State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

L. Scott Baird
Interim Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

UTAH AIR QUALITY BOARD MEETING AGENDA
Wednesday, October 2, 2019 - 10:30 a.m.
Duchesne County Centennial Events Center
60 West 400 South, Duchesne, Utah 84021

Call in number: 1-877-820-7831; Participant Passcode: 915298#

I. Call-to-Order

II. Date of the Next Air Quality Board Meeting: November 6, 2019

III. Approval of the Minutes for September 4, 2019, Board Meeting.

IV. Propose with Department Fee Schedule: Operating Permit Program Fee for Fiscal Year 2021. Presented by David Beatty.

V. Informational Items.
- A. Ozone Nonattainment Status Update. Presented by Jay Baker.
- B. Duchesne and Uintah County Updates.
- C. Uinta Basin Ozone Working Group. Presented by Rikki Hrenko-Browning. Air Pollution
- D. Control Activities by Industry Producers.
- E. Uinta Basin Composition Study. Presented by Trang Tran.
- F. Uinta Basin Emissions Inventory and Modeling Update. Presented by Nancy Daher and Lexie Wilson.
- G. Division of Air Quality's Snow Blower Exchange Survey Results and Uinta Basin Snow Blower Exchange Event Information. Presented by Courtney Ehrlich. Uinta
- H. Basin Non-Road Engines Replacement Assistance Program. Presented by Courtney Ehrlich.
- I. Air Toxics. Presented by Jay Morris.
- J. Compliance. Presented by Rik Ombach.
- K. Monitoring. Presented by Bo Call.
- L. Other Items to be Brought Before the Board.
- M. Board Meeting Follow-up Items.

VI. Adjourn Meeting

Lunch followed by oil and gas well site visits.

In compliance with the Americans with Disabilities Act, individuals with special needs (including auxiliary communicative aids and services) should contact Larene Wyss, Office of Human Resources at (801) 536-4281, TDD (801) 536-4284 or by email at lwyss@utah.gov.

ITEM 3

State of Utah
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Department of
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DIVISION OF AIR QUALITY
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UTAH AIR QUALITY BOARD MEETING
September 4, 2019 – 1:30 p.m.
195 North 1950 West, Room 1015
Salt Lake City, Utah 84116

DRAFT MINUTES

I. Call-to-Order

Cassady Kristensen called the meeting to order at 1:30 p.m.

Board members present: Cassady Kristensen, Randal Martin, John Rasband, Arnold Reitze, and William Stringer (attendance by phone)

Excused: Erin Mendenhall, Scott Baird, Kevin Cromar, and Mitra Kashanchi

Executive Secretary: Bryce Bird

II. Date of the Next Air Quality Board Meeting: October 2, 2019

The next Board meeting will be held in either Duchesne or Uintah County. A full schedule of the day and location will be finalized in a couple of weeks.

III. Approval of the Minutes for August 7, 2019, Board Meeting.

- Arnold Reitze motioned to approve the minutes. Randal Martin seconded. The Board approved unanimously.

IV. Propose for Final Adoption: R307-204. Emission Standards: Smoke Standards. Presented by Liam Thrailkill.

Liam Thrailkill, Rules Coordinator at DAQ, stated that the primary purpose for amending R307-204 is to meet the requirements set forth in 2019 House Bill 155. The bill states that the Board shall require the land manager to: 1) describe the use of a state, county, or municipal resource in the large prescribed fire or large prescribed pile fire; 2) provide the division the burn plan for a large prescribed fire or large prescribed pile fire by no later than one week before the day of the burn window; and 3) notify the division of a nonfull suppression event once a fire becomes a nonfull suppression event.

The comment period was July 1 through 31, 2019. Staff received one comment recommending minor wording changes. Staff agreed with the changes which are noted in the rule. Following the approval of the rule, a separate filing for nonsubstantive changes will be made to correct the language with the Office of Administrative Rules. Staff recommends that the Board adopt R307-204 as amended.

The Board asked if the rule just applies to agricultural use or does it also apply to prescribed burns or for intentionally setting a fire to back burn for wildfire suppression. Staff replied that it does not apply to agriculture. State statute exempts agricultural burning. The rule does apply to prescribed burns and to wild land fires. The rule will provide a mechanism for land managers to report activities such as nonsuppression to the division.

- Randal Martin motioned for final adoption of amended R307-204, Emission Standards, Smoke Standards. Arnold Reitze seconded. The Board approved unanimously.

V. Propose for Final Adoption: SIP Sections X, Part A, Vehicle Inspection and Maintenance Program, General Requirements and Applicability and X, Part F, Vehicle Inspection and Maintenance Program, Cache County. Presented by Mat Carlile.

Mat Carlile, Environmental Planning Consultant at the DAQ, stated that under state statute, authority is delegated to the counties to design and manage a vehicle inspection and maintenance (I/M) program when it is required to attain or maintain any national ambient air quality standard. The division's responsibility is to ensure that the program meets federal requirements and provides the needed emissions reductions to meet national ambient air quality standards. Staff and EPA have reviewed Cache County's proposed I/M program and determined that it meets both.

In order to get credit from the emission reductions from these programs, they must be incorporated into the State Implementation Plan (SIP). This is done in SIP Section X. Section X, Part A summarizes I/M requirements that are common among all I/M programs. Subparts B through F contain the requirements for each county's unique I/M program. Section X, Part F is the section unique to Cache County's I/M program.

Changes to Section A include amendments to incorporate changes to Utah Code 41-6a-1642, which governs these programs. Additionally, language has been added to clarify that counties must consult with the division before making any changes to their program. These amendments do not change the overall I/M programs.

Part F is being changed to incorporate changes to the Cache County's I/M program. The biggest change to their program is the removal of the tailpipe emission inspection two speed idle test (TSI) currently required for vehicles manufactured before 1996.

On June 5, 2019, the Board proposed these changes for public comment, which lasted through July. During the public comment period, a backsliding demonstration was provided that demonstrated that the removal of TSI would not interfere with any Clean Air Act (CAA) requirement concerning attainment of an air quality standard. This analysis is required under Section 110(l) of the CAA when removing control measures from the SIP. No comments were received on the proposed amendments nor the backsliding demonstration. No hearing was requested. Staff recommends the Board adopt the amended SIP Section X, Parts A and F as proposed.

Dr. Martin commended the DAQ for completing the backsliding demonstration which helped in his review, and was disappointed there were no comments from Cache Valley.

- Arnold Reitze motioned that the Board adopt amended SIP Sections X, Part A, Vehicle Inspection and Maintenance Program, General Requirements and Applicability; and Part F, Vehicle Inspection and Maintenance Program, Cache County. Randal Martin seconded. The Board approved unanimously.

VI. Propose for Final Adoption: R307-110-31. Section X. Vehicle Inspection and Maintenance Program, Part A, General Requirements and Applicability; and R307-110-36. Section X, Vehicle Inspection and Maintenance Program, Part F, Cache County. Presented by Liam Thrailkill.

Liam Thrailkill, Rules Coordinator at DAQ, stated that the amendments to Section X, Part A and Part F, adopted by the Board will have to be incorporated into the Utah Air Quality Rules. R307-110-31 and R307-110-36 are the rules that incorporate those amendments. On June 5, 2019, the Board proposed an amended R307-110-31 and R307-110-36 for a 30-day public comment period. The public comment period was held from July 1 through 31, 2019, and no comments were received. Staff recommends that the Board adopt R307-110-31 and R307-110-36 as proposed.

- Arnold Reitze moved that the Board adopt the amended R307-110-31, Section X, Vehicle Inspection and Maintenance Program, Part A, General Requirements and Applicability; and R307-110-36, Section X, Vehicle Inspection and Maintenance Program, Part F, Cache County. Randal Martin seconded. The Board approved unanimously.

VII. Propose for Public Comment: SIP Subsection IX.A.36: PM2.5 Maintenance Provisions for Salt Lake City, UT. Presented by Becky Close.

Becky Close, Environmental Scientist at DAQ, stated that in 2009, three areas in Utah were designated as nonattainment status for the 2006 24-hr $PM_{2.5}$ national ambient air quality standard (NAAQS). This value is set at 35ug/m^3. DAQ submitted new SIP subsections to EPA at the end of 2013. Around the same time, the DC Circuit Court of Appeals found that EPA had incorrectly interpreted the CAA when determining how to implement the NAAQS for $PM_{2.5}$. DAQ withdrew and replaced these SIP subsections in 2014, this time addressing each area's "moderate" status.

Through the Moderate SIP, reasonably available control measures and technologies (RACM/RACT) were implemented in the nonattainment areas (NAA). In Salt Lake, this included additional controls to major point sources as well as new rules to control smaller area sources that aimed to reduce mostly volatile organic compounds (VOCs) with some reductions in NOx and direct $PM_{2.5}$ as well. The attainment demonstration in the Salt Lake Moderate SIP showed that even with RACM/RACT, attaining the NAAQS by the attainment date of December 31, 2015, was impracticable. Per CAA sections 179 and 188, the EPA determined that the Salt Lake NAA had not attained the standard by the attainment date. The EPA then reclassified the Salt Lake area as serious nonattainment, with a new attainment date of December 31, 2019.

The CAA requires that best available control measure and technologies (BACM/BACT) be implemented in any serious NAA. These controls are considered more stringent and apply to sources at a lower threshold than the RACM/RACT that was implemented through the Moderate SIP. Staff reviewed control technologies and on staff's recommendation, the Air Quality Board implemented BACT at major point sources and also amended 13 of the area source rules to be more stringent. This Board adopted the Serious SIP Subsection IX.A.31 on January 2, 2019.

In the meantime, the Salt Lake NAA saw three years of clean data in 2016, 2017, and 2018, resulting in attainment of the standard. The EPA clean data policy allows for the EPA to make a clean data

determination if an area reaches attainment prior to the attainment date. The clean data determination suspends certain SIP elements that the EPA finds unnecessary if the standard has been met. The EPA has proposed a clean data determination for the Salt Lake NAA and it is expected to be fully approved by the time the maintenance plans are up for final adoption.

Having three years of clean data does not mean the NAA is automatically redesignated to attainment status. The CAA defines five requirements necessary to redesignate an area: 1) approved attainment SIP, 2) attainment of the standard, 3) the emissions reductions are due to permanent and enforceable reductions, 4) the state has met all requirements applicable to the area under Section 110 and part D of the CAA, and 5) the last element for redesignation is an approved maintenance plan

These SIP subsections cover the first four redesignation requirements in Sections A and B of each plan. The maintenance demonstration and other maintenance plan requirements are provided in Section C and include baseline, intermediate year, and final year inventories, a mobile source budget for transportation conformity, verification of continued maintenance and monitoring, contingency measures, and a commitment to revise the maintenance plan eight years from EPA redesignation for another 10 year period.

When the EPA redesignates the NAA, they will look at the most current three years of data for this determination. So, although the areas have attained the standard early and have or will have a clean data determination, the EPA may be looking at more recent data sets when they redesignate the NAAs.

The maintenance plan is the core element for redesignation. The maintenance modeling demonstration must show attainment of the standard for at least 10 years after EPA redesignation of the NAA. Through consultation with EPA, DAQ decided to model emissions inventories out to 2035, with an intermediate year check in 2026. The modeling demonstration shows projected values for both years and at all monitors below the NAAQS. Per the CAA, DAQ will submit a maintenance plan revision eight years after redesignation to show maintenance for another 10 year period.

The modeling shows all monitors in the Salt Lake City NAA well below the standard in 2035 with a value at the controlling monitor, Rose Park, of 33.6 ug/m^3. Staff recommends that the Board propose for public comment SIP Subsection IX.A.36 PM2.5 maintenance provisions for the Salt Lake City, Utah nonattainment area.

Staff was asked to reword for better clarity, the sentence on page 46 line 8 that reads, “Nonroad diesel upgrades will see approximately $1.3 million on the Wasatch Front.”

For Rose Park’s 2016, 2018, the average is 34.9 for the three year running average. For clarification, does the EPA standard say 35.0 or 35.5? Staff responded that the modeling test is that if it’s below 35.4 then it’s out.

- Arnold Reitze motioned that the Board propose SIP Subsection IX.A.36: PM2.5 Maintenance Provisions for Salt Lake City, UT for public comment. Randal Martin seconded. The motion carries, with William Stringer abstaining from the vote.

VIII. Propose for Public Comment: SIP Subsection IX.A.27: PM2.5 Maintenance Provisions for Provo, UT. Presented by Becky Close.

Becky Close, Environmental Scientist at DAQ, stated that the Provo area follows a similar history, as stated in the introduction for Salt Lake City. However, Provo attained the standard earlier than the

Salt Lake area, with clean data from 2015, 2016, and 2017. Under EPA's Clean Data Policy, this suspended the need to submit an attainment demonstration and a few other SIP elements. Attainment inventories, BACM/BACT, and nonattainment new source review were still required and were submitted to EPA in February 2019. The same modeling was used for the Salt Lake and Provo maintenance plans. The values at the Lindon and Spanish Fork monitors in the Provo NAA show values well under the standard in 2026 and 2035. Staff recommends that the Board propose for public comment SIP Subsection IX.A.27 PM2.5 maintenance provisions for the Provo, Utah nonattainment area.

- Randal Martin moved for public comment SIP Subsection IX.A.27: PM2.5 Maintenance Provisions for Provo, Utah. Arnold Reitze seconded. The motion carries, with William Stringer abstaining from the vote.

IX. Propose for Public Comment: SIP Subsection IX.A.28: PM2.5 Maintenance Provisions for Logan, UT-ID. Presented by Becky Close.

Becky Close, Environmental Scientist at DAQ, stated that the Logan nonattainment area diverges slightly from Provo and Salt Lake. Although Logan was designated as a moderate area at the same time as Salt Lake and Provo, EPA approved attainment date extensions to December 31, 2017. The Logan area was never redesignated to a serious nonattainment area because EPA determined the area attained the standard by the attainment date.

There are no major point sources in the Logan area. A RACM analysis was performed and the area sources rules were applied to the Logan area as well. An I/M program was established in Cache County in 2014 as a necessary control strategy for the Logan Moderate SIP. Mat Carlile briefly discussed the 110(l) demonstration in the Logan maintenance plan detailing how the removal of the two speed idle portion of the I/M program will not interfere with attainment of the NAAQS. That 110(l) demonstration has also been included as an appendices to the Logan maintenance plan.

The Logan area attained the standard by the December 2017 deadline. The maintenance plan modeling for the Logan area was a little different than for the other two NAA. The meteorological profile was different and therefore the modeling was run separately. The other difference with the Logan NAA is that it extends into Idaho. Idaho is in a different EPA Region, so Idaho Department of Environmental Quality must submit a separate maintenance plan to their region. UDEQ has been working with Idaho to make sure we submit maintenance plans to our EPA regions around the same time in order for both EPA regions to be able to act on redesignation.

The projected values at Smithfield in 2026 and 2035 are well below the standard, showing continued maintenance. Staff recommends that the Board propose for public comment SIP Subsection IX.A.28 $PM_{2.5}$ maintenance provisions for the Logan, UT-ID nonattainment area.

The data for the 2015 and 2017 between the Franklin site and Utah's sites are dramatically different. Idaho's sampling schedule through 2017 was not every day. How did this impact both this and the modeling that might have gone forward into the future? Staff responded that Utah is doing measurements every day, and that the one in three day schedule is still the 98th percentile value that is used. According to EPA, the one in three day monitoring is equivalent to every day monitoring. In Utah, we have made the decision to monitor every day so that we capture every value. In addition, we have a speciation monitor in Logan that is currently operating.

- Randal Martin motioned to propose SIP Subsection IX.A.28, PM2.5 Maintenance Provisions for Logan, UT-ID for public comment. Arnold Reitze seconded. The motion carries, with William Stringer abstaining from the vote.

Mr. Bird added that the comment period will run October 1 until October 30, 2019. The technical support documents will be available for public review in the next week prior to the start of the public comment period.

X. Propose for Public Comment: R307-110-10. Section IX, Control Measures for Area and Point Sources, Part A, Fine Particulate Matter. Presented by Liam Thrailkill

Liam Thrailkill, Rules Coordinator at DAQ, stated that the amendments to Section IX, Control Measures for Area and Point Sources, Part A, for Fine Particulate matter, will have to be incorporated into the Utah Air Quality Rules. R307-110-10 is the rule that will incorporate the new $PM_{2.5}$ maintenance plans. If the Board adopts the amendments proposed to Part A, these amendments will become part of Utah's SIP when the rule is finalized. Staff is prepared to schedule a hearing, if requested. Staff recommends that the Board propose the amended R307-110-10 for a 30-day public comment period.

- John Rasband motioned that the Board propose amended R307-110-10, Section IX, Control Measures for Area and Point Sources, Part A, Fine Particulate Matter for public comment. Arnold Reitze seconded. The motion carries, with William Stringer abstaining from the vote.

XI. Propose for Public Comment: SIP Section IX, Part H.21(e) General Requirements: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, Regional Haze Requirements. Presented by Jay Baker.

Jay Baker, Environmental Scientist at DAQ, stated that in July 2016, EPA approved the BART for PM_{10} section of our Regional Haze SIP. EPA conditionally approved the recordkeeping requirements for the PM_{10} emission limits specifically described in Section IX, Part H.21(e) of the SIP. The purpose of this SIP revision is to meet the commitment that the State made to address this portion of the SIP. This SIP revision addresses the reporting requirements for Hunter and Huntington power plants. Under the current language, they are only required to report exceedances of PM_{10} emissions limits if those exceedances are due to a breakdown. The revised language requires them to report any exceedances of permitted PM_{10} limits, regardless of the cause.

Also, Cassady Kristensen brought up a question to staff regarding the statement, "The report shall be submitted to the Director no later than 24-months following the deviation, or earlier, as specified by an underlying applicable requirement." After speaking with compliance staff, it turns out there is an underlying applicable requirement. The language was changed and now reads, "The report shall be submitted in accordance with the requirements of R307-170, Continuous Emission Monitoring Program." This is a rule that requires the sources to submit a quarterly report of their emissions, which includes any exceedances. Staff recommends that the Board propose revisions to SIP Section IX, Part H.21(e) for public comment.

- John Rasband motioned that the Board propose amended SIP Section IX, Part H.21(e) General Requirements, Control Measures for Area and Point Sources, Emission Limits and Operating Practices, Regional Haze Requirements, for public comment. Arnold Reitze seconded. The motion carries, with William Stringer abstaining from the vote.

XII. Propose for Public Comment: R307-110-17. Section IX, Control Measures for Area and Point Sources, Part H, Emission Limits. Presented by Liam Thrailkill.

Liam Thrailkill, Rules Coordinator at DAQ, stated that the amendments to Section IX, Part H.21(e) General Requirements: Control Measures for Area and Point Sources, Part H, Emission Limits, will have to be incorporate into the Utah Air Quality Rules. R307-110-17 is the rule that will incorporate the new amendments. If the Board adopts the amendments proposed to Part H, these amendments will become part of Utah's SIP when the rule is finalized. Staff recommends that the board propose the amended R307-110-17 for a 30-day public comment period.

- Arnold Reitze motion that the Board propose amended R307-110-17, Section IX, Control Measures for Area and Point Sources, Part H, Emission Limits for public comment. Randal Martin seconded. The motion carries, with William Stringer abstaining from the vote.

XIII. Propose 5-Year Reviews: R307-125. Clean Air Retrofit, Replacement, and Off-Road Technology; R307-501. Oil and Gas Industry: General Provisions; R307-502. Oil and Gas Industry: Pneumatic Controllers; R307-503. Oil and Gas Industry: Flares; and R307-504. Oil and Gas Industry: Tank Truck Loading. Presented by Liam Thrailkill

Liam Thrailkill, Rules Coordinator at DAQ, stated that Utah Code 63G-3-305 requires each agency to review and justify its rules within five years of a rule's original effective date or within five years of the filing of the last five-year review. This review process is not a time to revise or amend the rules, but only to verify that the rule is still necessary and allowed under state and federal law. As part of this process, we are required to identify any comments received since the last five-year review of each rule. This process is not the time to revisit those comments or to respond to them. Staff has received no comments for the listed rules up for the five-year review. Staff has reviewed all listed rules and has determined that they should be continued. Staff recommends that the Board continue all listed rules and approve the forms to be filed with the Office of Administrative Rules.

- John Rasband motioned that the Board approve the five-year reviews for: R307-125, Clean Air Retrofit, Replacement, and Off-Road Technology; R307-501, Oil and Gas Industry, General Provisions; R307-502, Oil and Gas Industry, Pneumatic Controllers; R307-503, Oil and Gas Industry, Flares; and R307-504, Oil and Gas Industry, Tank Truck Loading. Arnold Reitze seconded. The motion carries, with William Stringer abstaining from the vote.

XIV. Western Water Solutions, Inc. Settlement Agreement. Presented by Rik Ombach.

Rik Ombach, Minor Source Compliance Manager at DAQ, stated that DAQ is requesting approval of a settlement agreement with Western Water Solutions, Inc. The company owns and operates a produced water and solids disposal facility located south of Myton in Duchesne County, Utah. Western Water Solutions, Inc. takes the waste from the oil well development and ongoing wells and then treat the contaminated fluids. Several years ago it was determined that many of these sources did not have permits and they were targeted to get permits. Western Water Solutions, Inc. is the last such facility that DAQ is aware of that will need an approval order. At this time, DAQ and Western Water Solutions, Inc. have negotiated a settlement of a $105,000 penalty. Of this settlement amount, $52,500 will be paid in twelve equal monthly payments. The remaining $52,500 will be deferred for a 24 month period. The deferred amount shall become due and payable, if the company has any future violations of any manner. Staff recommends approval of the settlement agreement.

- John Rasband motion that the Board propose the settlement agreement for Western Water Solutions, Inc. Randal Martin seconded. The motion carries, with William Stringer abstaining from the vote.

XV. Informational Items.

A. Air Toxics. Presented by Robert Ford.

B. Compliance. Presented by Jay Morris and Harold Burge.

C. Monitoring. Presented by Bo Call.

Bo Call, Air Monitoring Section Manager at DAQ, stated that the summer ozone season was not as bad as it was expected. The data still has to go through a quality control process and there is a chance that some of the data points will be eliminated which might change the final result. This year, we have locations that have exceeded the standard, or have the 4th highest value, not counting Roosevelt in the Uinta Basin. Hawthorne had eight and Rose Park had five exceedances.

D. Other Items to be Brought Before the Board.

Craig Anderson, from the Utah Attorney General's Office, updated the Board that the state is developing a web-based training program for required annual Board training. There is no definite time when this will be available, but they are trying to have it running by the end of the year. The Board met its required annual training for this year when it was presented at the last Board meeting.

