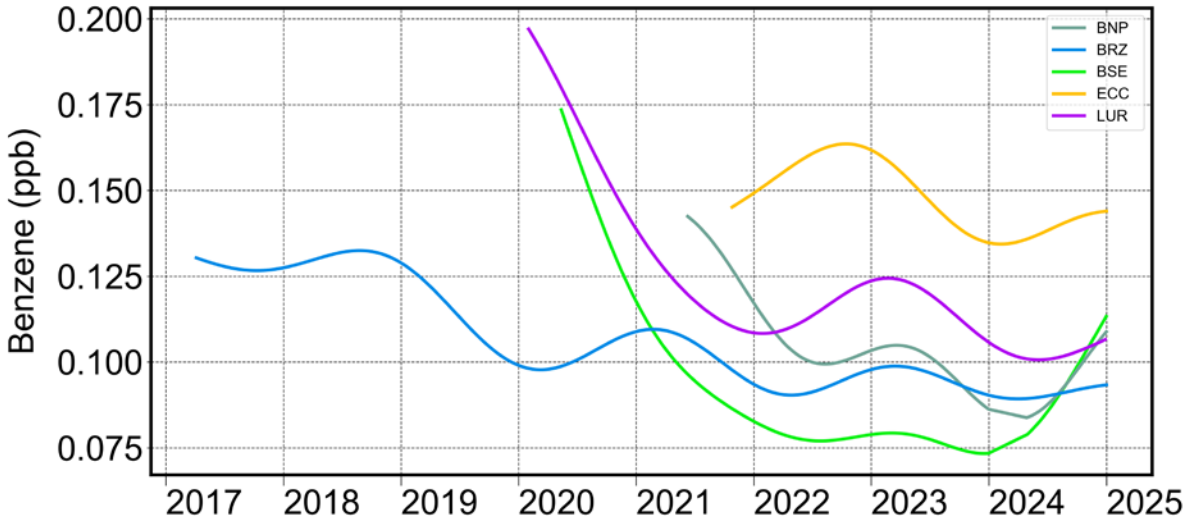


Ethane Linear Trend Analysis Results

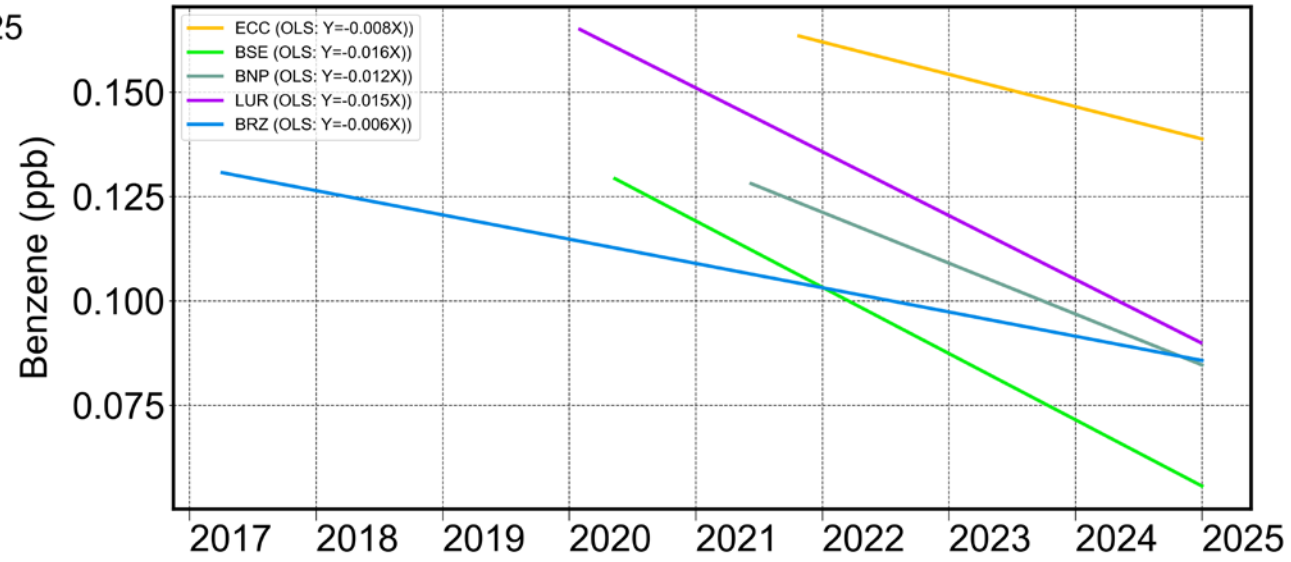


Benzene Trend Analyses Results

Benzene Trend Curves

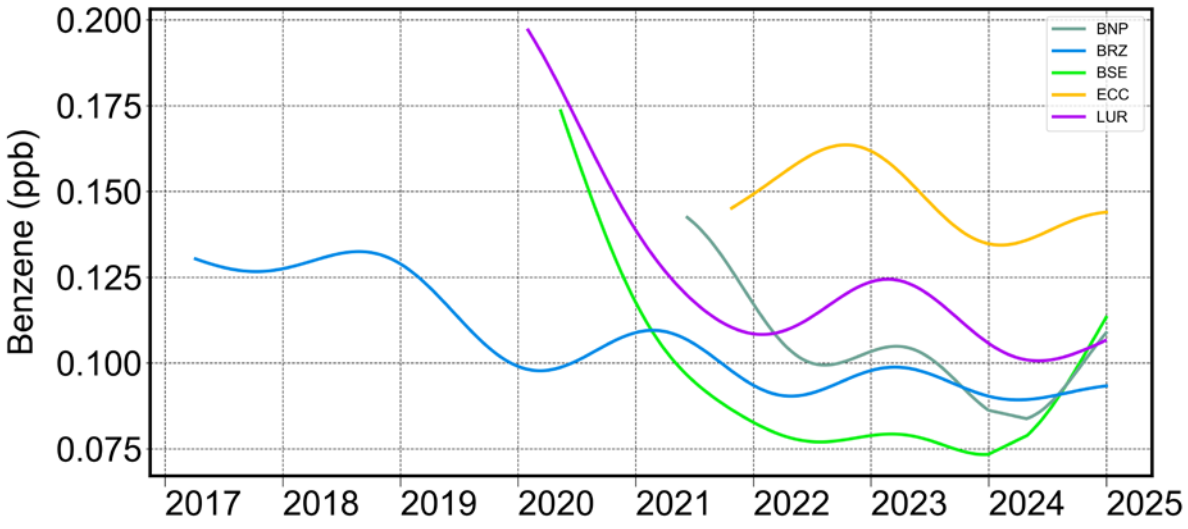


Benzene Linear Trend Lines



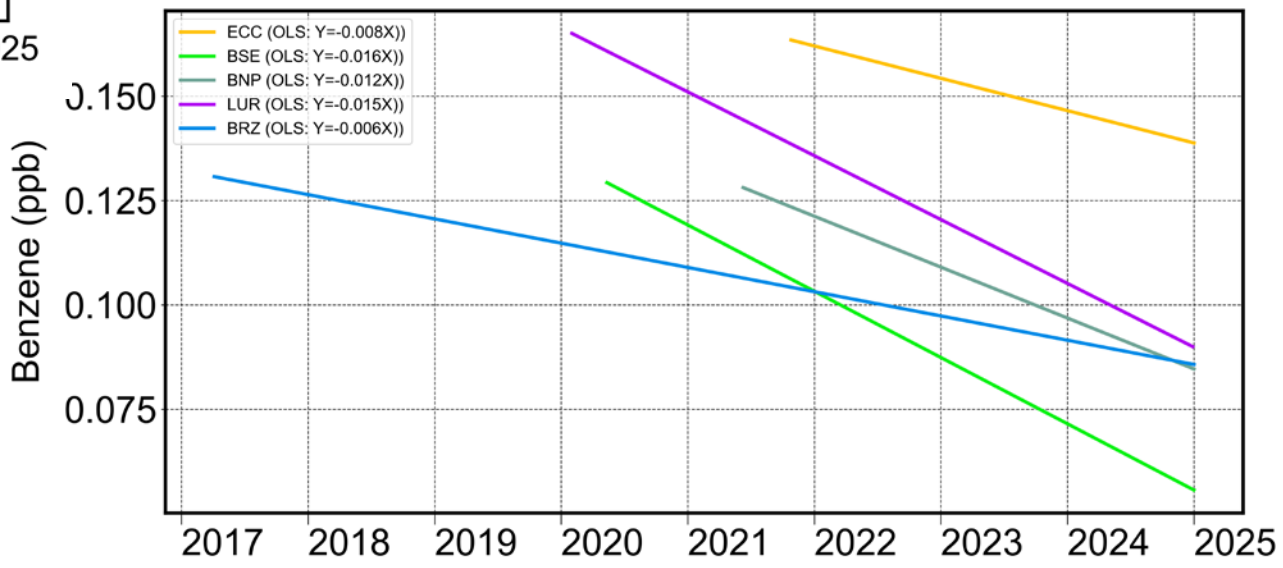
Benzene Trend Analyses Results

Benzene Trend Curves

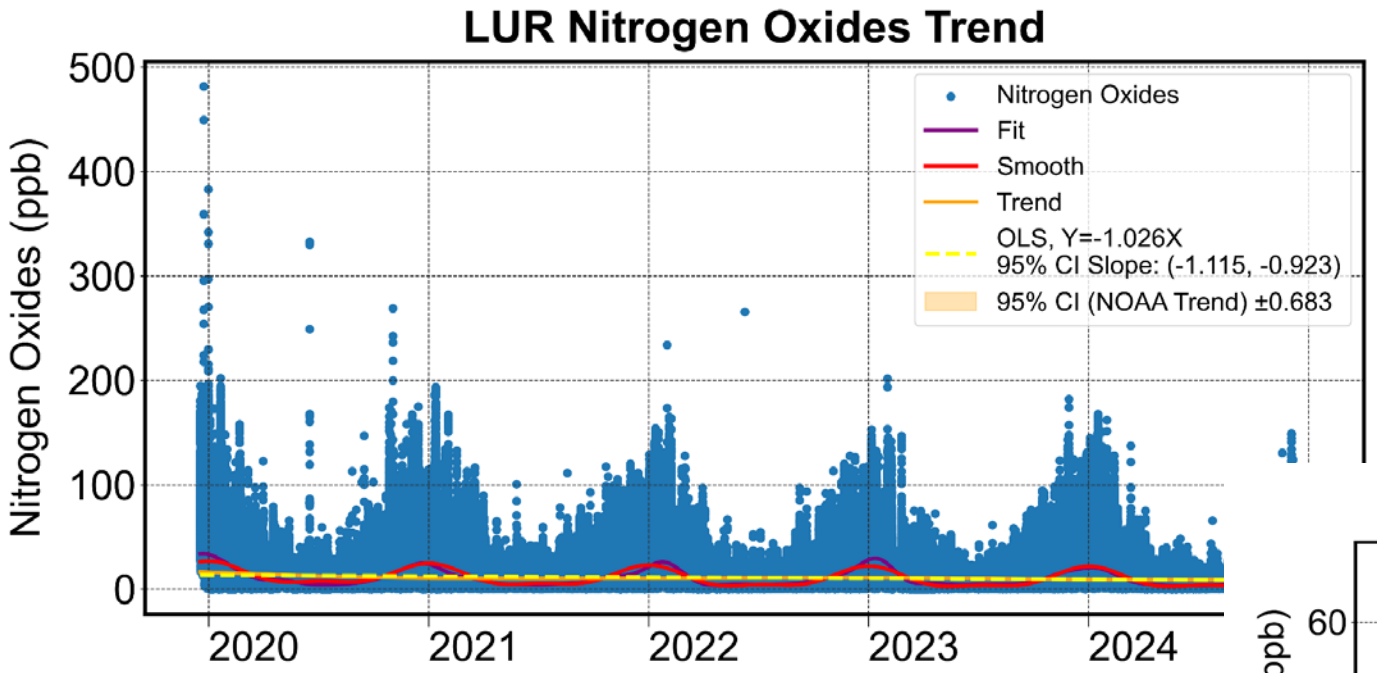


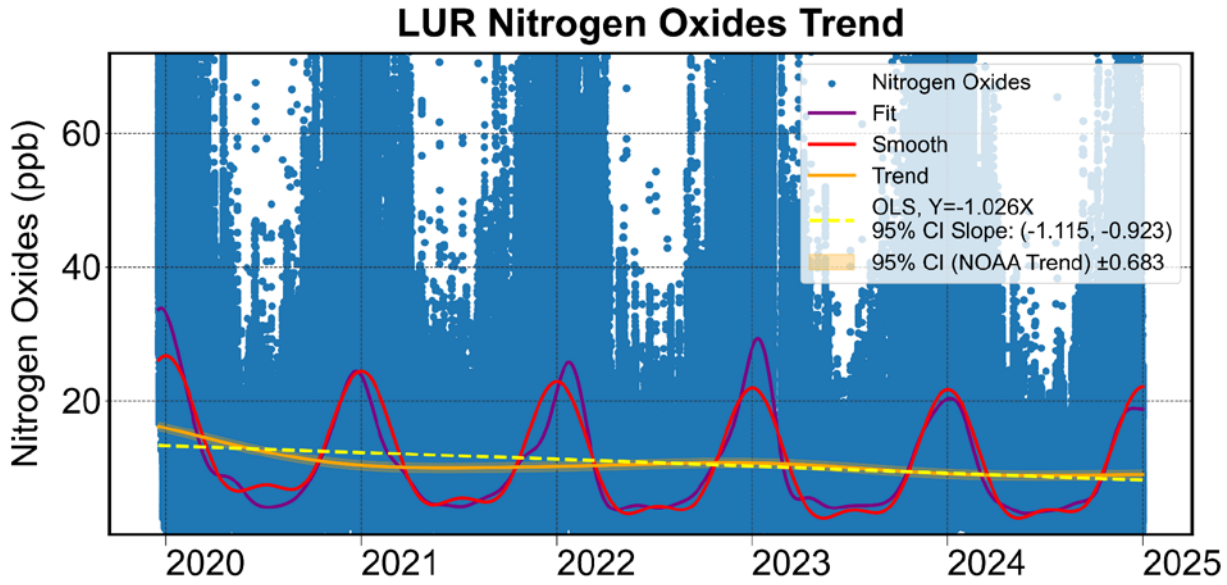
Benzene has been declining at all sites. Longest record (BRZ) shows -0.006 ppb/yr decline -> approximately 30% drop during 2017 – 2024.

Benzene Linear Trend Lines



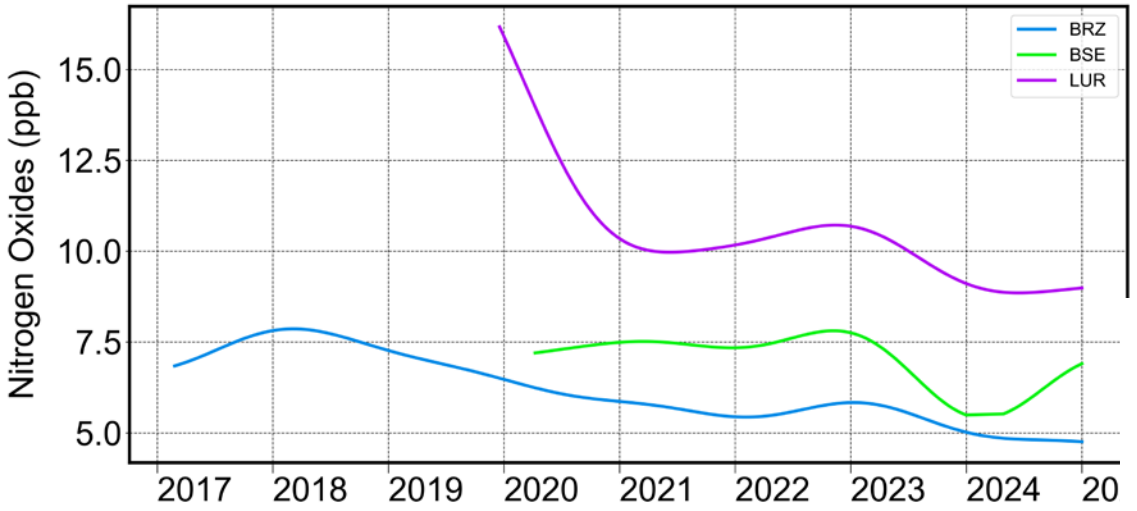
Nitrogen Oxides Trend – Longmont Union Reservoir



