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TO: Mr. Bryce Bird, Director, Utah Division of Air Quality
Mr. Ryan Bares, Environmental Scientist
Ms. Erica Pryor, Rules Coordinator
FROM: Ashley Miller, Executive Director, Breathe Utah
RE: Utah Draft Moderate Ozone State Implementation Plan

Via email: bbird@utah.gov, rbares@utah.gov, epryor1@utah.gov

July 17, 2023

Dear Mr. Bird, Mr. Bares and Ms. Pryor,

Thank you for the opportunity to comment on the Utah Division of Air Quality (UDAQ)'s draft Moderate Ozone State Implementation Plan (SIP) published on April 12, 2023. I make these comments on behalf of Breathe Utah and a collective group of former Utah lawmakers, all of whom served as co-chairs of the bipartisan Clean Air Caucus. We believe that the draft SIP is inadequate because it does not achieve the emission reductions required by the Clean Air Act (CAA). As drafted, few reductions are required from the largest emitters. The draft SIP as written missed opportunities for meaningful reductions due to accepting facilities' claims that control technologies are technically infeasible or too costly. We offer our analysis of the draft SIP below, and hope that by providing these comments UDAQ will require fair and meaningful controls on emission units located at major sources of volatile organic compounds (VOC) and oxides of nitrogen (NOx) emissions. We offer the following points to support that the draft Moderate Ozone SIP is inadequate:

1. *UDAQ did not complete a Reasonably Available Control Technology (RACT) review that followed a common and comprehensive methodology for all major sources.* Because the draft SIP is based on incomplete information, it is not a comprehensive plan and misses opportunities for emission reductions.

2. *UDAQ did not complete RACT analysis using a common methodology across peer groupings.* Had UDAQ completed systematic RACT analysis for sources using a consistent methodology, more controls would have been required.

3. *The draft SIP does not achieve the 15% reduction in VOC emissions mandated by the CAA*. To achieve a 15% reduction, UDAQ should reevaluate some of the largest sources of VOC emissions and require controls.

Commenting organization and individuals

Breathe Utah is a nonprofit air quality advocacy and education organization fulfilling our mission of improving Utah's air quality through education, collaboration and sound public policy. We take a collaborative approach and work strategically with regulatory agencies, local government, and state lawmakers in seeking real and practical improvements to Utah's unique air quality challenges and search for long-term science-based solutions. In addition to our policy and regulatory work, we offer professional development workshops for K-12 teachers utilizing Breathe Utah's curriculum that aligns with the state's Science with Engineering Education (SEEd) standards. We empower the next generation of Utahns to better understand Utah's unique air quality challenges and contribute to its improvement. Breathe Utah has been at the forefront of many policy decisions that has led to improvements in Utah's air quality, including many bills and appropriation requests sponsored by members of the bipartisan Clean Air Caucus, and those individual former lawmakers joining us in our comments on this issue.

Joining us in these comments is a group of former state legislators and co-chairs of the bipartisan Clean Air Caucus who still share a passion for implementing public policies that lead to healthier air for our families, friends, and neighbors. These former lawmakers continue to support the hard-working staff at the Utah Division of Air Quality who diligently strive to understand the complexities of Utah's airsheds and develop the strategies that both improve Utah's air and allow for economic growth. In fact, Utah's incredible growth over the past few decades, all while improving air quality, is a testament to the good work of the staff at UDAQ. As Utahns face another difficult air quality challenge to lower the level of ozone pollution in northern Wasatch Front counties, we hope these comments will help UDAQ in this difficult and complicated task by identifying issues that we believe must be addressed. The following individuals join Breathe Utah in these comments.

Patrice Arent is a graduate of the University of Utah and Cornell Law School. She has devoted most of her professional life to public service. Patrice served for twenty years in the Utah Legislature in both the Senate and House. She was the founder and co-chair of the bipartisan Clean Air Caucus and passed many air quality bills and appropriations.

Suzanne Harrison is a physician anesthesiologist practicing in Salt Lake County and currently serves as an at-large member of the Salt Lake County Council. Suzanne served in the Utah House of Representatives from 2019 through 2022. She was co-chair of the bipartisan Clean Air Caucus and sponsored several air quality bills, resolutions, and appropriations.

Rebecca Chavez-Houck holds a Master of Public Administration from the University of Utah. She served in the Utah House of Representatives for ten years from 2008 through 2018, representing Salt Lake City's northeast quadrant. Rebecca was one of the founding members and co-chairs of the bipartisan Clean Air Caucus. During her service in the legislature, she focused primarily on public policy related to health and human services as well as voter engagement and access.

Stephen G. Handy served in the Utah House of Representatives from 2010 through 2023. During his legislative service he sponsored and worked on several air quality bills, appropriations and initiatives including clean fuel school buses and freight switcher emissions mitigation. He was also co-chair of the bipartisan Clean Air Caucus.

Lowry Snow served for eleven years in the Utah House of Representatives and was one of the founders and original co-chairs of the bipartisan Clean Air Caucus. During his legislative service he was the sponsor and co-sponsor of several air quality bills. Lowry resides in Southern Utah where he maintains his law practice.

Breathe Utah and the former state lawmakers listed above share an interest in the Utah Draft Moderate Ozone SIP based on the negative impact to public health that exists as a result of elevated ozone pollution levels in northern Utah.

Background

The federal CAA and SIP rules for the ozone National Ambient Air Quality Standards ("NAAQS") call for a Moderate SIP to contain three major elements potentially affecting emissions controls at stationary sources in moderate ozone nonattainment areas:

1. RACT, as referenced by UDAQ;[1]
2. Attainment demonstration that provides for such specific reductions in emissions as necessary to attain the primary NAAQS by the applicable attainment date;[2] and
3. Reasonable further progress (RFP) for 15 percent reductions of VOC emissions.[3]

In preparation for the moderate SIP, in January 2023, UDAQ requested that major sources for VOC and NOx submit RACT reports. Where the sources did not provide the information, UDAQ relied on information from the 2018 $PM_{2.5}$ Best Available Control Technology (BACT) Reports. While BACT and RACT follow the same process, the individual steps are evaluated with more scrutiny under BACT. The intention is to have BACT more stringent than RACT due to the regulatory drivers[4].