Mr. Bird listed that some items staff will present at the October 2, 2019, meeting will include a discussion on compliance activities in the Uinta Basin, including how companies comply with the VOC control requirements and the use of the infrared camera. DAQ will reach out to the Duchesne and Uintah County officials to see if they have any items they wish to discuss, and to industry as well. If Board members have any items they would like discussed, please let Bryce know.

A composition study looking at the emissions associated with various formations underground associated with oil and gas production in the Uinta Basin is wrapping up. When the report is finalized, staff will present it to the Board at a future Board meeting.

E. Board Meeting Follow-up Items.

Meeting adjourned at 2:29 p.m.

ITEM 4

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DAQ-101-19

M E M O R A N D U M

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: David Beatty, Operating Permit Section Manager

DATE: September 12, 2019

SUBJECT: Propose for Public Comment with Department Fee Schedule: Operating Permit Program Fee for Fiscal Year 2021.

Title V of the Clean Air Act Amendments of 1990 (CAAA) requires the State of Utah to develop an Operating Permit Program (OPP), to include a fee which is used solely to fund all direct and indirect costs associated with administering the program for each state fiscal year. Section 19-2-109.1(4)(a) of the Utah Conservation Act authorizes the Utah Air Quality Board (the Board) to propose to the legislature an annual emission fee that conforms to Title V of the CAAA for each ton of chargeable pollutant. The fee is included as part of the Department's fee schedule each fall.

Utah began collecting an emission fee of $25 per ton during fiscal year 1993, to fund development of the program. The fee has changed in varying increments each year from -4.3% to +17.9%. The current fee charged to fund fiscal year 2020 is $82.75 per ton of emissions. Most fee increases have been the result of reduced emission tonnages by sources or increasing salaries and benefits to staff as part of legislative approved cost of living increases. An additional increase for fiscal year 2021 will be necessary and is the result of staff salary increases and a further reduction of 5,400 tons of chargeable pollutants. These emissions reductions were primarily related to reductions in coal burning power, oil refinery output, and business cut backs. Also, staff size has been reduced from 39 full-time employees (FTEs) in 1995 to a current level of 27 FTEs, this has assisted in keeping fee increases as low as possible.

For fiscal year 2021, Air Quality staff is basing its proposal on a projected emissions inventory of 48,500 tons. The fee calculation is shown in the table below and shows a fee of $89.67 for fiscal year 2021, an increase from fiscal year 2020 of 8.36%.

Operating Permit Emission Fee for Fiscal Year 2021

FY2020 Salary + Benefits		$3,180,838	
FY2021 Projected Cost of Living Increase	2.5%	$79,521	
FY2021 Projected Salary + Benefits with Projected Increase			$3,260,359
FY2021 Projected Indirect Costs	12.78%	$416,674	
FY2021 Projected Direct Costs		$672,000	
FY2021 Projected Total Expenditures			$4,349,033
FY2021 Projected Fee Tonnage		48,500	
Fee Rate Per Ton of Emissions			$89.67
FY2019 Surplus		$0	
Surplus Reduction in Fee		$0.00	
FY2021 Proposed Fee Rate Per Ton of Emissions			**$89.67**
		$6.92	Increase

Current Fee (FY2020) is $82.75

Recommendation: Staff recommends the Board submit as part of the Department's fee schedule, a proposed fee of $89.67/ton for the operating permit program for fiscal year 2021.

ITEM 5

Ozone Nonattainment Status

Status of Utah Ozone Nonattainment Areas

Wasatch Front and Uinta Basin Designated Nonattainment for the 2015 Ozone Standard

- In 2018, the EPA designated areas of the Wasatch Front and Uinta Basin nonattainment for the 2015 Ozone Standard. A map of the nonattainment areas is on the right.
- All nonattainment areas are currently classified as Marginal.
- Marginal Nonattainment Areas are not required to prepare a SIP. However, the following elements are required:
    - Emissions inventory (submit August 2020);
    - New Source Review Rules for sources over 100 tons per year (submit August 2021);
    - General Conformity analysis of all Federally funded projects; and
    - Reach attainment in three years.
- The standard is based on a 3-year rolling average of the fourth highest 8-hour average value. Monitoring data (shown on the next page) indicate that none of Utah's three nonattainment areas are likely to attain the standard by 2021.

Next Steps

- If the nonattainment areas do not meet the 2015 Standard by August 2021, EPA will bump up the area classifications from Marginal to Moderate. The bump up triggers the requirement of a SIP that would be due to EPA by February 2023.
- The SIP must include the following:
    - An overall 15% reduction of both NO_x and VOCs (Ozone precursors);
    - A vehicle Inspection and Maintenance Program for areas meeting the population threshold;
    - Reasonably Available Control Technology installed on all point sources greater than 100 tons of NO_x or VOCs; and
    - Demonstration of attainment by August 2024.

Utah Division of Air Quality
October 2, 2019

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Uinta Basin Ozone SIP Coordinator
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svance@utah.gov

Jay Baker
Ozone SIP Coordinator
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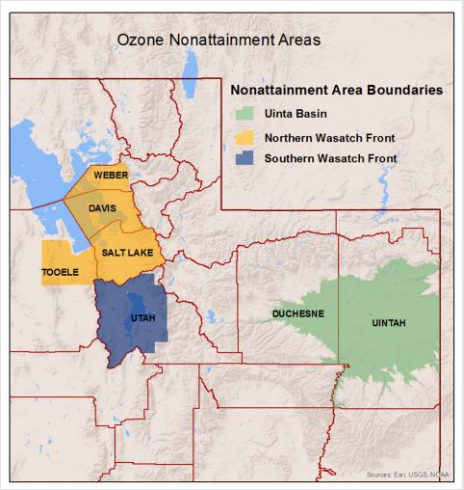
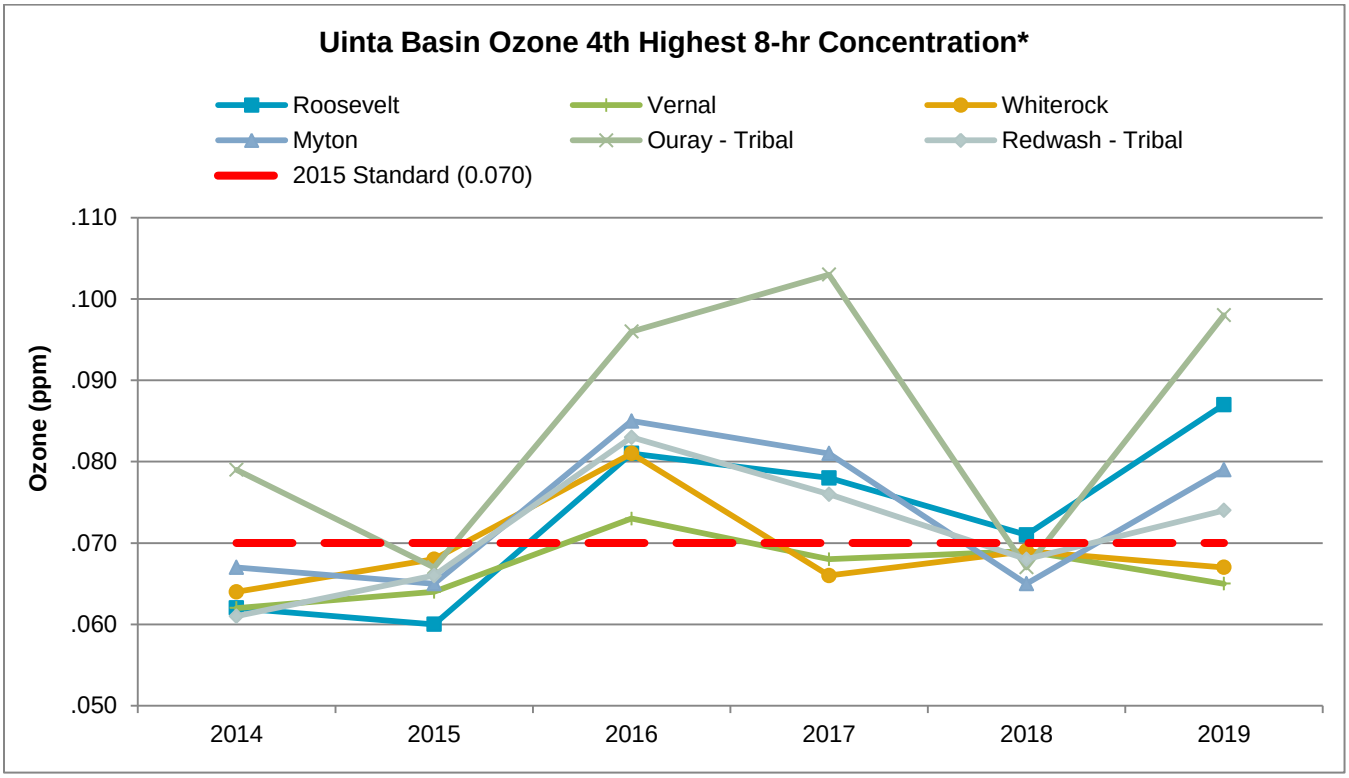
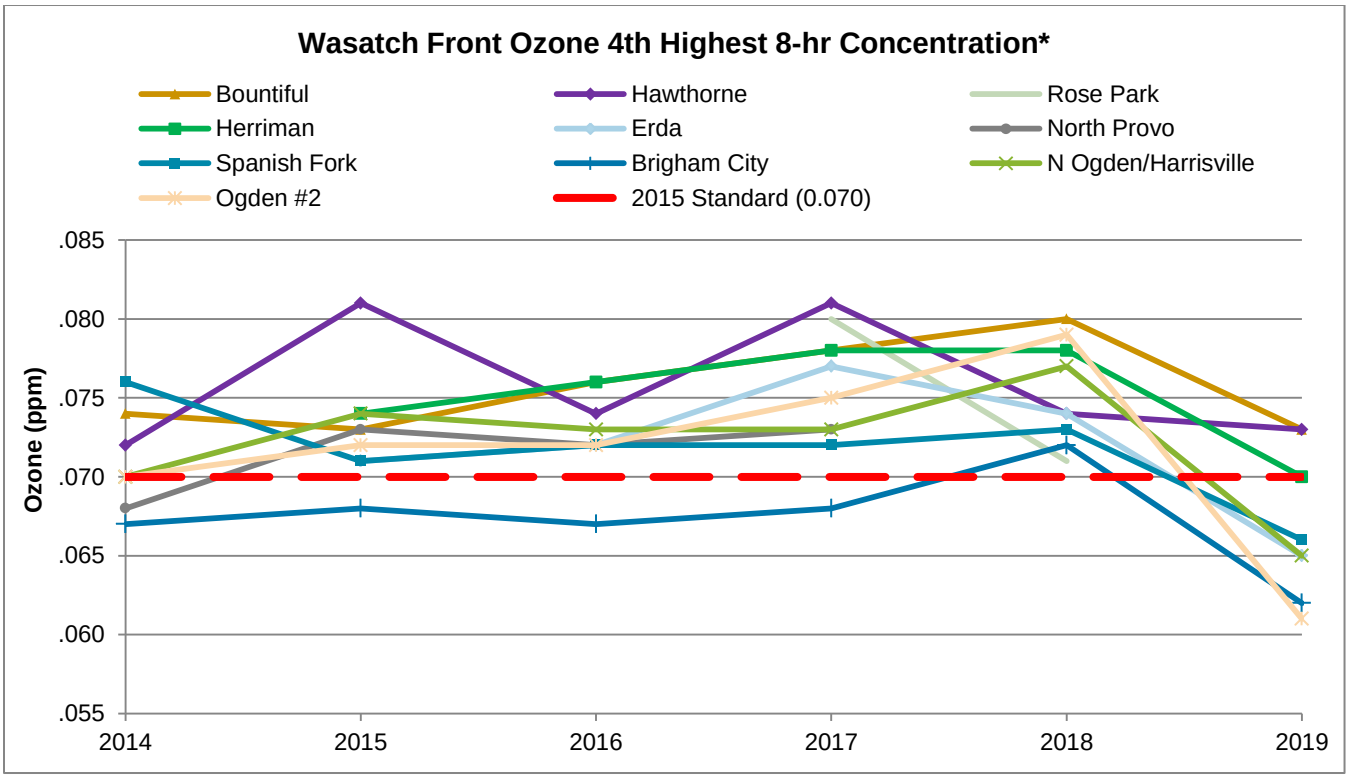


Utah Ozone Nonattainment Areas

ENVIRONMENTAL QUALITY
AIR QUALITY



* 2019 data not quality assured

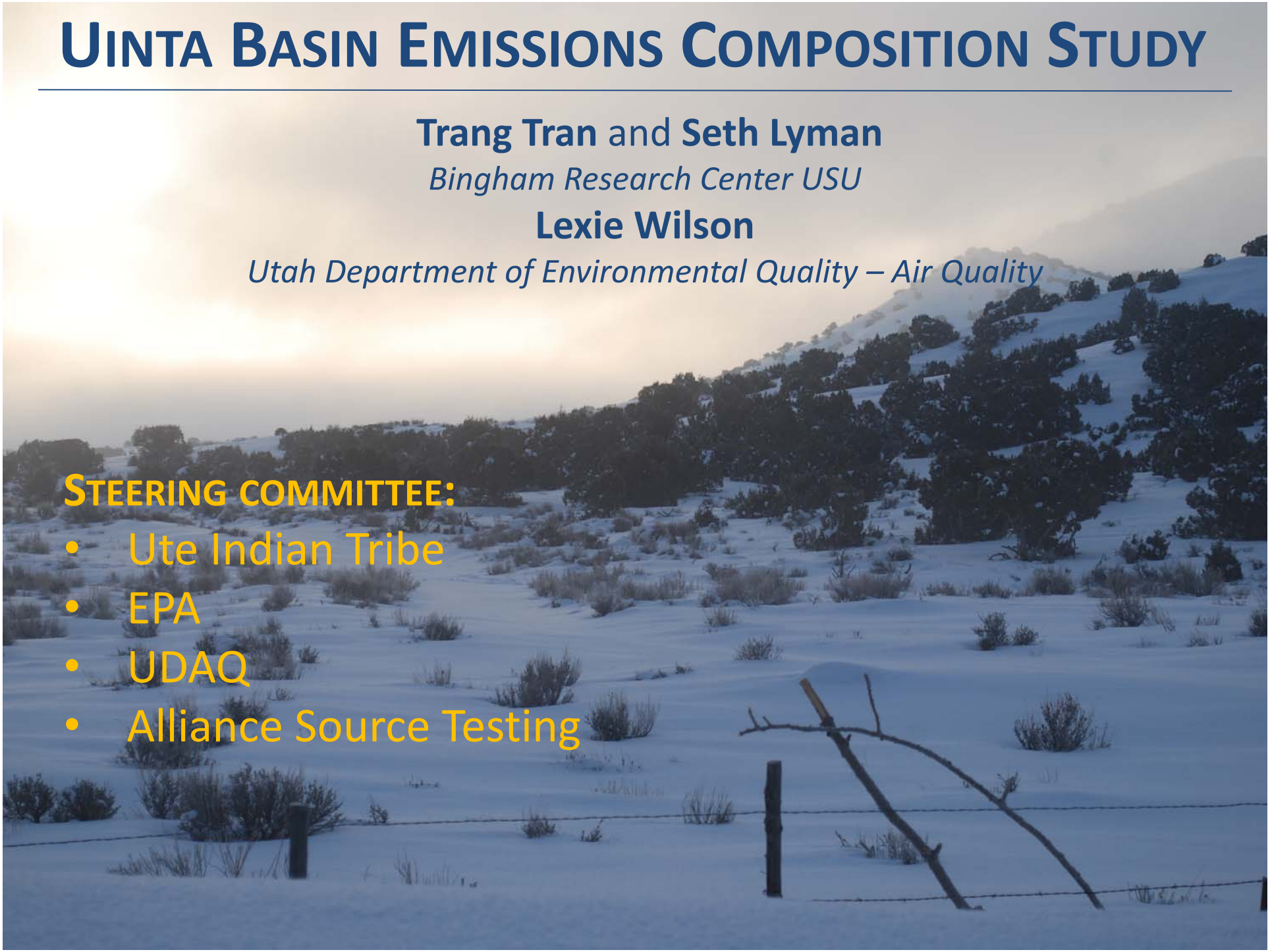


* 2019 data not quality assured

Uinta Basin Emissions Composition Study

Uinta Basin Emissions Composition Study

Trang Tran and **Seth Lyman**
Bingham Research Center USU
Lexie Wilson
Utah Department of Environmental Quality – Air Quality



Steering committee:

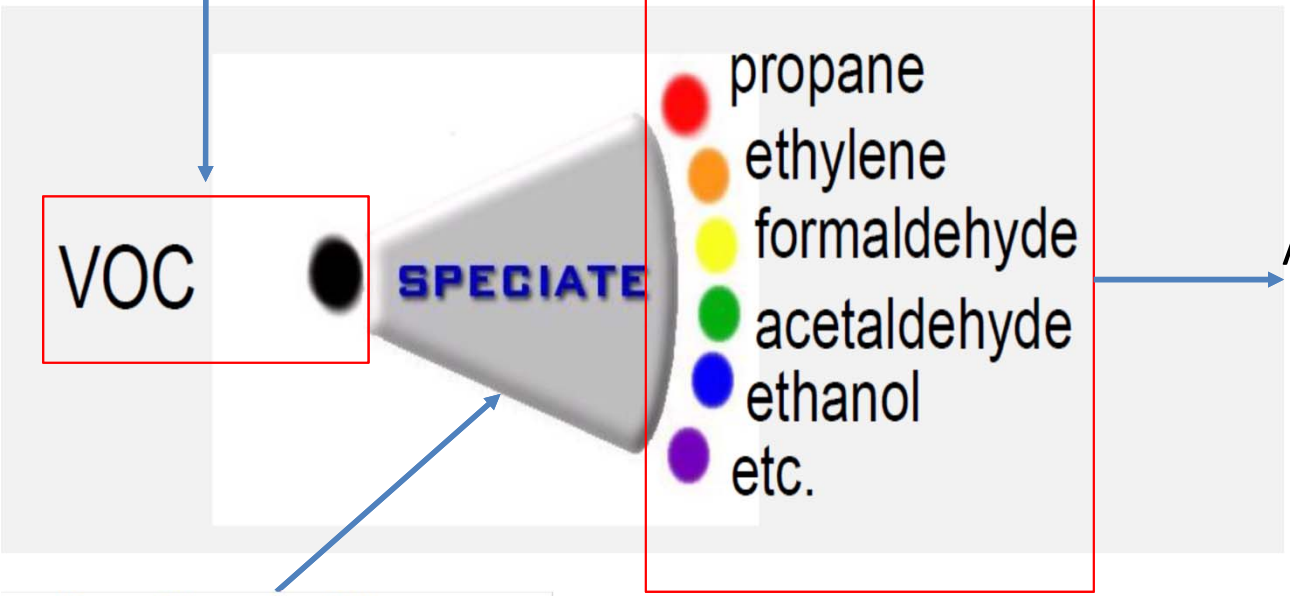
- Ute Indian Tribe
- EPA
- UDAQ
- Alliance Source Testing

Motivation:

Develop good/representative SPECIATE tool for O&G emissions in Uinta Basin

Emission inventories

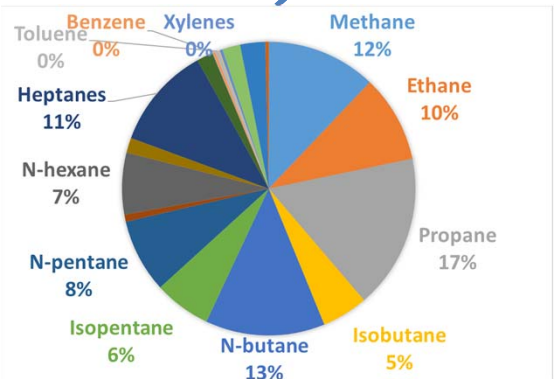
different ozone-reactivity



Air quality models

EPA criteria pollutant concentration:

- Ozone
- PM10/ 2.5
- ect…



THIS STUDY

Uinta Basin Composition Study Comprehensive Sampling & Analysis Outline

Hydrocarbon Sampling (AST)

- 78 wells (67 passed QA/QC)
- Collected raw gas, pressurized liquid; analyzed for composition
- Calculated flash gas composition, RVP, API gravity using VMG + calculation block for heated tanks
- FGOR (modeled)

Carbonyls Sampling (USU)

- 10 wells (15 samples including duplicates, 14 passed QA/QC)
- Collected pressurized liquid
- Samples physically flashed and measured for carbonyls content/composition
- FGOR (physical)

Verification Sampling (AST)

- 5 wells (all passed QA/QC)
- Collected pressurized liquid
- Samples physically flashed and analyzed for composition
- Calculated flash gas composition using VMG + calculation block for heated tanks
- FGOR (modeled and physical)

High Flow Sampling (USU)

- 24 wells
- Collected emission rates and canister samples; analyzed canisters for emissions composition, including carbonyls