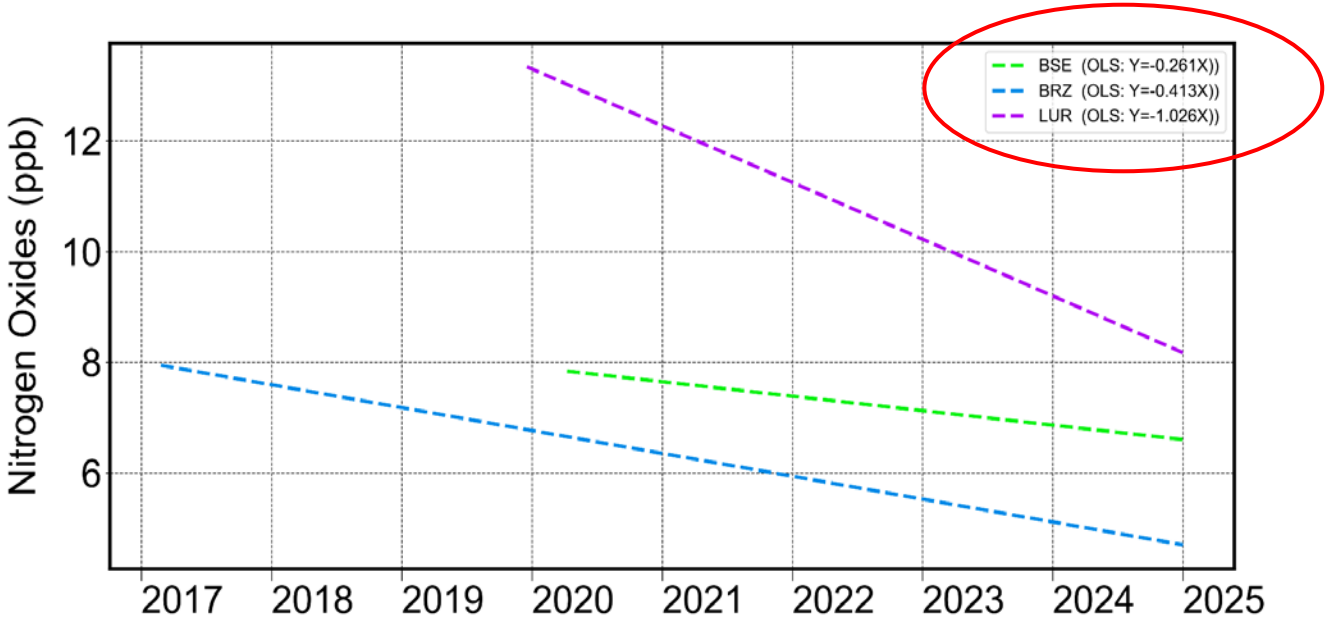


Nitrogen Oxides Results

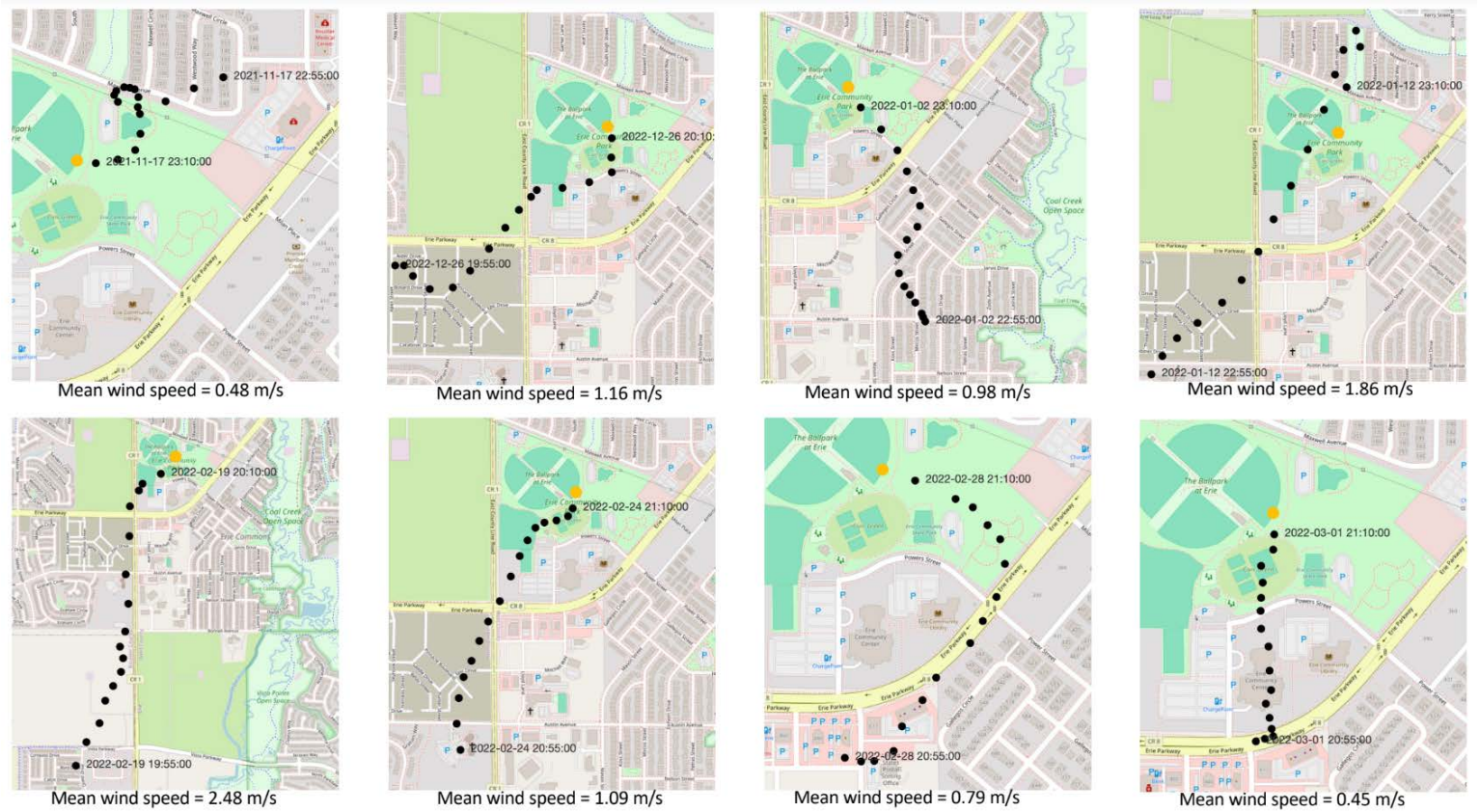
NOx Trend Curves



NOx Linear Trend Lines

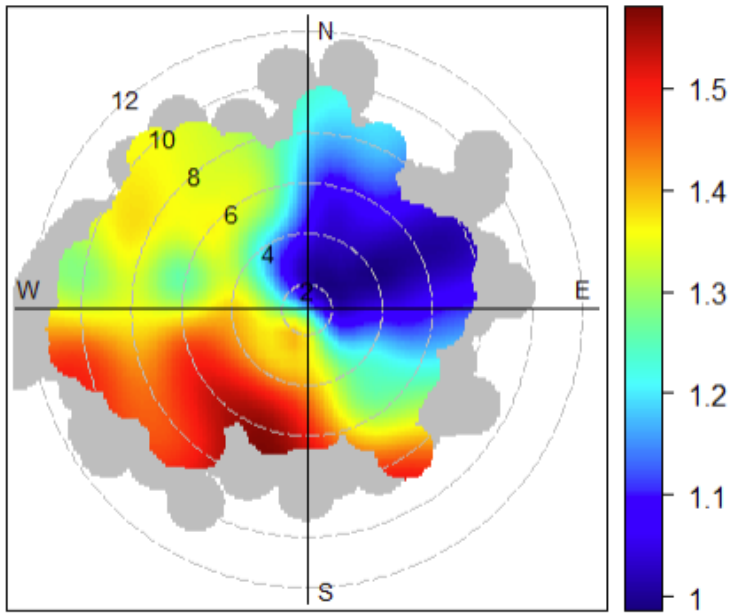


Transport Path of VOCs Plumes



15-minute back-trajectories for 8 selected events of nocturnal spikes of heavy alkanes (butane, pentane, and/or hexane). Each black dot represents a 1-minute increment on the inferred pathway that the air parcel took before arriving at ECC.

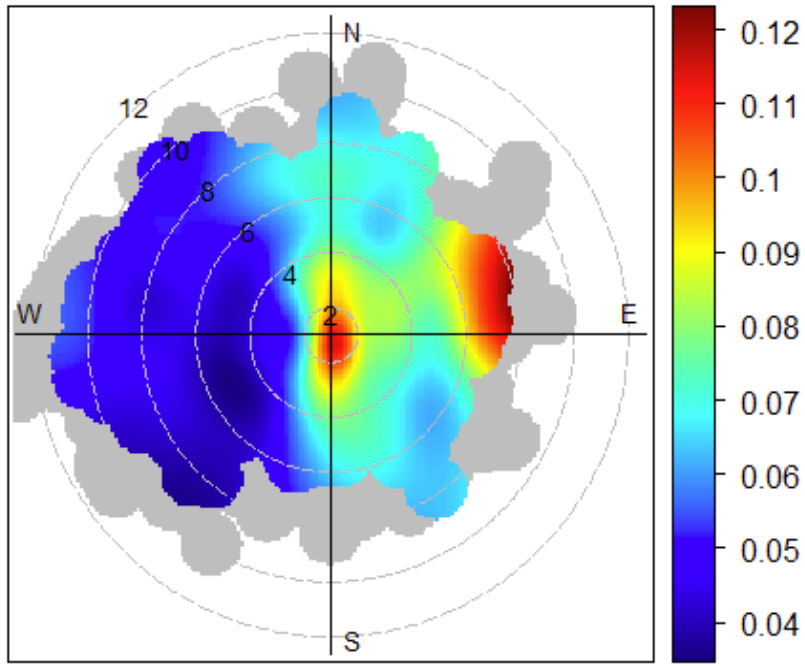
ECC i/n Pentane Ratio, Oct 2021 through Aug 2024



Wind Speed > 1 m/s, Min Bin # = 2

Bivariate polar plot showing the dependency of the isomeric pentane ratio at ECC as a function of wind speed (m/s) and wind direction. Ratio values consistent with oil and natural gas (O&NG) sources are observed when winds are blowing from the northeast, and ratio values consistent with mobile sources are observed from the south and southwest.

ECC benzene (ppb), Oct 2021 through Aug 2024



Bivariate polar plot showing the dependency of benzene at ECC as a function of wind speed (m/s) and wind direction. The highest benzene is observed when winds are blowing from the north to south, and at higher wind speeds from the east.

Ajax Analytics

with

Colorado State University

2025 TOWN OF ERIE PROGRAM REVIEW

TOPICS

CONTENTS

01 AIR MONITORING OVERVIEW

02 ERIE'S CONTINUOUS MONITORING CONCEPTS

03 PROGRAM HIGHLIGHTS AND IMPACTS

GOAL

measure the air

minimize assumptions

"When you have facts, you don't need statistics"
- Cassie Kozyrkov

no knowledge

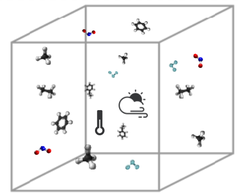
perfect knowledge

every: compound, m^3, second

measurement

modeling

assumption, uncertainty, probability



0 metrics

53,579,664,000,000,000,000 metrics per year (53 quintillion)

Globally, assuming 100 metrics and 100m high boundary

Factors

- spatial coverage
- time coverage
- measurement accuracy
- pollutants measured
- pollutant proxies
- source tracers
- daily cycles
- seasonal cycles

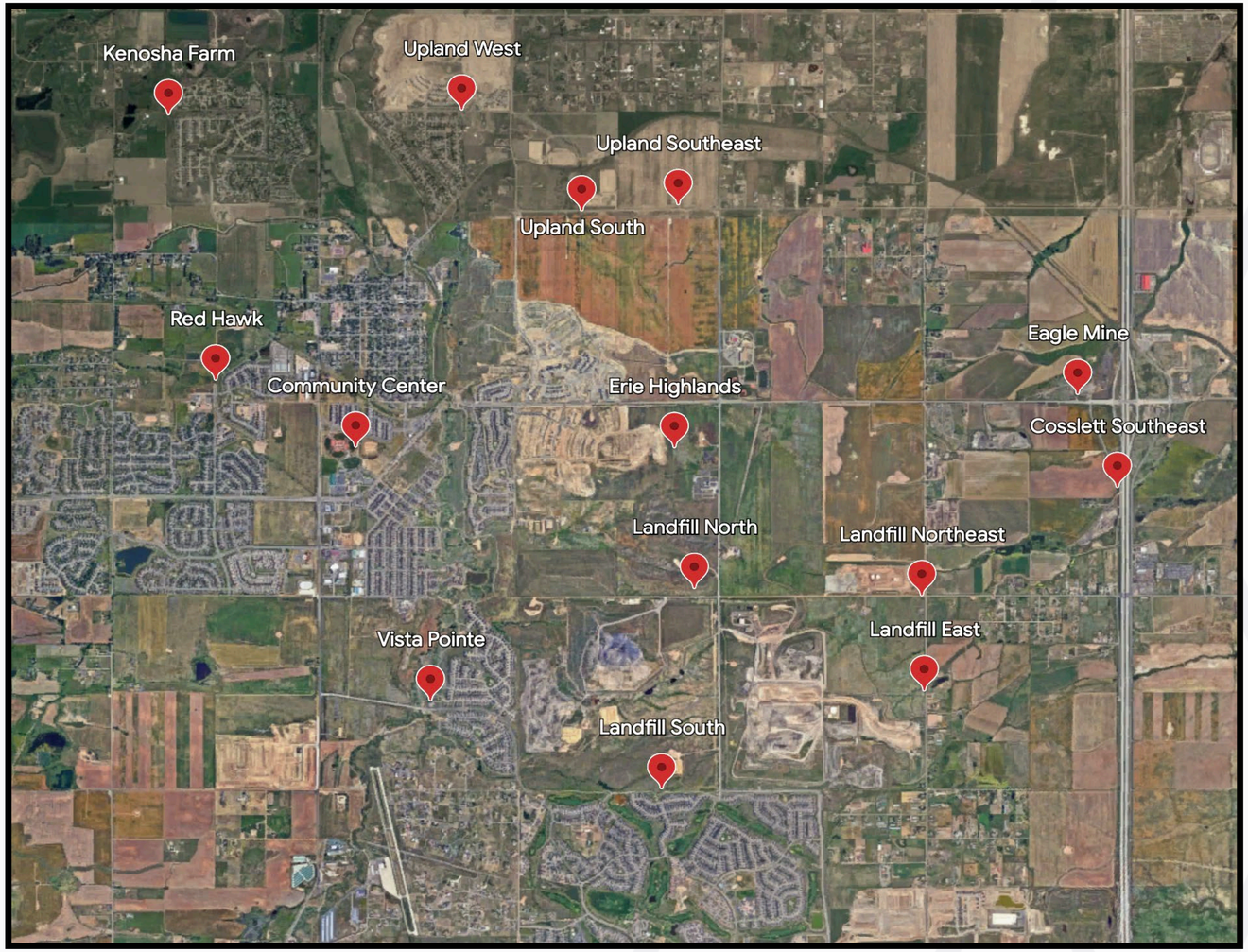
Erie's Air Monitoring Program Goals

Characterize and quantify Erie's air quality patterns

Compare air quality with standardized health guidelines

Monitor, track, and report air quality disturbances

Discover areas of potential air quality improvement



Map of all monitoring station locations across Erie throughout program history

ERIE'S CONTINUOUS MONITORING CONCEPTS

3 Types of Measured Data

Real-time PID data shows VOC disturbances from baseline averages.

Weekly Canister data shows regional and localized VOC patterns.

Triggered Canister data shows snapshot concentrations of a VOC plume as it passes over a monitoring station.

Variations from baseline averages are linked to specific emissions events, landfill emissions, and seasonality.

Ajax real-time monitoring station. All data is publicly available and can be found at our website:

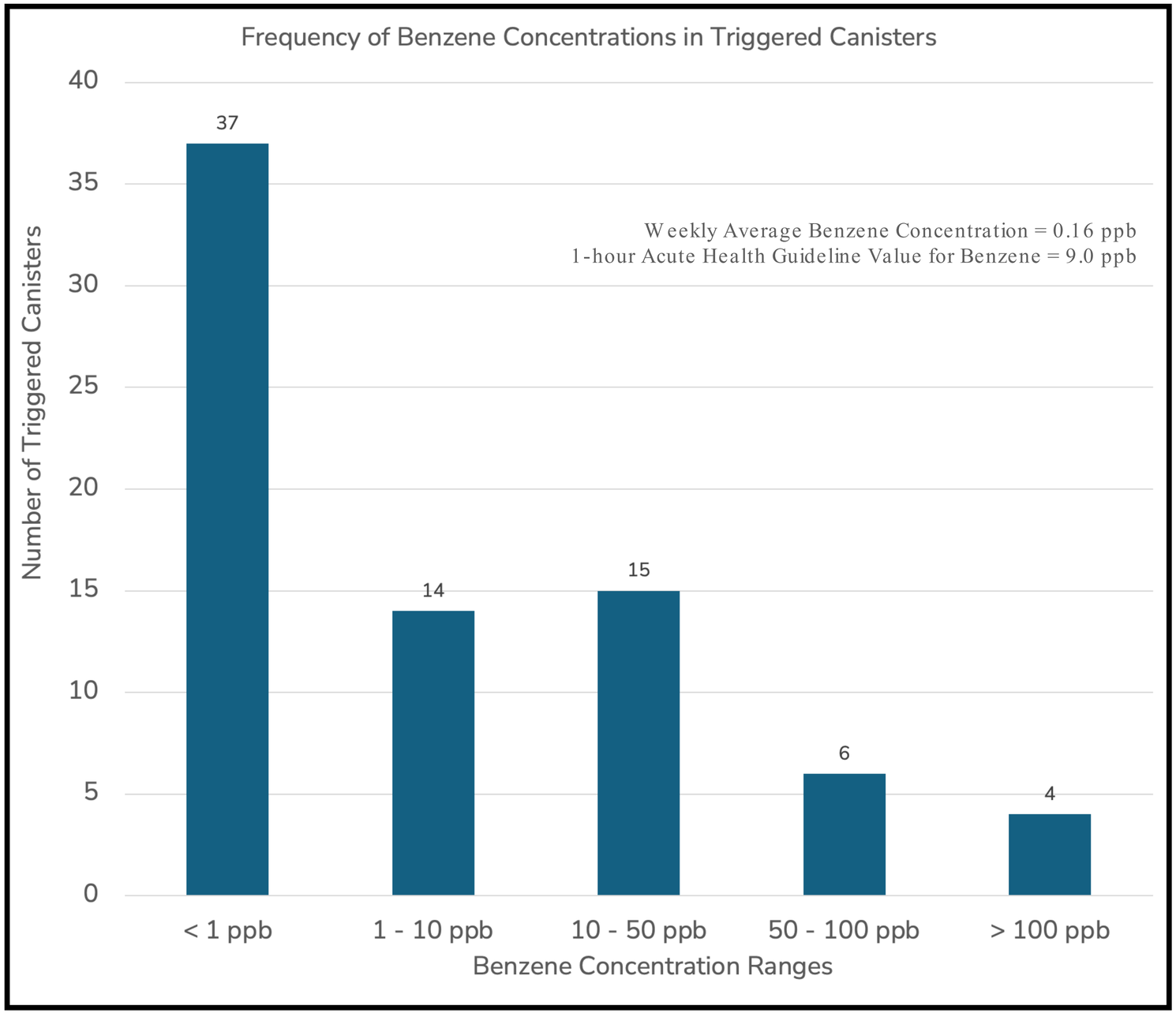
https://app.ajax-analytics.com/p/program-overview#program=Erie

Elevated Benzene in Triggered Canister Data

Why This Matters: Benzene is a known carcinogen, and exposure can impact residents' health.

Impact to Erie: Benzene exposure can lead to concerns regarding public health, environmental quality, and property devaluation.

Industry Accountability: Continuous monitoring promotes responsible operators to limit emissions without the need for overregulation.



Instantaneously Addressing Community Air Quality Concerns

Why This Matters: The mobility of our systems provides data-driven assurance about neighborhood air quality during O&G activity as operations migrate around Erie's pad sites,

Impact to Erie: Transparency and access to real-time local data builds community trust and gauges industrial activity impacts on homeowners.

Local Control: With independent monitoring, Erie does not need to rely on potentially biased operator-reported data.

Aug 2023- Development of the Erie Highlands community was paused due to the discovery of methane detected in soil samples above a P&A'd well. A monitoring station was placed above the saturated soil to ensure that the methane was not permeating to the surface as evidence that there was no danger to the public. The well was adopted into the orphaned well program and subsequently re-plugged in June 2024.

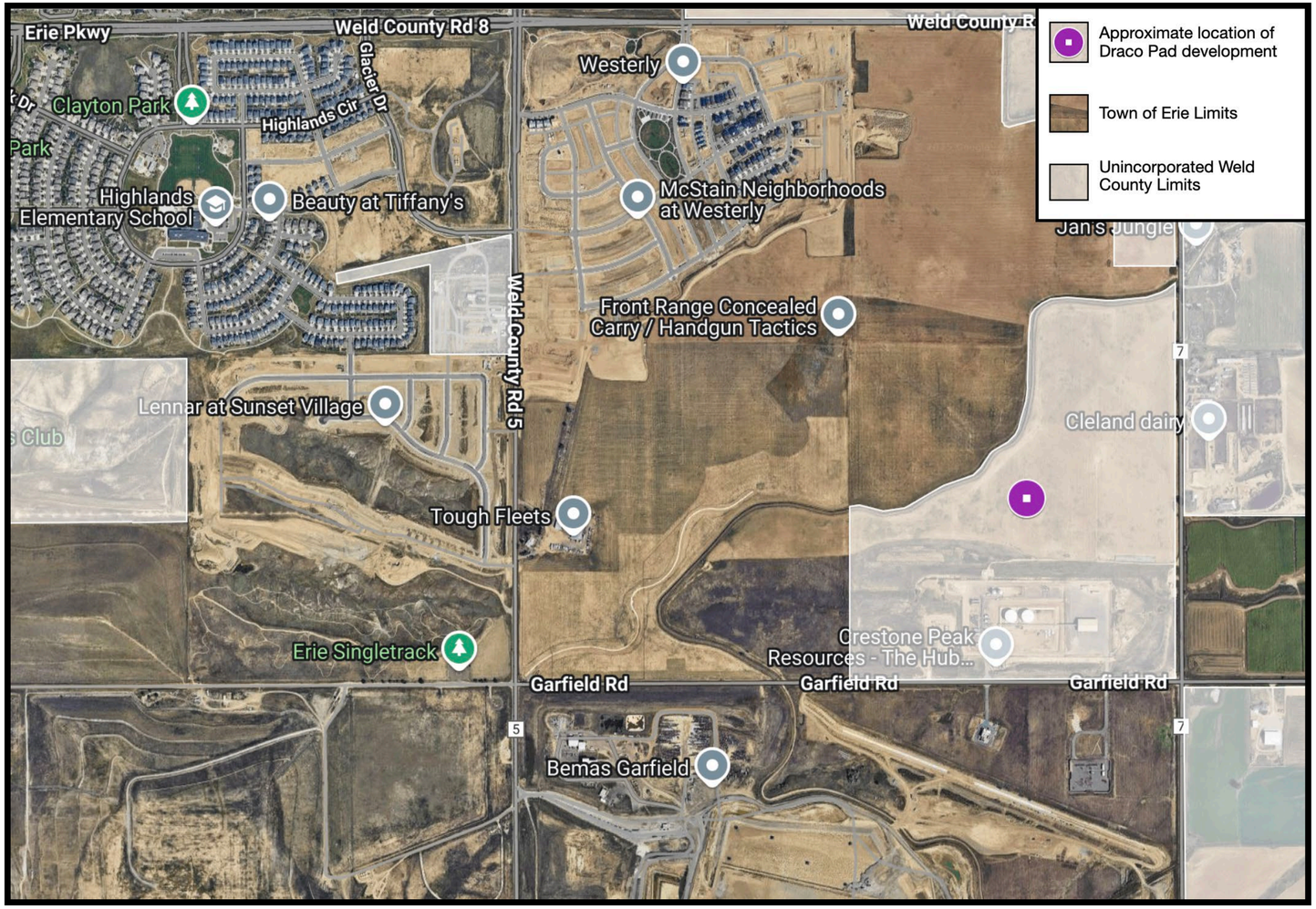
Dec 2024- Erie staff received noise complaints from O&G maintenance activities in the Flatiron Meadows neighborhood. Air quality was an immediate concern due to the proximity of the pads to the community. This prompted a station relocation to monitor air quality near the pad sites as maintenance moved around the 4 pads within the neighborhood.