The RACT analysis self-conducted by sources should follow Environmental Protection Agency's (EPA)'s five-step top-down approach for BACT, as specified in the U.S. EPA's draft New Source Review Workshop Manual, (October 1990) as affirmed by UDAQ.[5]

- Step 1 – Identify All Available Control Technologies
- Step 2 – Eliminate Technically Infeasible Options

[1] 40 CFR 51.1312
[2] 40 CFR 51.1308(a)
[3] 40 CFR 51.1310(a)(4)
[4] BACT can be triggered in two ways: 1) by a physical change or change in the method of operation at a point source that results in a significant emission rate increase or 2) by being located in a serious nonattainment area for PM_{10}, $PM_{2.5}$, or ozone. RACT can also be triggered in two ways: 1) driven federally for moderate nonattainment area designations for PM10, PM2.5, or ozone, or 2) by state rules.
[5] The workshop manual can be found at U.S. EPA's website https://www.epa.gov/sites/production/files/2015-07/documents/1990wman.pdf.
UDAQ has confirmed this procedure at https://deq.utah.gov/air-quality/reasonably-available-control-technology-ract-process-moderate-area-ozone-sip

- Step 3 – Rank Remaining Control Technologies by Control Effectiveness[6]
- Step 4 – Evaluate Most Effective Control Technologies and Document Results
- Step 5 – Select RACT

Assessment of the Utah Draft Moderate Ozone SIP

The following sections describe deficiencies in the draft SIP published on June 1, 2023, in the Utah State Bulletin.[7]

1 *UDAQ did not complete a Reasonably Available Control Technology (RACT) review that followed a common and comprehensive methodology for all major sources.*

The information used in planning for the SIP is incomplete because some facilities submitted incomplete RACT reports, and UDAQ evaluated some emission units as a group rather than individually. Because the draft SIP is based on incomplete information, it is not a comprehensive plan.

Some facilities submitted a new RACT analysis but did not include all VOC and NOx emission units. Each major source must evaluate each VOC and NOx emission unit under the RACT Report requirements. Because of incomplete reporting, UDAQ was only able to evaluate 43% of the combustion sources and 39% of the tank capacities at refineries and terminals individually, as shown in Figure 1 and Figure 2, respectively. Supporting information for Figure 1 and Figure 2 is available in Attachments A and B, respectively.

[6] UDAQ has not stated a specific cost-effectiveness threshold for the RACT evaluation. The RACT cost-effectiveness threshold must intrinsically be lower than the BACT cost-effectiveness threshold.
[7] Utah State Bulletin, June 1, 2023, Vol. 2023, No. 11