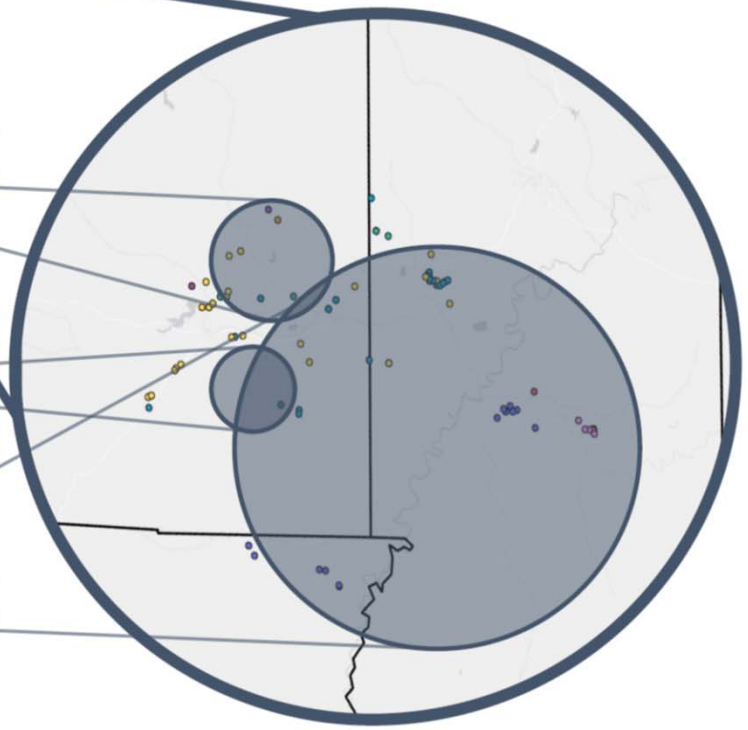


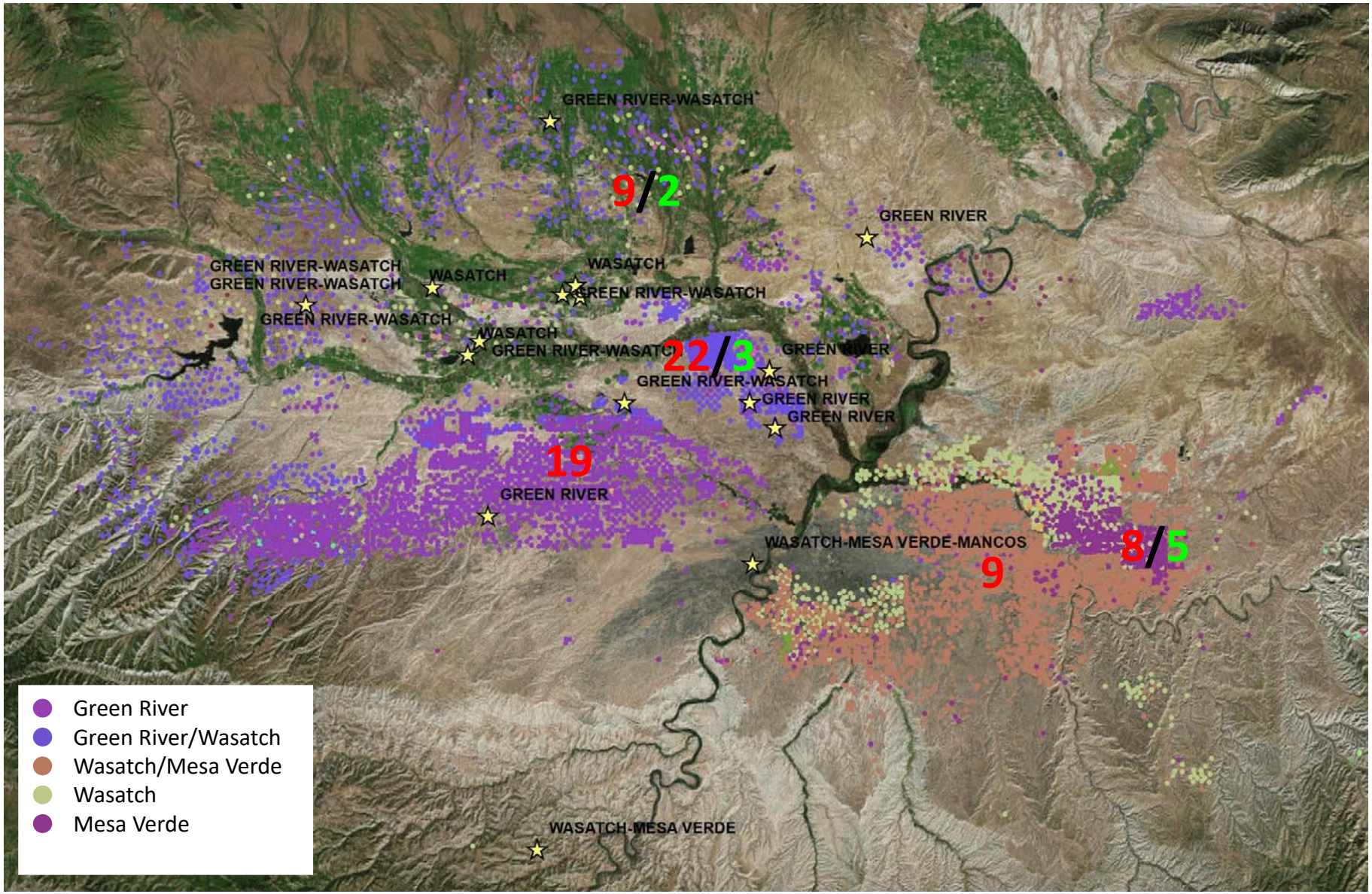
*diagram does not indicate actual wells in each sampling category; circles are intended to show that various subsets of wells are different

Field sampling

Separator sampling

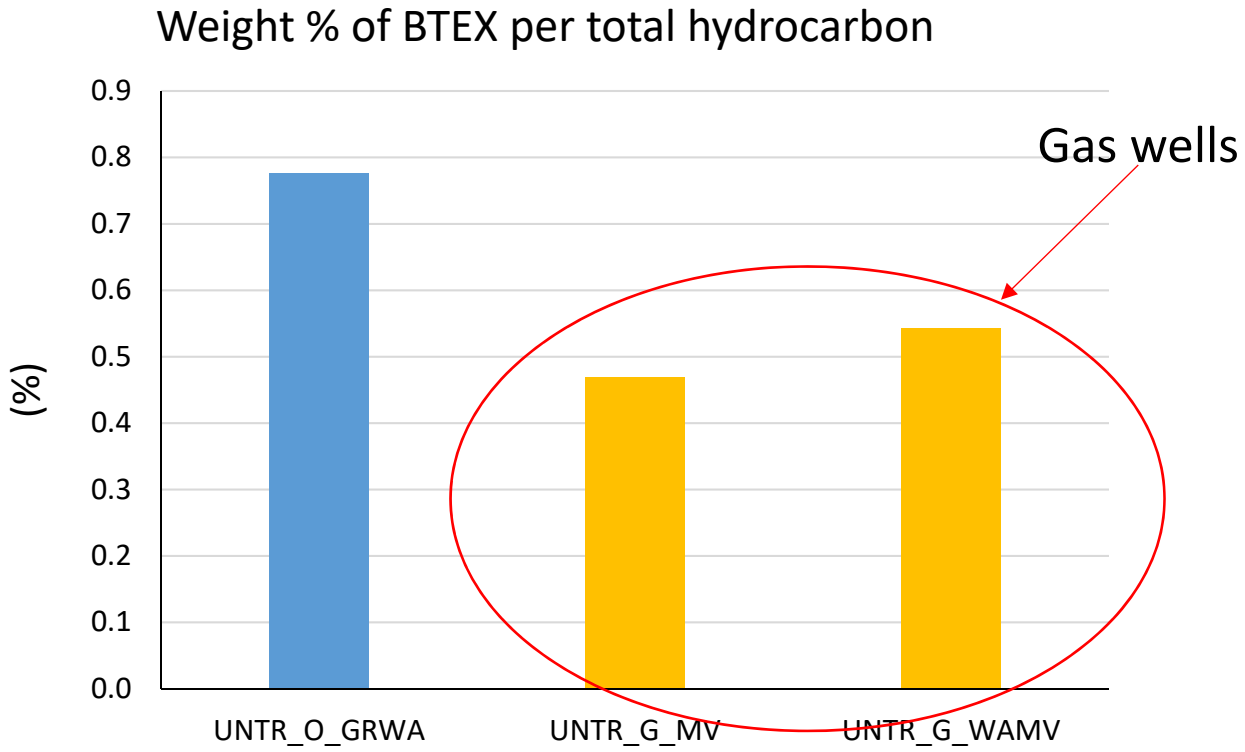
Direct emission sampling (high-flow)

Sampling network on five geological formations



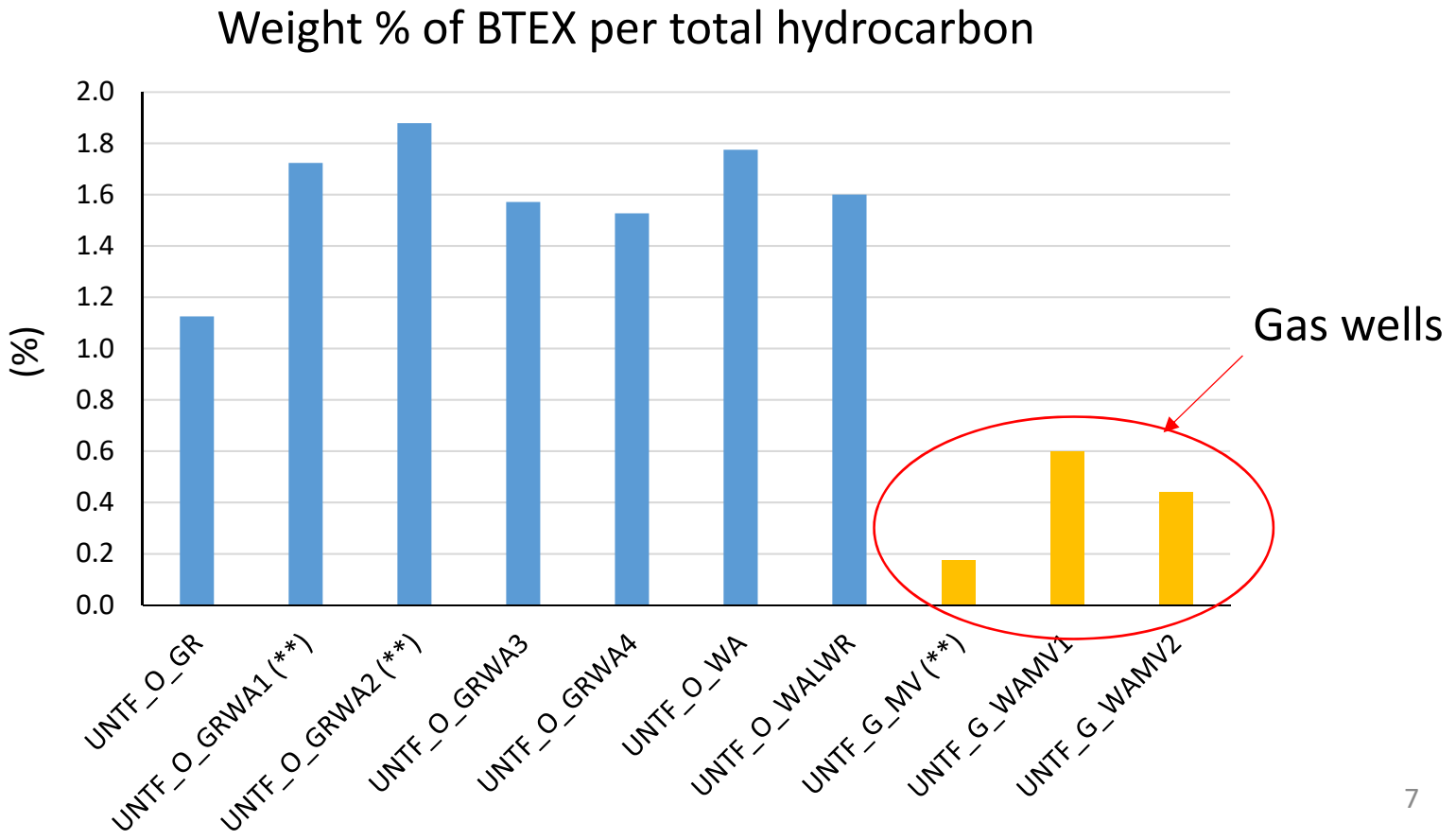
Results: Separator-sampling derived profiles

- ✓ 3 **raw** gas profiles: applied for vented sources such as completions, blowdowns, pneumatic controllers, pneumatic pumps, and fugitive leaks
- ✓ Raw gas emissions from oil wells are more able to produce ozone than from gas wells



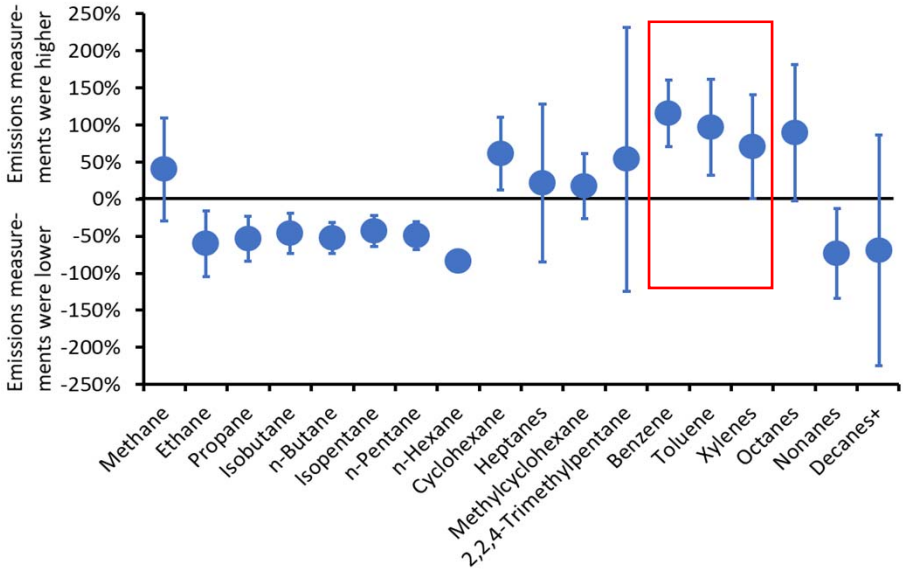
Results (cont.): Separator-sampling derived profiles

- ✓ 10 **flash** gas profiles: applied for oil or condensate tanks emissions.
- ✓ Flash gas emissions from oil wells are more able to produce ozone than from gas wells
- ✓ Carbonyls weight % varied from 0.001 to 0.002% of total VOC

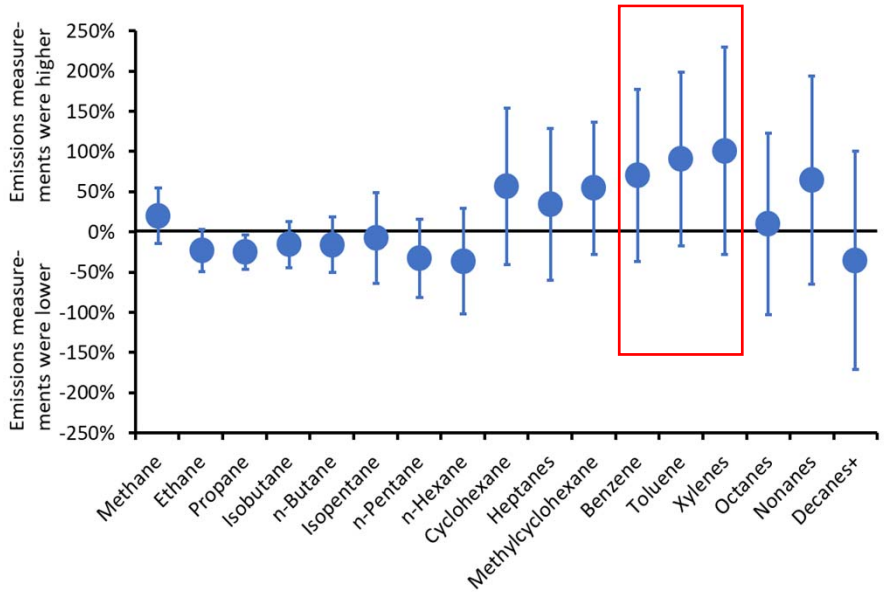


Direct emission sampling-derived profiles are more able to produce ozone than separator sampling-derived profiles

Raw gas



Flash gas



Future work:

- UDAQ: doing statistical analysis to cross-check grouping per geological formations method
- USU: conducting WRF-CAMx simulations to evaluate ozone sensitivity to:

(1) newly developed profiles
(2) carbonyls (with and without carbonyls)
(3) Direct emission sampling-derived profiles versus separator sampling-derived profiles

Uinta Basin Emissions Inventory and Modeling

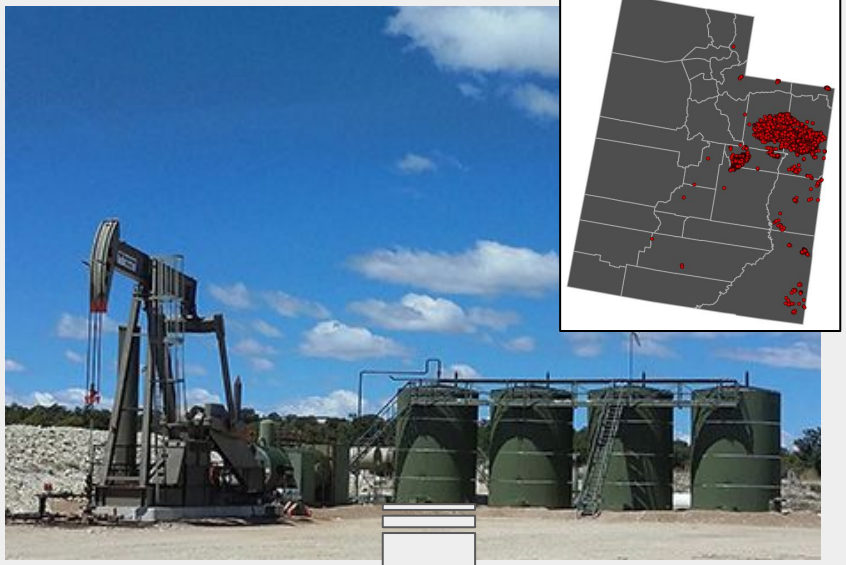
Uinta Basin Emissions Inventory and Modeling

Lexie Wilson & Nancy Daher
Environmental Scientists, Technical Analysis Section
Utah Division of Air Quality

Air Quality Board Meeting
Duchesne County Centennial Events Center
October 2nd, 2019

Utah Air Agencies Oil and Gas Emissions Inventory

- Oil and gas equipment and operations survey every 3 years
- Emissions estimated using emission factors & engineering calculations
- Includes sources on State, Federal, Tribal jurisdiction
- Oil and gas operators fill out workbooks by-facility
- Air agencies add gap-filling



Operator			es List		
Production Facilities Only			Disposal/Injection Facilities Only	Solid Waste Facilities	Facility (App Order Minor Regis
l Condensate Product (BBL)	ual Gas Producti (MCF)	ual Water Producti (BBL)	Estimated Annual Produced Received (BBL)	Annual Solid Waste Received (yd^3)	

Oil and Gas Emissions Inventories in Utah

2011 Oil and Gas National Emissions Inventory (NEI)	**2014** ***Utah Air Agencies*** Oil and Gas Emissions Inventory	**2017** ***Utah Air Agencies*** Oil and Gas Emissions Inventory
• Projected estimate from a 2006 survey (WRAP) and 2011 UDOGM data	• New survey data for 2014 • Included ~8,500 facilities in the Uinta Basin	• New survey data for 2017 • Included ~8,900 facilities in the Uinta Basin • Also included non-estimate data for produced water facilities • Updated emission factors

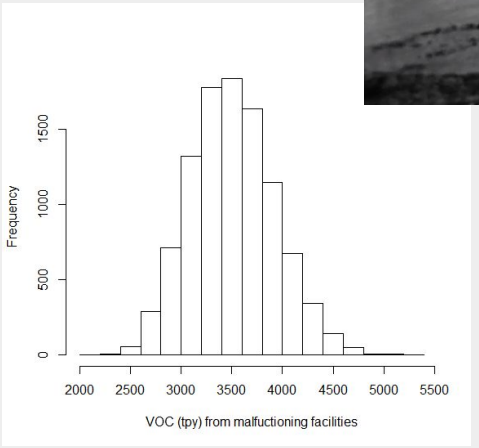
**** Utah Air Agencies:***

Inventory Gap-Filling

To estimate missing emissions…

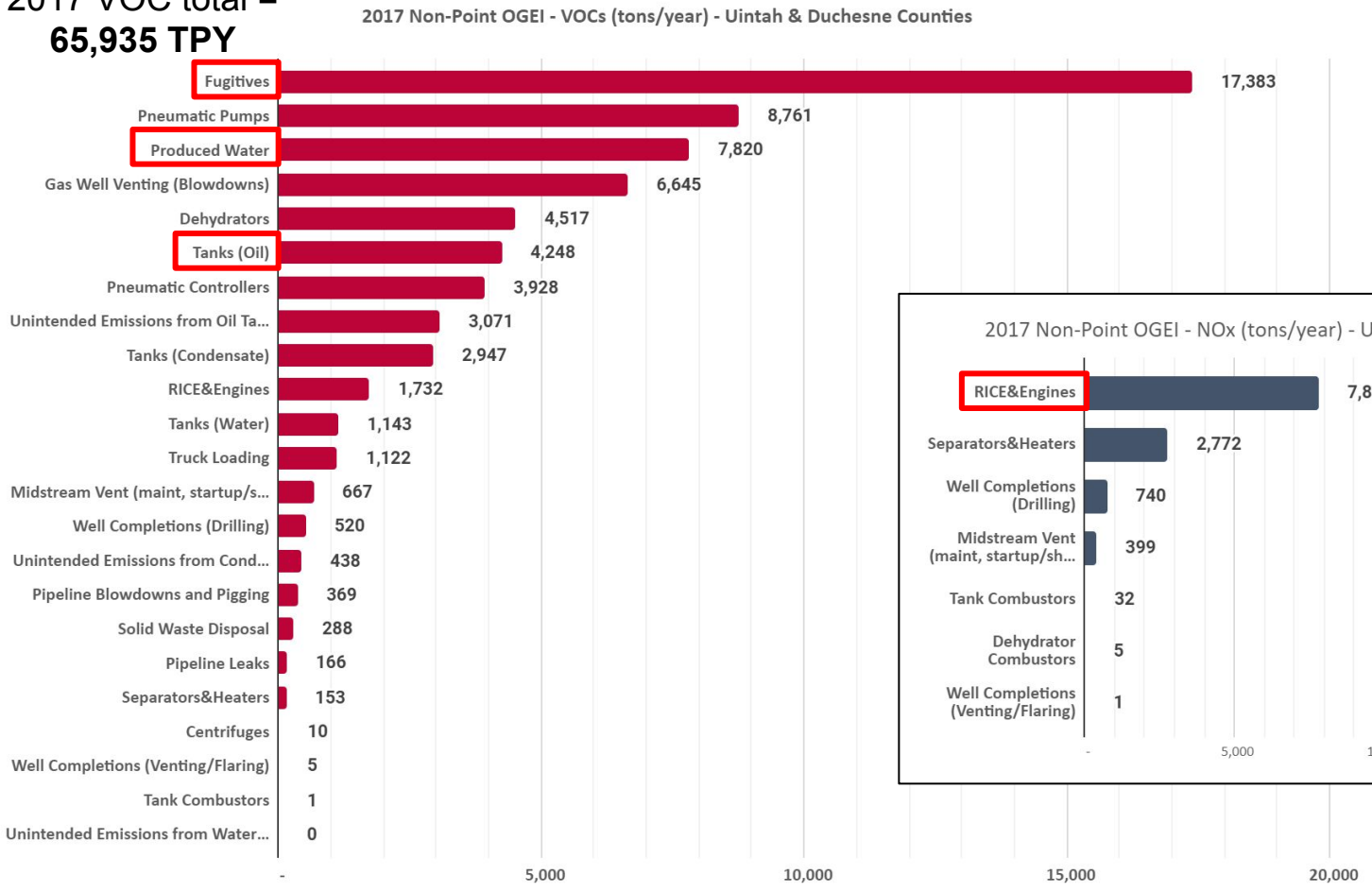
- Use findings & data from Uinta Basin research studies
  - STEPP & Hydrocarbon Emission Detection Survey
- Use data from other surveys
  - EPA Greenhouse Gas Reporting Program
  - UDOGM Incident Reports
- Use data science techniques to estimate emissions accurately
  - Monte Carlo simulations