Instantaneously Addressing Community Air Quality Concerns Continued…

Why This Matters: The mobility of our systems provides data-driven assurance about neighborhood air quality during O&G activity as operations migrate around Erie's pad sites,

Impact to Erie: Transparency and access to real-time local data builds community trust and gauges industrial activity impacts on homeowners.

Local Control: With independent monitoring, Erie does not need to rely on potentially biased operator-reported data.



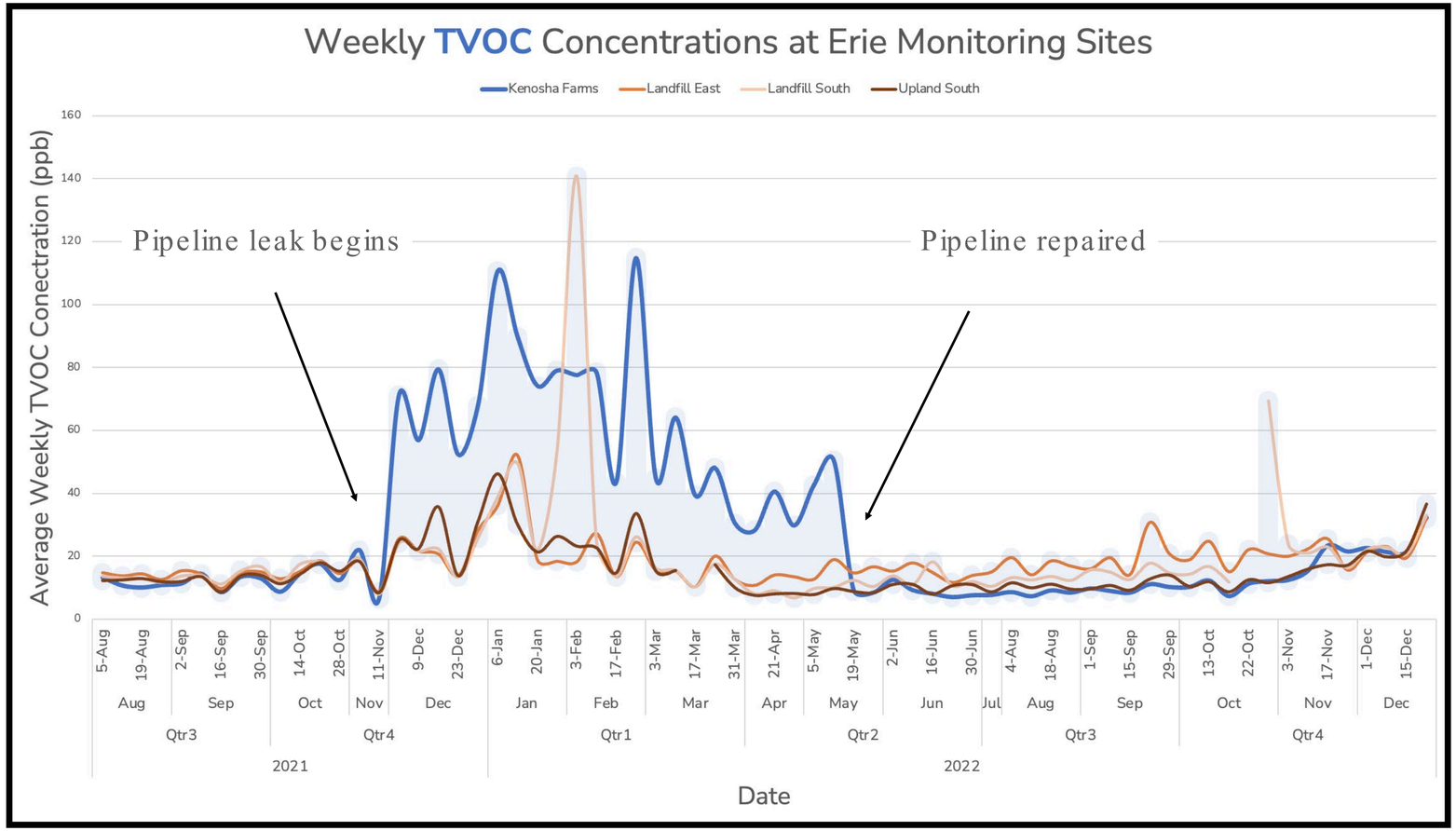
March 2025- ECMC approves new O&G development, the Draco Pad, on the outskirts of Erie town limits. Situated southeast of active community building, air quality disturbances are expected during various pre-production processes. Pre-production is expected to be completed by October 2027.

Preventative Pipeline Leak Detection

Why This Matters: Early leak detection can help to prevent catastrophic events like the 2017 Firestone explosion.

Impact to Erie: Homes, business, and citizens are protected from costly and/or life-threatening hazardous leaks and emissions.

Proactive Financial Responsibility: Proactive monitoring helps to catch potential emergency situations.



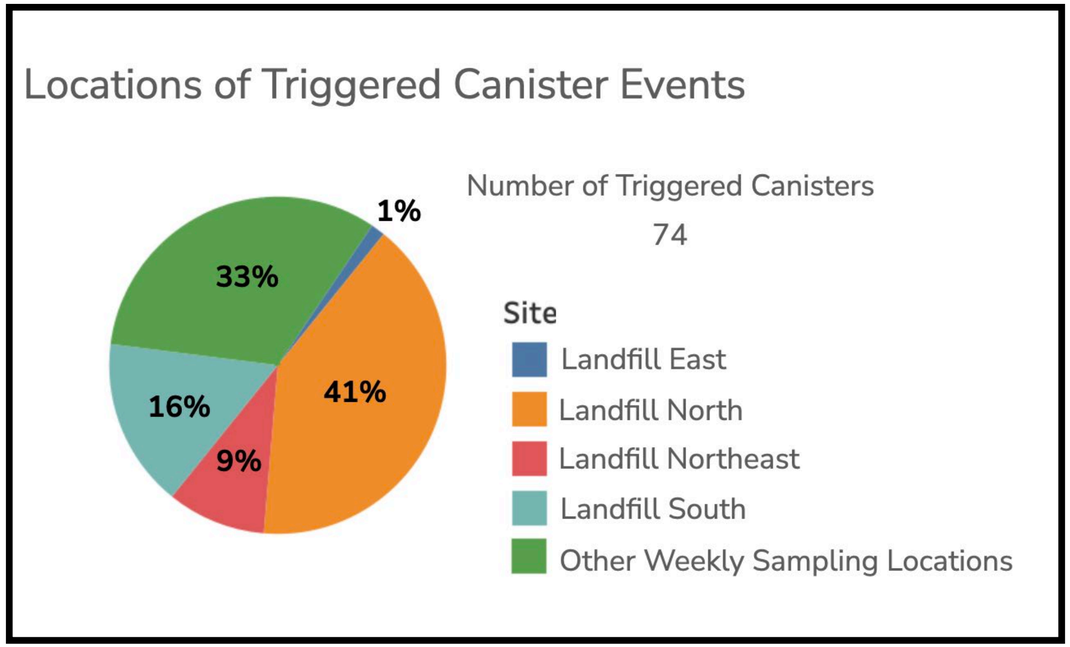
In 2022, elevated TVOC concentrations at the Kenosha Farms station in the Kenosha Farms community detected a gathering line leak ~900 ft from the station. Upon discovery, the pipeline was repaired.

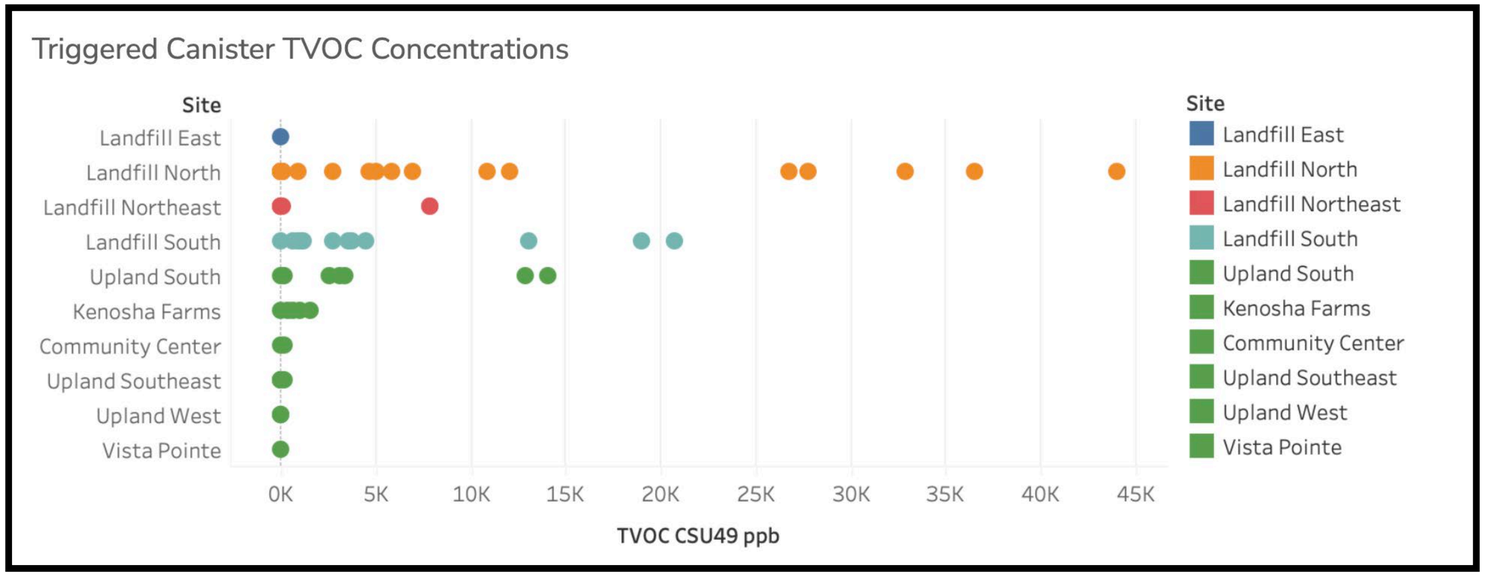
Prominent Landfill VOC Elevations

Why This Matters: Landfills release methane and VOCs, affecting air quality and climate. O&G pads are situated within the landfill area, mixing air toxics and hindering differentiation. Camouflaged O&G emissions could be a result of operational bad-practice.

Impact to Erie: Identifies areas of improvement and promotes operationally-safe practices benefiting the environment and quality of life in Erie.

Cost-Effective Solutions: Investigation and detection allow for targeted mediations, reducing long-term environmental and community damage.





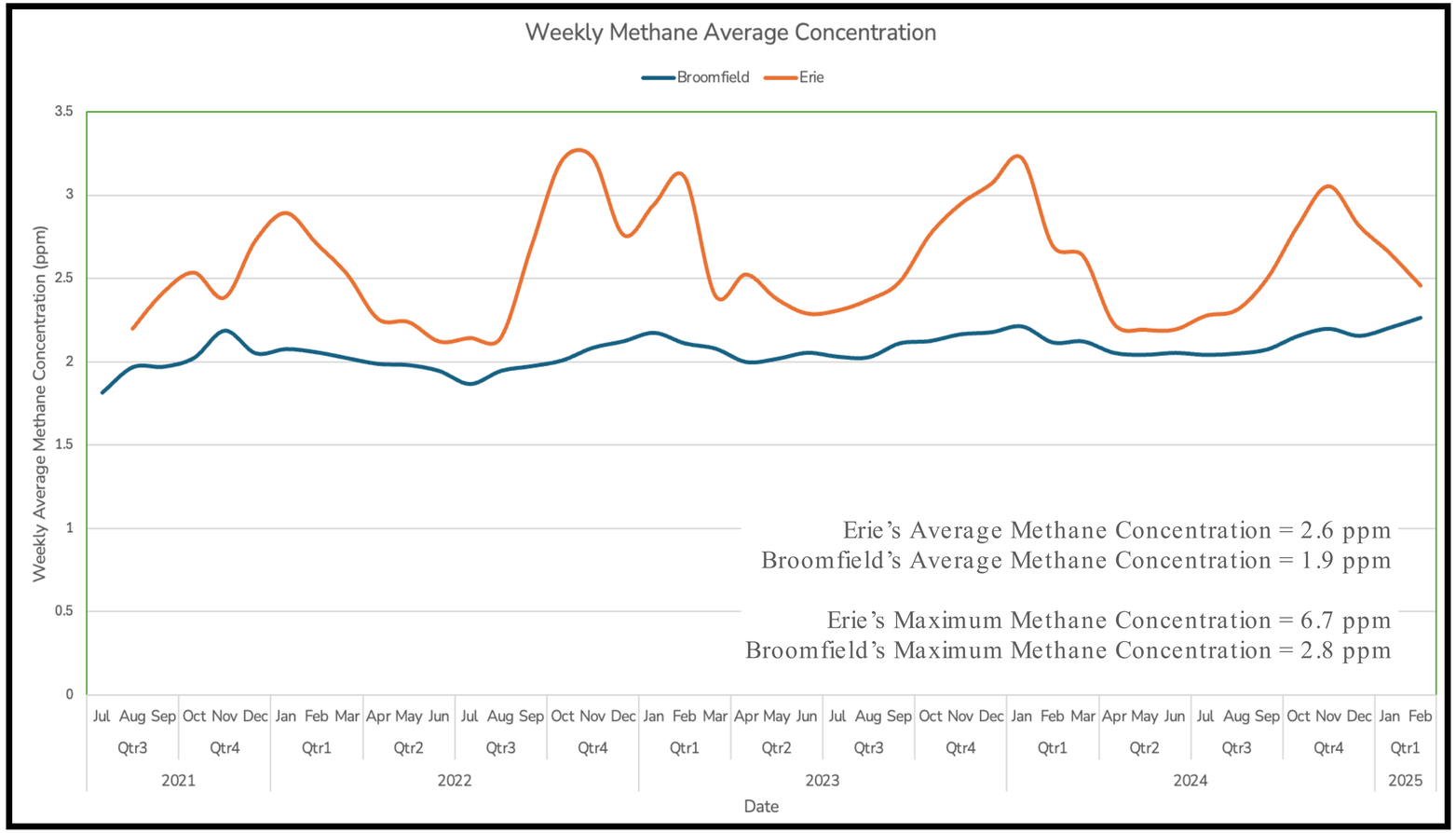
67% of triggered canister events occur at the Landfill stations with consistently elevated VOC concentrations.

Methane Levels: Erie vs. Broomfield

Why This Matters: Data comparison shows how regional and local emissions vary, highlighting the influence of Erie's Front Range Landfill.

Impact to Erie: Identifies areas where emission reductions can improve public health, ensuring community-driven data oversight. The data also helps to drive policy decisions such as APCD's 2025 proposal to enforce new greenhouse gas reporting requirements from municipal solid waste landfills

Balanced Regulation: Monitoring promotes and enables action based on facts, not assumptions, benefiting both industry and the environment.



Average weekly methane concentrations since Q3 2021 from weekly canister samples in Broomfield and Erie.

Air Monitoring Program Summary

Public Safety: Reassuring residents, and proactively protecting health.

Proactive Financial Responsibility: Helping to prevent emergency situations and environmental disturbances.

Industry Accountability: Promotes responsible operations, encouraging smooth relationships between operators, staff, and public.

Local Control: Erie makes its own air quality decisions instead of relying on external agencies.

Transparency and Community Trust: Providing clear, accessible, and unbiased data for all Erie residents.

Boulder Atmosphere Innovation Research

Boulder A.I.R. L.L.C; 2820 Lafayette Dr., Boulder, CO 80305, U.S.A.; dh.bouldair@gmail.com

April 7, 2025

To:
Town of Erie
645 Holbrook Street
Erie, CO 80516

Attn: David Frank

Budget Proposal and Scope of Services for July 1, 2025, to June 30, 2026, Air Quality Monitoring in the Town of Erie, Colorado

Dear Mr. Frank,

Please find below our cost proposal and scope of work for the continuation of the air quality monitoring at the Erie Community Center that is under contract with the Town of Erie.

The proposed work will continue the monitoring of all variables and pollutants, with the same real-time data reporting that was implemented at the beginning of the program in the summer of 2021.

We have again quoted the monitoring of ozone and Particulate Matter (PM) following 'regulatory-grade' protocols. This entails following the instrument configuration, calibration, and maintenance protocols as mandated by the EPA, and followed by the Colorado Department of Public Health and Environment (CDPHE). Both measurements have been audited by CDPHE and were found to fully meet regulatory quality requirements.

The monitoring of volatile organic compounds (VOCs) relies on operation of a gas chromatography-flame ionization instrument. This will provide sensitive and VOC-specific monitoring of a series of the primary oil and natural gas hydrocarbons. A minimum of thirty species of the most prominent VOCs observed in ambient will be reported. Quantification of VOCs will follow the protocol and be based on the calibration scale of the World Meteorological Organization Global Atmospheric Watch program with calibration standards from the U.K. National Physics Laboratory.

This bid includes automated data processing and reporting to the dedicated Erie project web portal that was implemented and is maintained by Boulder AIR (https://www.bouldair.com/erie.htm). In addition, data from the Erie monitoring will be included in the AirLive Combined Northern Colorado Front Range website (https://www.bouldair.com/NoCoFrontRange.htm). All historical data can be viewed and analyzed at the Boulder AIR Interactive Data Analysis Tool (https://bouldairtools.com/interactive/). Final, fully quality-controlled VOCs data will be submitted to AMTIC, the EPA Ambient Monitoring Archive for Hazardous Air Pollutants (https://www.epa.gov/amtic/amtic-ambient-monitoring-archive-haps); data for all other chemical measurements will be submitted to the EBAS (https://ebas.nilu.no/) archive.