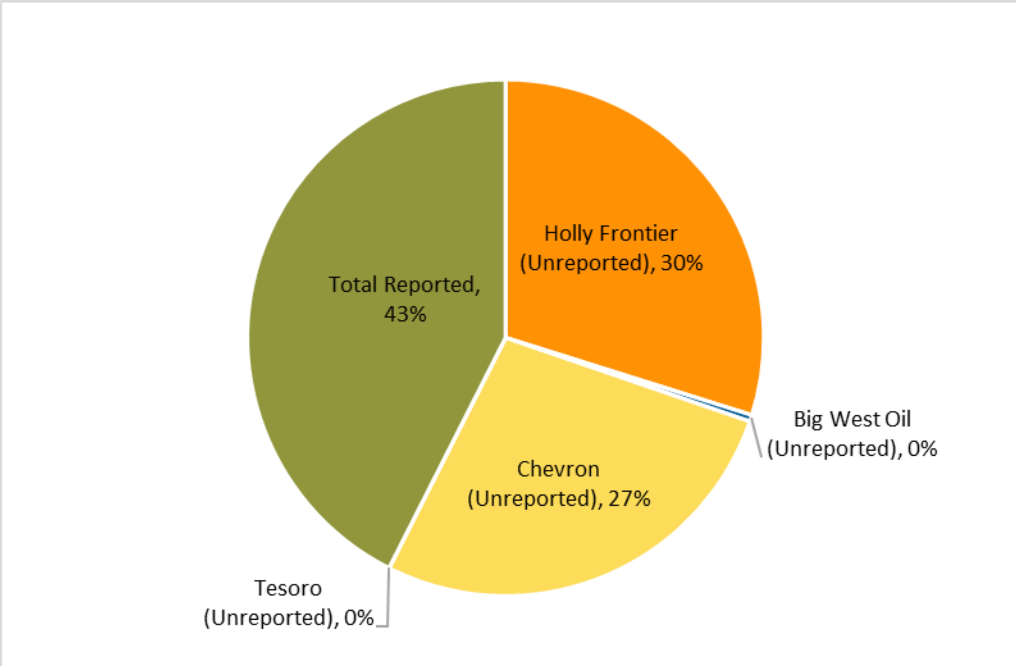

Figure 1 Refinery Combustion Sources Evaluated in Terms of Capacity

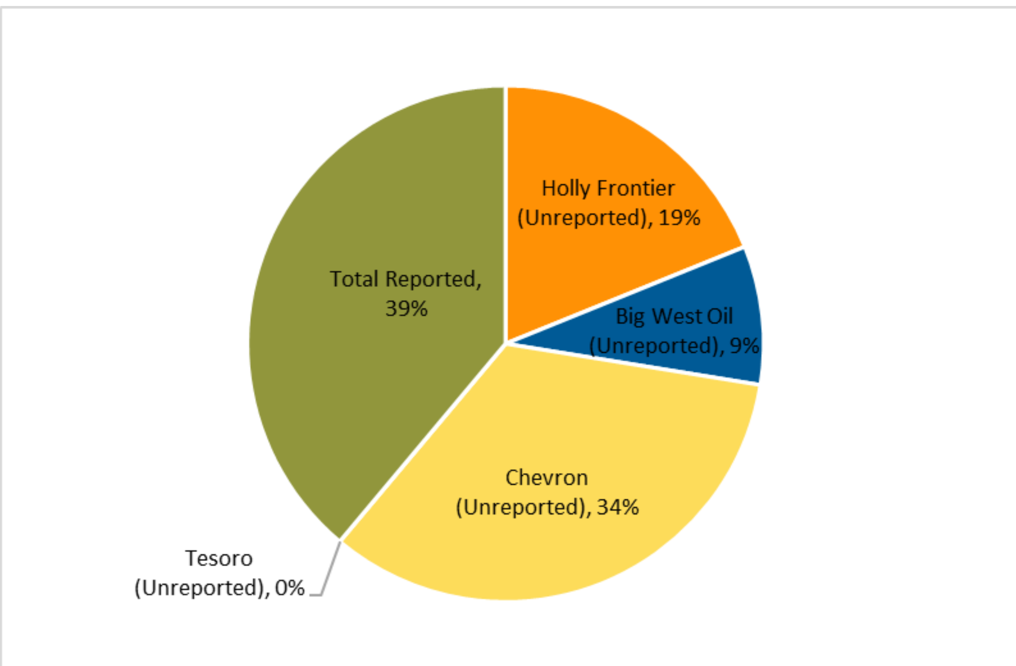

Figure 2 Refinery and Terminal Tanks Evaluated in Terms of Capacity

For US Magnesium, which has VOC baseline emissions of 660 tons per year (tpy)[8] (the second largest emitter of VOC), UDAQ agreed to only evaluate the VOC emissions from the Boron Plant (97.5% of US Magnesium VOC emissions). From there, UDAQ only evaluated 165 tons per year of VOC emissions from the spent strip water.[9] Because only approximately 25% of the emissions from this source was evaluated, UDAQ fell short of completing a comprehensive evaluation of the entire source. By reducing the emissions from the evaporation ponds from 288 tpy to 165 tpy without clearly documented rationale, the cost-effectiveness is inflated relative to the original cost-effectiveness evaluation showing VOC reductions at $16,670/ton.[10]

In other cases, emission units were evaluated as a group where unit-specific factors affect the cost-effectiveness of emissions controls. It is reasonable to conclude that UDAQ could more meaningfully reduce NOx and VOC emissions by evaluating individual emission units at each major source. For example, UDAQ allowed sites to evaluate tanks in groups rather than individually. This is apparent by the RACT determination tables in each of the Chapter 4 Sections of the Draft Moderate Ozone SIP.

Because of these incomplete evaluations, UDAQ did not require NOx controls on the two largest NOx emitters: Kennecott (4,209 tpy) and US Magnesium (1,062 tpy). Nor did UDAQ require VOC controls on the largest VOC emitter: Big West Oil (677 tpy). The 2017 baseline VOC and NOx emissions for the major sources are summarized in Figure 3.

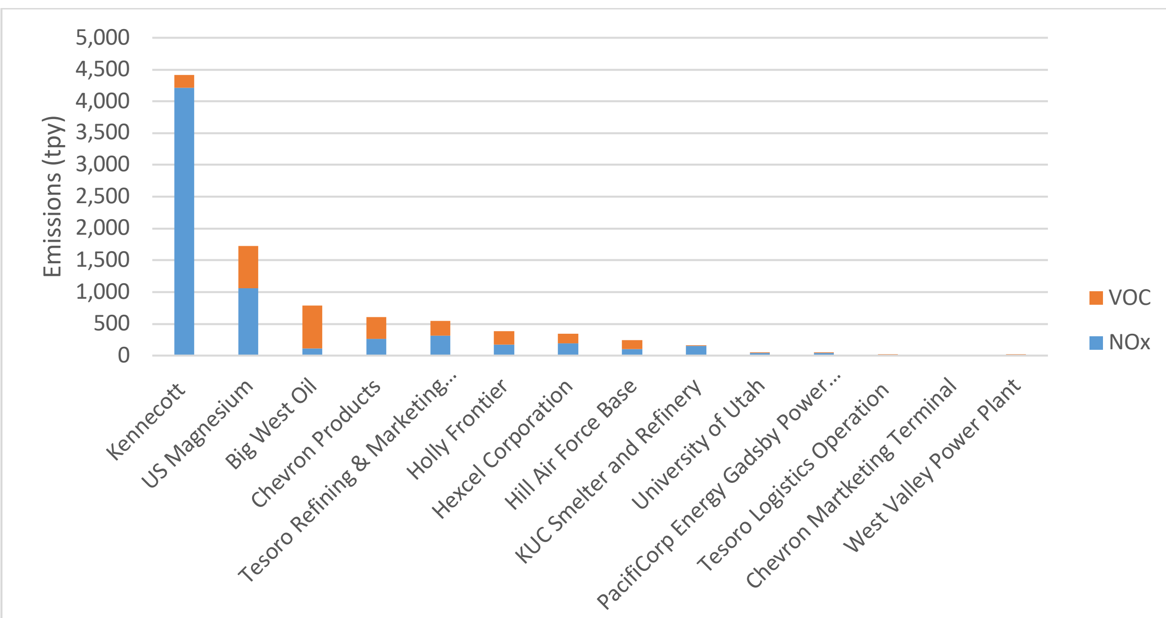

Figure 3 2017 Baseline Emissions from Draft Ozone SIP

[8] UDAQ approval May 11, 2022
[9] Email from Ms. Ana Williams dated November 21, 2022.
[10] US Magnesium's May 20, 2022 submittal, Table 1.