Infrared camera stills from leaking tank batteries *courtesy USU*

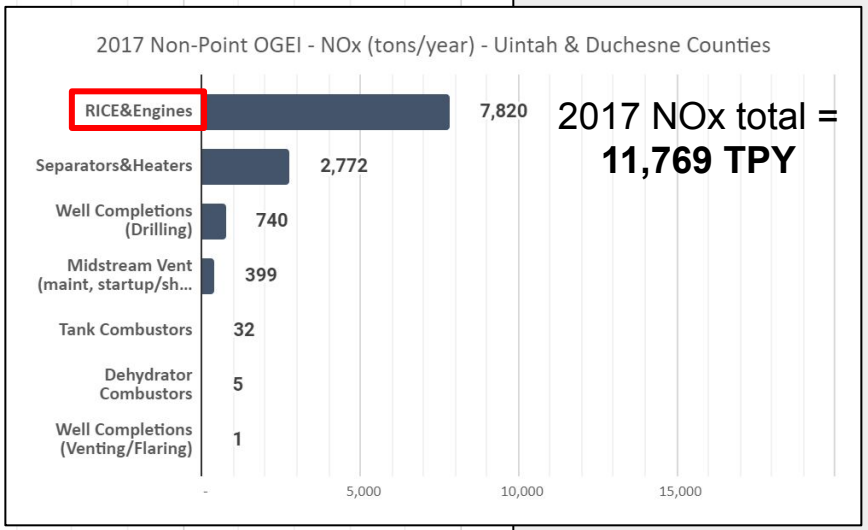


Histogram of the 10,000 run Monte Carlo simulation; storage tank emissions not making it to their intended control device would be 3,507 ± 424 tons per year (tpy) VOCs

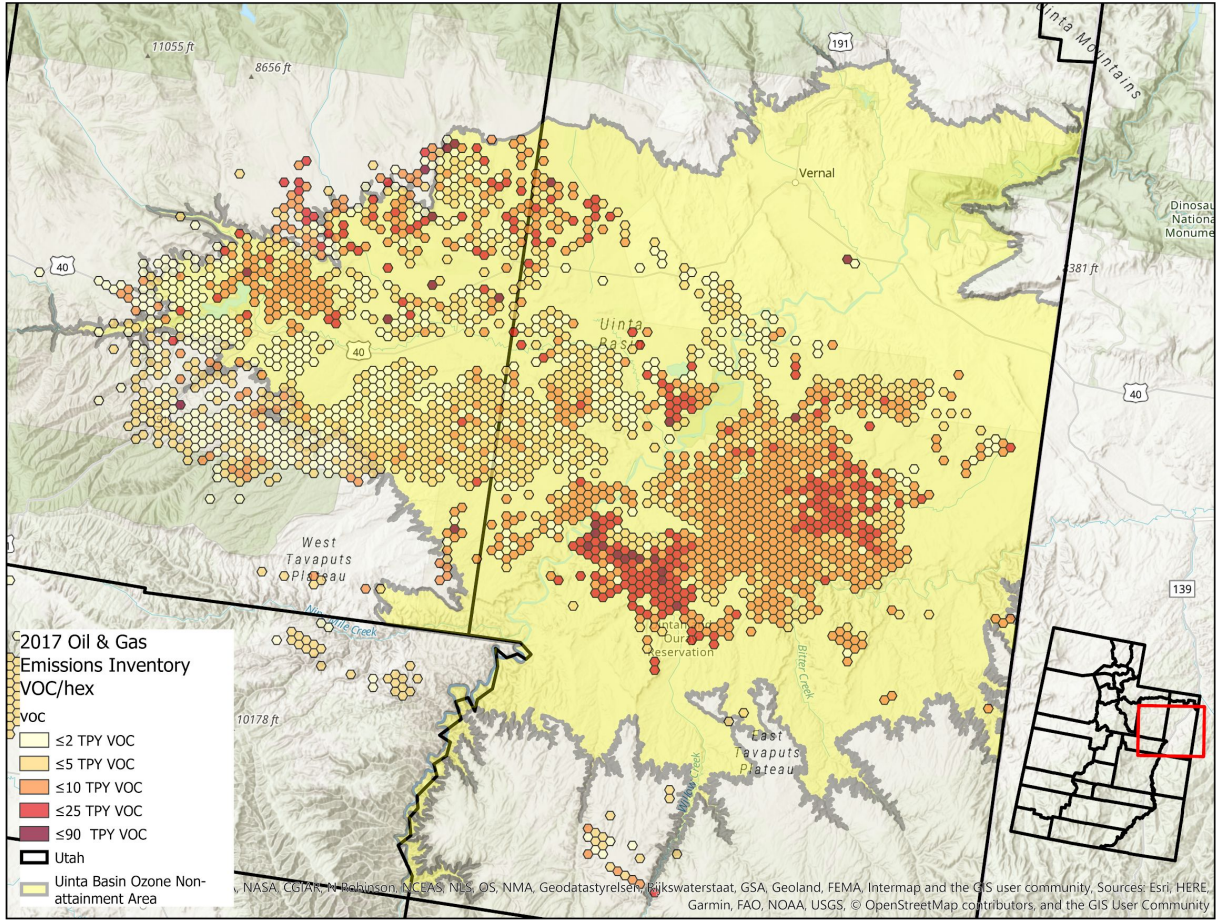
2017 VOC total =
65,935 TPY



2017 Oil and Gas Emissions Inventory Results

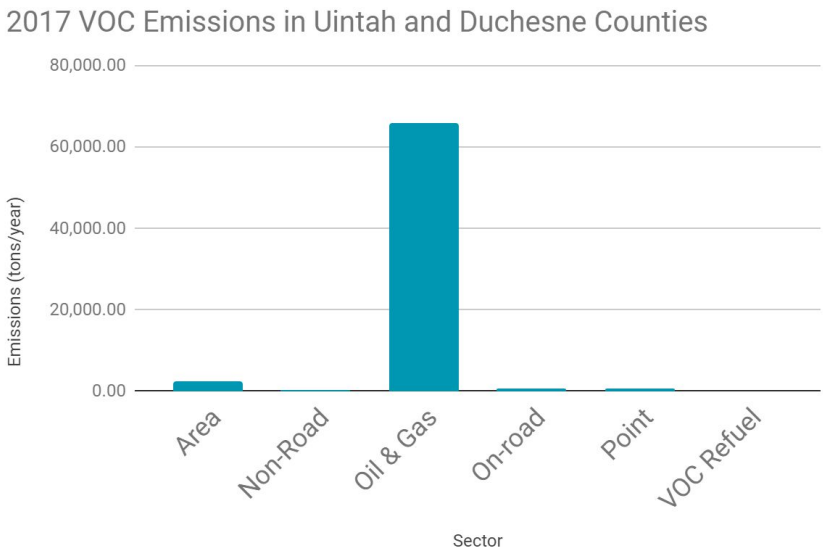


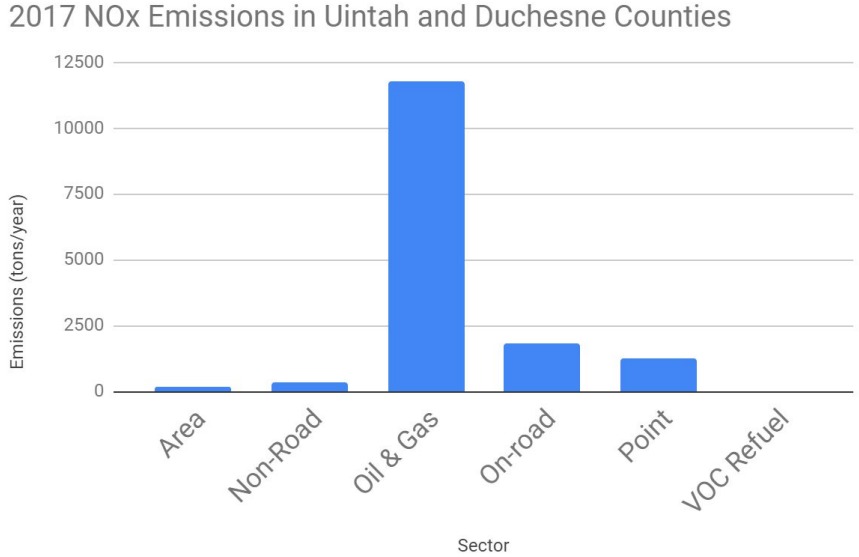
2017 NOx total =
11,769 TPY



Spatial Distribution of **VOC**s from the 2017 Oil and Gas Emissions Inventory

VOC & NOx Emissions in Uintah & Duchesne Counties

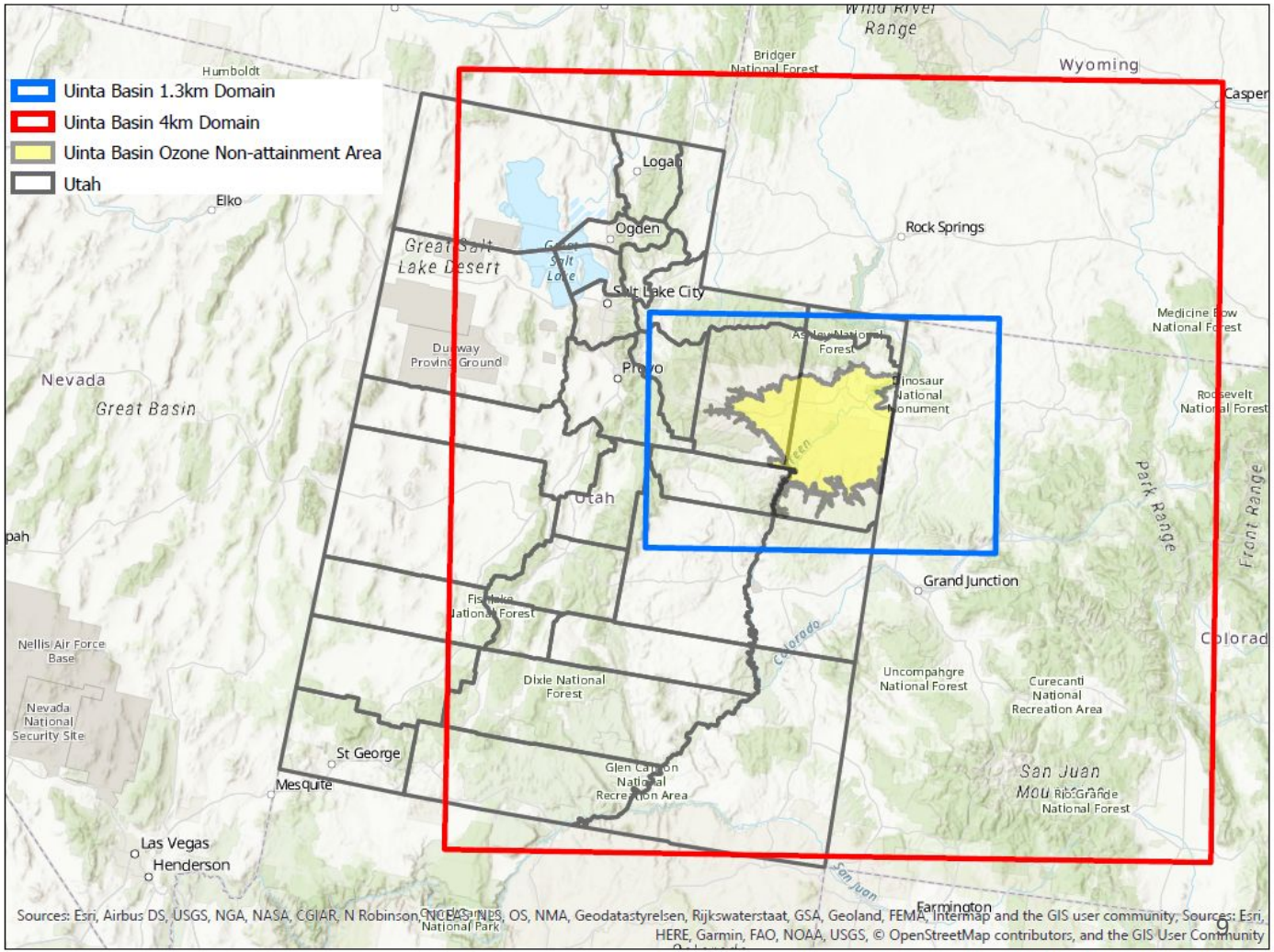




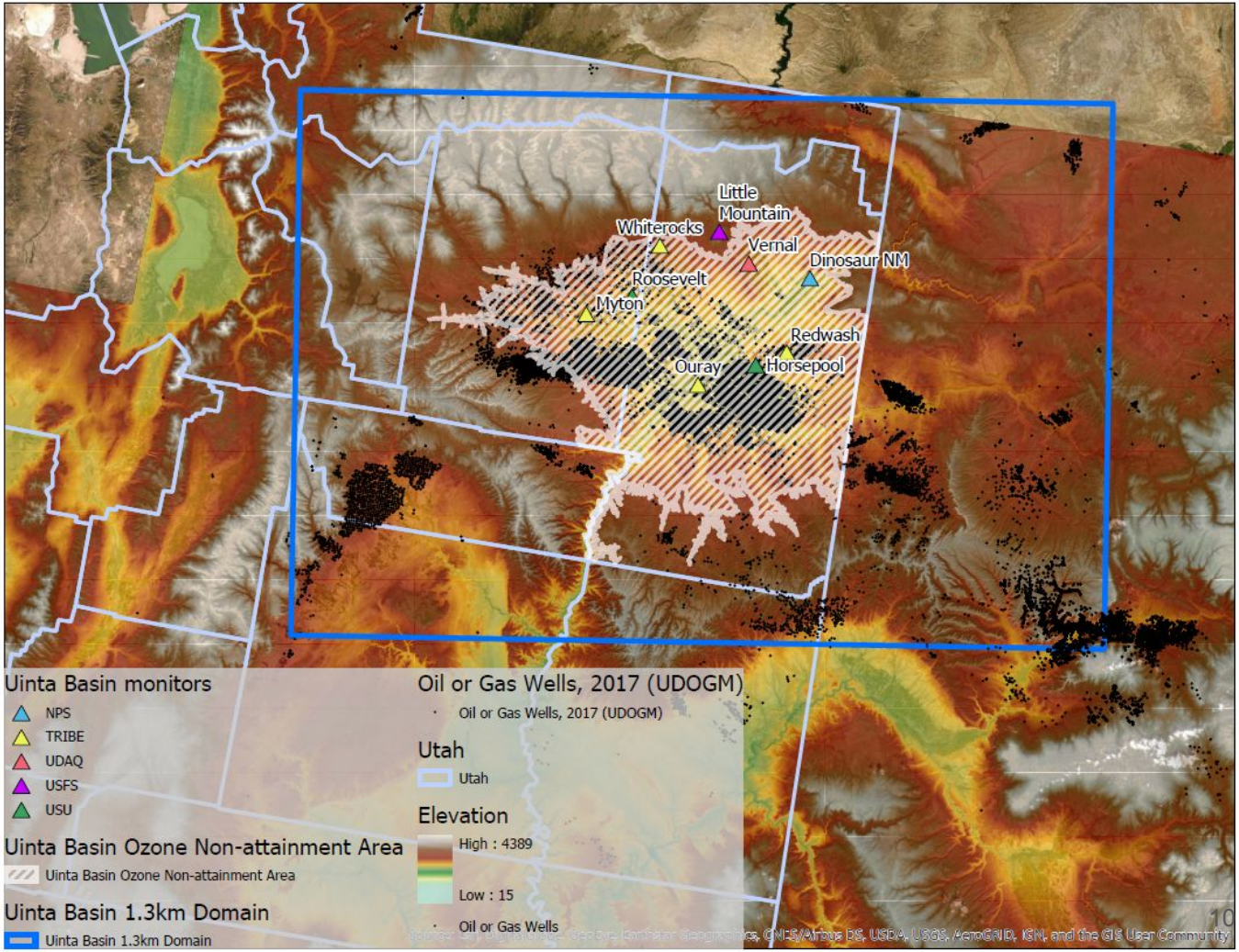
Approach For Modeling Ozone in the Uinta Basin

- Modeling Domain Selection
- Time Episode Selection
- Emissions Preparation:
  - Spatial Surrogates Development
  - Temporal Surrogates Development
  - VOC Composition Profiles Development

Modeling Domains



Modeling Domains



Time Episode Selection

	2011		2013		2016	
	4th High Daily Max	**Exceedance Days (> 70 ppb)**	**4th High Daily Max**	**Exceedance Days (> 70 ppb)**	**4th High Daily Max**	**Exceedance Days (> 70 ppb)**
Ouray	119	**28**	132	**52**	96	**11**
Fruitland	65	**1**	69	**2**	62	0
Vernal	84	**12**	102	**32**	73	**5**
Roosevelt	103	**21**	104	**35**	81	**5**
Rangely	73	**4**	91	**13**	61	0

Source: USU's Uintah Basin Ozone Study 2018 Annual Report.

Spatial/Temporal Surrogates

- Based on Well Location
- Treat O&G Sources as Point Sources
- Consider some as Elevated Point Sources
- Use API-Specific Monthly Production Data

Speciation Profiles

- VOC Composition Data
- USU-Developed VOC Profiles for Produced Water Ponds

Uinta Basin Snow Blower Exchange

Fall 2018 Snow Blower Exchange: In Review

Courtney Ehrlich
Air Quality Grants Manager

Partners and Funding

$39,722 DEQ's Clean Air Fund - volunteer contributions from taxpayers

$40,000 Rocky Mountain Power

$10,000 for promotion only - UCAIR in collaboration with Penna Powers

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY

ROCKY MOUNTAIN POWER

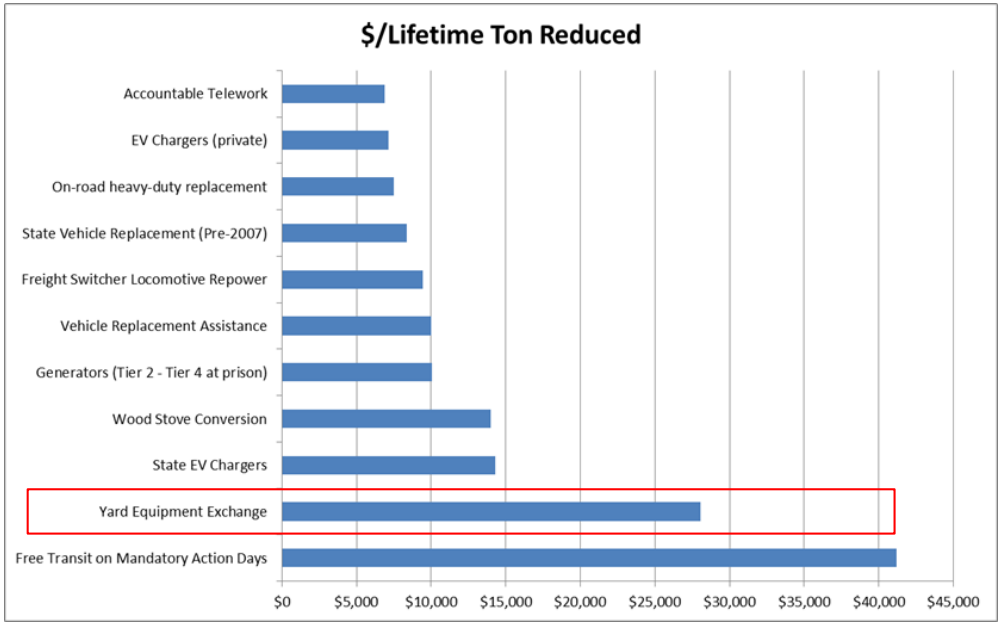
UCAIR UTAH CLEAN AIR PARTNERSHIP

LOWE'S

TRANS-JORDAN

Emissions Reductions

Operating a typical 4-stroke gasoline snow blower for one hour emits as much pollution as driving a 2017 car 339 miles



Value in Behavior Change

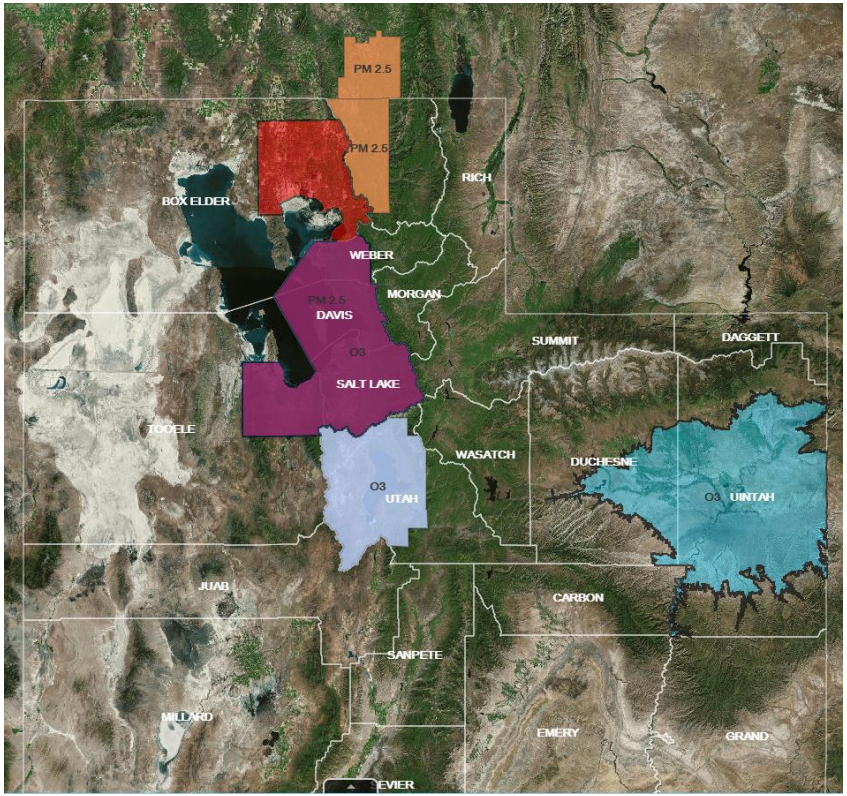
- A bit more expensive than some of the other programs
- Investment in behavior change, supported by survey

Eligibility

Must have been a resident of a PM2.5 or Ozone nonattainment area county

(Box Elder, Cache, Weber, Davis, Salt Lake, Tooele, Utah, Duchesne, Uintah)

Only one per household



Event Day

October 27, 2018; 9 - 11 a.m.