The cost for all monitoring and associated services for July 1 – December 31, 2025, will be the same as for the current January 1 – June 30, 2025, contract ($113,600). Rates for 2026 will increase by 3% to adjust for inflation. However, Boulder AIR will drop the rate for methane monitoring by 20% starting January 1, 2026. Consequently, the January 1 – June 30, 2026, budget comes in slightly lower at $113,338. The total cost for a full year contract spanning July 1, 2025 to June 30, 2026, accounts to $226,958.

Site access, electrical power, and internet communication will be provided by the Town of Erie at no cost to Boulder A.I.R.

We request quarterly payments of the full contract costs.

Invoicing Schedule for 2025 and 2026:

- 25% of 2025 charges ($56,810) by September 30, 2025
- 25% of 2025 charges ($56,810) by December 31, 2025
- 25% of 2026 charges ($56,668) by March 31, 2026
- 25% of 2026 charges ($56,668) by June 30, 2026

We appreciate this opportunity to continue this air quality monitoring for the Town of Erie.

Thank you,

Detlev Helmig, PhD
Boulder A.I.R. LLC

Town of Erie Air Quality Monitoring Proposal, 2025-2026

Item	Variable	2025 rate, full year US$	2026 rate, full year US$	2025, Jan 1 - Jun 30, US$	2025, July 1 - Dec 31, US$	2026, Jan 1 - Jun 30, US$	Total July 1, 2025 - Jun 30, 2026
1	Ozone, TEI_49, regulatory-grade	17,918	18,456	8,959	8,959	9,228	18,187
2	Volatile Organic Compounds (including ethane, ethene, acetylene, propane, propene, i-butane, n-butane, i-pentane, n-pentane, cyclopentane, isoprene, n-hexane, cyclohexane, benzene, n-heptane, toluene, n-octane, o-xylene, ethylbenzene, o-xylene, m-xylene, p-xylene); WMO-grade by gas chromatography - flame ionization detection	105,665	108,835	52,833	52,833	54,417	107,250
3	Methane, PICARRO G2301, WMO-grade	35,837	29,530	17,919	17,919	14,765	32,683
4	PM_2.5, regulatory-grade, PM_10, GRIMM EDM180	30,102	31,005	15,051	15,051	15,503	30,554
5	Meteorological variables (wind speed, wind direction, temperature, relative humidity, radiation),	3,584	3,692	1,792	1,792	1,846	3,638
6	Webcam for public website images	2,150	2,215	1,075	1,075	1,107	2,182
7	Security system with multiple webcams	1,985	2,044	992	992	1,022	2,014
8	Website data reporting, data management, data archiving, event reports	30,000	30,900	15,000	15,000	15,450	30,450
Total:		**227,241**	**226,675**	113,620	**113,620**	**113,338**	**226,958**

Boulder Atmosphere Innovation Research

Boulder A.I.R. L.L.C; 2820 Lafayette Dr., Boulder, CO 80305, U.S.A.; dh.bouldair@gmail.com

April 4, 2025

To:
Town of Erie
645 Holbrook Street
Erie, CO 80516

Attn: David Frank

Year 2025-2026 Cost Proposal for Operation of a Dispersed Sampling Network and Weekly Summa Canister Air Sampling in Erie, Colorado

Dear Mr. Frank,

Thank you for your inquiry about a cost estimate for air monitoring in the Town of Erie. Please find below a cost proposal for a one-year contract spanning July 1, 2025, to June 30, 2026. The following work is included:

A. Weekly integrated whole air sampling in Summa Canisters, followed by gas chromatography analysis of methane and volatile organic compounds with flame ionization and/or mass spectrometry detection. All methods will follow EPA and WMO-GAW calibration and quality control protocols. A minimum of the 35 most abundant VOCs will be quantified. The Summa canister whole air sampling will be conducted at four monitoring sites. In case the current contract with Boulder AIR for continuous air quality monitoring at the Erie Community Center (ECC) is renewed, then a fifth canister sampling would be operated at no cost to Erie in parallel to the real time methane and VOCs monitoring at ECC to provide comparison between the two methods and additional quality control of the canister-integrated air sampling.

B. Operation of ten SGS SmartSense solar powered (with battery backup) air monitoring stations. https://www.sgsgalson.com/smart-sense-home/. Monitored variables will include wind speed, wind direction, air temperature, fine particulates (PM1, PM2.5, PM10) and total VOCs with photoionization detection (PID). Each station will be equipped with a sampling trigger mechanism and air sampling canister to collect whole air samples when elevated VOC signals are detected by the PID. In case the current contract for continuous air quality monitoring with Boulder AIR at ECC is renewed, then one additional station will be installed at ECC in parallel to the real time methane, VOCs, and PM2.5 monitoring at ECC to provide comparison between the two methods and additional quality control of the SmartSense air sampling at no cost to Erie.

C. Analysis of 40 trigger canister samples collected by the SmartSense stations (B) for methane and VOCs, using the same instrumentation and quality assurance as under A. In the case that more than 40 trigger events (and samples) occur during the project year, additional trigger canister deployments and analyses will be charged at an additional $400 per sample.

D. Real-time reporting of the SmartSense data to the public SGS LiveView data portal (https://www.sgsgalson.com/sgs-liveview/).

E. Quarterly progress reports, pollution event analyses and event reports.

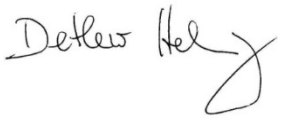
F. Boulder AIR commits to conduct all monitoring listed above at ≥ 95% uptimes.

A cost breakup of these line items is provided below. The total 1-year contract cost for the above detailed activities A-F is: **$305,800.**

An option with a scaled-down deployment, maintaining four weekly Summa canister sites, but reducing the dispersed sampling network from ten to five SmartSense stations, would be at an annual cost of **$204,875**.

We appreciate this opportunity to provide air quality monitoring for the Town of Erie.

Thank you,



Detlev Helmig, PhD
Boulder A.I.R. LLC

Ten SGS Dispersed Air Monitoring Stations Option:

Erie Weekly VOCs and Ten Meteorology/PID/VOCs Trigger Canister Sampling Stations; July 2025 through June 2026 Budget Proposal

Item	Variable	Cost per Unit	Number of Sites	Months	Total Number of Samples	2025 - 2026 Rate (US$)
1	Weekly integrated air sampling with Summa canister followed gas chromatography analysis of methane and and minimum of 30 volatile organic compounds (including ethane, ethene, acetylene, propane, propene, i-butane, n-butane, i-pentane, n-pentane, isoprene, n-hexane, benzene, toluene, o-xylene, ethylbenzene, o-xylene, m-xylene, p-xylene); custom-gas chromatograph with flame ionization detection (FID)	400	4	12	192	76,800
2	Installation and operation of SGS PID/trigger solar powered canister sampling stations with meteorology, PM1, PM2.5, PM10, total VOCs	1150	10	12		138,000
3	Trigger canister analyis by gas chromatography for methane and minimum of 30 Volatile Organic Compounds (including ethane, ethene, acetylene, propane, propene, i-butane, n-butane, i-pentane, n-pentane, isoprene, n-hexane, benzene, toluene, o-xylene, ethylbenzene, o-xylene, m-xylene, p-xylene); custom-gas chromatograph with flame ionization detection (FID), 40 canisters per year	400			40	16,000
4	Sampler installation, weekly site visits, station maintenance	425	10	12		51,000
5	Reporting, website maintenance, event analyses	2000		12		24,000
	Total					**305,800**

Five SGS Dispersed Air Monitoring Stations Option:

Erie Weekly VOCs and Five Meteorology/PID/VOCs Trigger Canister Sampling Stations; July 2025 through June 2026 Budget Proposal

Item	Variable	Cost per Unit	Number of Sites	Months	Total Number of Samples	2025 - 2026 Rate (US$)
1	Weekly integrated air sampling with Summa canister followed gas chromatography analysis of methane and and minimum of 30 volatile organic compounds (including ethane, ethene, acetylene, propane, propene, i-butane, n-butane, i-pentane, n-pentane, isoprene, n-hexane, benzene, toluene, o-xylene, ethylbenzene, o-xylene, m-xylene, p-xylene); custom-gas chromatograph with flame ionization detection (FID)	400	4	12	192	76,800
2	Installation and operation of SGS PID/trigger solar powered canister sampling stations with meteorology, PM1, PM2.5, PM10, total VOCs	1150	5	12		69,000
3	Trigger canister analyis by gas chromatography for methane and minimum of 30 Volatile Organic Compounds (including ethane, ethene, acetylene, propane, propene, i-butane, n-butane, i-pentane, n-pentane, isoprene, n-hexane, benzene, toluene, o-xylene, ethylbenzene, o-xylene, m-xylene, p-xylene); custom-gas chromatograph with flame ionization detection (FID), 20 canisters per year	400			20	8,000
4	Sampler installation, weekly site visits, station maintenance	425	5	12		31,875
5	Reporting, website maintenance, event analyses	2000		12		19,200
	Total					**204,875**

Ajax Analytics

with

Colorado State University

2026 TOWN OF ERIE COST ESTIMATES

2026 ERIE MONITORING PROGRAM PRICING ESTIMATE

10 STATIONS WITH 4 WEEKLY CANISTER SAMPLES

2026 Erie Monitoring Program Pricing

Payment Schedule

Service	*Service Details*	*Quantity*		*Monthly Subscription*	*Monthly Duration*			*Annual Line Total*
Sensor System w/ Auto-Triggered Sampling Capability **90% Uptime SLA**	*Sensor system with TVOC, wind speed and direction, temperature, pressure, humidity, PM (or double-trigger). Solar-powered, cellular connected. Maintenance and connectivity included.* *Up-to 1 triggered sample per site accured per month (usable over the contract duration)*	10	@	$3,356 /month for	12	months	=	$402,720
Cold-Spare Sensor System w/ Auto-Triggered Sampling Capability	*Cold-spare sensor system on-hand.*	1		$0 /month for	12	months		$0
Continuous Weekly Monitoring Site whole air canister samping w/ lab analysis	*52 week-long sample deployments with VOC lab analysis per site*	4	@	$2,122 /month for	12	months	=	$101,856
Data Management & Public Portal	*Real-time data management and multi-source data consolidation.* *Maintenance of publicly-accessible web portal.*	1	@	$2,000 /month for	12	months	=	$24,000
Analytics Services	*Advanced Quarterly Reporting, event investigation & characterization, event reports, ad-hoc reporting, scientific expertise.*	1	@	$5,100 /month for	12	months	=	$61,200

Monitoring Plan Total	$	589,776
pre-payment discount	$	*(14,243)*
Monitoring Plan Total	**$**	**575,533**

2026 ERIE MONITORING PROGRAM PRICING ESTIMATE

5 STATIONS WITH 3 WEEKLY CANISTER SAMPLES

2026 Erie Monitoring Program Pricing

Payment Schedule

Service	*Service Details*	*Quantity*		*Monthly Subscription*	*Monthly Duration*			*Annual Line Total*
Sensor System w/ Auto-Triggered Sampling Capability **90% Uptime SLA**	*Sensor system with TVOC, wind speed and direction, temperature, pressure, humidity, PM (or double-trigger). Solar-powered, cellular connected. Maintenance and connectivity included.* *Up-to 1 triggered sample per site accured per month (usable over the contract duration)*	5	@	$3,356 /month for	12	months	=	$201,360
Cold-Spare Sensor System w/ Auto-Triggered Sampling Capability	*Cold-spare sensor system on-hand.*	1		$0 /month for	12	months		$0
Continuous Weekly Monitoring Site whole air canister samping w/ lab analysis	*52 week-long sample deployments with VOC lab analysis per site*	3	@	$2,122 /month for	12	months	=	$76,392
Data Management & Public Portal	*Real-time data management and multi-source data consolidation.* *Maintenance of publicly-accessible web portal.*	1	@	$2,000 /month for	12	months	=	$24,000
Analytics Services	*Advanced Quarterly Reporting, event investigation & characterization, event reports, ad-hoc reporting, scientific expertise.*	1	@	$5,100 /month for	12	months	=	$61,200

Monitoring Plan Total	$	362,952
pre-payment discount	*$*	*(8,765)*
Monitoring Plan Total	**$**	**354,187**

2026 ERIE MONITORING PROGRAM PRICING ESTIMATE

3 STATIONS WITH 1 WEEKLY CANISTER SAMPLE

2026 Erie Monitoring Program Pricing

Payment Schedule

Service	*Service Details*	*Quantity*		*Monthly Subscription*	*Monthly Duration*			*Annual Line Total*
Sensor System w/ Auto-Triggered Sampling Capability **90% Uptime SLA**	*Sensor system with TVOC, wind speed and direction, temperature, pressure, humidity, PM (or double-trigger). Solar-powered, cellular connected. Maintenance and connectivity included.* *Up-to 1 triggered sample per site accured per month (usable over the contract duration)*	3	@	$3,356 /month for	12	months	=	$120,816
Cold-Spare Sensor System w/ Auto-Triggered Sampling Capability	*Cold-spare sensor system on-hand.*	1		$0 /month for	12	months		$0
Continuous Weekly Monitoring Site whole air canister samping w/ lab analysis	*52 week-long sample deployments with VOC lab analysis per site*	1	@	$2,122 /month for	12	months	=	$25,464
Data Management & Public Portal	*Real-time data management and multi-source data consolidation.* *Maintenance of publicly-accessible web portal.*	1	@	$2,000 /month for	12	months	=	$24,000
Analytics Services	*Advanced Quarterly Reporting, event investigation & characterization, event reports, ad-hoc reporting, scientific expertise.*	1	@	$5,100 /month for	12	months	=	$61,200

Monitoring Plan Total	$	231,480
pre-payment discount	*$*	*(5,590)*
Monitoring Plan Total	**$**	**225,890**

Town Council

Board Meeting Date: 5/20/2025

File #: 25-171, **Version:** 1

SUBJECT:
Discussion of Oil and Gas in Erie

DEPARTMENT: Environmental Services Department

PRESENTER(S): David Frank, Director of Environmental Services
Ben Kellond, Environmental Analyst

TIME ESTIMATE: 45 minutes

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
A brief presentation on the current status of Oil and Gas operations in the Town of Erie, followed by an opportunity for questions to address details and topics not covered in the presentation. Topics covered in the presentation:

1. General Overview of Erie Oil & Gas
2. Air Quality Monitoring
3. Resident Communication Channels
4. Draco OGDP
5. Cumulative Impact Rulemaking
6. Data Falsification
7. Spill Report
8. Fines and Enforcement
9. Updates to Municipal Code

COUNCIL PRIORITIES ADDRESSED:

- ✓ Safe and Healthy Community
- ✓ Effective Governance
- ✓ Environmentally Sustainable

ATTACHMENTS:

1. Oil and Gas Presentation
2. List of Plugged and Abandoned Wells by Date Plugged

Facility Name/Number
UPRR 43 PAN AM I #28
YOUNG #1-23
WISE #1-14
ERIE CHAMPLIN #18-9
CPC #4-42-4
CPC #3-31-4
WILLIAM H PELTIER #1
THOMAS E UNIT #2
PEZOLDT UU # 32-11
HIPPEN UU #32-6
PEZOLDT UU #32-14
PEZOLDT UU #32-8
PEZOLDT UU #32-16
PEZOLDT UU #32-15
PEZOLDT UU #32-9
PEZOLDT UU #32-7
HIPPEN UU #32-5
ERIE EIGHT E UNIT #2
ERIE EIGHT E UNIT #1
HIPPEN UU #32-3
BARB LTD #30-9
BARB LTD #30-8
COAL CREEK #19-1
BAILEY #12-2
COAL CREEK #19-8
UPRR 43 PAN AM I #28-X
CHAMPLIN 86 AMOCO F #6
CHAMPLIN 86 AMOCO F #3
CANYON CREEK #8-6-13
YOUNG #6-23
BARB LTD #30-15
BARB LTD #30-1
BARB LTD #30-7
UPRR 43 PAN AM Q #1
CHAMPLIN 32-4 #2
YOUNG #3-25
CINQUE #1
LOVLEY-USX UU #15-16
CINQUE #2
SEC. 4 INVESTORS #34-4
CHAMPLIN 86 AMOCO Q #1
CINQUE #3
KRAMER #21-23
PRATT #1
WOOLLEY #41-7
PRATT #29-3
HIPPEN #1-32
WISE #31-14

WOOLLEY A #1-7
THOMAS "E" UNIT #1
ERIE CHAMPLIN B UNIT #1
WOOLLEY F UNIT #1
BEARDEN #1
EAST ERIE #2-17 #1
THOMAS #7-12
EAST ERIE #1-17
TALLGRASS #31-17
SOSA A UNIT #1
PRATT & #39;F& #39; UNIT #1
CARR #1
PEZOLDT #1-32
VESSELS MINERALS #14-19
VESSELS MINERALS #13-19
NAAB-USX UU #3-4
BULTHAUP #9-6
CHAMPLIN 41-4 #1
VESSELS MINERALS #2-4-19
VESSELS MINERALS & #39;E& #39; #1
VESSELS #24-19
WILLIAM H PELTIER #2
BARB LTD & #39;K& #39; UNIT #1
VESSELS MINERALS #19-10
VESSELS MINERALS #19-16
VESSELS MINERALS E UNIT #2
EDWARD P COSTIGAN #1
COAL CREEK C UNIT #1
COAL CREEK #31-19
COAL CREEK #32-19
STATE OF COLORADO AL #2
WOOLLEY #42-7
ERIE CHAMPLIN B UNIT #2
UPRR 43 PAN AM AA #1
CPC 41-10 #1
SOSA #11-18
SOSA #21-18
SOSA #12-18
SOSA #22-18
VESSELS #23-19
SEC FOUR #33-4
HIPPEN UU #32-13
COSSLETT #31-22
BULTHAUP #40-6
BULTHAUP #23-6
VESSELS MINERALS #19-15
BULTHAUP #24-6
CHAMPLIN 86 G #1
TALLGRASS #12-17

TALLGRASS #33-17
TALLGRASS #14-17
TALLGRASS #22-17
TALLGRASS #13-17
CHAMPLIN #86 AMOCO G #2
TALLGRASS #23-17
TALLGRASS #10-17
TALLGRASS #37-17
TALLGRASS #16-17
TALLGRASS #24-17
TALLGRASS #15-17
VESSELS MINERALS #4-6-19
COMMONS #4-19
COMMONS #18-19
COMMONS #3-19
COMMONS #6-19
COMMONS #28-19
TALLGRASS #9-17
VESSELS MINERALS #6-8-19
ARAPAHOE #3-36
ARAPAHOE MC #36-5
TALLGRASS #11-17
COMMONS #5-19
SEC FOUR #3-4
SEC FOUR #4-4
SEC FOUR #31-4
SEC FOUR #6-4
COMMONS #21-19
SEC FOUR #5-4
SEC FOUR #21-4
CHAMPLIN 86 AMOCO O #9
IMPERIAL #15-31
COSTIGAN #43-20
ERIE CORP #11-10
ERIE CORP #22-10
ERIE CORP #42-10
SEC FOUR #14-4
ERIE CORP-USX UU #10-4
ERIE ROAD #32-15
VESSELS MINERALS #43-19
CHAMPLIN 32-10 #2
CHAMPLIN 86 AMOCO 0 #8
SEC FOUR #32-4
SEC FOUR #22-4
SEC FOUR #12-4
ERIE ROAD #42-15
ERIE CORP #42-4
PRATT #12-29
ERIE ROAD-USX UU #15-1