It is unreasonable to conclude that only three sources had controls that qualify as RACT. UDAQ's statement, "The UDAQ reviewed all analyses submitted in conjunction with past BACT reports, and where warranted, requested updated RACT reports with additional or clarifying information,"[11] is an insufficient explanation of why RACT controls were only required on 1.8% of NOx emissions[12] and 0.2% of VOC emissions[13] from all major sources.

Key Issues:

- UDAQ only evaluated 43% of combustion sources at refineries and 39% of the storage capacity of refineries and terminals.
- UDAQ only evaluated 25% of the VOC emissions for US Magnesium and 0% of NOx emissions.

UDAQ Action Required:

- UDAQ must individually evaluate control technologies for each emission unit that emits VOC and NOx at major sources.

2 UDAQ did not complete RACT analysis using a common methodology across peer groupings.

It is unclear what steps were taken to get from the source-submitted RACT analyses to UDAQ's own RACT determinations presented in the tables throughout Chapter 4. The draft Moderate Ozone SIP claims that "The UDAQ reviewed all analyses submitted in conjunction with past BACT reports, and where warranted, requested updated RACT reports with additional or clarifying information." It is unclear what quality control procedures UDAQ had in place to ensure the quality of the submitted data. Furthermore, UDAQ did not identify the criteria used to determine RACT. It appears the criteria used by UDAQ were not consistent across sources.

Had UDAQ completed systematic RACT analysis for sources using a consistent methodology, more controls would have been required, or at a minimum, more detail would have been provided in the Section 4 tables of the draft Moderate Ozone SIP. UDAQ's approach of accepting determinations made by sources without critical evaluation is universal in the SIP. The following sections discuss the discrepancies in evaluations between sites for cogeneration units, heaters, boilers, flares, and storage tanks. These discrepancies in the RACT analyses conducted make the Moderate Ozone SIP inadequate.

Key Discrepancies:

- UDAQ requires control of only one of four cogeneration units.

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[11] Section 4.2
[12] Chevron's F-21001 (12.30 tpy), Chevron's F-21002 (10.80 tpy), and Tesoro's Cogeneration Turbines (100.13 tpy).
[13] Tesoro's Tank 321 (5.29 tpy).

- UDAQ accepted inadequate reasoning for technical infeasibility determinations on heaters and boilers.
- UDAQ did not evaluate all available control technologies for all flares.
- UDAQ requires a secondary seal on a single storage tank without evaluating each tank individually.

2.1 Cogeneration Units – UDAQ requires control of one of the four cogeneration units.

By allowing uncontrolled emissions from cogeneration units at three facilities, the draft SIP fails to control some of the largest NOx emission units. UDAQ requires control of the cogeneration unit at Tesoro but accepted the arguments of US Magnesium, KUC Smelter and Refinery, and the University of Utah that control technologies for their cogeneration units are technically infeasible. This is apparent by the lack of detail in the Section 4 tables of the draft Moderate Ozone SIP. The arguments for technical infeasibility from these three facilities deserve closer scrutiny.

US Magnesium uses the flue gas from the cogeneration unit directly in the spray dryers, and on this basis, the site claimed it was technically infeasible to install selective catalytic reduction (SCR). However, US Magnesium and UDAQ did not evaluate the feasibility of installing NOx controls downstream of the spray dryers at the exhaust to atmosphere, such as SCR, LoTOx, or other NOx add-on controls. UDAQ should not disqualify add-on NOx controls at the cogeneration unit as technically infeasible without addressing installation downstream of the spray dryers at the emission point. US Magnesium's cogeneration unit emitted 814 tons of NOx in 2018. The Tesoro cogeneration unit emits less than 15% of that in the baseline year, yet it is the only unit required by UDAQ to install controls.

The University of Utah indicated that SCR was technically infeasible on their cogeneration unit due to space constraints, which UDAQ accepted. Routing the exhaust gas to another location prior to SCR may increase costs; however, it should not disqualify SCR installation as technically infeasible. Instead, UDAQ should include the extra ventilation costs to determine if SCR is cost-effective for the University of Utah's cogeneration unit.

KUC Smelter and Refinery evaluated SCR in 2020 as part of a minor new source review (NSR) application under BACT.[14] At that point, KUC Smelter and Refinery estimated a cost-effectiveness of $26,264/ton NOx removal, which UDAQ deemed not cost-effective for BACT.[15]

In the 2023 RACT submittal, KUC Smelter and Refinery estimated the cost-effectiveness of SCR to be an order of magnitude larger at $165,707/ton NOx without explaining the disparity between this cost estimate and their earlier BACT cost estimate of $26,264/ton NOx. UDAQ should address the discrepancy in the cost estimates between the KUC Smelter and Refinery submittals in the RACT analysis.

The cogeneration units were not treated consistently. This is apparent by allowing the largest NOx-emitting cogeneration source to rely on insufficient technical feasibility arguments to avoid controls while requiring a smaller source to meet control requirements for RACT.

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[14] Approval Order issued November 12, 2020: DAQ-2020-014242
[15] UDAQ accepted the comments from KUC Smelter and Refinery submitted May 19, 2020.

Key Issues:

- The draft SIP does not require emissions control for US Magnesium's cogeneration unit, the largest NOx-emitting cogeneration unit.
- KUC Smelter and Refinery's cogeneration control cost estimate has significantly changed in three years without scrutiny.

UDAQ Action Required:

- UDAQ must evaluate cogeneration units at all facilities with the same rigor.

2.2 Heaters and Boilers – UDAQ relied upon inadequate reasoning that emissions controls from heaters and boilers are technically infeasible.

Is In their RACT reports, several facilities argued that control technologies for heaters and boilers are technically infeasible. Because UDAQ accepted these arguments without further evaluation, the draft SIP fails to achieve meaningful reductions in NOx emissions. The lack of scrutiny is apparent in the lack of detail in the Section 4 tables of the draft Moderate Ozone SIP.