Rocky Mountain Power, SLC

Left over equipment back to Lowe's

Exchange Survey

We offered 10 $25 gift cards to Lowe's to people randomly selected from the list of those who took the survey

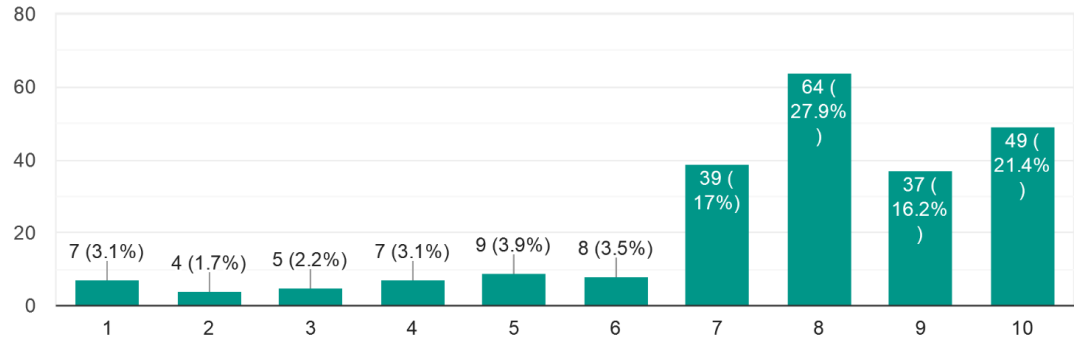
It was sent out March 24 - after participants had a chance to use their equipment during the winter season

229 people participated and generated feedback

Overall Quality

How would you rate the overall quality of your new electric snow blower?

229 responses



82.5% of people between a 7-10 score

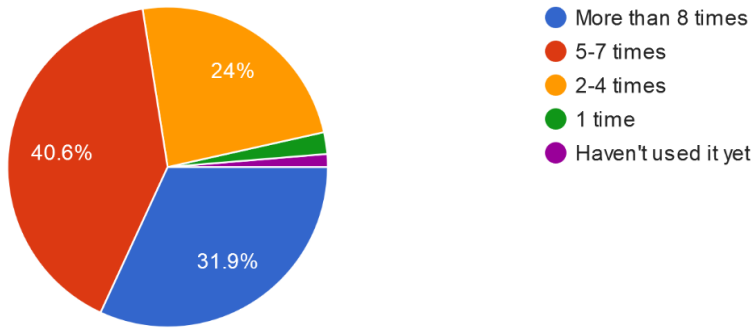
37.6% of people between a 9-10 score

Usage

73% used their snow blower more than 5 times

From November 1, 2018 through March 15, 2019, how many times did you use your new electric snow blower?

229 responses

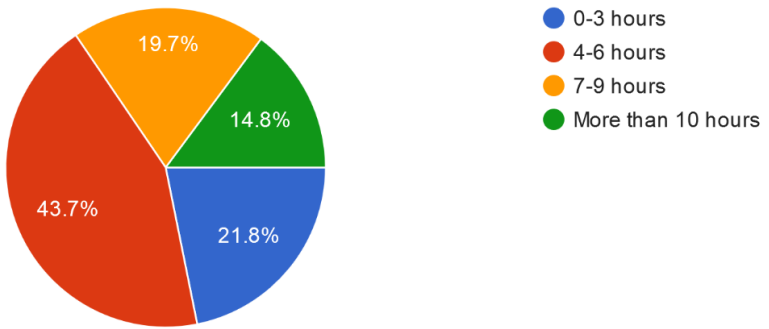


Usage

35% used their snow blower more than 7 hours

How many hours was your electric snow blower used over the winter season?

229 responses



What’s the best part?

224 Positive

What's the best part?

224 Positive

"It's quiet."

"Easy to use. From start to finish."

"Ease of use, low or no maintenance, portability."

"That it is electric."

"Did well in slush."

"COLOR."

"Dependable."

"Lightweight and easy to manage."

"Just push the button and go. Keeps a good charge in between uses."

"Starts without a problem."

"It looks nice."

"It doesn't directly pollute the air."

"Always starts and I don't smell like exhaust after.

I can do it in my work or church clothes without changing."

What's the best part?

224 Positive

"It's quiet."

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5 Negative

What's the best part?

224 Positive

"It's quiet."

"Easy to use. From start to finish."

"Ease of use, low or no maintenance, portability."

"That it is electric."

"Did well in slush."

"COLOR."

"Dependable."

"Lightweight and easy to manage."

"Just push the button and go. Keeps a good charge in between uses."

"Starts without a problem."

"It looks nice."

"It doesn't directly pollute the air."

"Always starts and I don't smell like exhaust after.

I can do it in my work or church clothes without changing."

"Nothing, it is horrible. I will buy a gas blower this spring."

"None. It broke after one use."

"I can't think of one."

"Nothing."

"NA - In regard to the question above: Although we used the snowblower several times, we never were able to actually use it effectively for more than 20 minutes before we got so frustrated we gave up."

5 Negative

What’s the worst part?

“The snow thrower vibrates and rotates randomly.”

“The battery dies way too fast.”

“Limited to smaller snowfalls. Not equipped for 12" snow removal.”

“Handle is a little short for taller people.”

“Doesn't work well with really heavy snow.”

“Lots of parts are just plastic.”

“Flimsy not much power.”

“Battery doesn't last long for large area and a second battery is very expensive.”

“Is not self propelled.”

“Everything. No power, no battery life, no ability to move any more than 1" of snow.”

“Never worked, not once.”

“Doesn't like ice.”

“Breaks easy. Too weak. Battery doesn’t last. I want a gas one again.”

“Relatively small snowblowing path and lower clearance than our gas blower.”

“I can't think of one.”

“Can't think of anything…”

“None.”

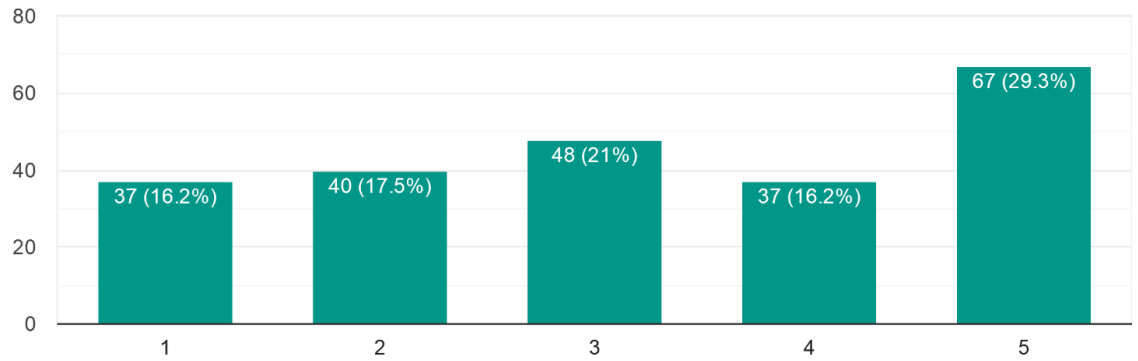
“I have no complaints at all.”

“I'll tell you in a few years... nothing yet.”

Awareness

What was your level of awareness of your personal impact on Utah's air quality prior to owning your new snow blower?

229 responses



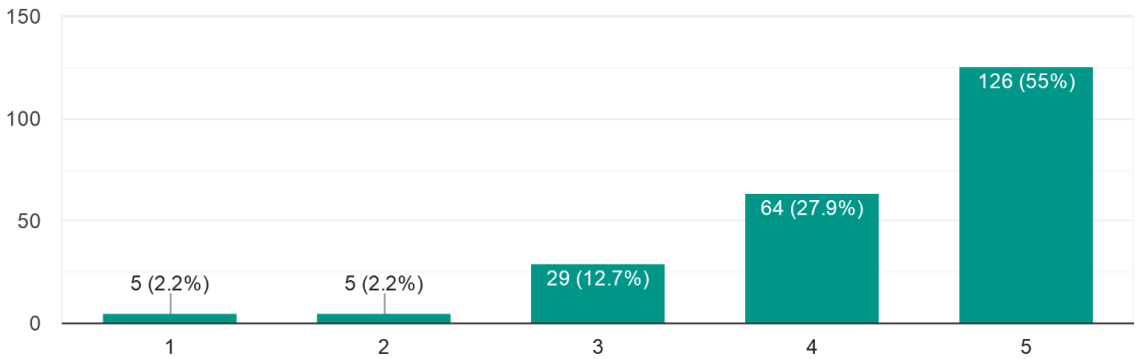
1: “I didn’t think about my impact on air quality”

5: “I was very aware of my impact on air quality”

Awareness

What is your level of awareness of your personal impact on Utah's air quality now that you own an electric snow blower?

229 responses



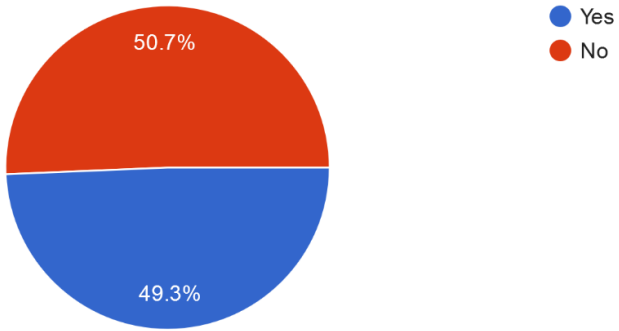
1: “I don’t think about my impact on air quality”

5: “I am very aware of my impact on air quality”

Electric Ownership

Did you own electric lawn equipment prior to purchasing your new electric snow blower through the Snow Blower Exchange Program?

229 responses



½ already had electric lawn equipment

BUT

still had low awareness;

their incentive was likely not based on air quality benefits

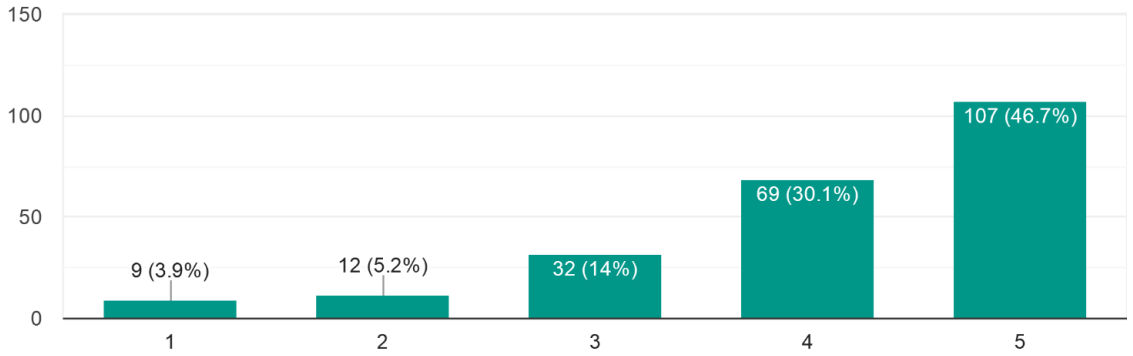
Future Electric Purchases

1: “Not likely”

5: “Very likely”

Based on your experience with your new electric snow blower, how likely are you to purchase additional electric lawn equipment in the future?

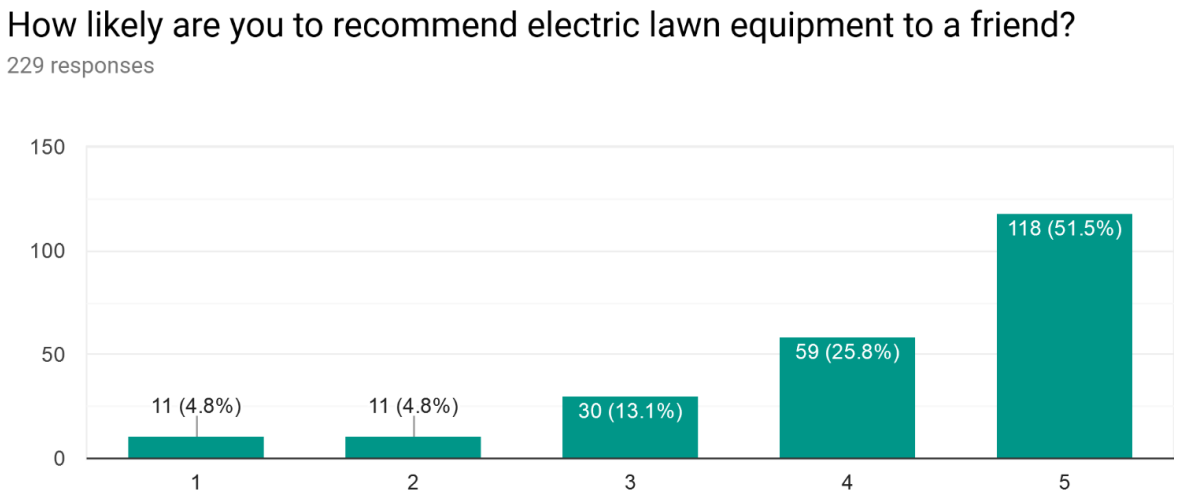
229 responses



Recommending Electric

1: “Not likely”

5: “Very likely”



Take Home Points

- Voluntary emissions reductions from mobile sources
- Opportunity to offer air quality incentive programs to the general public
- Increase public awareness of air quality
- Electric lawn equipment now a viable option - generating significant interest

Take Home Points

- Lawn equipment is a big category - people likely to want to convert more than 1 piece
- The cost/ton NOx reduced is high in comparison to other programs (it's 77% off retail price, some other programs offer around 25-40% cost-share)
- This is offset by driving behavior change - survey shows people want it

Fall 2019 Uinta Basin Snow Blower Exchange

- Saturday, October 26th 9 -11 a.m.
- Event held at TriCounty Health in Vernal
- 80 Volt Greenworks electric snow blowers with battery
- Partnership with TriCounty Health and Lowe’s
- Only Duchesne and Uintah counties are eligible

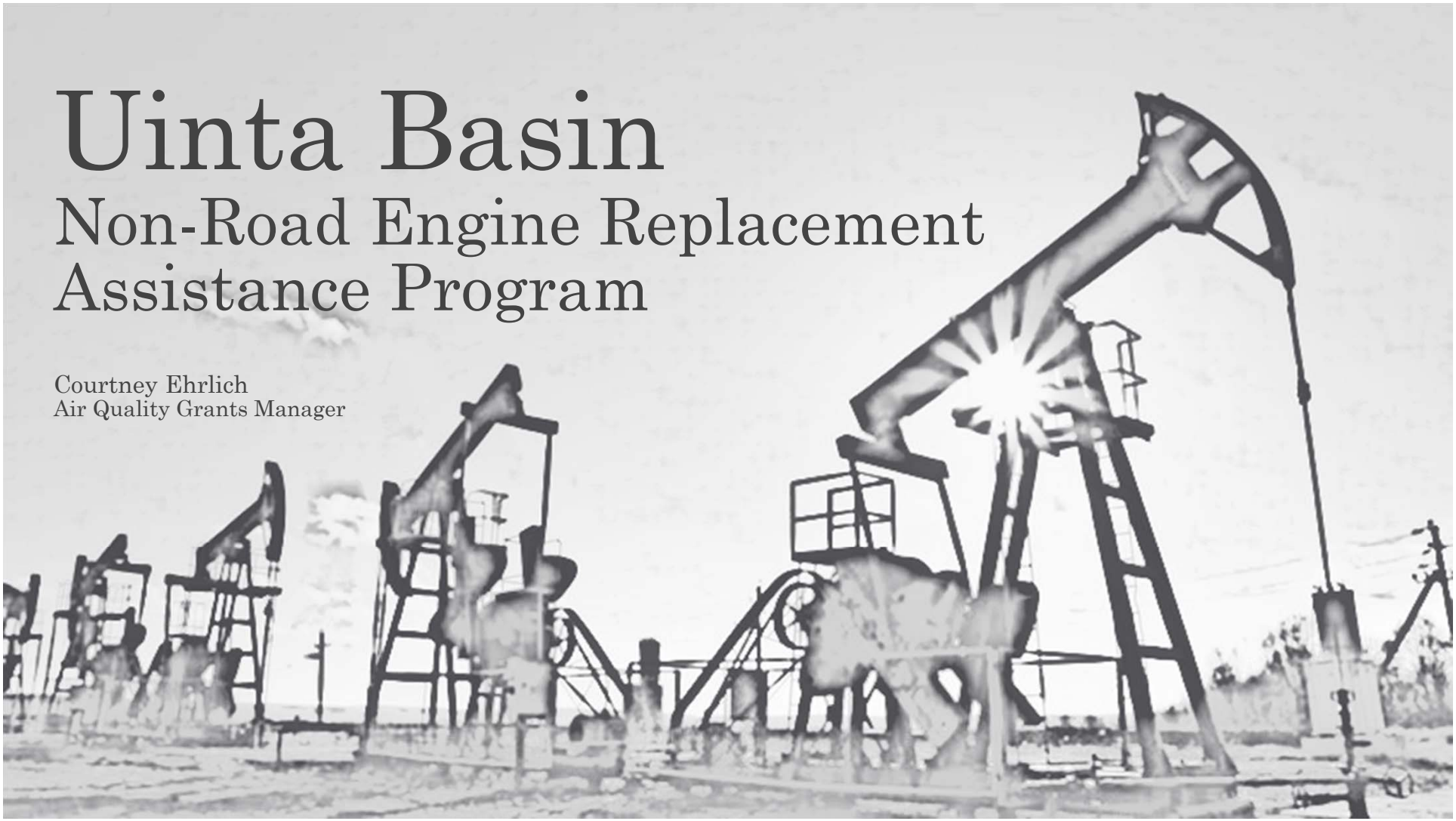
Fall 2019 Uinta Basin Snow Blower Exchange

- Trade-in is required, purchase for $69 (84% discount)
- Retails for $399
- Registration opened yesterday, October 1
- Only 150 available
- First come, first served system

Uinta Basin Non-Road Engine Replacement Assistance Program

Uinta Basin
Non-Road Engine Replacement Assistance Program

Courtney Ehrlich
Air Quality Grants Manager

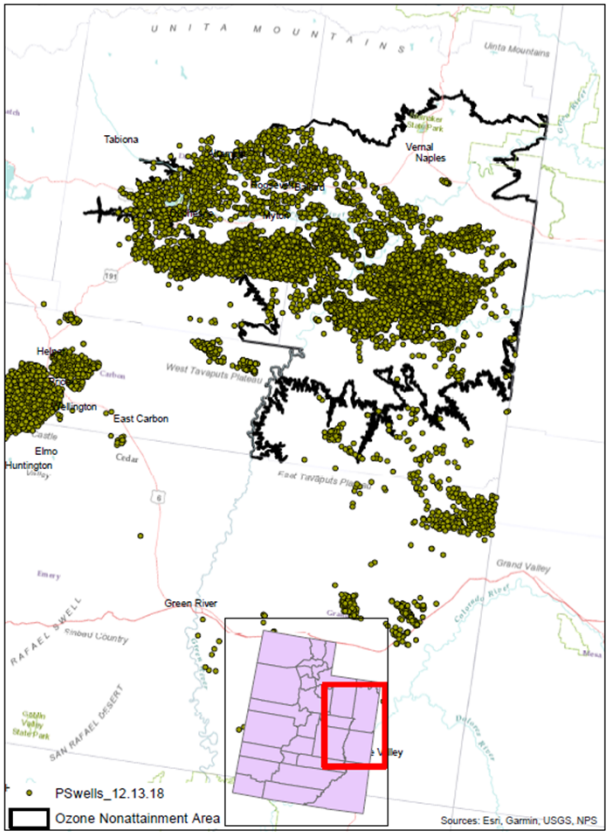


Non-Road Engine Replacement Assistance Program

- 287 non-road engines
- Gas powered
- 40% cost incentive
- Age 2008 and older
- 25 - 100 horsepower

Engine Inventory

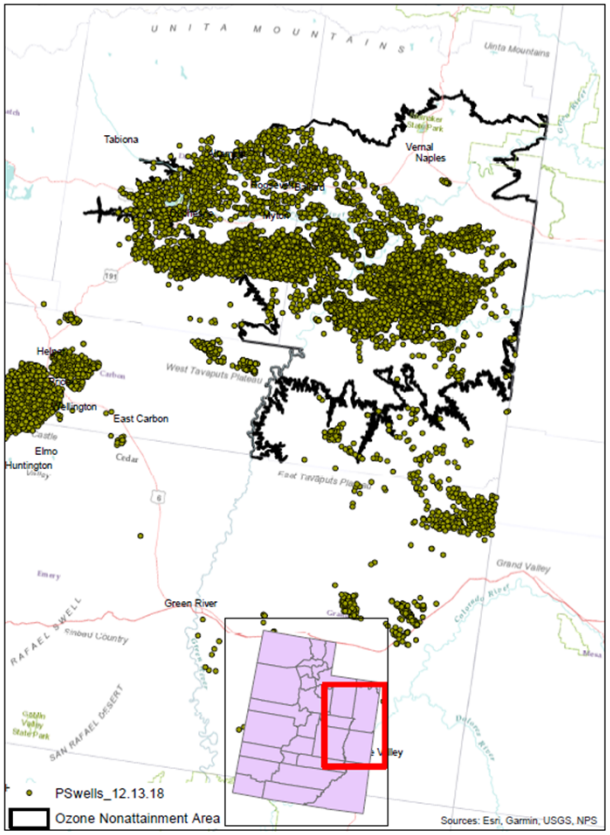
- 8,100 non-road engines
- 1,900 older than 2007 and within HP range



Currently producing or shut-in oil and gas well locations. 13,931 oil or gas wells as of Dec. 13, 2018.
Source: Utah Division of Oil, Gas, and Mining

Emissions Inventory

- Engines
  - 3.1% VOCs
  - 69% NOx
- Oil and Gas production
  - 98% VOCs
  - 76% NOx



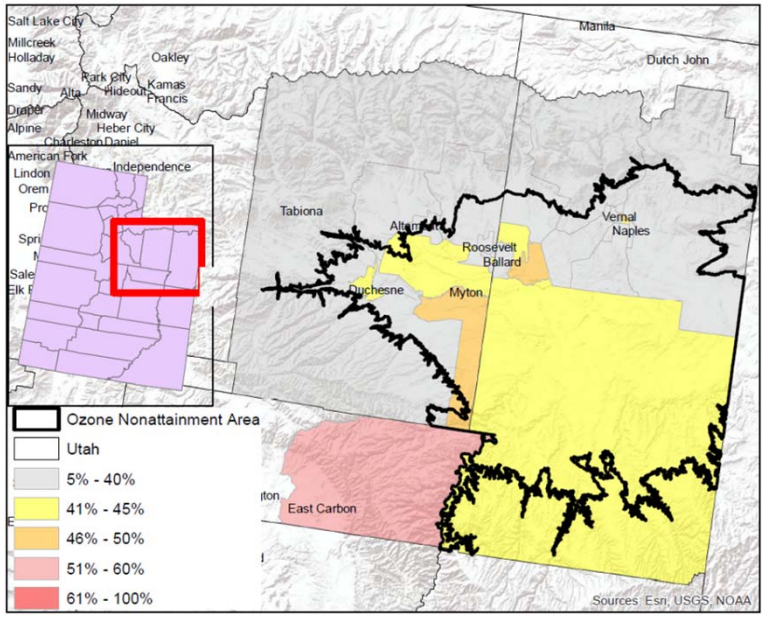
Currently producing or shut-in oil and gas well locations. 13,931 oil or gas wells as of Dec. 13, 2018.
Source: Utah Division of Oil, Gas, and Mining