PRATT #0-2-29
CHAMPLIN 42-10 #4
CANYON CREEK #8-6-13 X
LOVELY #34-15
CANYON CREEK #4-6-13
CANYON CREEK #44-13
CANYON CREEK #34-13
CANYON CREEK #4-8-13
CANYON CREEK #4-13
BULTHAUP #10-6
KENNETH E. KOCH #A-1
CHAMPLIN 86 AMOCO F #5
CHAMPLIN 86 AMOCO F #4
WIGGETT #42-13
WIGGETT #8-2-13
WIGGETT #7-0-13
WARREN H WIGGETT #13-1
CHAMPLIN 86 AMOCO F #1
WIGGETT #4-0-13
WIGGETT #6-4-13
UPRR 43 PAN AM I #10
BROZOVICH 3-4 #1
CHAMPLIN 31-10 #3
UPRR 43 PAN AM I #19
BARB LTD #30-10
DUMP UU #28-06D
DUMP UU #28-5
UPRR 43 PAN AM B #11
CHAMPLIN 86 AMOCO F #2
DUMP UU #28-2
DUMP UU #28-3
HIPPEN #2-32
UPRR 43 PAN AM Q #2
UPRR 43 PAN AM I #20
CHAMPLIN 86 AMOCO #0 #1
UPRR 43 PAN AM I #9
ERIE CORP-USX UU #10-17
PEZOLDT UU #32-4J
BULTHAUP #39-6
SEC FOUR #35-4
SEC FOUR #13-4
BILLINGS #21-7
WOOLLEY #42-7
CINQUE FEDERAL #7-31
ALLAN H UNIT #1
UPRR 43 PAN AM B #1
COSTIGAN #6-8-20
COSTIGAN #34-20
PRATT #4-2-29

YOUNG MC #23-11D
YOUNG MC #26-03D
YOUNG MC #26-04D
YOUNG #5-23
DONLEY #2-36
DUMP UU #28-12
DUMP UU #28-11D
SCHULER #12-23
SCHULER #11-23
WOOLLEY #43-8
WOOLLEY #33-8
WOOLLEY #34-8
WOOLLEY #44-8
BULTHAUP #8-6
WOOLLEY K UNIT #1
BULTHAUP #15-6
SWINK #32-21
CHAMPLIN 86 AMOCO F #7
KRAMER #22-23
BEARDEN #23-6
WISE #1-14X
BEARDEN #14-6
BEARDEN #13-6
BEARDEN #2-4-6
CANYON CREEK #43-13
BULTHAUP #21-6
BULTHAUP #27-6
BULTHAUP #17-6
BULTHAUP #16-6
I & J #7-6
BEARDEN #2-8-6
CHAMPLIN 86 AMOCO UNIT L #1
BULTHAUP #1-6
UPRR 43 PAN AM I #27
CANYON CREEK #33-13
BEARDEN #24-6
COSTIGAN #8-8-20
COSTIGAN #33-20
LUMRY #31-24
LUMRY #42-24
COSTIGAN #8-6-20
UPRR 43 PAN AM B #7
WOOLLEY #22-7
ERIE #1-24
ARAPAHOE #2-26
WARREN H WIGGETT #13-2
WOOLLEY #2-4-7
WOOLLEY #4-0-7
WOOLLEY #11-7

WOOLLEY #21-7
PRATT #2-4-29
PRATT #22-29
PRATT #2-0-29
PRATT #21-29
WILLIAMS H. PELTIER #12-20
VESSELS #12-30
BEARDEN #0-6-6
THOMAS #33-7
THOMAS #2-8-7
THOMAS #24-7

Current Operator Name	Plugging Date	API Sequence Num
AMOCO PRODUCTION COMPANY	2/28/1980	9914
PATINA OIL & GAS CORPORATION	1/26/1995	6089
GERRITY OIL & GAS CORP	2/21/1995	6155
VESSELS OIL & GAS COMPANY	3/31/1996	19083
OCCIDENTAL PETROLEUM	6/24/1996	8861
OCCIDENTAL PETROLEUM	6/25/1996	8860
VESSELS OIL & GAS COMPANY	9/16/1996	8131
VESSELS OIL & GAS COMPANY	9/25/1996	12370
PATINA OIL & GAS CORPORATION	11/28/2000	17182
PATINA OIL & GAS CORPORATION	11/29/2000	17179
PATINA OIL & GAS CORPORATION	12/2/2000	17183
PATINA OIL & GAS CORPORATION	12/5/2000	17181
PATINA OIL & GAS CORPORATION	12/11/2000	17210
PATINA OIL & GAS CORPORATION	12/13/2000	17209
PATINA OIL & GAS CORPORATION	12/15/2000	17208
PATINA OIL & GAS CORPORATION	12/15/2000	17180
PATINA OIL & GAS CORPORATION	12/30/2000	17178
NORTH AMERICAN RESOURCES COMPANY	1/16/2001	6242
NORTH AMERICAN RESOURCES COMPANY	1/17/2001	6193
PATINA OIL & GAS CORPORATION	1/19/2001	17177
CIVITAS RESOURCES INC	5/30/2008	18929
CIVITAS RESOURCES INC	6/4/2008	18954
CIVITAS RESOURCES INC	6/23/2008	19064
CIVITAS RESOURCES INC	7/3/2008	6106
CIVITAS RESOURCES INC	6/25/2010	19065
KP KAUFFMAN COMPANY INC	6/23/2011	9921
KP KAUFFMAN COMPANY INC	10/25/2011	10473
KP KAUFFMAN COMPANY INC	2/13/2012	10465
CIVITAS RESOURCES INC	7/4/2012	6628
NOBLE ENERGY INC	10/13/2012	6257
CIVITAS RESOURCES INC	12/4/2012	18931
CIVITAS RESOURCES INC	12/13/2012	18982
CIVITAS RESOURCES INC	3/22/2013	18953
OCCIDENTAL PETROLEUM	4/3/2013	9720
OCCIDENTAL PETROLEUM	9/26/2013	8646
NOBLE ENERGY INC	10/10/2013	6252
FOUNDATION ENERGY MANAGEMENT LLC	9/3/2014	7562
OCCIDENTAL PETROLEUM	9/17/2014	14388
FOUNDATION ENERGY MANAGEMENT LLC	9/23/2014	7560
OCCIDENTAL PETROLEUM	10/20/2014	22438
OCCIDENTAL PETROLEUM	10/27/2014	14591
FOUNDATION ENERGY MANAGEMENT LLC	12/3/2014	7563
OCCIDENTAL PETROLEUM	6/26/2015	6465
KP KAUFFMAN COMPANY INC	10/21/2015	10417
CIVITAS RESOURCES INC	10/27/2015	23183
PDC ENERGY INC	11/18/2015	10861
CIVITAS RESOURCES INC	12/5/2015	11395
OCCIDENTAL PETROLEUM	5/2/2016	6463

CIVITAS RESOURCES INC	3/16/2017	9093
CIVITAS RESOURCES INC	4/6/2017	10710
CIVITAS RESOURCES INC	4/8/2017	12377
CIVITAS RESOURCES INC	4/13/2017	17688
CIVITAS RESOURCES INC	4/21/2017	9764
OCCIDENTAL PETROLEUM	5/2/2017	14447
CIVITAS RESOURCES INC	5/4/2017	19072
OCCIDENTAL PETROLEUM	5/8/2017	14410
OCCIDENTAL PETROLEUM	5/8/2017	25610
CIVITAS RESOURCES INC	5/8/2017	11698
CIVITAS RESOURCES INC	8/28/2017	17769
CIVITAS RESOURCES INC	9/7/2017	10017
CIVITAS RESOURCES INC	9/8/2017	15040
CIVITAS RESOURCES INC	9/21/2017	30279
CIVITAS RESOURCES INC	9/21/2017	30276
OCCIDENTAL PETROLEUM	10/12/2017	14387
OCCIDENTAL PETROLEUM	10/31/2017	29465
OCCIDENTAL PETROLEUM	11/8/2017	8645
CIVITAS RESOURCES INC	11/13/2017	30278
CIVITAS RESOURCES INC	11/13/2017	18689
CIVITAS RESOURCES INC	11/29/2017	23018
CIVITAS RESOURCES INC	12/5/2017	12614
CIVITAS RESOURCES INC	12/8/2017	10759
CIVITAS RESOURCES INC	12/13/2017	19032
CIVITAS RESOURCES INC	12/13/2017	19033
CIVITAS RESOURCES INC	12/13/2017	18593
CIVITAS RESOURCES INC	12/13/2017	10001
CIVITAS RESOURCES INC	1/5/2018	13804
CIVITAS RESOURCES INC	1/22/2018	23288
CIVITAS RESOURCES INC	1/22/2018	23287
OCCIDENTAL PETROLEUM	1/26/2018	12626
CIVITAS RESOURCES INC	2/23/2018	23185
CIVITAS RESOURCES INC	2/28/2018	12371
OCCIDENTAL PETROLEUM	3/21/2018	14914
OCCIDENTAL PETROLEUM	4/18/2018	8647
CIVITAS RESOURCES INC	5/30/2018	26237
CIVITAS RESOURCES INC	5/30/2018	26236
CIVITAS RESOURCES INC	5/31/2018	26239
CIVITAS RESOURCES INC	5/31/2018	26238
CIVITAS RESOURCES INC	6/28/2018	23009
OCCIDENTAL PETROLEUM	7/9/2018	29462
CIVITAS RESOURCES INC	7/28/2018	17220
CIVITAS RESOURCES INC	8/28/2018	21857
OCCIDENTAL PETROLEUM	9/18/2018	26891
OCCIDENTAL PETROLEUM	9/20/2018	26886
CIVITAS RESOURCES INC	9/24/2018	19209
OCCIDENTAL PETROLEUM	9/26/2018	26890
OCCIDENTAL PETROLEUM	10/12/2018	12406
OCCIDENTAL PETROLEUM	10/15/2018	26921

OCCIDENTAL PETROLEUM	10/15/2018	26925
OCCIDENTAL PETROLEUM	10/16/2018	26922
OCCIDENTAL PETROLEUM	10/16/2018	26923
OCCIDENTAL PETROLEUM	10/31/2018	26920
OCCIDENTAL PETROLEUM	12/11/2018	15066
OCCIDENTAL PETROLEUM	12/11/2018	26898
OCCIDENTAL PETROLEUM	12/11/2018	26899
OCCIDENTAL PETROLEUM	12/11/2018	26876
OCCIDENTAL PETROLEUM	12/13/2018	26903
OCCIDENTAL PETROLEUM	12/13/2018	26901
OCCIDENTAL PETROLEUM	12/13/2018	26900
CIVITAS RESOURCES INC	1/7/2019	30277
OCCIDENTAL PETROLEUM	2/5/2019	29925
OCCIDENTAL PETROLEUM	2/8/2019	29924
OCCIDENTAL PETROLEUM	2/8/2019	29919
OCCIDENTAL PETROLEUM	2/8/2019	29922
OCCIDENTAL PETROLEUM	2/11/2019	29921
OCCIDENTAL PETROLEUM	2/15/2019	26902
CIVITAS RESOURCES INC	2/15/2019	29476
CIVITAS RESOURCES INC	2/15/2019	6254
CIVITAS RESOURCES INC	2/15/2019	6410
OCCIDENTAL PETROLEUM	2/19/2019	26924
OCCIDENTAL PETROLEUM	2/19/2019	29923
OCCIDENTAL PETROLEUM	2/19/2019	29455
OCCIDENTAL PETROLEUM	2/19/2019	29454
OCCIDENTAL PETROLEUM	2/19/2019	29460
OCCIDENTAL PETROLEUM	2/19/2019	29453
OCCIDENTAL PETROLEUM	2/20/2019	29920
OCCIDENTAL PETROLEUM	2/20/2019	29452
OCCIDENTAL PETROLEUM	2/20/2019	29456
OCCIDENTAL PETROLEUM	2/20/2019	12929
OCCIDENTAL PETROLEUM	3/8/2019	20112
CIVITAS RESOURCES INC	3/27/2019	30059
OCCIDENTAL PETROLEUM	3/28/2019	22915
OCCIDENTAL PETROLEUM	3/28/2019	21636
OCCIDENTAL PETROLEUM	3/30/2019	21635
OCCIDENTAL PETROLEUM	4/1/2019	29457
OCCIDENTAL PETROLEUM	4/11/2019	14400
OCCIDENTAL PETROLEUM	4/17/2019	23993
CIVITAS RESOURCES INC	5/2/2019	29128
OCCIDENTAL PETROLEUM	5/7/2019	8648
OCCIDENTAL PETROLEUM	5/10/2019	12625
OCCIDENTAL PETROLEUM	5/10/2019	29463
OCCIDENTAL PETROLEUM	5/10/2019	29461
OCCIDENTAL PETROLEUM	5/10/2019	29459
OCCIDENTAL PETROLEUM	5/13/2019	22924
OCCIDENTAL PETROLEUM	5/13/2019	22119
CIVITAS RESOURCES INC	5/15/2019	32432
OCCIDENTAL PETROLEUM	5/17/2019	9741

CIVITAS RESOURCES INC	5/17/2019	32377
OCCIDENTAL PETROLEUM	5/29/2019	8823
CIVITAS RESOURCES INC	6/6/2019	6633
OCCIDENTAL PETROLEUM	6/25/2019	22711
CIVITAS RESOURCES INC	7/1/2019	6627
CIVITAS RESOURCES INC	7/1/2019	6629
CIVITAS RESOURCES INC	7/1/2019	6631
CIVITAS RESOURCES INC	7/2/2019	6634
CIVITAS RESOURCES INC	7/3/2019	6667
OCCIDENTAL PETROLEUM	7/17/2019	26888
OCCIDENTAL PETROLEUM	7/17/2019	12456
KP KAUFFMAN COMPANY INC	8/14/2019	10466
KP KAUFFMAN COMPANY INC	8/15/2019	10467
CIVITAS RESOURCES INC	8/28/2019	6569
CIVITAS RESOURCES INC	8/28/2019	6570
CIVITAS RESOURCES INC	8/29/2019	6589
CIVITAS RESOURCES INC	9/3/2019	6052
KP KAUFFMAN COMPANY INC	9/24/2019	10460
CIVITAS RESOURCES INC	9/24/2019	6565
CIVITAS RESOURCES INC	9/29/2019	6590
KP KAUFFMAN COMPANY INC	10/7/2019	8880
OCCIDENTAL PETROLEUM	10/7/2019	16503
OCCIDENTAL PETROLEUM	10/8/2019	8822
KP KAUFFMAN COMPANY INC	10/11/2019	9039
CIVITAS RESOURCES INC	10/16/2019	18930
CIVITAS RESOURCES INC	10/18/2019	25277
CIVITAS RESOURCES INC	10/18/2019	25289
OCCIDENTAL PETROLEUM	10/22/2019	9431
KP KAUFFMAN COMPANY INC	10/27/2019	10468
CIVITAS RESOURCES INC	10/30/2019	25679
CIVITAS RESOURCES INC	10/30/2019	25678
CIVITAS RESOURCES INC	11/5/2019	15113
OCCIDENTAL PETROLEUM	11/7/2019	15042
KP KAUFFMAN COMPANY INC	11/8/2019	9040
OCCIDENTAL PETROLEUM	11/12/2019	14470
KP KAUFFMAN COMPANY INC	11/15/2019	8879
OCCIDENTAL PETROLEUM	12/2/2019	9742
CIVITAS RESOURCES INC	12/9/2019	17184
OCCIDENTAL PETROLEUM	12/19/2019	26884
OCCIDENTAL PETROLEUM	1/3/2020	29464
OCCIDENTAL PETROLEUM	1/3/2020	29458
KP KAUFFMAN COMPANY INC	3/26/2020	23758
KP KAUFFMAN COMPANY INC	3/26/2020	23791
CIVITAS RESOURCES INC	4/28/2020	15443
CIVITAS RESOURCES INC	6/8/2020	6138
OCCIDENTAL PETROLEUM	11/2/2020	7568
CIVITAS RESOURCES INC	12/3/2020	30124
CIVITAS RESOURCES INC	2/25/2021	30058
CIVITAS RESOURCES INC	6/23/2021	32430

CIVITAS RESOURCES INC	6/30/2021	6560
CIVITAS RESOURCES INC	6/30/2021	6561
CIVITAS RESOURCES INC	6/30/2021	6562
CIVITAS RESOURCES INC	7/7/2021	6284
CIVITAS RESOURCES INC	7/26/2021	6247
CIVITAS RESOURCES INC	8/4/2021	25290
CIVITAS RESOURCES INC	8/4/2021	25276
OCCIDENTAL PETROLEUM	8/11/2021	6458
OCCIDENTAL PETROLEUM	8/12/2021	6457
CIVITAS RESOURCES INC	9/1/2021	22987
CIVITAS RESOURCES INC	9/8/2021	21437
CIVITAS RESOURCES INC	9/15/2021	23202
CIVITAS RESOURCES INC	9/22/2021	25271
OCCIDENTAL PETROLEUM	9/29/2021	26879
CIVITAS RESOURCES INC	9/29/2021	17689
OCCIDENTAL PETROLEUM	9/30/2021	26887
OCCIDENTAL PETROLEUM	11/1/2021	22066
KP KAUFFMAN COMPANY INC	3/24/2022	12624
OCCIDENTAL PETROLEUM	4/25/2022	6455
CIVITAS RESOURCES INC	6/29/2022	22162
CIVITAS RESOURCES INC	8/12/2022	6187
CIVITAS RESOURCES INC	10/4/2022	23001
CIVITAS RESOURCES INC	10/4/2022	23602
CIVITAS RESOURCES INC	11/7/2022	34942
CIVITAS RESOURCES INC	11/17/2022	6632
OCCIDENTAL PETROLEUM	11/28/2022	26883
OCCIDENTAL PETROLEUM	11/29/2022	26882
OCCIDENTAL PETROLEUM	11/29/2022	26880
OCCIDENTAL PETROLEUM	11/30/2022	26885
OCCIDENTAL PETROLEUM	11/30/2022	26878
CIVITAS RESOURCES INC	12/8/2022	34943
OCCIDENTAL PETROLEUM	12/19/2022	12613
OCCIDENTAL PETROLEUM	12/19/2022	26881
KP KAUFFMAN COMPANY INC	12/21/2022	9913
CIVITAS RESOURCES INC	2/10/2023	6630
CIVITAS RESOURCES INC	3/14/2023	23559
CIVITAS RESOURCES INC	3/21/2023	31717
CIVITAS RESOURCES INC	3/21/2023	23057
CIVITAS RESOURCES INC	5/15/2023	6576
CIVITAS RESOURCES INC	5/15/2023	6574
CIVITAS RESOURCES INC	6/8/2023	30790
KP KAUFFMAN COMPANY INC	10/16/2023	9018
CIVITAS RESOURCES INC	3/1/2024	32982
CIVITAS RESOURCES INC	3/1/2024	6127
CIVITAS RESOURCES INC	6/19/2024	6135
CIVITAS RESOURCES INC	8/16/2024	6108
CIVITAS RESOURCES INC	8/21/2024	32984
CIVITAS RESOURCES INC	8/21/2024	32986
CIVITAS RESOURCES INC	8/21/2024	32979

CIVITAS RESOURCES INC	8/28/2024	22015
CIVITAS RESOURCES INC	9/5/2024	32387
CIVITAS RESOURCES INC	9/5/2024	32434
CIVITAS RESOURCES INC	9/5/2024	32376
CIVITAS RESOURCES INC	9/5/2024	32428
CIVITAS RESOURCES INC	9/13/2024	23308
CIVITAS RESOURCES INC	9/30/2024	23987
CIVITAS RESOURCES INC	10/2/2024	34949
CIVITAS RESOURCES INC	10/3/2024	25964
CIVITAS RESOURCES INC	10/3/2024	26412
CIVITAS RESOURCES INC	10/3/2024	25395