For example, Holly Frontier indicated SCR was not technically feasible for natural draft heaters and boilers in their RACT report, which UDAQ accepted. It is possible to install SCR on natural draft heaters and boilers if certain modifications, like an induction fan, are included in the design. Although these potential modifications can increase costs, it does not necessarily make the technology technically infeasible. UDAQ should reevaluate the cost-effectiveness of SCR to determine if adding certain modifications make the technology economically feasible or otherwise document why this approach is technically infeasible.

Key Issues:

- SCR is technically feasible for heaters and boilers with certain modifications that should be fully considered in a RACT analysis.

UDAQ Action Required:

- UDAQ must re-evaluate the technical feasibility and cost-effectiveness of heater and boiler controls at all sources using the same level of detail.

2.3 Flares – All potential controls for refinery flares were not properly evaluated.

By not evaluating the refinery flares with the same level of rigor, UDAQ missed potential NOx and VOC emissions. Each refinery evaluated reducing emissions from flares with a different level of rigor in their respective RACT reports. UDAQ accepted the list of control technologies evaluated by each site summarized in Table 1 and their respective technical and economic determinations.

Table 1 Refinery RACT Flare Evaluation Summary

Controls Evaluated	Big West Oil	Chevron	Holly Frontier	Tesoro
Flare Gas Recovery (FGR)	x		x	x
FGR Compressor Availability				x
Air to Steam Assist Retrofit	N/A (no air flares)	N/A (no air flares)	x	N/A (no air flares)
Flare Cap				x

UDAQ accepted Chevron's argument that no add-on controls needed to be evaluated due to current regulatory requirements. Had UDAQ evaluated all controls for all refinery flares, more potential reductions could have been realized.

Key Issues:

- Refineries and UDAQ did not evaluate potential flare controls with the same rigor.

UDAQ Action Required:

- UDAQ must re-evaluate technical feasibility and cost-effectiveness determinations for all flares for all available control technologies.

2.4 Storage Tanks – Storage tank emissions were not properly evaluated which led to missed opportunities to evaluate all potential controls for tanks.

Sites evaluated tanks in groups rather than individually and UDAQ accepted faulty technical feasibility assessments. As a result, the SIP missed opportunities to reduce VOC emissions.

In their RACT submittals, not all sources fully evaluated tank controls, such as secondary seals and domes. Many sources which evaluated tank controls chose to evaluate storage tanks in large groups rather than individually. This approach is flawed as the contents and design of tanks can greatly impact the technical feasibility and cost-effectiveness of controls. Additionally, sources made blanket statements regarding the technical feasibility of controls without engineering analysis to support the claims. Examples of these claims are that domes would cause a tank to have to be rebuilt due to the weight of the retrofitted dome[16] and that retrofitted domes can't be installed due to earthquakes and snow.[17] Domes have been installed on tanks in the nonattainment area, including at the Tesoro Refinery, that would be exposed to

[16] Chevron's January 2023 RACT Report Section 3.10.2
[17] Holly Frontier's February 23, 2023 RACT Report Section 4.8.2

the same earthquake risk, weather, and snow accumulation. UDAQ accepted the RACT analyses as provided and only requires control at Tesoro's Tank 321 (<6 tons per year VOC emitted).

UDAQ should have requested further tank evaluations from the major sources or conducted their own analysis using readily available resources, such as the comprehensive storage tank control study by South Coast's Air Quality Management District (SCAQMD) in support of Rule 1178. Had UDAQ evaluated more tanks individually for technical and cost-effectiveness, more controls would have likely been required. Instead, UDAQ relied upon the sites' RACT analysis. A summary of how inconsistently refineries evaluated tank controls in RACT Reports is provided in Table 2.

Table 2 Refinery RACT Tank Evaluation Summary (G = Evaluated by Group, I = Evaluated by Tank, 0 = No Evaluation)

Tank Type	Technology	Big West Oil	Chevron	Holly Frontier	Tesoro
Internal Floating Roof Tanks	Closed Vent Systems/Vapor Recovery	G	0	G	I
	Thermal Oxidation	G	0	0	I
	Carbon Adsorption	G	0	0	I
	Secondary Seal	G	0	0	I
	Degassing	0	0	G	G
External Floating Roof Tanks	Dome	G	G	G	I
	Closed Vent Systems/Vapor Recovery	G	0	G	I
	Thermal Oxidation	G	0	0	I
	Carbon Adsorption	G	0	0	I
	Degassing	0	0	G	G
Fixed Roof Tanks	Vapor Recovery System	0	0	G	I
	Thermal Oxidation	0	0	G	I
	Internal Floating Roof Retrofit	0	0	G	I
	Vapor Balancing	0	0	G	0
	Carbon Absorber	0	0	0	I

Key Issues:

- Out of all the tanks at the major sources, UDAQ only requires control at one tank.
- UDAQ did not consider all available resources and information.

UDAQ Action Required:

- UDAQ must evaluate all potential controls for all storage tanks.

3 ***The draft SIP does not achieve the 15% reduction in VOC emissions mandated by the CAA.***

Under the CAA,[18] UDAQ was required to reduce VOC emissions by 15% from 2017 levels by January 1, 2023. The draft Moderate Ozone SIP achieves less than 5% VOC reductions. Based on the information publicly available, it is unclear why UDAQ did not require controls on certain large sources of VOC emissions, and only required controls on very few smaller sources. Based on the missed opportunities for emission reductions described in the sections above, it appears UDAQ could have captured a much larger percent reduction of VOC emissions in this draft Moderate Ozone SIP.

Key Issues:

- The draft SIP requires very few controls on only a few sources.
- The reason for leaving certain significant sources of VOC emissions uncontrolled is unclear in the draft SIP.

UDAQ Action Required:

- UDAQ must re-evaluate all VOC emission sources to find more reductions to meet the 15% goal.