Replacement costs

- Engines in nonattainment area are eligible
- $40,000 - $50,000 engine
- 40% grant from DAQ
- 60% participant cost-share

Population Health and Wellbeing

- Sites co-located with minority and low-income populations
- Reduce health burden
- Engage in community outreach, awareness



Percent of population with annual low income below the federal poverty level. *Source: US EPA environmental justice mapping and screening tool.*

Air Toxics

State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

L. Scott Baird
Interim Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQA-724-19

M E M O R A N D U M

TO: Air Quality Board

FROM: Bryce C. Bird, Executive Secretary

DATE: September 10, 2019

SUBJECT: Air Toxics, Lead-Based Paint, and Asbestos (ATLAS) Section Compliance Activities – August 2019

Asbestos Demolition/Renovation NESHAP Inspections	25
Asbestos AHERA Inspections	24
Asbestos State Rules Only Inspections	7
Asbestos Notification Forms Accepted	220
Asbestos Telephone Calls	426
Asbestos Individuals Certifications Approved/Disapproved	96/0
Asbestos Company Certifications/Re-Certifications	1/7
Asbestos Alternate Work Practices Approved/Disapproved	8/1
Lead-Based Paint (LBP) Inspections	1
LBP Notification Forms Approved	1
LBP Telephone Calls	18
LBP Letters Prepared and Mailed	14
LBP Courses Reviewed/Approved	0
LBP Course Audits	0
LBP Individual Certifications Approved/Disapproved	7/0

LBP Firm Certifications	19
Notices of Violation Sent	0
Compliance Advisories Sent	9
Warning Letters Sent	2
Settlement Agreements Finalized	4
Penalties Agreed to:	

Genuine Comfort Heating and Air Conditioning	$ 900.00
Rockwood Construction, LLC, BlueMountain, Inc., Truman Marketing, LLC	$1,875.00
Roll It Out	$ 600.00
DRL Enterprises, Inc.	$1,921.88
Total	$5,296.88

Compliance

State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

L. Scott Baird
Interim Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQC-1268-19

M E M O R A N D U M

TO: Air Quality Board

FROM: Bryce C. Bird, Executive Secretary

DATE: September 18, 2019

SUBJECT: Compliance Activities – August 2019

Annual Inspections Conducted:

- Major.....10
- Synthetic Minor 8
- Minor 43

On-Site Stack Test Audits Conducted: 0

Stack Test Report Reviews: 19

On-Site CEM Audits Conducted: 0

Emission Reports Reviewed: 15

Temporary Relocation Requests Reviewed & Approved: 5

Fugitive Dust Control Plans Reviewed & Accepted:.....209

Open Burn Permit Applications Completed 0

Soil Remediation Report Reviews: 2

[1]Miscellaneous Inspections Conducted:.....38

195 North 1950 West • Salt Lake City, Utah
Mailing Address: P.O. Box 144820 • Salt Lake City, Utah 84114-4820
Telephone (801) 536-4000 • Fax (801)536-4099 • T.D.D. (801) 903-3978
www.deq.utah.gov

Complaints Received: 9

Breakdown Reports Received:.....1

Compliance Actions Resulting From a Breakdown.....0

Warning Letters Issued: 1

Notices of Violation Issued:.....1

Unresolved Notices of Violation

US Magnesium 08/27/2015
Western Water Solutions 05/02/2017
Geneva Rock Products..... 10/20/2017
Norbest..... 11/15/2017
Strang Excavating..... 01/17/2018
US Magnesium 03/02/2018
Pacific Energy & Mining..... 03/02/2018
Gordon Creek Compressor Station 05/16/2018
JRJ Services 06/21/2018
JRJ Services 09/07/2018
Compass Minerals..... 12/10/2018
US Magnesium 01/08/2019
Mel Clark Construction 01/11/2019
Picasso Shutters 02/13/2019
Sunroc 03/05/2019
University of Utah 07/18/2019
Paradox Midstream – Lisbon..... 08/09/2019

Compliance Advisories Issued:.....4

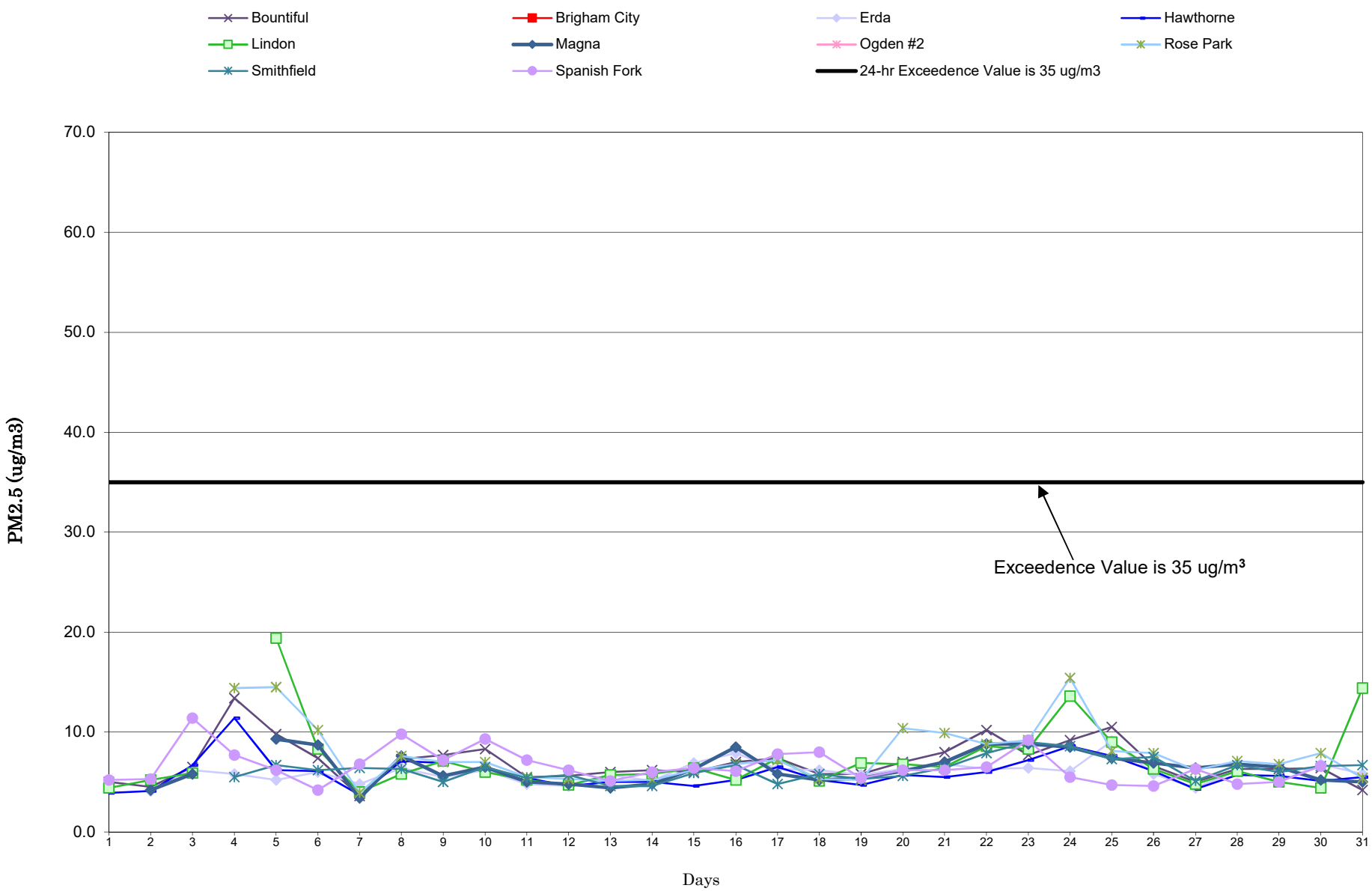
Settlement Agreements Reached: 2

Western Waters.....$105,000.00
Crescent Point (3) $2,131.00

[1]Miscellaneous inspections include, e.g., surveillance, level I inspections, VOC inspections, complaints, on-site training, dust patrol, smoke patrol, open burning, etc.