Facility ID	Location ID	Facility Status	Latitude	Longitude
242123	318767	PA	40.060177	-104.991246
206594	379731	PA	40.038577	-105.076838
206660	379758	PA	40.049457	-105.076858
251280	409322	PA	40.04908	-105.039788
241073	406594	PA	40.082099	-105.001315
241072	406593	PA	40.085707	-105.005996
240343	406267	PA	40.04038	-105.02243
244575	408010	PA	40.061357	-105.042327
249379	408858	PA	40.005858	-105.029636
249376	408855	PA	40.009238	-105.029726
249380	408859	PA	40.002178	-105.029706
249378	408857	PA	40.009298	-105.020466
249407	408866	PA	40.002708	-105.020886
249406	408865	PA	40.002178	-105.025066
249405	408864	PA	40.005438	-105.021116
249377	408856	PA	40.009268	-105.025166
249375	408854	PA	40.009198	-105.034427
206747	379816	PA	40.030687	-105.070538
206698	379777	PA	40.032037	-105.058888
249374	408853	PA	40.013028	-105.029276
251126	330343	PA	40.02019	-105.03931
251151	330352	PA	40.023295	-105.04009
251261	330407	PA	40.04239	-105.04011
206611	321297	PA	40.061524	-105.05905
251262	330408	PA	40.03839	-105.03911
242130	318767	PA	40.060163	-104.991498
242682	319007	PA	40.08542	-105.01525
242674	319000	PA	40.074911	-105.001279
415296	415299	PA	40.049565	-105.063068
206762	321354	PA	40.03392	-105.08098
251128	330345	PA	40.016603	-105.043949
251179	330370	PA	40.028048	-105.03926
251150	330351	PA	40.023974	-105.04386
241929	318691	PA	40.06206	-104.99432
240858	318198	PA	40.082215	-105.006002
206757	321349	PA	40.01933	-105.06126
239774	317681	PA	40.09625	-105.04468
246591	327250	PA	40.04709	-104.98406
239772	317679	PA	40.10039	-105.04388
274142	305096	PA	40.07439	-105.00655
246794	327377	PA	40.084929	-105.004464
239775	317682	PA	40.09667	-105.04809
206970	321449	PA	40.042567	-105.087233
242626	318976	PA	40.020318	-105.030239
279287	336362	PA	40.07147	-105.03941
243070	319203	PA	40.01744	-105.02227
243603	319519	PA	40.01207	-105.03329
206968	321447	PA	40.055717	-105.079608

241304	318443	PA	40.068924	-105.043065
242919	319115	PA	40.06356	-105.050273
244582	335769	PA	40.055021	-105.040695
249885	329666	PA	40.069046	-105.050565
241973	336188	PA	40.076865	-105.049832
246650	327292	PA	40.05463	-105.03238
251269	330410	PA	40.064171	-105.053692
246613	327264	PA	40.0547	-105.02294
274924	309931	PA	40.05702	-105.02457
243906	335662	PA	40.054991	-105.051591
249966	329735	PA	40.027996	-105.035483
242226	318818	PA	40.026608	-105.014566
247243	327698	PA	40.012049	-105.023833
411855	335664	PA	40.033451	-105.051668
411850	335664	PA	40.033458	-105.051723
246590	327249	PA	40.08434	-104.99507
299664	336519	PA	40.078811	-105.044831
240857	318197	PA	40.085842	-105.001265
411854	335664	PA	40.033617	-105.051635
250886	335664	PA	40.03365	-105.051607
278108	335664	PA	40.0335	-105.05164
244819	323142	PA	40.042515	-105.0301
242968	319139	PA	40.017578	-105.040645
251229	335765	PA	40.033081	-105.040547
251230	335765	PA	40.032992	-105.040508
250790	335765	PA	40.033101	-105.040709
242210	335663	PA	40.031953	-105.02176
246008	335592	PA	40.040703	-105.042863
280540	335592	PA	40.040574	-105.042506
280542	335592	PA	40.040562	-105.042679
244831	323150	PA	40.04754	-105.01354
279298	336209	PA	40.067498	-105.039834
244576	335563	PA	40.046711	-105.040809
247117	327602	PA	40.0759	-104.9848
240859	318199	PA	40.07145	-104.982616
292093	335662	PA	40.055148	-105.051724
292092	335662	PA	40.05515	-105.051615
292090	335662	PA	40.055144	-105.051664
292091	335662	PA	40.055146	-105.051555
278119	335664	PA	40.03356	-105.05163
299661	336147	PA	40.077764	-105.011997
249417	329350	PA	40.00209	-105.03442
270231	332117	PA	40.041606	-104.987896
296732	336524	PA	40.081869	-105.039514
296727	336518	PA	40.074814	-105.045125
251406	330501	PA	40.031368	-105.044225
296731	336524	PA	40.08189	-105.03961
244611	335562	PA	40.04725	-105.03206
296806	335562	PA	40.047407	-105.032123

296810	335562	PA	40.047377	-105.032154
296807	335562	PA	40.047437	-105.032092
296808	335562	PA	40.047473	-105.032055
296805	335562	PA	40.047347	-105.032185
247269	335564	PA	40.04657	-105.0229
296775	335564	PA	40.04679	-105.022874
296776	335564	PA	40.046826	-105.022901
296717	335564	PA	40.046624	-105.022728
296783	335564	PA	40.046646	-105.022756
296781	335564	PA	40.046716	-105.022812
296777	335564	PA	40.046753	-105.022847
411852	335664	PA	40.033538	-105.051649
301213	335994	PA	40.040374	-105.050976
301212	335994	PA	40.040373	-105.050819
301196	335994	PA	40.040373	-105.050765
301210	335994	PA	40.040372	-105.050712
301208	335994	PA	40.040372	-105.050923
296782	335564	PA	40.04667	-105.022775
299681	335765	PA	40.032871	-105.04053
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299655	336085	PA	40.084114	-105.013061
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269175	311471	PA	40.06804	-104.98233
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277226	305403	PA	40.05355	-104.98314
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294489	336323	PA	40.060528	-105.049373

Town of Erie - Oil & Gas Update

Erie Town Council

May 20, 2025

David Frank, Director of Environmental Services

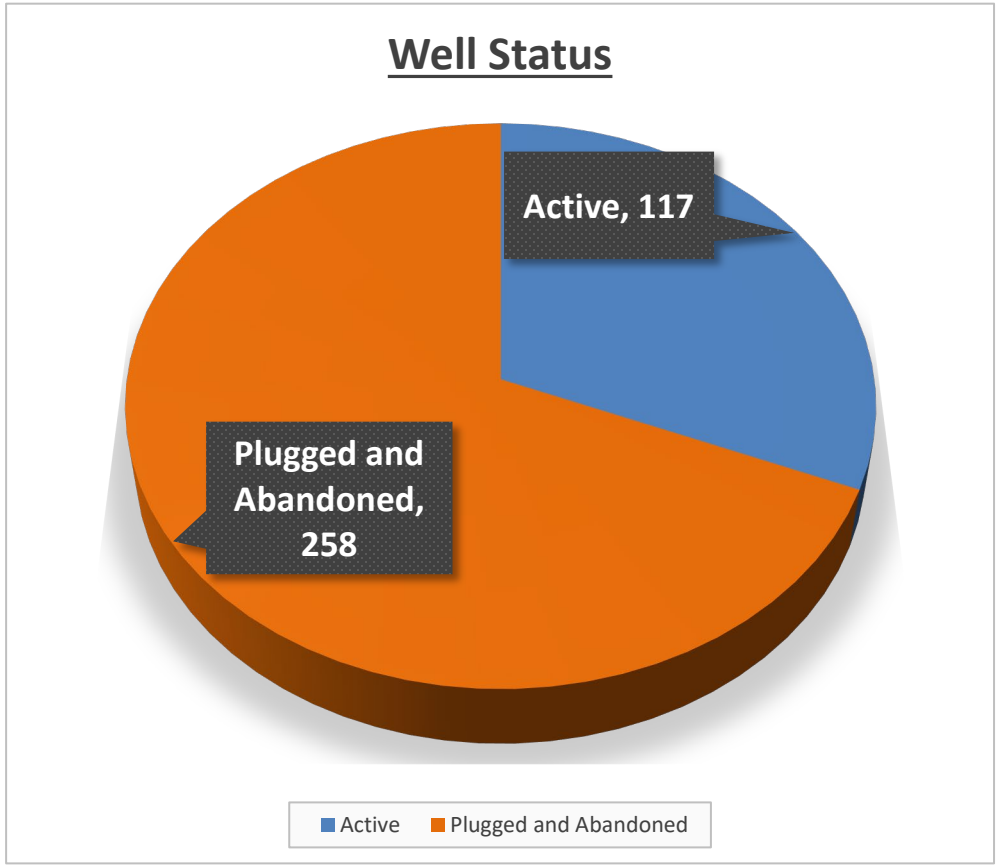
Ben Kellond, Environmental Analyst

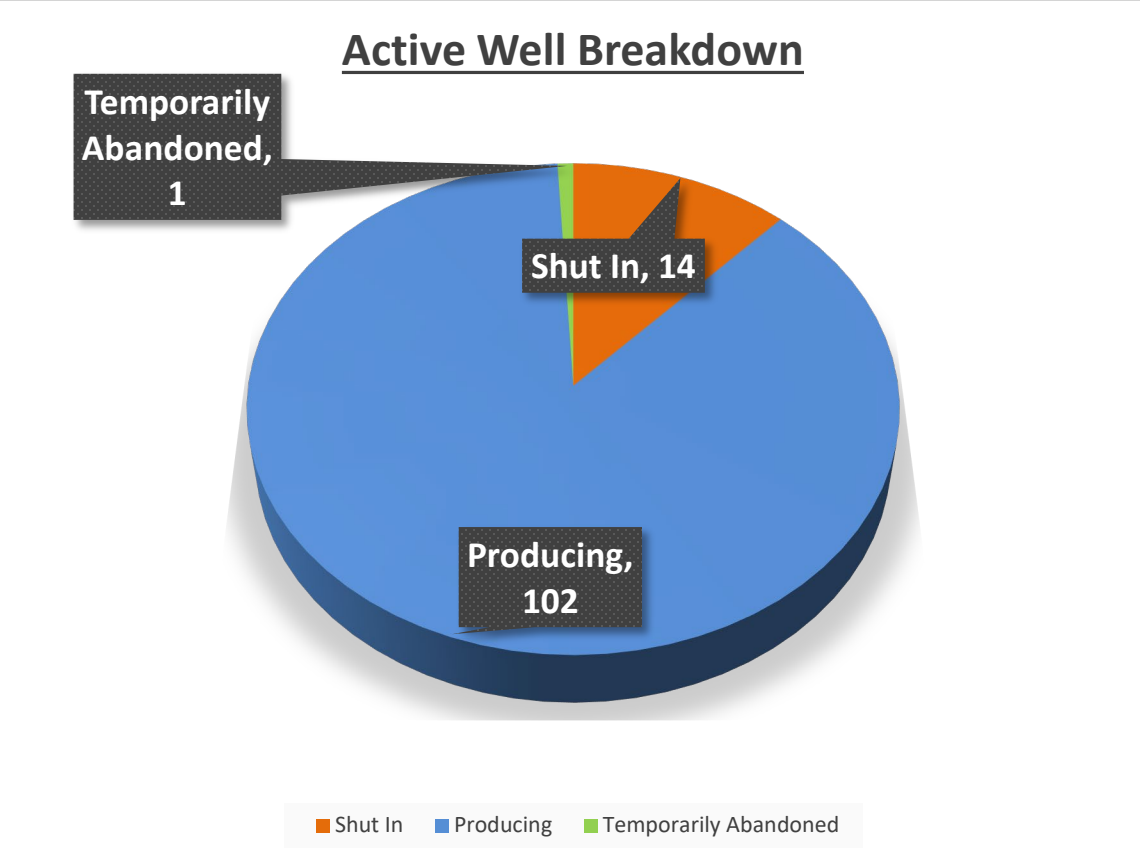
Agenda

1. General Overview of Erie Oil & Gas
2. Resident Communication Channels
3. Draco OGDP
4. Cumulative Impact Rulemaking
5. Data Falsification
6. Spill Report
7. Fines and Enforcement