Conclusion

Thank you again for the opportunity to comment on the draft Moderate Ozone SIP. We hope that you will carefully consider these comments and ultimately reassess the missed opportunities for emission reductions from Utah's largest emitters. UDAQ must critically re-evaluate facilities' claims that control technologies are technically infeasible or too costly. Requiring fair and meaningful controls on emission

[18] CAA §182(b)(1)(A)(i) and 40 CFR §51.1310.

units located at major sources of VOCs and NOx emissions is the only way to achieve attainment in the Northern Wasatch Front Nonattainment Area and protect public health.

Ashley Miller
Executive Director
Breathe Utah

On behalf of
Breathe Utah Board of Directors
Patrice Arent
Suzanne Harrison
Rebecca Chavez-Houck
Stephen G. Handy
Lowry Snow

Attachment A: Refinery Combustion Capacities

Refinery	Unit	Combustion Capacity (MMBtu/hr) [1]	Evaluated in RACT Report
Big West Oil	H-101	53.8	yes
Big West Oil	BLR-1	83	yes
Big West Oil	Wabash Boiler	71	yes
Big West Oil	BLR-6	42	yes
Big West Oil	H-301	17.29	yes
Big West Oil	H-402	30	yes
Big West Oil	H-403	16.2	yes
Big West Oil	H-404	27.9	yes
Big West Oil	H-601	32.4	yes
Big West Oil	H-621	34.4	yes
Big West Oil	H-622	9.9	no
Big West Oil	G-624	6.1	no
Big West Oil	H-1001	9	yes
Big West Oil	H-1002	6.6	yes
Big West Oil	H-1003	6.6	yes
Holly Frontier	4H1	39.9	yes
Holly Frontier	6H1	54.7	yes
Holly Frontier	6H2	12	yes
Holly Frontier	6H3	37.7	yes
Holly Frontier	7H1	4.4	yes
Holly Frontier	7H3	33.3	yes
Holly Frontier	9H1	8.1	yes
Holly Frontier	9H2	4.1	yes
Holly Frontier	10H1	13.2	yes
Holly Frontier	11H1	24.2	yes
Holly Frontier	13H1	6.5	yes
Holly Frontier	19H1	40	yes
Holly Frontier	20H1	14.9	no
Holly Frontier	20H2	47	no
Holly Frontier	20H3	42.1	no
Holly Frontier	23H1	21	no
Holly Frontier	24H1	60	no
Holly Frontier	25H1	45	no
Holly Frontier	27H1	99	no
Holly Frontier	30H1	123.1	no
Holly Frontier	30H2	123.1	no
Holly Frontier	33H1	130	no
Holly Frontier	Boiler #4	35.6	no
Holly Frontier	Boiler #5	70	no
Holly Frontier	Boiler #8	92.7	no

Refinery	Unit	Combustion Capacity (MMBtu/hr) [1]	Evaluated in RACT Report
Holly Frontier	Boiler #9	89.3	no
Holly Frontier	Boiler #10	89.3	no
Holly Frontier	Boiler #11	89.3	no
Holly Frontier	68H2	0.8	yes
Holly Frontier	68H3	0.8	yes
Chevron	F-11005	171	yes
Chevron	F-11006	171	yes
Chevron	F-21001	130	yes
Chevron	F-21002	115.1	yes
Chevron	F-11002	55.8	no
Chevron	F-36017	108	no
Chevron	F-11004	54.1	no
Chevron	F-71030	36.3	no
Chevron	F-64011	27.3	no
Chevron	F-66200	66	no
Chevron	F-71010	15.6	no
Chevron	F-64010	19	no
Chevron	F-66100	40	no
Chevron	F-70001	139.2	no
Chevron	F-11001	55.8	no
Chevron	F-32021	48.2	no
Chevron	F-32023	48.2	no
Chevron	F-35002	45	no
Chevron	F-35001	52.3	no
Chevron	F-35003	31.7	no
Chevron	F-11007	225	no
Tesoro	F-1	140	yes
Tesoro	H-101	174	yes
Tesoro	F-680 & F-681	37.8	yes
Tesoro	F-701	8	yes
Tesoro	F-15	12.8	yes

[1] Capacities are from approval orders and RACT Reports.

Attachment B: Refinery Tank Capacities

Refinery	Unit	Capacity (BBL) [1]	Evaluated in RACT Report
Big West Oil	Group 1 Tanks - Floating Roofs	NA	yes
Big West Oil	Tank 3	80,000	no
Big West Oil	Tank 9	20,000	no
Big West Oil	Tank 19	20,000	no
Big West Oil	Tank 21	60,000	no
Big West Oil	Tank 22	60,000	no
Big West Oil	Tank 23	20,000	no
Big West Oil	Tank 24	20,000	no
Big West Oil	Tank 25	40,000	no
Big West Oil	Tank 29	40,000	no
Big West Oil	Tank 45	40,000	no
Big West Oil	Tank 56	7,250	no
Big West Oil	Tank 87	7,250	no
Big West Oil	Tank 90	20,000	no
Big West Oil	Tank 26	11,000	no
Big West Oil	Tank 95	30,000	no
Big West Oil	Tank 33A / Tank 34	15,000	no
Big West Oil	Tank A2	4,500	no
Big West Oil	Tank B2	1,450	no
Big West Oil	Tank 58	7,250	no
Big West Oil	Tank 50	30,000	no
Big West Oil	Tank 28	80,000	no
Holly Frontier	Tank 11	9,868	no
Holly Frontier	Tank 14	2,539	yes
Holly Frontier	Tank 15	5,181	yes
Holly Frontier	Tank 19	7,463	yes
Holly Frontier	Tank 20	7,504	yes
Holly Frontier	Tank 23	14,600	yes
Holly Frontier	Tank 24	15,016	yes
Holly Frontier	Tank 28	29,663	yes
Holly Frontier	Tank 31	29,756	yes
Holly Frontier	Tank 35	105,000	yes
Holly Frontier	Tank 37	3,217	yes
Holly Frontier	Tank 47	30,129	yes
Holly Frontier	Tank 48	29,782	yes
Holly Frontier	Tank 49	55,977	no
Holly Frontier	Tank 52	1,008	yes