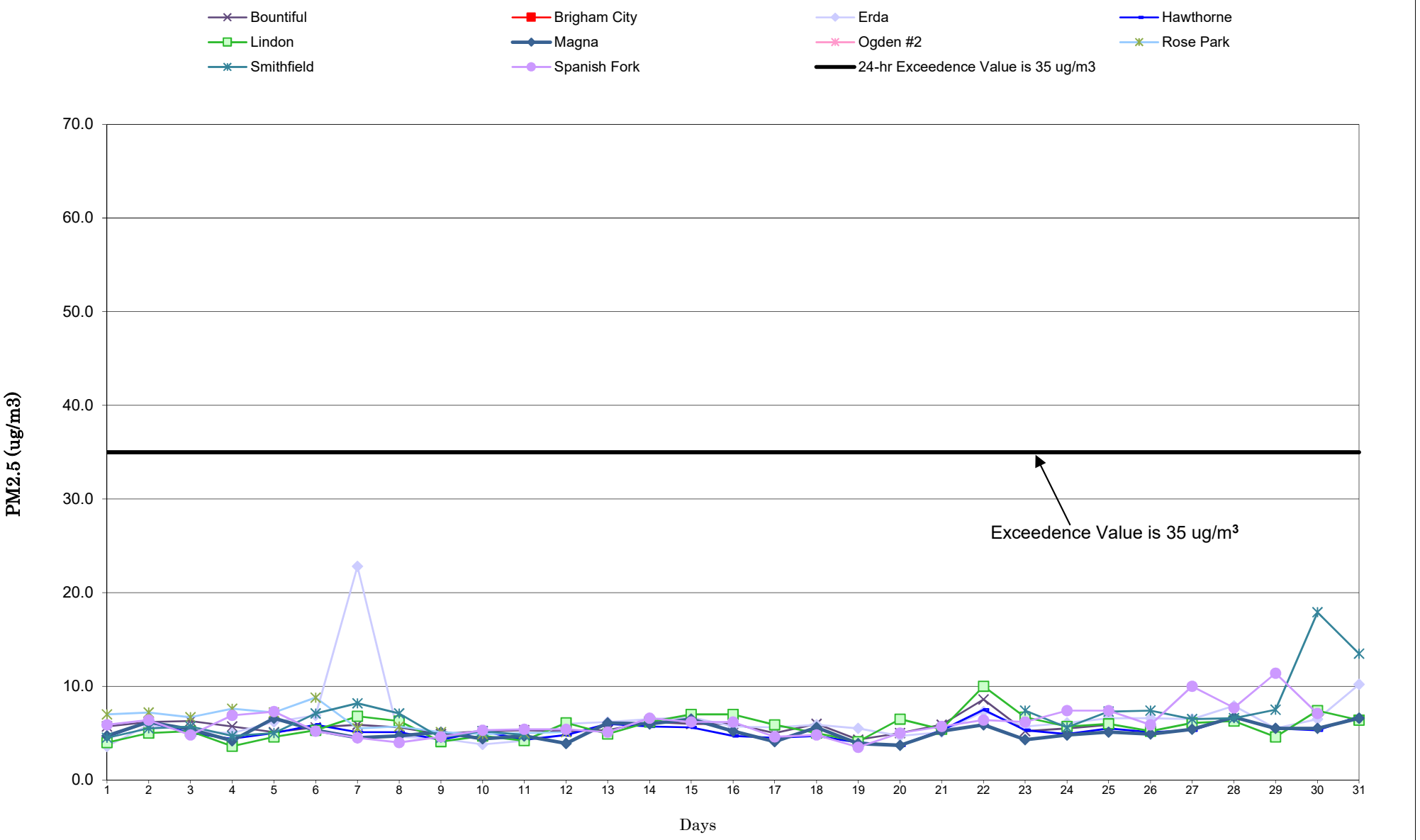
Air Monitoring

Utah 24-Hr PM2.5 Data July 2019



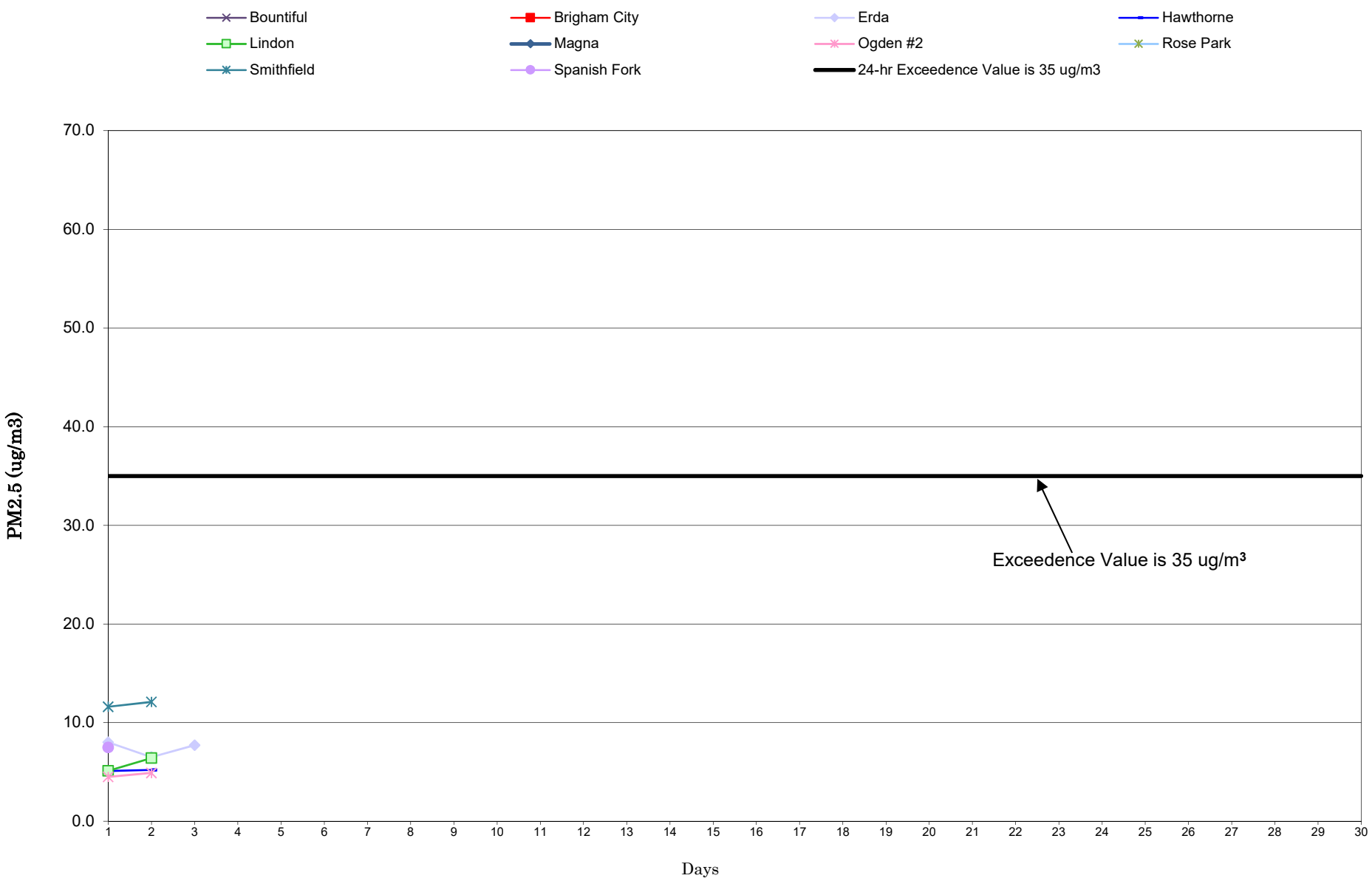
Utah Division of Air Quality

Utah 24-Hr PM2.5 Data August 2019



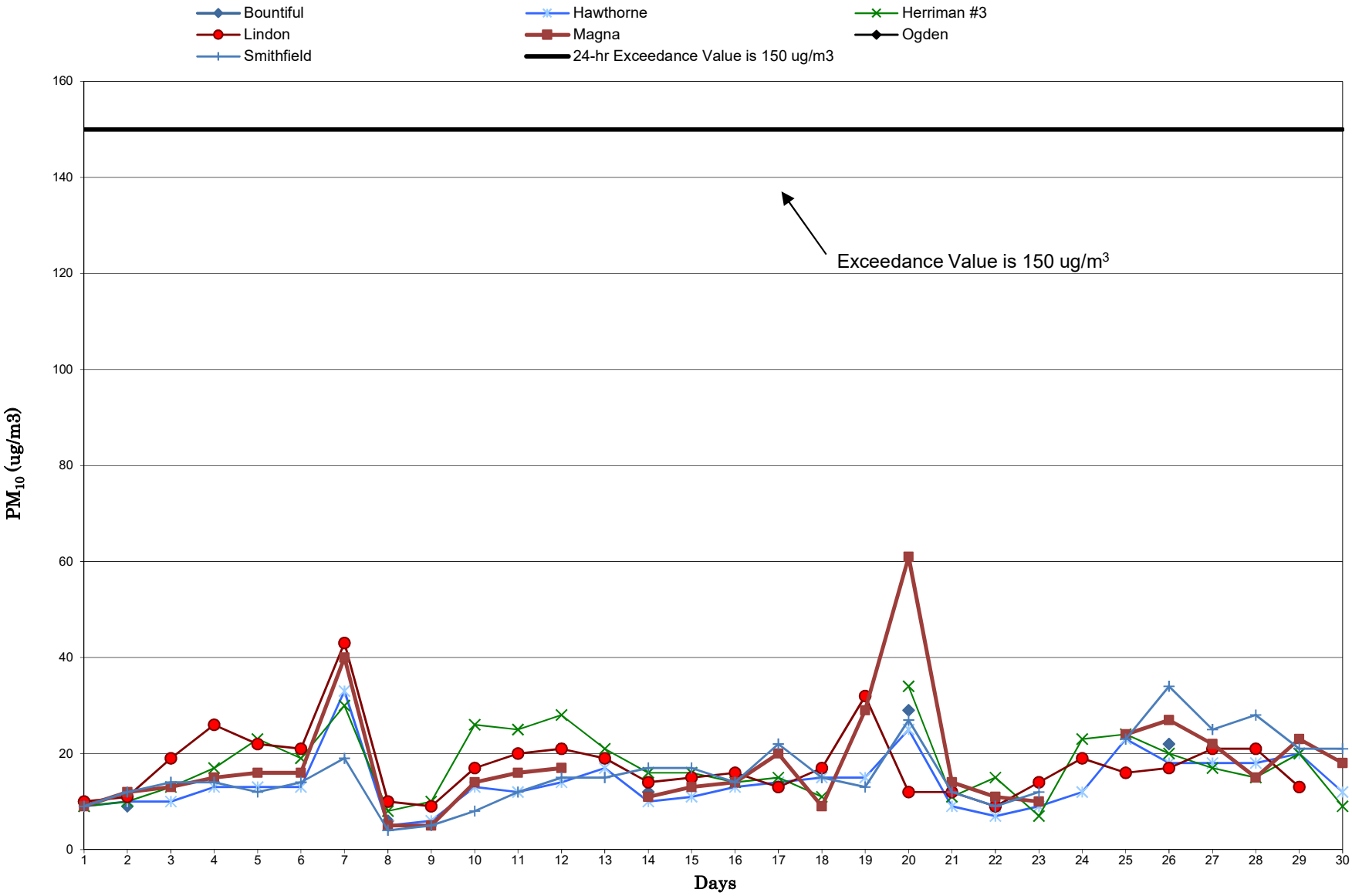
Utah Division of Air Quality

Utah 24-Hr PM2.5 Data September 2019



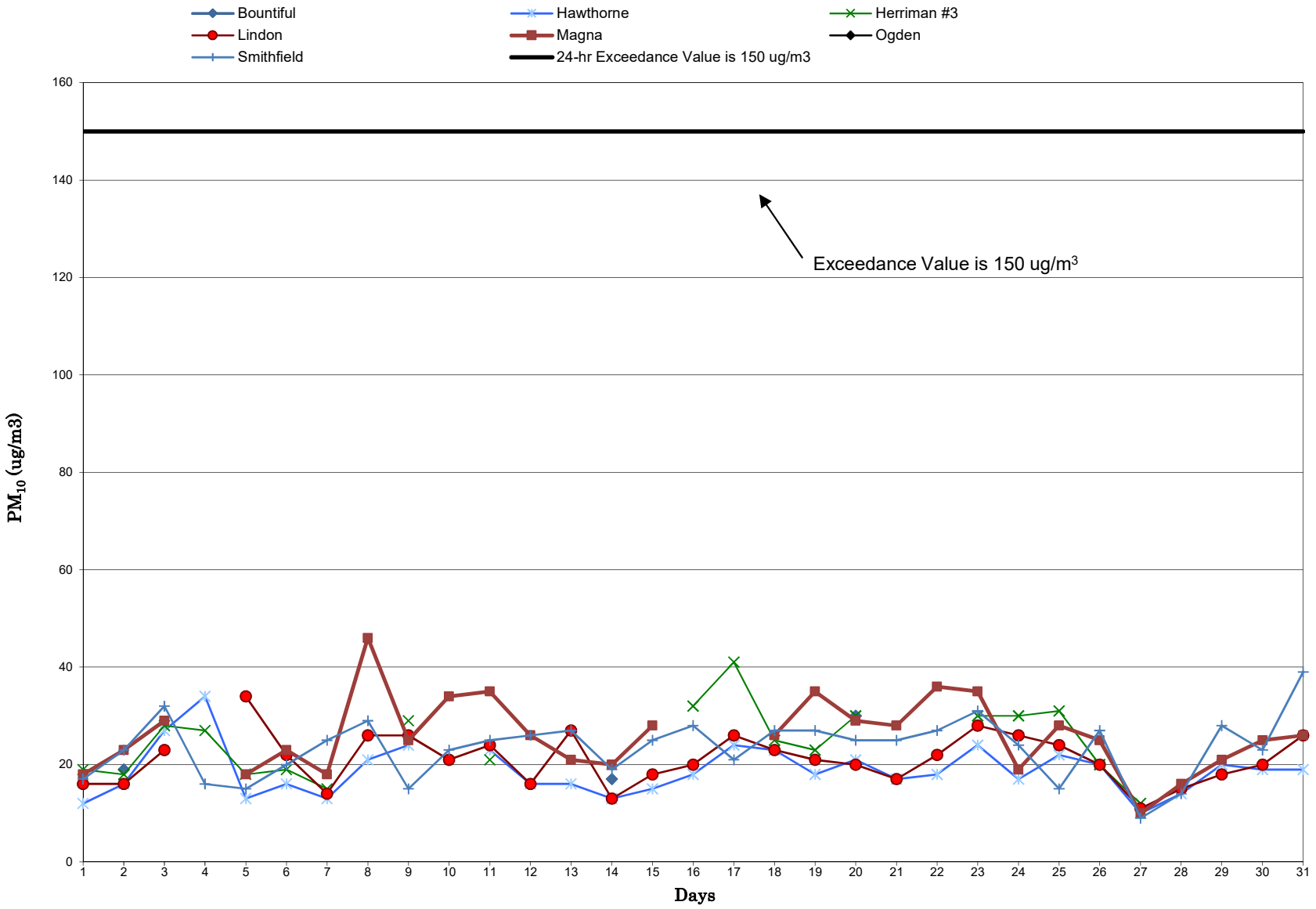
Utah Division of Air Quality

Utah 24-hr PM_{10} Data June 2019



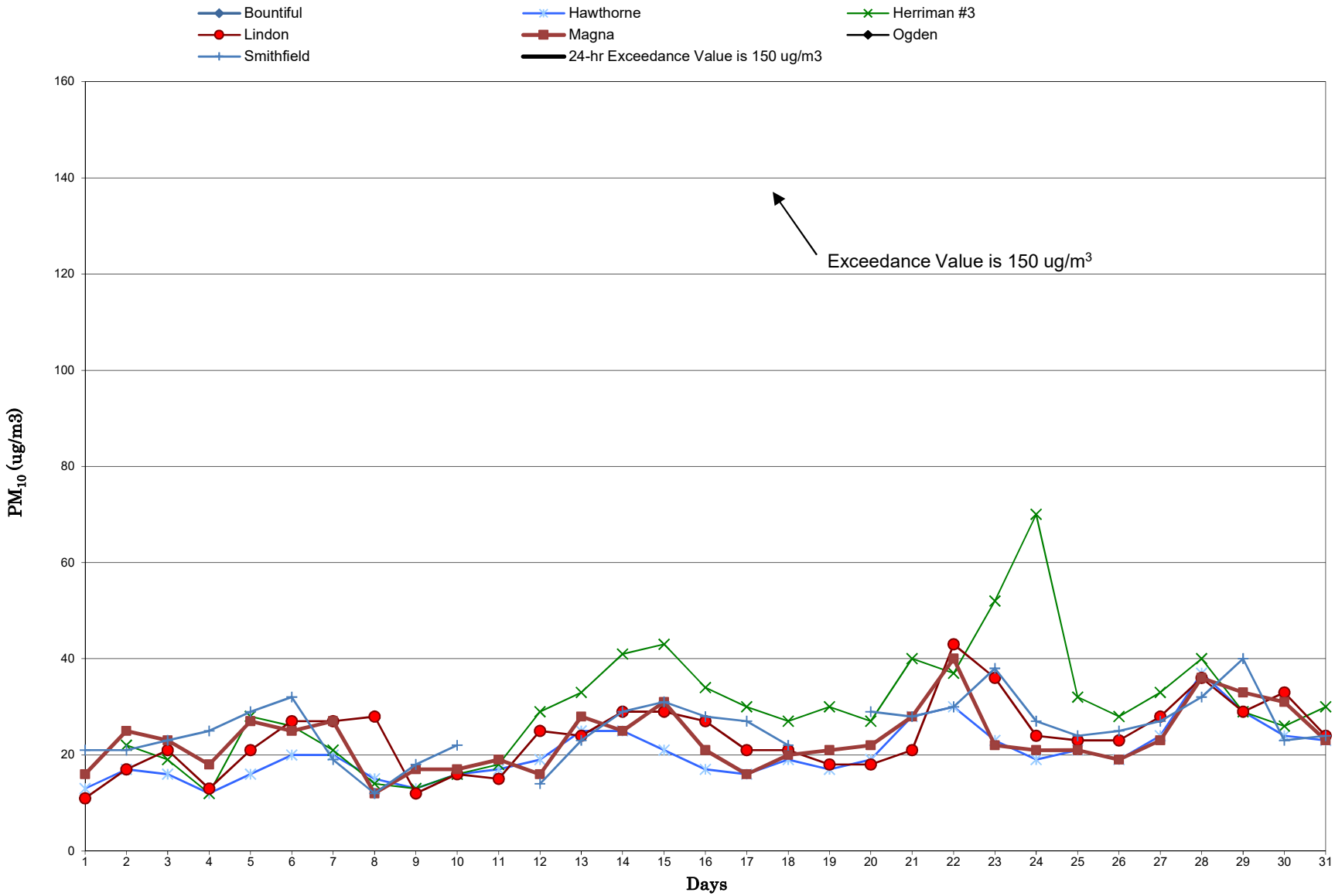
Utah Division of Air Quality

Utah 24-hr PM_{10} Data July 2019



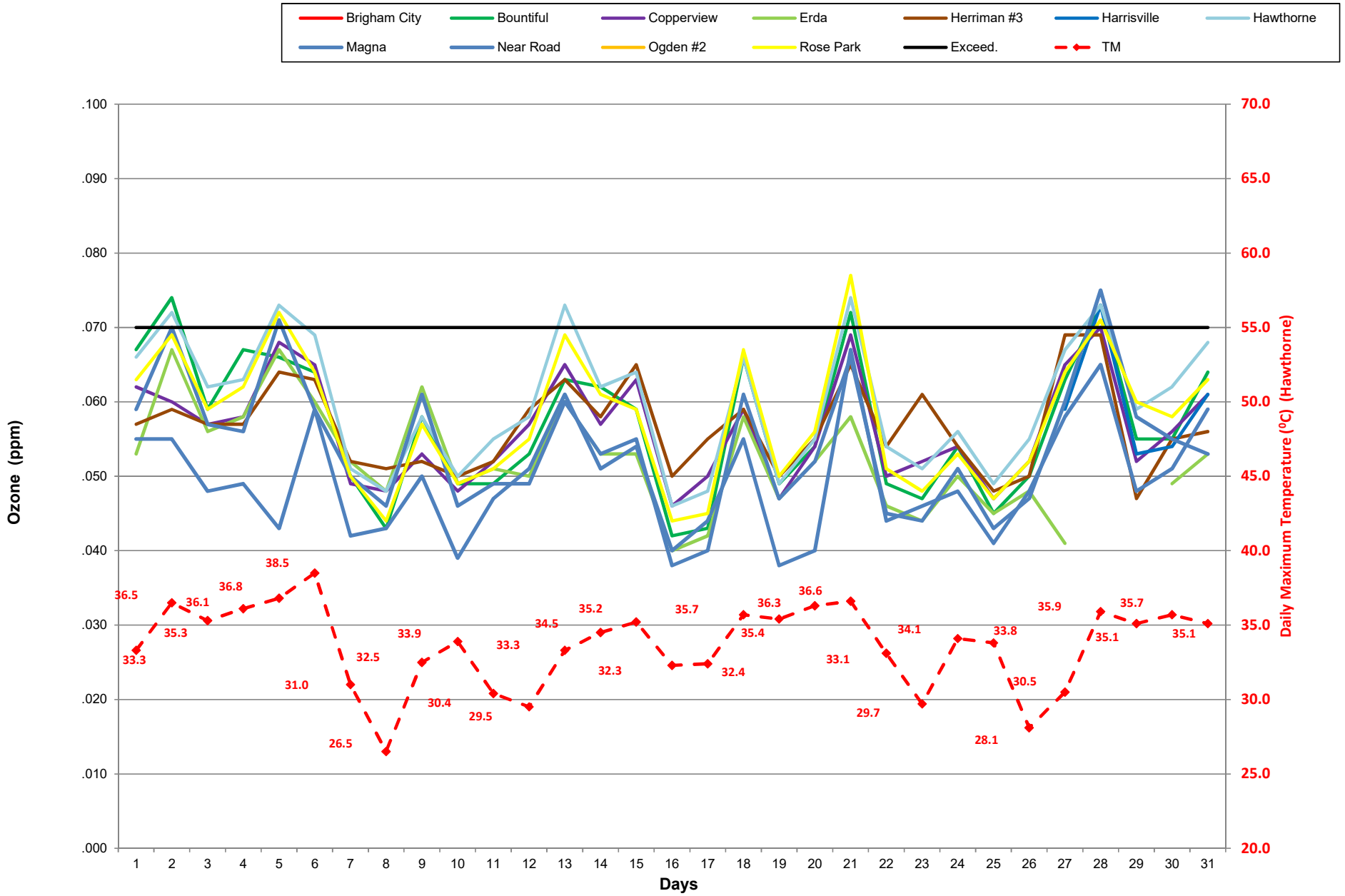
Utah Division of Air Quality

Utah 24-hr PM_{10} Data August 2019

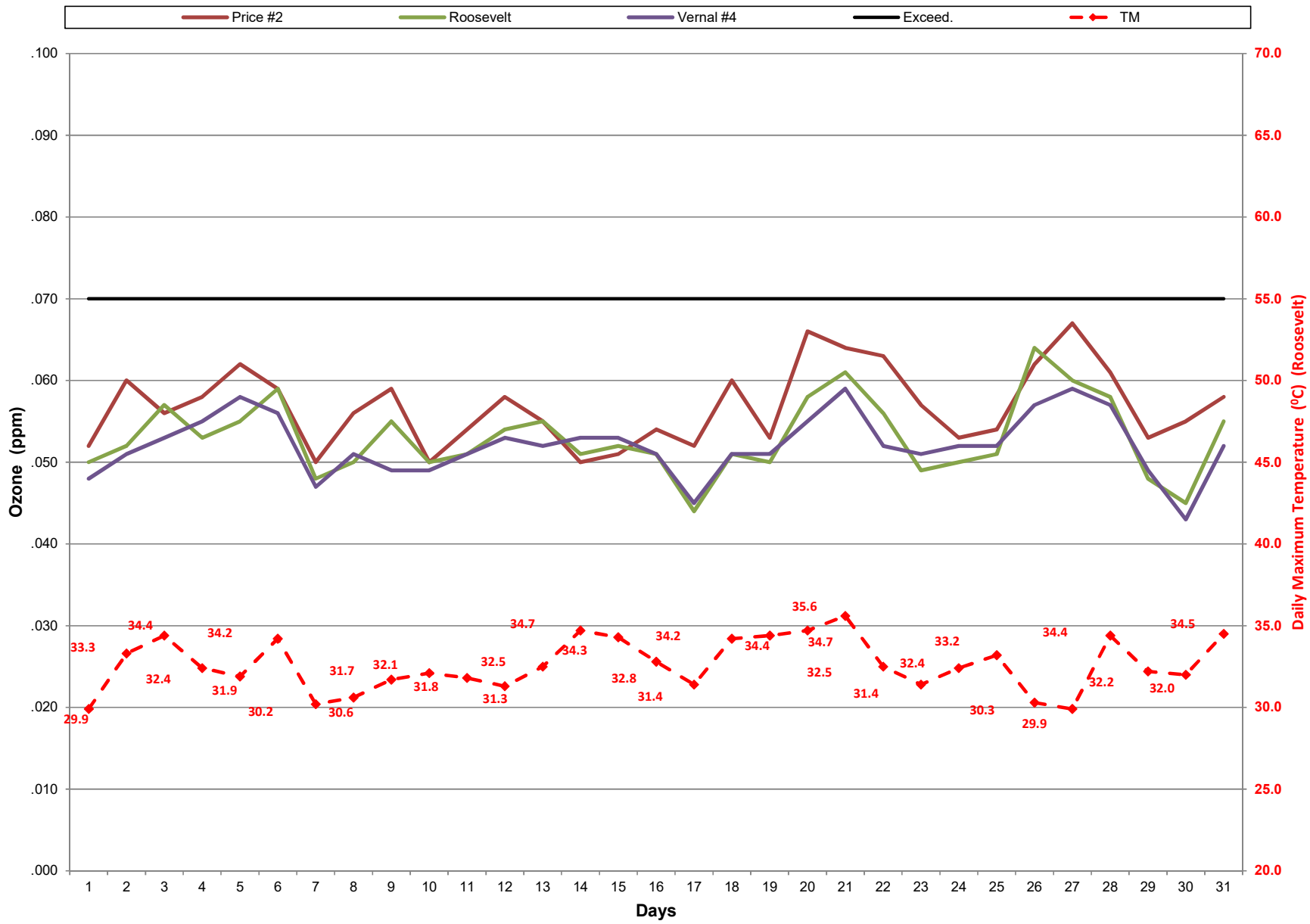


Utah Division of Air Quality

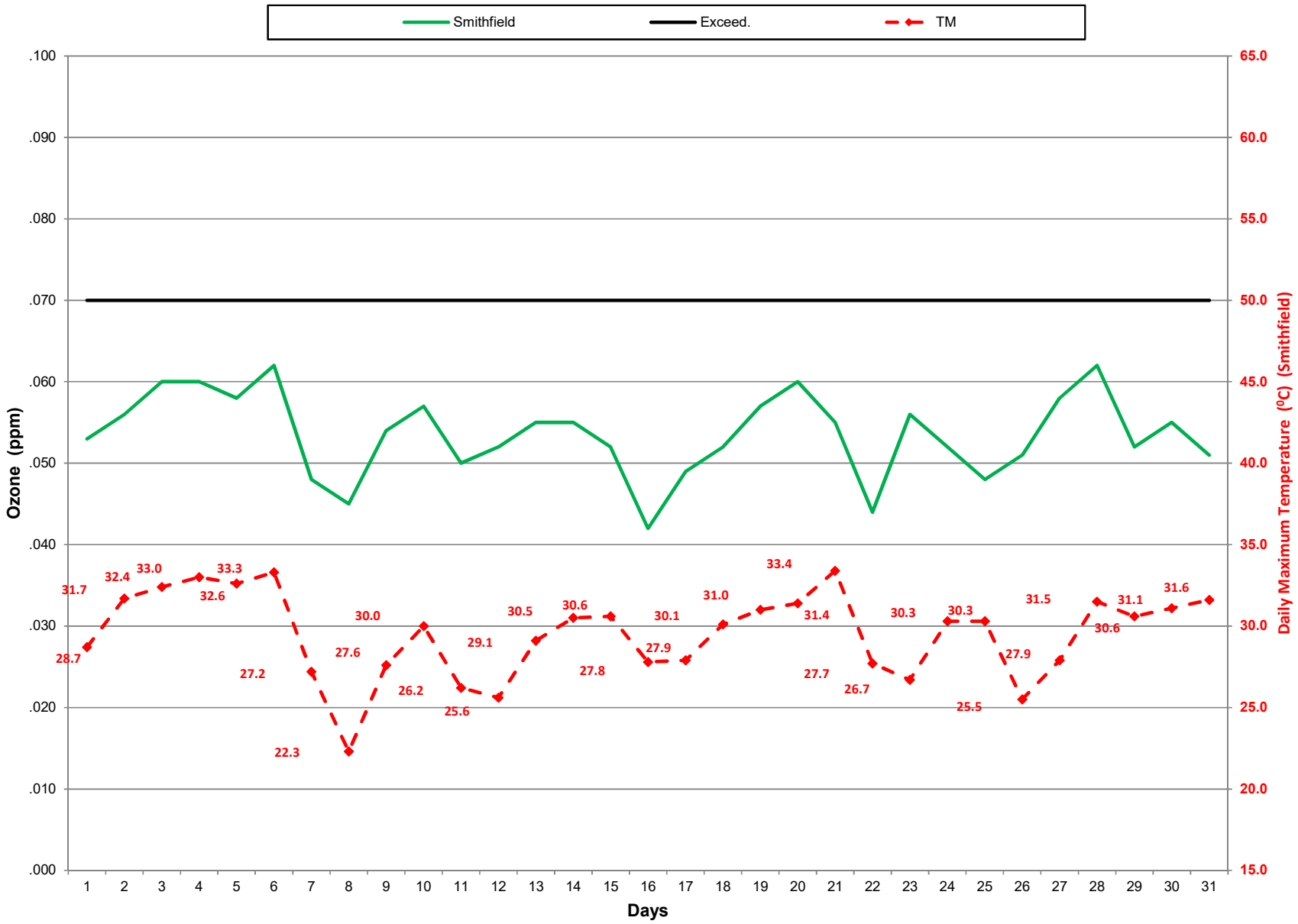
Highest 8-hr Ozone Concentration & Daily Maximum Temperature August 2019



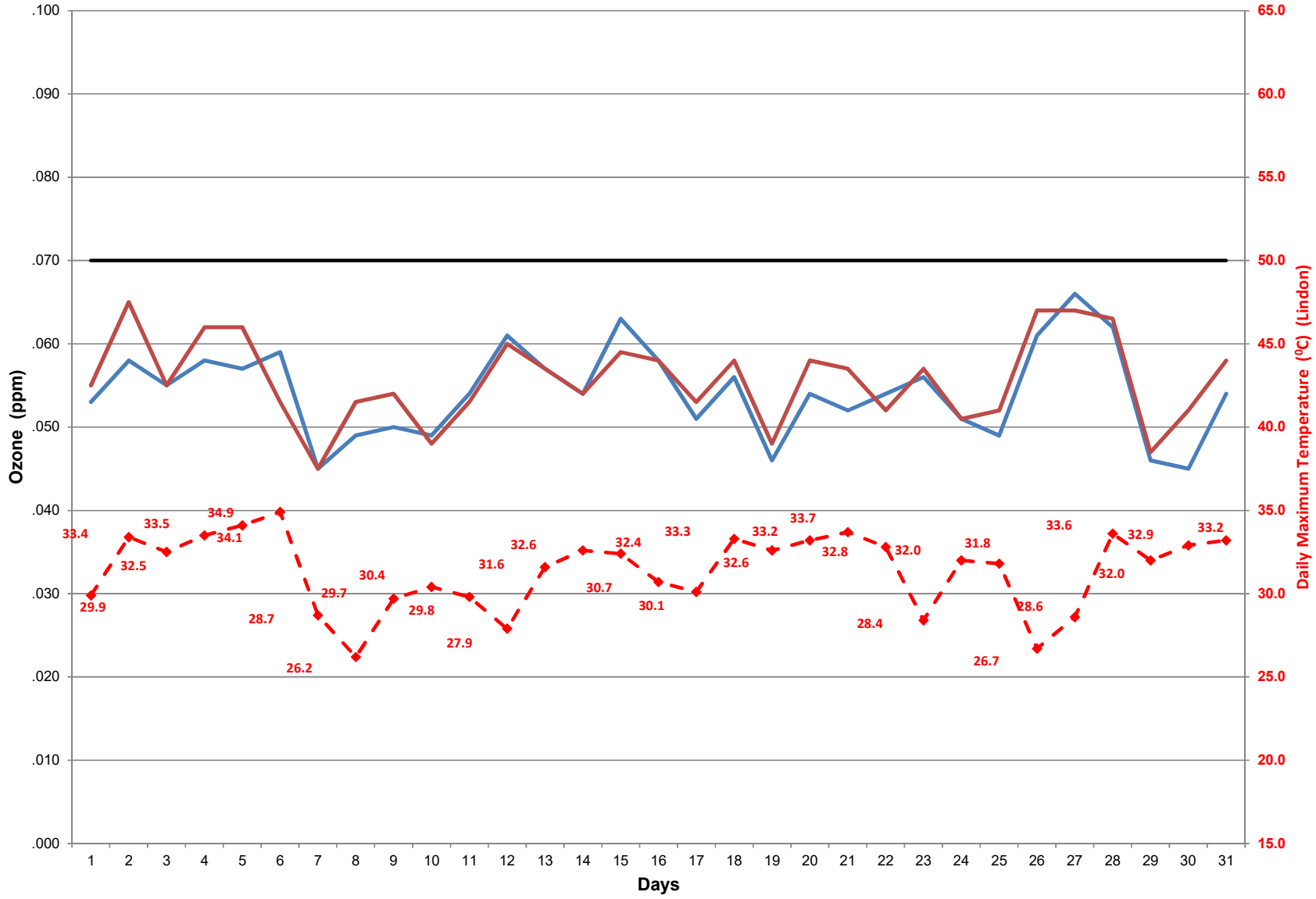
Highest 8-hr Ozone Concentration & Daily Maximum Temperature August 2019



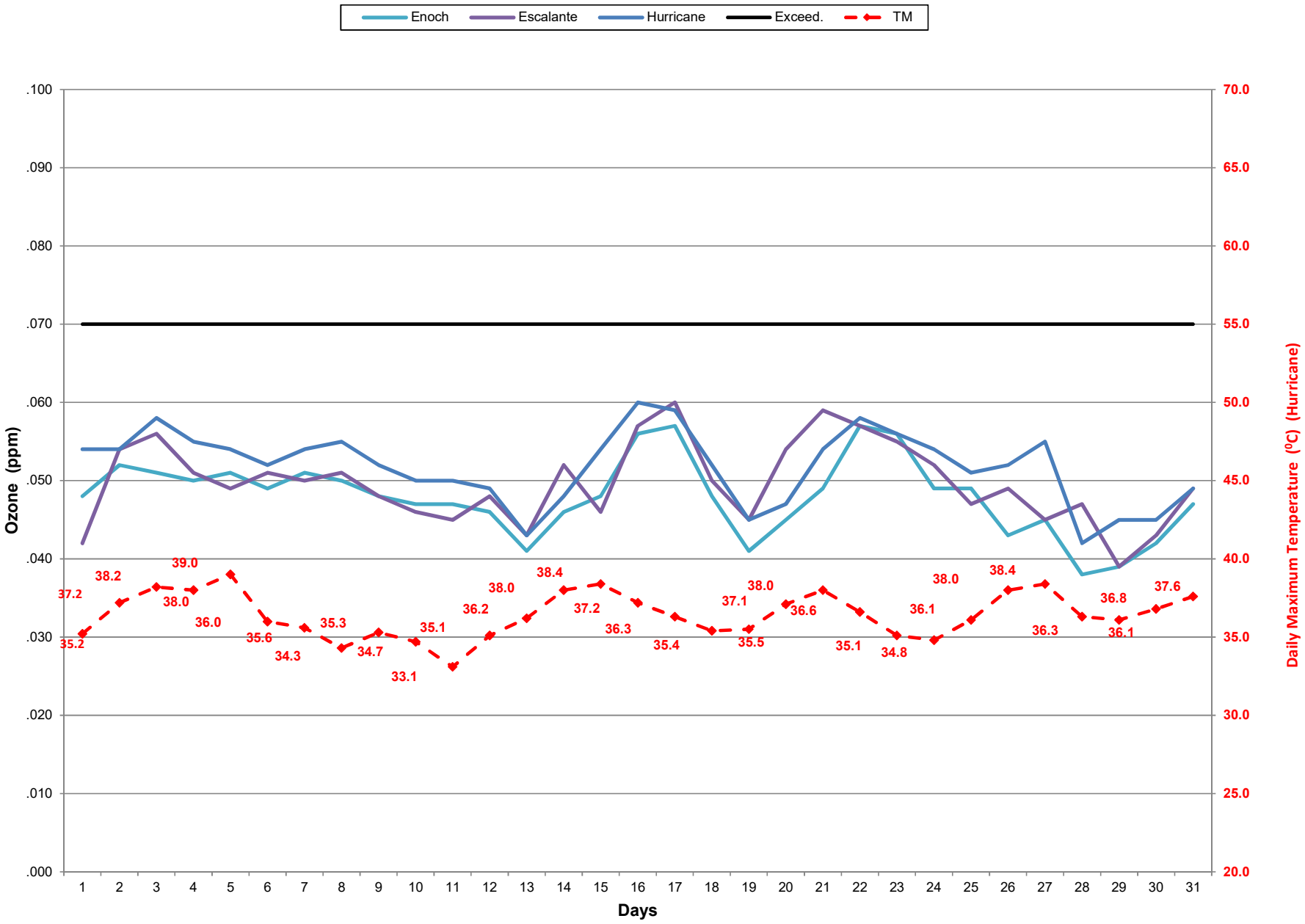
Highest 8-hr Ozone Concentration & Daily Maximum Temperature August 2019