Erie Oil & Gas - Overview

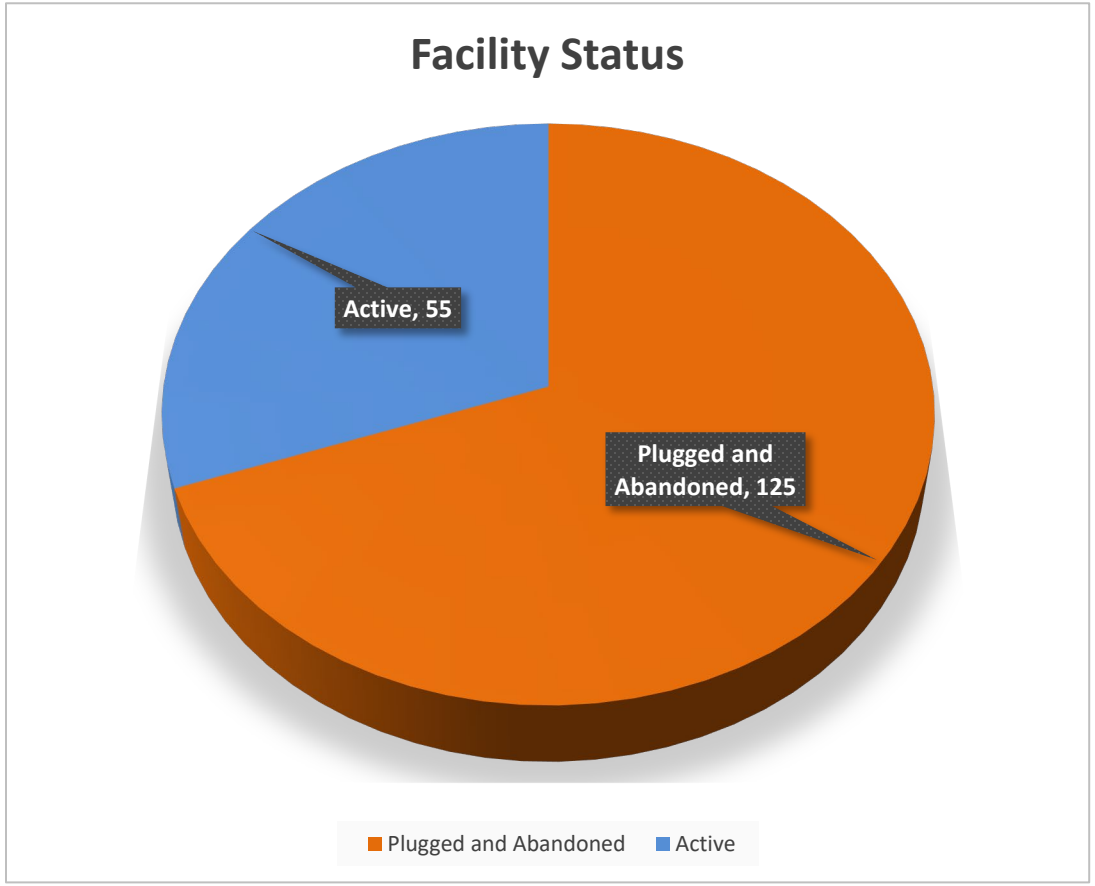
- **Total Wells: 375**

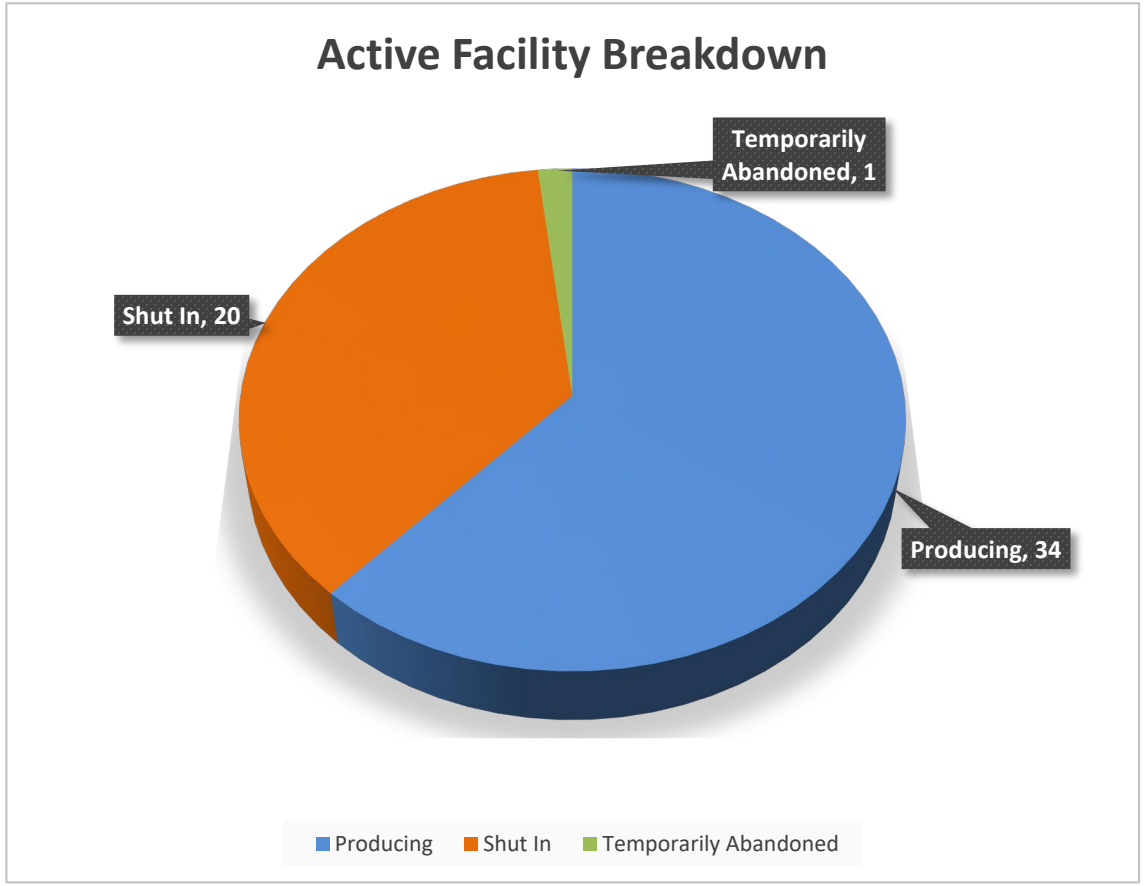


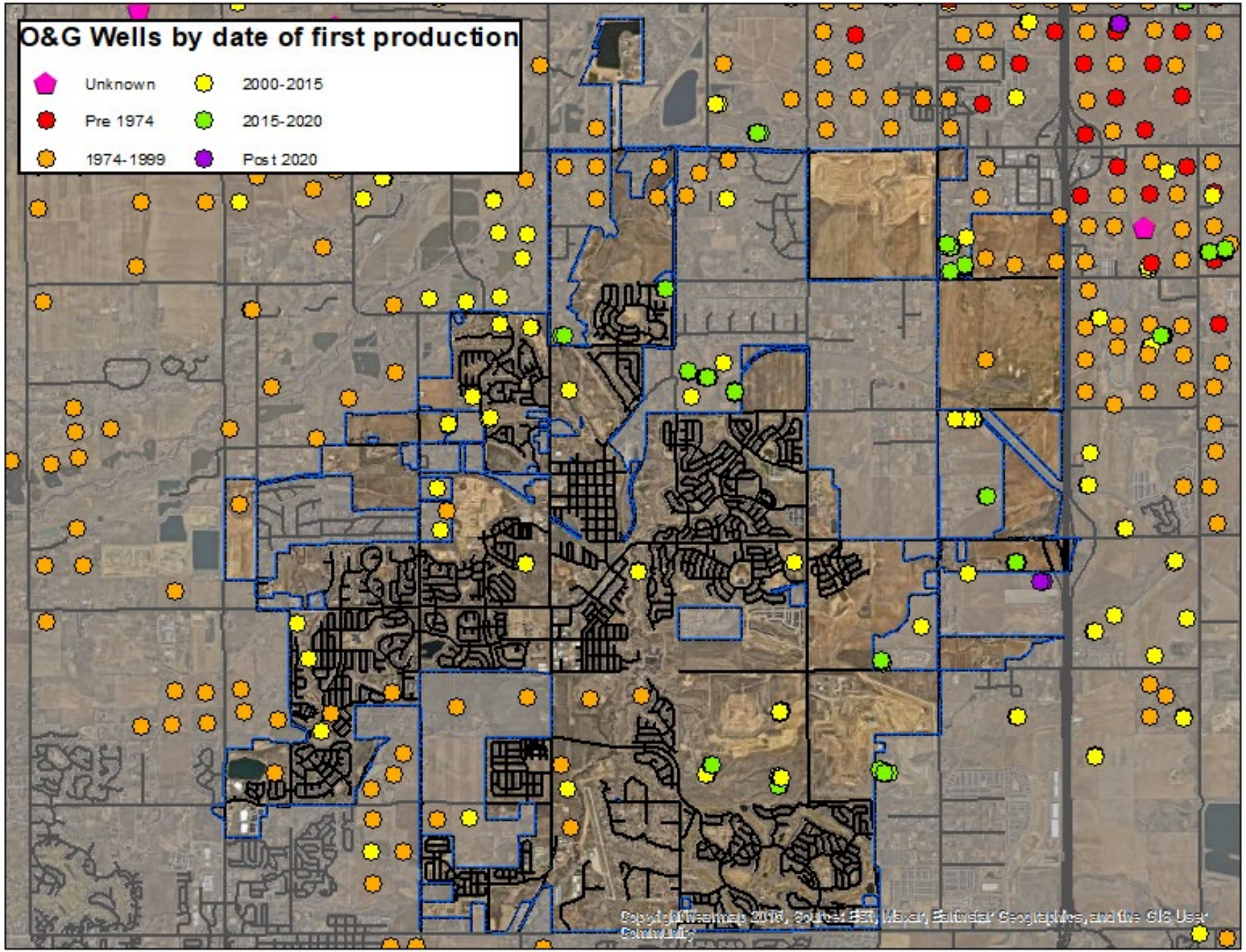


Erie Oil & Gas - Overview

- **Total Facilities: 180**



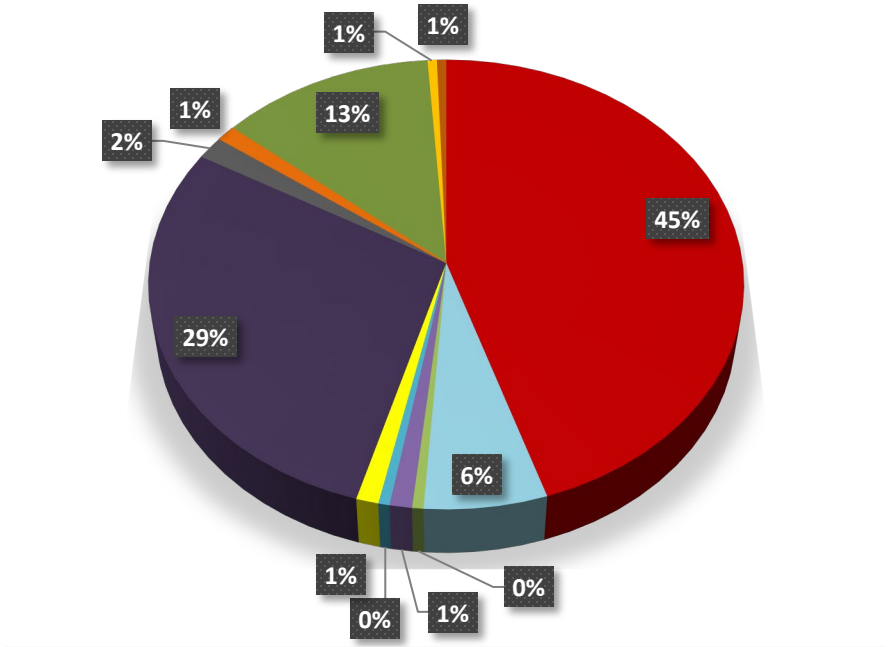



O&G Wells by date of first production
Unknown
Pre 1974
1974-1999
2000-2015
2015-2020
Post 2020

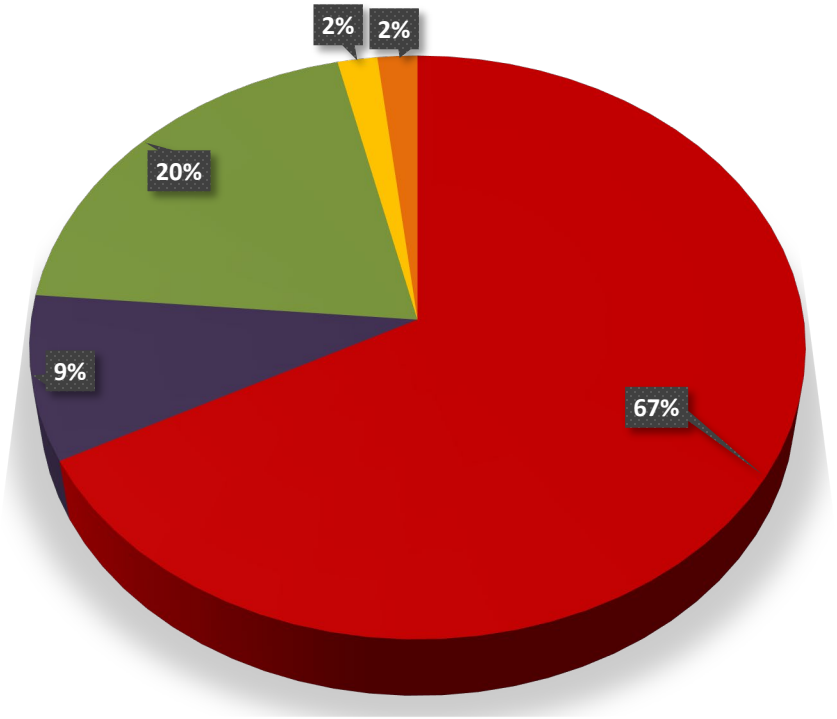
Erie Oil & Gas - Overview

- **Operators:**

Facilities vs Operator



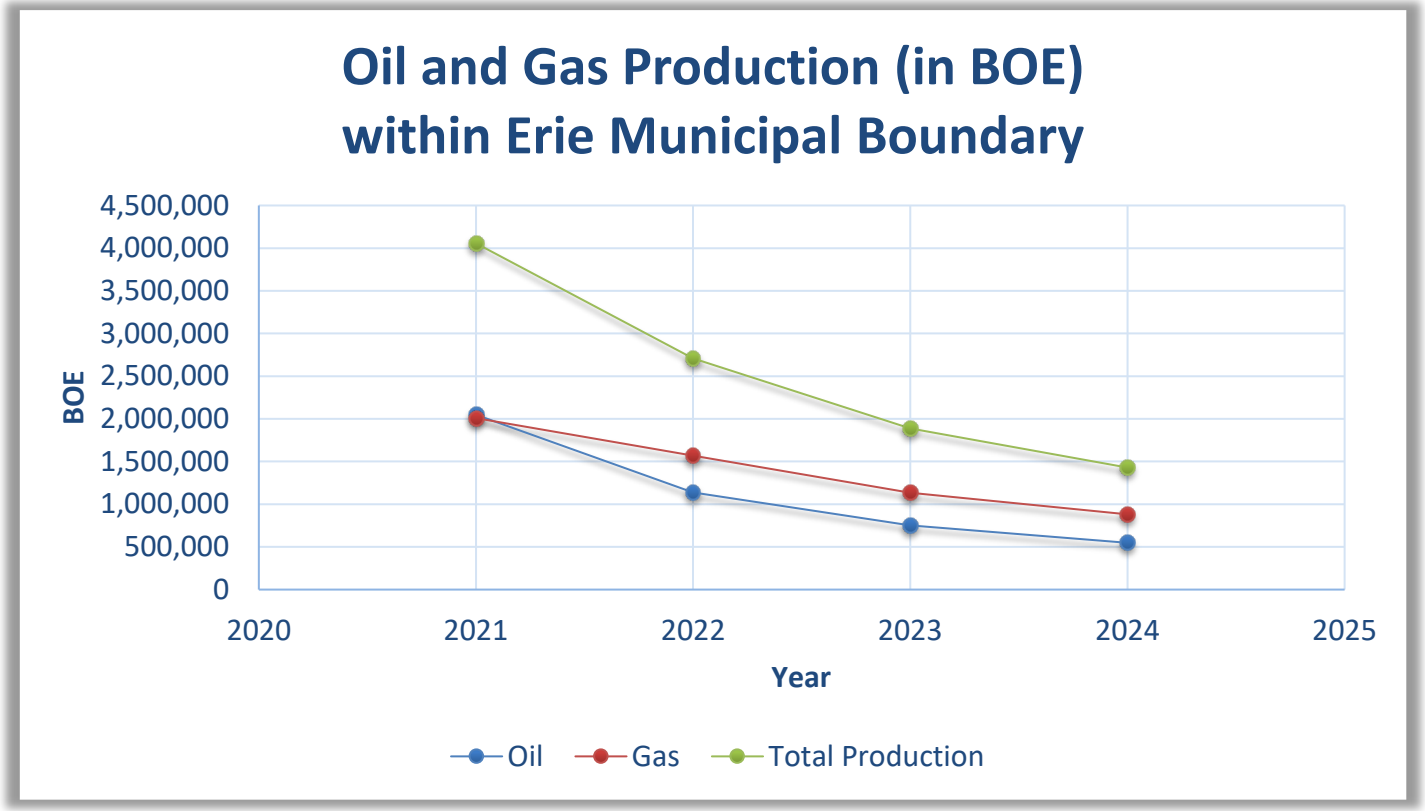
Active Facilities vs Operator



Erie Oil & Gas - Overview

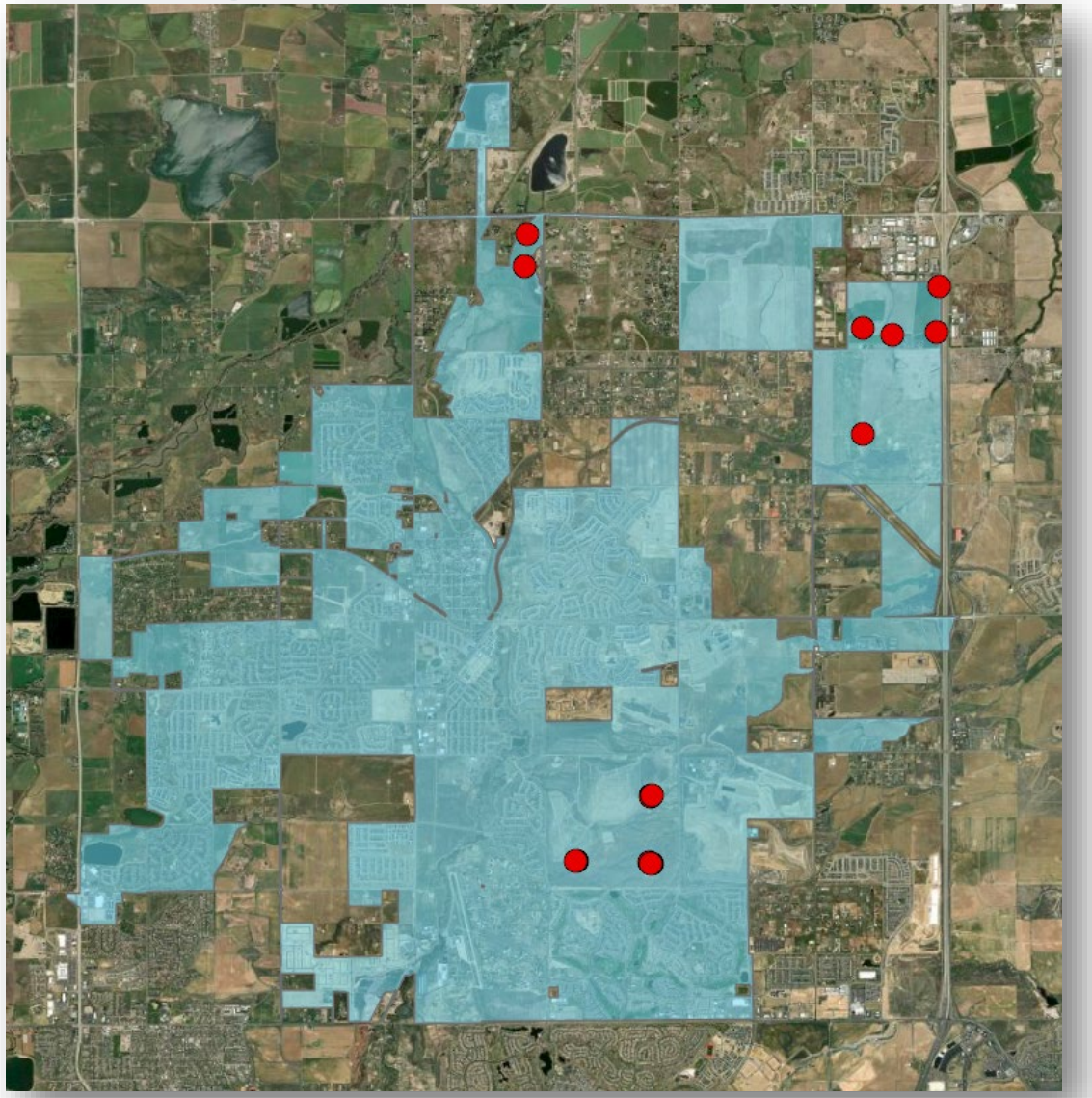
- **Production**

Rank	Jurisdiction	2024 Oil Production	% Change from 2023
1	UIC Weld	115,547,545	4.2%
2	Greeley	10,061,205	36.9%
3	Aurora	7,715,453	-0.6%
4	UIC Adams	7,074,756	-28.9%
5	UIC Arapahoe	6,326,610	275.6%
6	Rio Blanco County	2,970,596	-6.9%
7	Ft. Lupton	2,192,019	418.6%
8	Broomfield	2,006,722	-54.0%
9	Keensburg	1,832,096	-7.6%
10	Windsor	1,229,729	-37.8%
11	Johnstown	1,164,195	-25.2%
12	Garfield County	965,969	-8.5%
13	Northglenn	919,195	--
14	Lochbuie	813,446	-61.9%
15	UIC Larimer	796,293	-31.9%
16	Jackson County	784,205	-12.7%
17	Brighton	778,884	-45.0%
18	Frederick	637,098	-35.6%
19	Cheyenne County	592,318	-15.1%
20	**Erie**	**547,910**	**-27.0%**
21	Dacono	505,886	-29.0%



KP Kauffman (KPK) Litigation

- Ongoing court proceedings since NOAV in 2021
- 148 total violations since 2020
- Assets have potential to enter Orphan Well Program
- Within Erie
  - 22 Active Wells
  - 10 Facilities



Resident Communication - Current

Notify Me

- Plugging and Abandonment
- Spills and Leaks
- Move-In, Rig-Up
- Ongoing Remediation

Email Hotline – erieoilandgas@erieco.gov

Publicly Available Data & Information

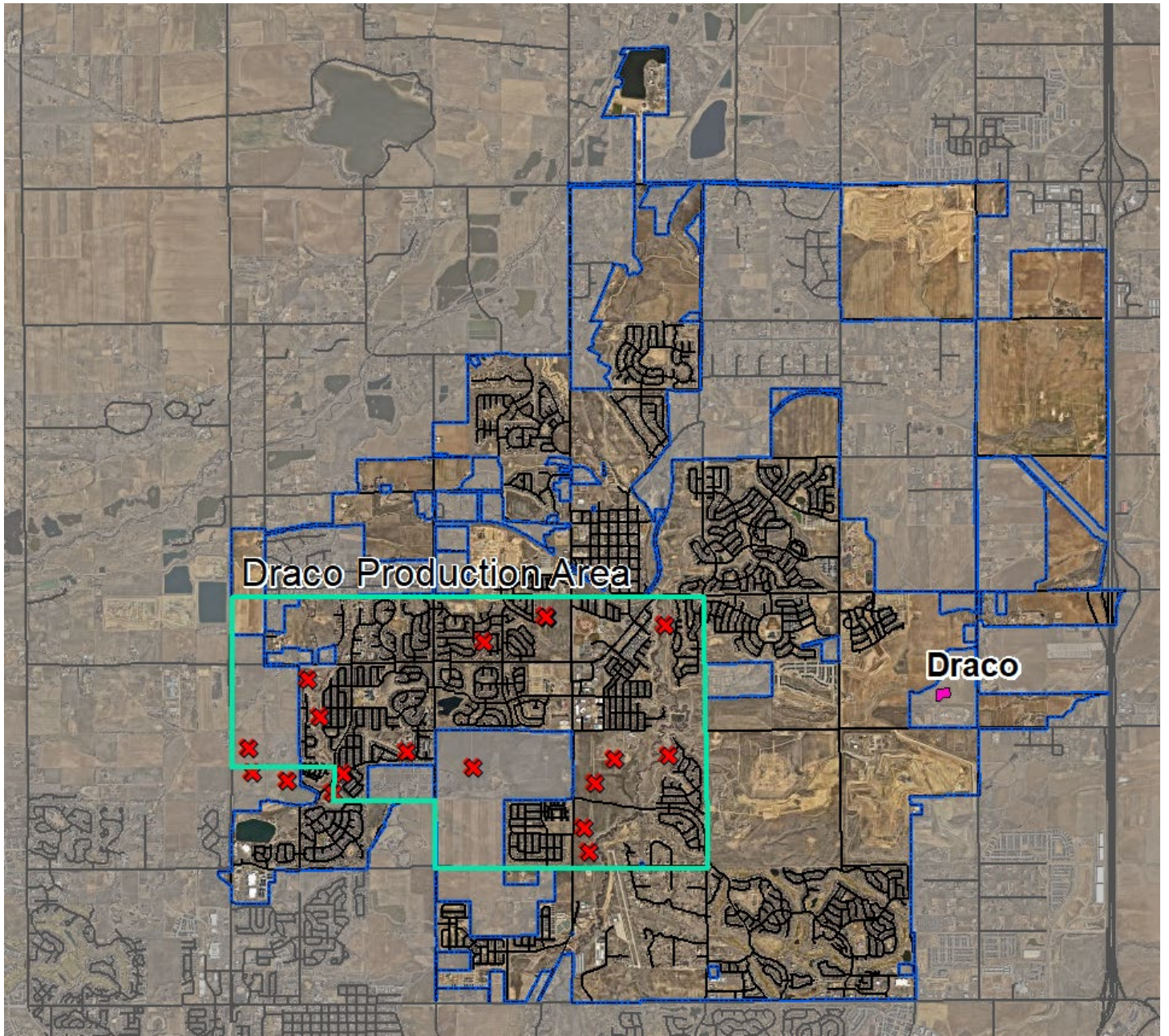
- Air quality monitoring alerts
- Monthly Environmental Services Report
- O&G presentations to Council

Resident Communication - Future

Future Communication

- Quarterly O&G Report – via Notify Me
- Inspection Program
  - Individual Facility Reports
  - Monthly Reports
- Website Updates