Refinery	Unit	Capacity (BBL) [1]	Evaluated in RACT Report
Holly Frontier	Tank 53	1,008	yes
Holly Frontier	Tank 54	1,008	yes
Holly Frontier	Tank 55	1,008	yes
Holly Frontier	Tank 56	1,008	yes
Holly Frontier	Tank 57	1,008	yes
Holly Frontier	Tank 58	15,229	yes
Holly Frontier	Tank 59	30,019	no
Holly Frontier	Tank 63	30,135	yes
Holly Frontier	Tank 70	80,306	yes
Holly Frontier	Tank 77	5,141	yes
Holly Frontier	Tank 78	5,141	yes
Holly Frontier	Tank 79	10,000	yes
Holly Frontier	Tank 103	24,686	yes
Holly Frontier	Tank 127	30,497	yes
Holly Frontier	Tank 139	14,957	yes
Holly Frontier	Tank 140	14,857	yes
Holly Frontier	Tank 143	4,008	yes
Holly Frontier	Tank 137	141,418	yes
Holly Frontier	Tank 45	851	no
Holly Frontier	Tank 12	9,868	no
Holly Frontier	Tank 21	354	no
Holly Frontier	Tank 29	336	no
Holly Frontier	Tank 42A	20	no
Holly Frontier	Tank 50	700	no
Holly Frontier	Tank 51	580	no
Holly Frontier	Tank 60	1,008	no
Holly Frontier	Tank 61	1,008	no
Holly Frontier	Tank 64	1,011	no
Holly Frontier	Tank 65	1,011	no
Holly Frontier	Tank 71	67,155	no
Holly Frontier	Tank 72	106,811	no
Holly Frontier	Tank 73	1,077	no
Holly Frontier	Tank 74	2,039	no
Holly Frontier	Tank 75	2,039	no
Holly Frontier	Tank 76	2,039	no
Holly Frontier	Tank 80	10,000	no
Holly Frontier	Tank 81	13,638	no

Refinery	Unit	Capacity (BBL) [1]	Evaluated in RACT Report
Holly Frontier	Tank 82	13,638	no
Holly Frontier	Tank 83	7,143	no
Holly Frontier	Tank 84	10,000	no
Holly Frontier	Tank 85	80,000	no
Holly Frontier	Tank 86	80,000	no
Holly Frontier	Tank 87	50,000	no
Holly Frontier	Tank 88	13,638	no
Holly Frontier	Tank 100	53,372	no
Holly Frontier	Tank 101	53,564	no
Holly Frontier	Tank 102	52,990	no
Holly Frontier	Tank 104	24,435	no
Holly Frontier	Tank 105	24,501	no
Holly Frontier	Tank 106	24,524	no
Holly Frontier	Tank 107	24,501	no
Holly Frontier	Tank 108	24,450	no
Holly Frontier	Tank 109	24,490	no
Holly Frontier	Tank 113	168	no
Holly Frontier	Tank 114	65	no
Holly Frontier	Tank 116	140	no
Holly Frontier	Tank 117	506	no
Holly Frontier	Tank 118	657	no
Holly Frontier	Tank 121	100,129	no
Holly Frontier	Tank 122	400	no
Holly Frontier	Tank 123	400	no
Holly Frontier	Tank 124	550	no
Holly Frontier	Tank 125	550	no
Holly Frontier	Tank 126	64,675	no
Holly Frontier	Tank 128	10,100	no
Holly Frontier	Tank 129	55,074	no
Holly Frontier	Tank 130	952	no
Holly Frontier	Tank 131	65,159	no
Holly Frontier	Tank 132	24,455	no
Holly Frontier	Tank 133	1,582	no
Holly Frontier	Tank 134	1,582	no
Holly Frontier	Tank 135	44,154	no
Holly Frontier	Tank 136	806	no
Holly Frontier	Tank 138	44,247	no

Refinery	Unit	Capacity (BBL) [1]	Evaluated in RACT Report
Holly Frontier	Tank 141	1,618	no
Holly Frontier	Tank 145	3,985	no
Holly Frontier	Tank 146	3,985	no
Holly Frontier	Tank 147	714	no
Holly Frontier	Tank 148	714	no
Holly Frontier	Tank 149	714	no
Holly Frontier	Tank 150	714	no
Holly Frontier	Tank 151	714	no
Holly Frontier	Tank 152	714	no
Holly Frontier	Tank 153	714	no
Holly Frontier	Tank 159	4,999	no
Holly Frontier	Tank 300	176	no
Holly Frontier	Tank 301	176	no
Holly Frontier	Tank 302	176	no
Holly Frontier	Tank 303	238	no
Holly Frontier	Tank 304	368	no
Holly Frontier	Tank 305	368	no
Holly Frontier	Tank 306	514	no
Holly Frontier	Tank 307	514	no
Holly Frontier	Tank 308	157	no
Holly Frontier	Tank 310	514	no
Holly Frontier	Tank 312	14	no
Holly Frontier	Tank 313	143	no
Holly Frontier	Tank 323	14,686	no
Holly Frontier	Tank 324	714	no
Holly Frontier	Tank 54-V4	76	no
Holly Frontier	Tank 54-V5	131	no
Holly Frontier	Tank 54-V7	72	no
Holly Frontier	Fixed Roof Tanks	NA	yes
Chevron	D09312	750	no
Chevron	D21016	50	no
Chevron	D61011	50	no
Chevron	D61012	50	no
Chevron	D61013	500	no
Chevron	D61014	500	no
Chevron	D61045	300	no
Chevron	T10085	10,000	no