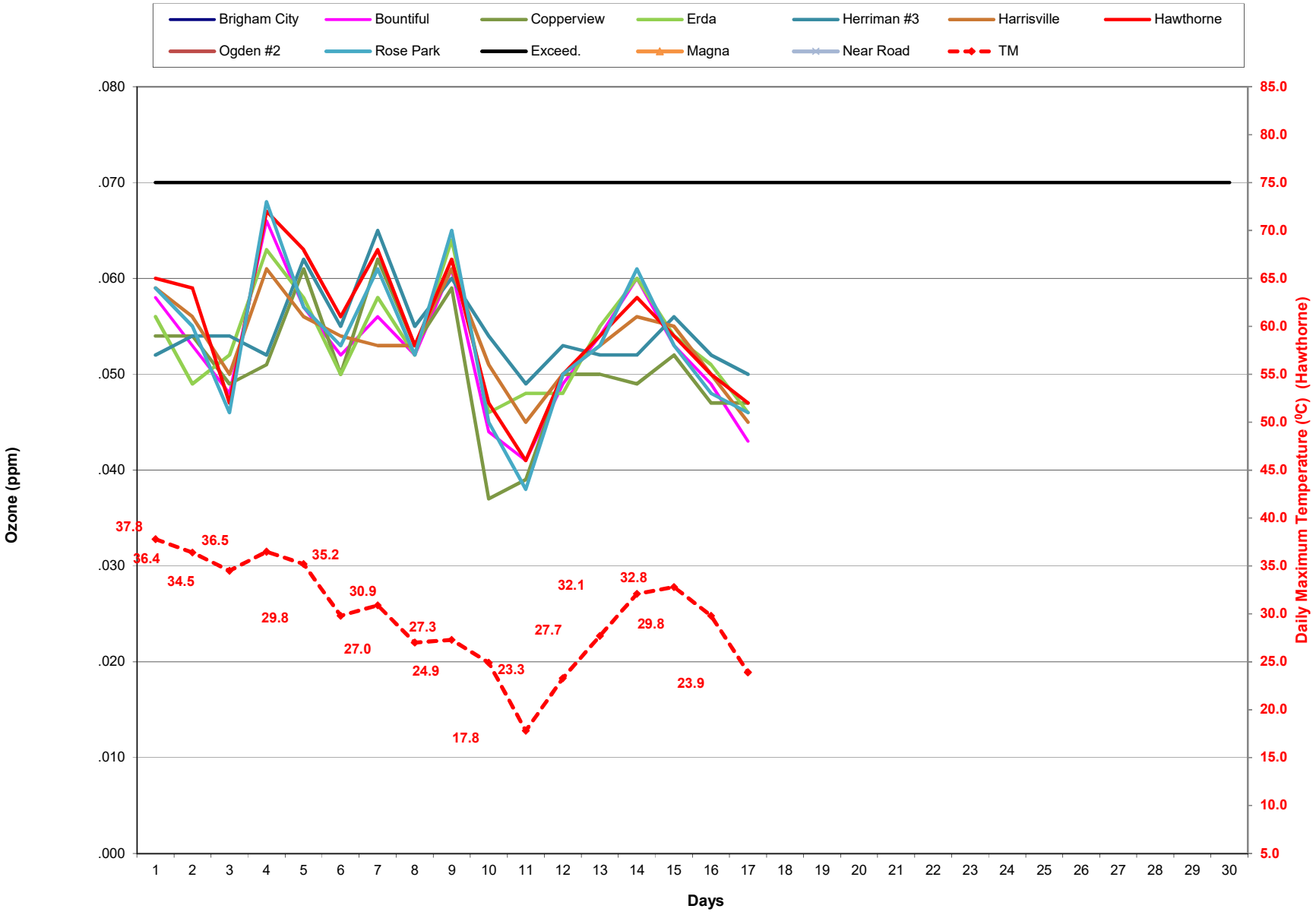
Highest 8-hr Ozone Concentration & Daily Maximum Temperature August 2019

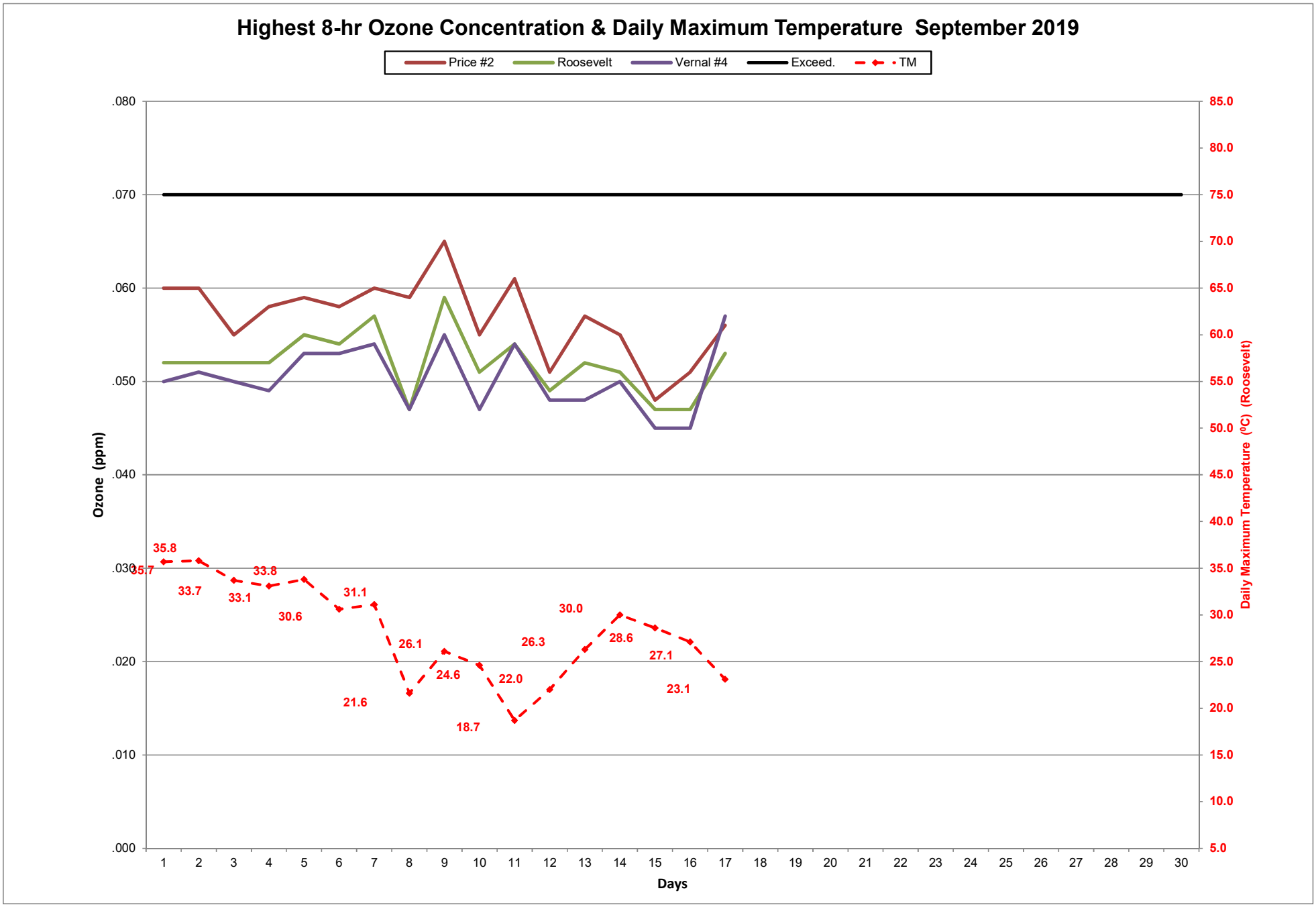


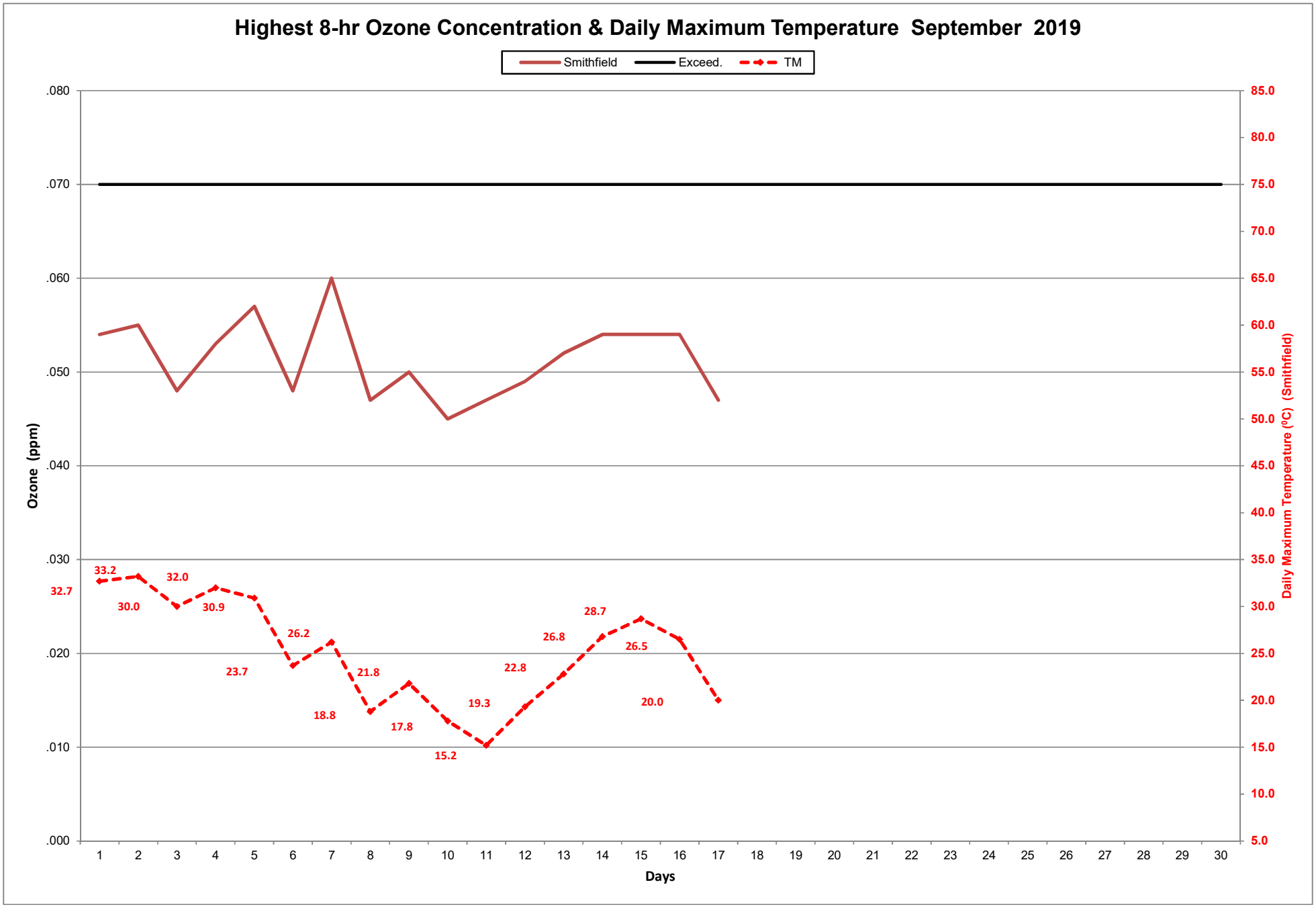
Highest 8-hr Ozone Concentration & Daily Maximum Temperature August 2019

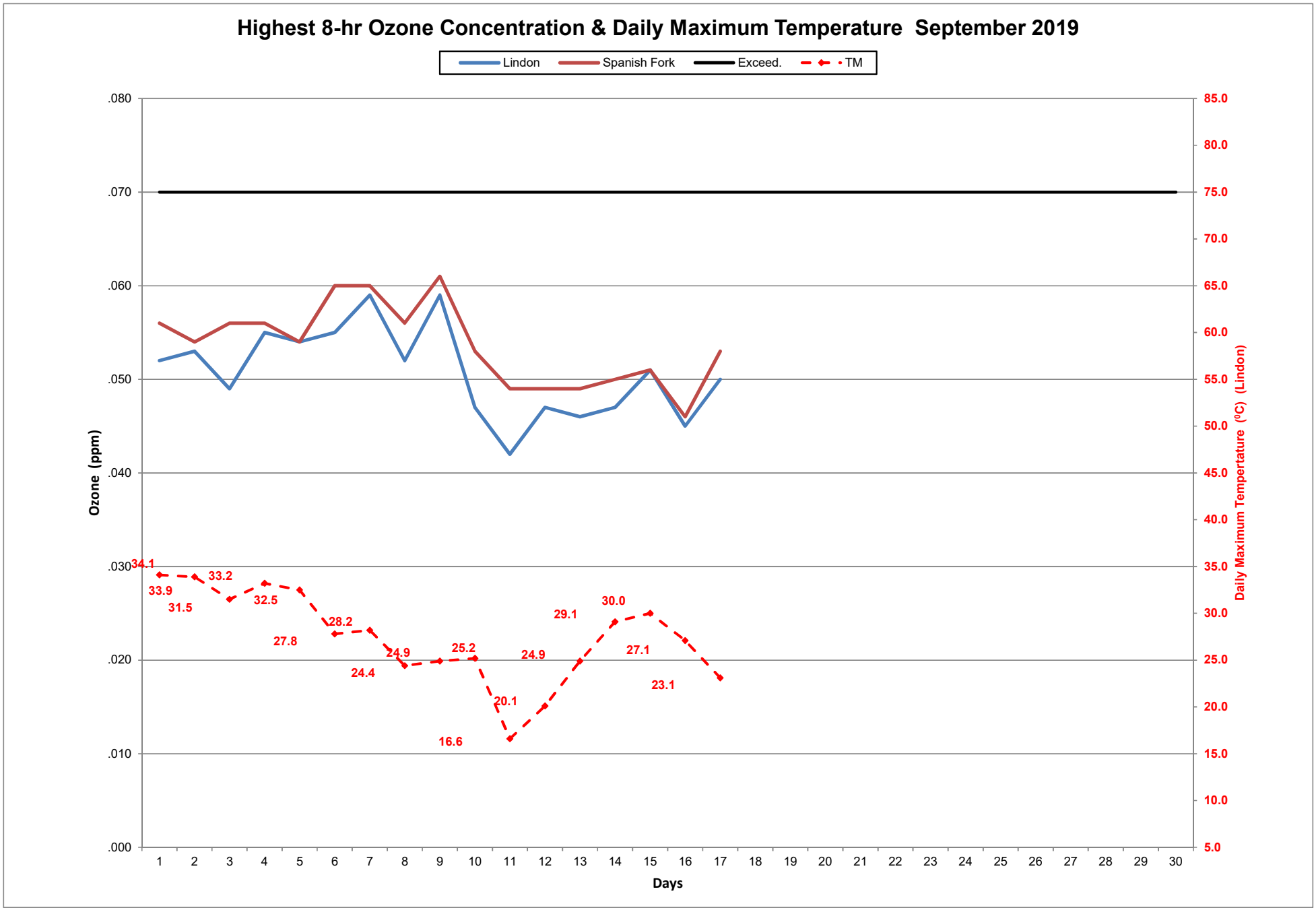


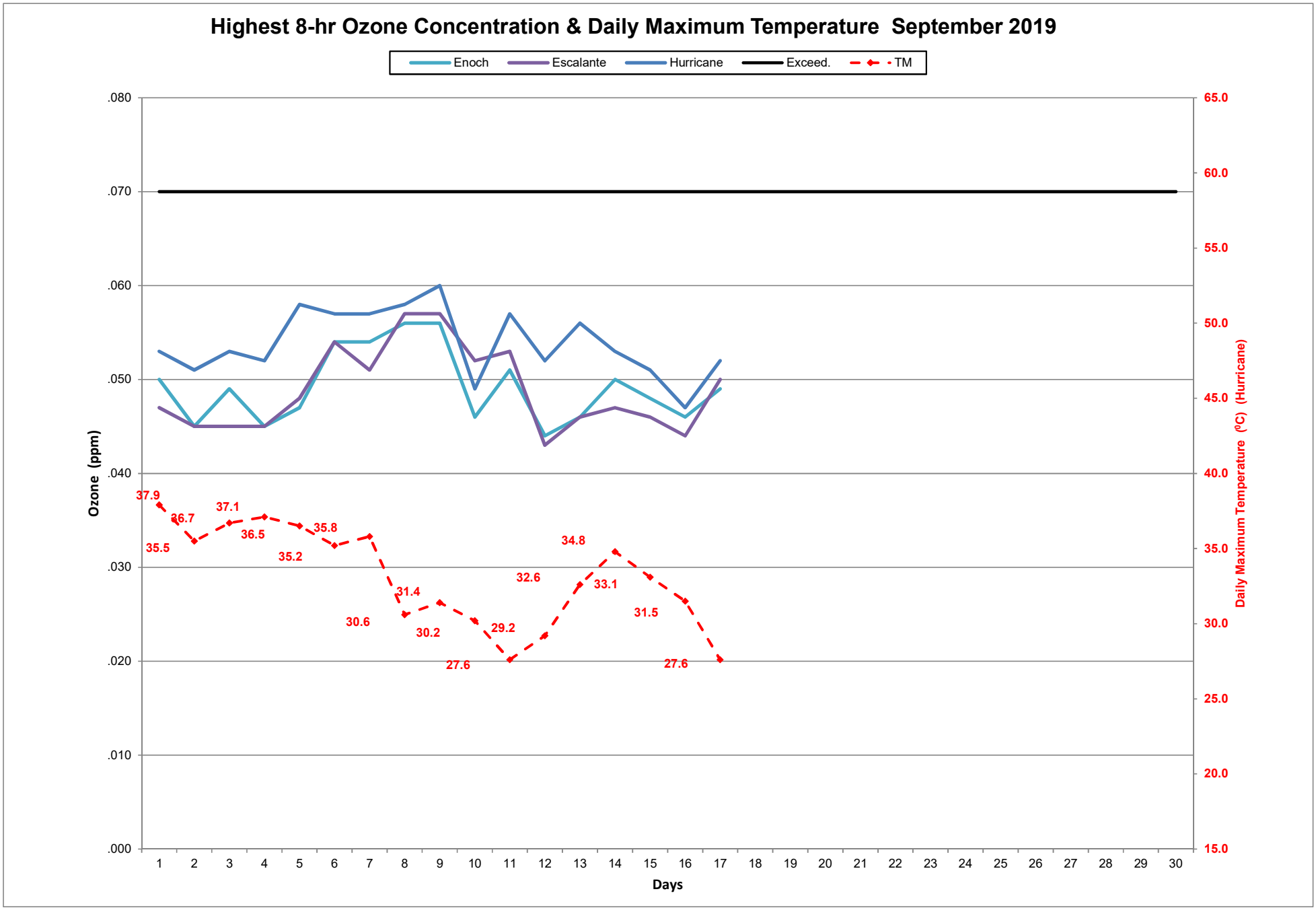
Highest 8-hr Ozone Concentration & Daily Maximum Temperature September 2019




Highest 8-hr Ozone Concentration & Daily Maximum Temperature September 2019
Price #2
Roosevelt
Vernal #4
Exceed.
TM
Ozone (ppm)
.080
.070
.060
.050
.040
.030
.020
.010
.000
Daily Maximum Temperature (°C) (Roosevelt)
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
35.8
35.7
33.7
33.1
33.8
30.6
31.1
21.6
26.1
24.6
18.7
22.0
26.3
30.0
28.6
27.1
23.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days


Highest 8-hr Ozone Concentration & Daily Maximum Temperature September 2019
Smithfield
Exceed.
TM
Ozone (ppm)
.080
.070
.060
.050
.040
.030
.020
.010
.000
Daily Maximum Temperature (ºC) (Smithfield)
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
33.2
32.7
30.0
32.0
30.9
23.7
26.2
18.8
21.8
17.8
15.2
19.3
22.8
26.8
28.7
26.5
20.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days


Highest 8-hr Ozone Concentration & Daily Maximum Temperature September 2019
Lindon
Spanish Fork
Exceed.
TM
Ozone (ppm)
.080
.070
.060
.050
.040
.030
.020
.010
.000
Daily Maximum Temperature (°C) (Lindon)
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
34.1
33.9
33.2
31.5
32.5
27.8
28.2
24.4
24.9
25.2
16.6
20.1
24.9
29.1
30.0
27.1
23.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days


Highest 8-hr Ozone Concentration & Daily Maximum Temperature September 2019
Enoch
Escalante
Hurricane
Exceed.
TM
Ozone (ppm)
.080
.070
.060
.050
.040
.030
.020
.010
.000
Daily Maximum Temperature (°C) (Hurricane)
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
37.9
36.7
35.5
37.1
36.5
35.2
35.8
31.4
30.6
30.2
29.2
27.6
32.6
34.8
33.1
31.5
27.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days