Draco OGDP



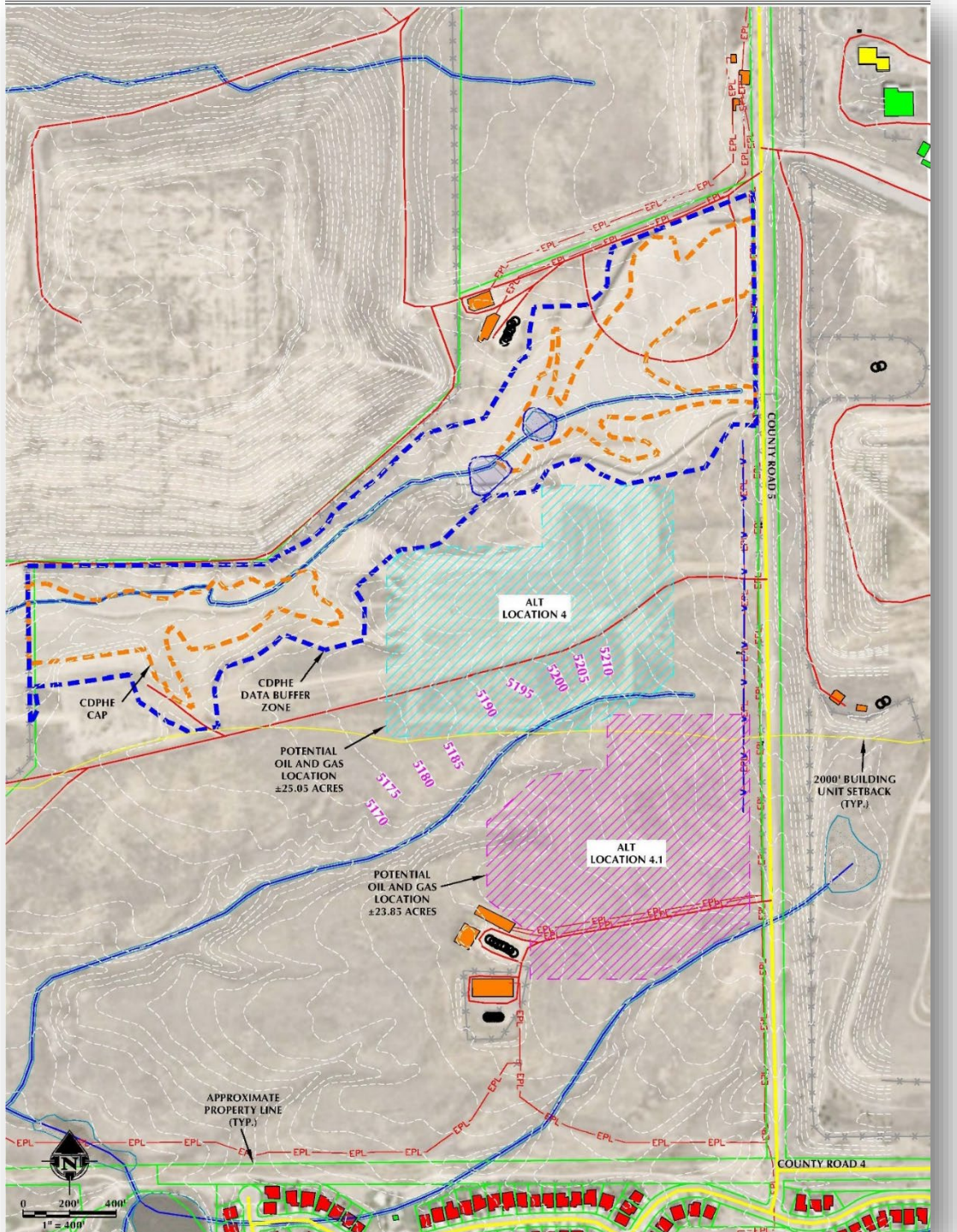
Draco OGDP


FILING 1
FILING 2
FILING 6
ERIE PARKWAY
ERIE PARKWAY
WILLIAM PELTIER #1A-20H
COGCC STATUS: PRODUCING (PR)
CHAMPLIN 86 AMOCO #0 #1
(25' SETBACK) & (50' X 100' SETBACK)
COGCC STATUS: PLUGGED AND ABANDONED (PA)
COUNTY ROAD 5
COUNTY ROAD 7
2,000 ft from Working Pad Surface
FILING 4
FILING 2
FILING 3
FILING 5
NEIGHBORHOOD PARK
SWINK #32-21
(25' SETBACK) & (50' X 100' SETBACK)
COGCC STATUS:
PLUGGED & ABANDONED (PA)
500 ft
500' SETBACK FROM ACTIVE WELL, NEW UDC
SWINK #43-21
COGCC STATUS: SHUT IN (SI)
DRACO WORKING PAD
CHAMPLIN 86 AMOCO UNIT L #1 (25' SETBACK)
COGCC STATUS: PLUGGED & ABANDONED (PA)
SWINK 1 #3-21
COGCC STATUS
PLUGGED & ABANDONED (PA)

Draco OGDP

Alternate Location Four (AL4)

- Located at old Redtail Ranch development (North of the Vista Ridge neighborhood and West of WCR 5)
- **Requires rezoning to Heavy Industrial**



Draco OGDP

Conditions of Approval

- Condensed Occupation
- Air Quality Monitoring
- Monitoring of Plugged and Abandoned Wells within DSU
- Landscaping and Visual Mitigation
- Traffic Studies
- Paving of County Road 6
- Plugging and Abandonment of Existing Wells

Cumulative Impacts Rulemaking

The Good

- Application of NOx and GHG intensity targets
- Expanded Community Liaison role
- Form 2D (Collaboration between ECMC and CDPHE)
- New requirements for Pre-App hearings for OGDP
- Additional notices and access to application process for local government

The Bad

- CI Communities – EnviroScreen score above 80th percentile

The Ugly

- Large shift in purpose and scope during rulemaking process

Data Falsification

What We Know So Far

- ECMC has identified **399 sites** where falsified data was submitted

- **Operators**
  - Civitas
  - Chevron
  - Occidental (Oxy)

- **Consulting Firms**
  - Tasman Geosciences
  - Eagle Environmental

Data Falsification

- Two (2) locations proximal to Erie
  - Bryant 16, 23, 36-30 Wellheads and Flowlines
  - Bryant 9 & 34-30A Tank Battery
- One (1) location within Erie
  - I & J 7-6 and Bulthaup 21-6 Wellheads
- All locations are **closed** sites

Spring Hill - I & J 7-6 and Bulthaup 21-6

Data Falsification

What ECMC Is Doing

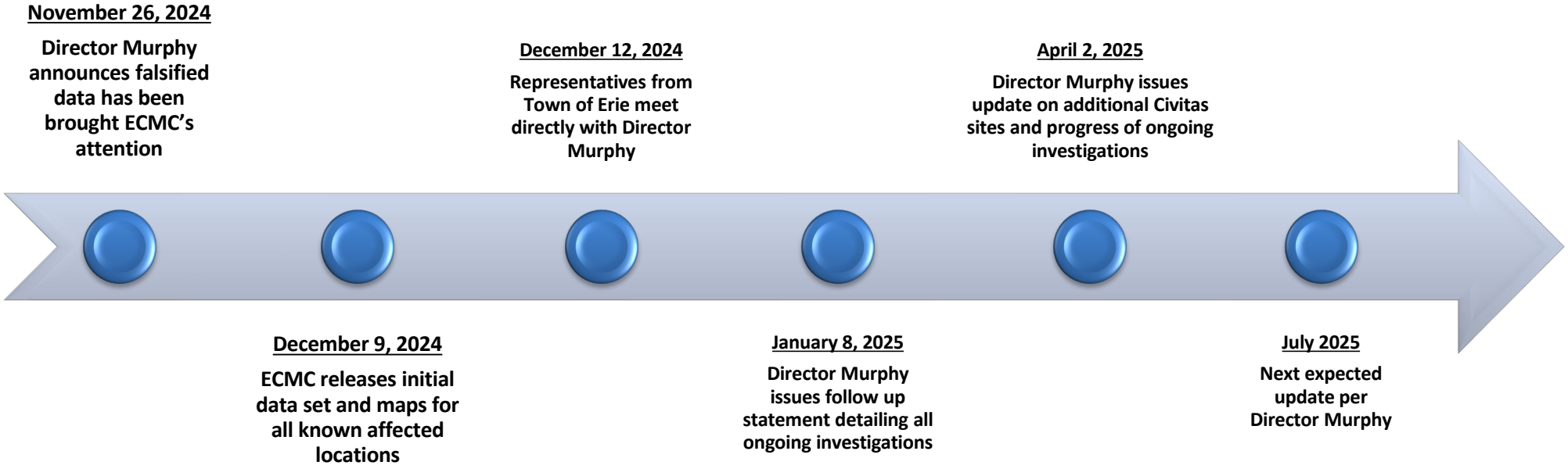
- ECMC Environmental Unit
- ECMC Quality Assurance Control Unit
- Department of Natural Resources Executive Directors Office
- Prosecutors and Law Enforcement

Data Falsification

What Erie is Doing

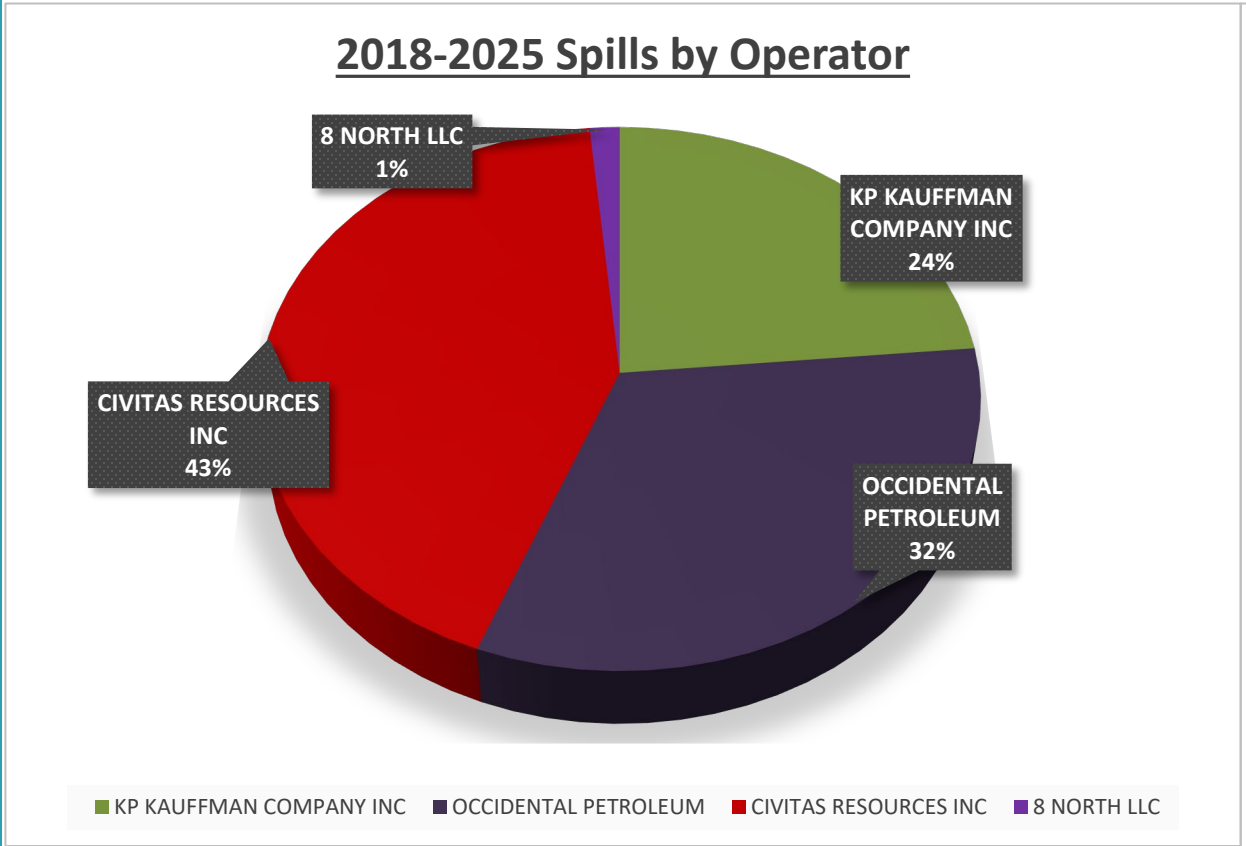
- Environmental Services Department met with Director Murphy on December 12th
  - Set up network of communication with ECMC liaison
    - All new discoveries and updates will go directly to the Town of Erie
- Development Reviews

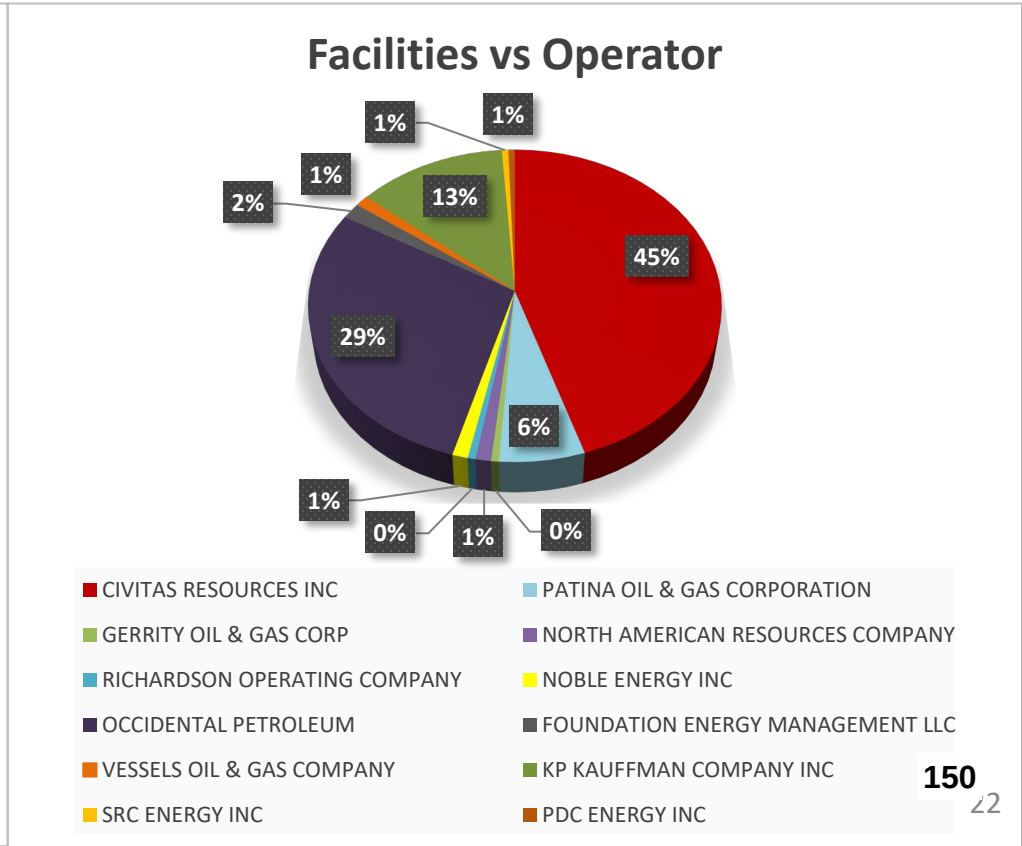
Data Falsification



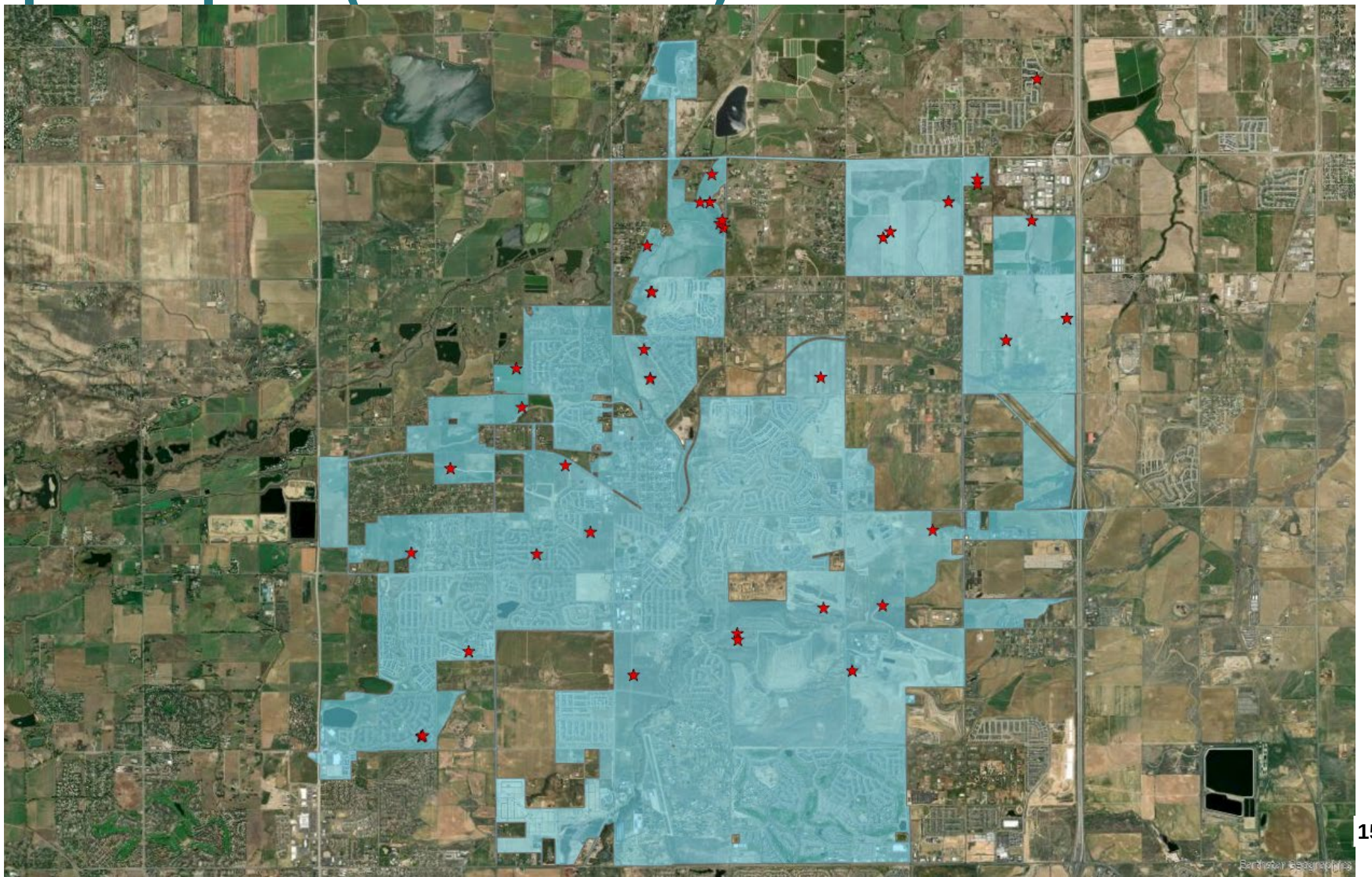
Spill Report (2018 – 2025)

- Civitas Resources Inc – 29 spills
- Occidental Petroleum (Kerr McGee)– 22 spills
- KP Kauffman Company Inc – 16 spills
- 8 North LLC – 1 Spill





Spill Report (2018 – 2025)



Fines, Enforcement & Inspections

Current Enforcement Capabilities

No specific language detailing ability to levy fines

Now a possibility under home rule

Outlook and Future Direction

Field Inspection Program

- Mid 2025
- Goal to inspect all facilities and wells annually
- OGI Surveys

Future Updates to Municipal Code

- Right to Access and Inspect Facilities
- Annual Inspection or Registration Fee
- Fines and Penalties
  - Potentially Assessed Daily
- Protecting Municipal Water Supply
- Cumulative Impacts
- Deep Geothermal & Carbon Sequestration

Questions & Discussion