Refinery	Unit	Capacity (BBL) [1]	Evaluated in RACT Report
Chevron	T10086	10,000	no
Chevron	T10094	10,000	no
Chevron	T10095	10,000	no
Chevron	T15088	15,000	no
Chevron	T15090	15,000	no
Chevron	T15093	15,000	no
Chevron	T15098	15,000	no
Chevron	T15099	15,000	no
Chevron	T15103	15,000	no
Chevron	T15104	15,000	no
Chevron	T1511	1,500	no
Chevron	T1512	1,500	no
Chevron	T20015	20,000	no
Chevron	T20016	20,000	no
Chevron	T20017	20,000	no
Chevron	T20018	20,000	no
Chevron	T20019	20,000	no
Chevron	T20030	20,000	no
Chevron	T20031	20,000	no
Chevron	T20032	20,000	no
Chevron	T20033	20,000	no
Chevron	T20040	20,000	no
Chevron	T2111	2,300	no
Chevron	T25108	25,000	no
Chevron	T25109	25,000	no
Chevron	T30020	30,000	no
Chevron	T30021	30,000	no
Chevron	T30022	30,000	no
Chevron	T30023	30,000	no
Chevron	T30024	30,000	no
Chevron	T30041	30,000	no
Chevron	T30042	30,000	no
Chevron	T30043	30,000	no
Chevron	T30069	30,000	no
Chevron	T30074	30,000	no
Chevron	T30080	30,000	no
Chevron	T30081	30,000	no

Refinery	Unit	Capacity (BBL) [1]	Evaluated in RACT Report
Chevron	T30082	30,000	no
Chevron	T30091	30,000	no
Chevron	T30092	30,000	no
Chevron	T30096	30,000	no
Chevron	T30097	30,000	no
Chevron	T30107	30,000	no
Chevron	T3350	5,000	no
Chevron	T35110	35,000	no
Chevron	T40050	40,000	no
Chevron	T40051	40,000	no
Chevron	T40052	40,000	no
Chevron	T40070	40,000	no
Chevron	T40071	40,000	no
Chevron	T40072	40,000	no
Chevron	T40073	40,000	no
Chevron	T40075	40,000	no
Chevron	T40076	40,000	no
Chevron	T40100	40,000	no
Chevron	T40112	40,000	no
Chevron	T50078	50,000	no
Chevron	T50079	50,000	no
Chevron	T50113	50,000	no
Chevron	T5038	5,000	no
Chevron	T5083	5,000	no
Chevron	T5084	5,000	no
Chevron	T60059	60,000	no
Chevron	T60060	60,000	no
Chevron	T60061	60,000	no
Chevron	T60062	60,000	no
Chevron	T60063	60,000	no
Chevron	T60077	60,000	no
Chevron	T60114	60,000	no
Chevron	T80116	90,000	no
Chevron	T80117	90,000	no
Chevron	T60118	60,000	no
Chevron	T7513	7,000	no
Chevron	T7514	7,000	no

Refinery	Unit	Capacity (BBL) [1]	Evaluated in RACT Report
Chevron	T7539	7,000	no
Chevron	T80115	80,000	no
Chevron	T934	900	no
Chevron	V12684	1,300	no
Chevron	V12685	1,300	no
Chevron	V2567	2,500	no
Chevron	V31159	150	no
Chevron	V5064	5,000	no
Chevron	V5065	5,000	no
Chevron	V5066	5,000	no
Chevron	V76801	650	no
Chevron	V76802	650	no
Chevron	V76803	650	no
Tesoro	Tank 103	13,316	yes
Tesoro	Tank 105	170	yes
Tesoro	Tank 140	19,882	yes
Tesoro	Tank 141	14,327	yes
Tesoro	Tank 142	13,754	yes
Tesoro	Tank 157	19,154	yes
Tesoro	Tank 158	19,154	yes
Tesoro	Tank 186	57,365	yes
Tesoro	Tank 188	57,365	yes
Tesoro	Tank 190	54,037	yes
Tesoro	Tank 204	53,195	yes
Tesoro	Tank 206	59,521	yes
Tesoro	Tank 212	54,586	yes
Tesoro	Tank 213	54,586	yes
Tesoro	Tank 241	131,096	yes
Tesoro	Tank 242	53,781	yes
Tesoro	Tank 243	53,781	yes
Tesoro	Tank 244	25,505	yes
Tesoro	Tank 245	30,847	yes
Tesoro	Tank 246	10,843	yes
Tesoro	Tank 247	10,843	yes
Tesoro	Tank 252	53,781	yes
Tesoro	Tank 291	14,607	yes
Tesoro	Tank 297	3,738	yes

Refinery	Unit	Capacity (BBL) [1]	Evaluated in RACT Report
Tesoro	Tank 298	4,549	yes
Tesoro	Tank 307	6,492	yes
Tesoro	Tank 308	6,492	yes
Tesoro	Tank 321	23,674	yes
Tesoro	Tank 322	36,619	yes
Tesoro	Tank 323	36,619	yes
Tesoro	Tank 324	53,195	yes
Tesoro	Tank 325	53,195	yes
Tesoro	Tank 326	53,195	yes
Tesoro	Tank 327	53,195	yes
Tesoro	Tank 328	53,195	yes
Tesoro	Tank 330	23,431	yes
Tesoro	Tank 331	32,079	yes
Tesoro	IFRT + VFRT	NA	yes
Tesoro	All Tanks	NA	yes
Tesoro	Tank 412	64,000	yes
Tesoro	Tank 413	64,000	yes
Tesoro	Tank 414	64,000	yes
Tesoro	Tank 503	7,272	yes
Tesoro	Tank 504	14,000	yes
Tesoro	Tank 411	64,000	yes
Tesoro	Tank 405	120,000	yes
Tesoro	Tank 421	62,000	yes
Tesoro	Tank 422	62,000	yes
Tesoro	Tank 423	62,000	yes
Tesoro	Tank 424	62,000	yes
Tesoro	Tank 431	64,000	yes
Tesoro	Tank 432	62,000	yes

[1] Capacities are from approval orders and RACT Reports.