From:	Lauren Hogrewe
To:	MONOPS
Cc:	Joshua Smith; rfullmer@edf.org; Cyrus Reed; Chrissy Mann; ashelley@citizen.org; ilevin@environmmentalintegrity.org; parras.juan@gmail.com; bnelson@airalliancehouston.org
Subject:	Public comment and public hearing request on proposed 2020 Annual Monitoring Network Plan by Sierra Club, Environmental Defense Fund, Environmental Integrity Project, Public Citizen, Environment Texas, and Texas Environmental Justice Advocacy Services
Date:	Thursday, May 14, 2020 4:36:51 PM
Attachments:	Comments on TCEQ 2020 monitoring network plan FINAL.pdf Exhibits.pdf

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Please find attached for submission public comment and public hearing request on proposed 2020 AnnualMonitoring Network Plan by Sierra Club, Environmental Defense Fund,Environmental Integrity Project, Public Citizen, Environment Texas, and TexasEnvironmental Justice Advocacy Services. Let me know if you require any additional information or have any questions. Thank you.

Best,
Lauren Hogrewe

photo

Lauren Hogrewe
Research Analyst
(she/her/hers)
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From:	Lauren Hogrewe
To:	MONOPS
Cc:	Joshua Smith; rfullmer@edf.org; Cyrus Reed; Chrissy Mann; ashelley@citizen.org; parras.juan@gmail.com; bnelson@airalliancehouston.org
Subject:	Re: Public comment and public hearing request on proposed 2020 Annual Monitoring Network Plan by Sierra Club, Environmental Defense Fund, Environmental Integrity Project, Public Citizen, Environment Texas, and Texas Environmental Justice Advocacy Services
Date:	Thursday, May 14, 2020 5:03:16 PM
Attachments:	EDF SC EIP EJ TEJAS PC ET AAH Comments on TCEQ 2020 monitoring network plan FINAL.pdf

Please accept the corrected and updated version of the above submitted comments attached below. Thank you for your consideration.

Best,
Lauren

photo

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On Thu, May 14, 2020 at 2:31 PM Lauren Hogrewe <lauren.hogrewe@sierraclub.org> wrote:

> Please find attached for submission public comment and public hearing request on proposed 2020 AnnualMonitoring Network Plan by Sierra Club, Environmental Defense Fund,Environmental Integrity Project, Public Citizen, Environment Texas, and TexasEnvironmental Justice Advocacy Services. Let me know if you require any additional information or have any questions. Thank you.
>
> Best,
> Lauren Hogrewe
>
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May 14, 2020

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. Box 13087
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monops@tceq.texas.gov

Submitted via email

Re: Public comment and public hearing request on proposed 2020 Annual Monitoring Network Plan by Sierra Club, Environmental Defense Fund, Environmental Integrity Project, Public Citizen, Environment Texas, and Texas Environmental Justice Advocacy Services, Air Alliance Houston.

On behalf of our members and supporters who live, work, and recreate in Texas, Sierra Club, Environmental Defense Fund, Environmental Integrity Project, Public Citizen, Environment Texas, Texas Environmental Justice Advocacy Services ("Commenters") respectfully submit these comments regarding the Texas Commission on Environmental Quality ("TCEQ") proposed 2020 Annual Monitoring Network Plan.

Because the proposed 2020 Annual Monitoring Network Plan is a revision to Texas's State Implementation Plan, it should be subject to notice and comment rulemaking. Commenters request that Texas Commission on Environmental Quality ("TCEQ") remand the proposal, publish the plan in both English and Spanish, and allow the public to provide additional comment on the agency's network plan through the notice and comment rulemaking process. Further, Commenters request that TCEQ hold public hearings in Houston and El Paso.

While Commenters appreciate the fact that TCEQ has proposed some new monitoring sites, there is a pressing need for many additional monitoring stations across Texas. Due to concentrated industrial operations and persistent unauthorized emissions, Houston communities urgently need enhanced volatile organic compound air quality monitoring. Other Houston communities face historic pollution that is little understood, in part, because of a lack of air quality data. Similarly, west Texas communities know they are subject to ozone and sulfur dioxide pollution but lack air quality data to protect their health and to require stronger protections from polluting industries.

Communities along the Gulf Coast, including in the Corpus Christi area and the Rio Grande Valley, are facing new air quality challenges as oversupply of oil and gas has fueled a refining and petrochemical industry expansion. These communities deserve to know what is in the air, too.

Impressive growth in San Antonio and El Paso has exacerbated ozone, carbon

monoxide, and nitrogen dioxide pollution – these Texas communities need more air quality data, too. Lastly, staggering sulfur dioxide emissions across Texas pose a serious public health threat that warrants not just enhanced monitoring, but a reconsideration of Texas' sulfur dioxide modeling. We are urging TCEQ to address the lack of monitoring in communities where oil and gas drilling – the "upstream" oil and gas industry – continue to flare and vent air pollution at unprecedented and dangerous levels.

Commenters urge TCEQ not simply to look at federal standards, which provide mere minimum criteria, but also pressing public health threats to assess the air quality monitoring needs of all Texans.

Respectfully submitted,

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COMMENTS OF SIERRA CLUB, ENVIRONMENTAL DEFENSE FUND, ENVIRONMENTAL INTEGRITY PROJECT, PUBLIC CITIZEN, TEXAS ENVIRONMENTAL JUSTICE ADVOCACY SERVICES, AIR ALLIANCE HOUSTON ON 2020 ANNUAL MONITORING NETWORK PLAN

I. Clean Air Act background.

A. Texas must maintain an air quality monitoring network.

The federal Clean Air Act ("CAA" or "Act") requires Texas to establish and maintain an air quality monitoring network. This monitoring plan must be included in the applicable State Implementation Plan ("SIP"). 42 U.S.C. § 7410(a)(2)(B). Texas's network must meet three criteria: "(a) Provide air pollution data to the general public in a timely manner … (b) Support compliance with ambient air quality standards and emissions strategy development … (c) Support for air pollution research studies…" 40 C.F.R. Part 58 App. D ¶ 1.1.

Crucially, monitoring data are used to determine whether areas are in compliance with National Ambient Air Quality Standards ("NAAQS"). 40 C.F.R. Part 58 App. A ¶ 1.1(a). The U.S. Environmental Protection Agency ("EPA") has established NAAQS for only six criteria pollutants: ozone (O_3), particulate matter ($PM_{2.5}$ and PM_{10}), carbon monoxide (CO), lead (Pb), sulfur dioxide (SO_2) and nitrogen dioxide (NO_2). To determine whether an area meets a NAAQS, EPA compares monitoring data to the NAAQS. 40 C.F.R. Part 58 App. D ¶ 1.1(b). Areas that fail to meet a NAAQS are subject to more stringent public health protections under the Act. For example, monitoring data demonstrate that the Houston area failed to meet its deadline for the 2008 ozone standard. 83 Fed. Reg. 56,781 (Nov. 14, 2018). As a result, more major sources of ozone-forming pollution in Houston will have to obtain federal operating permits, and these polluters will have to reduce their ozone-forming emissions or secure offsets to more than offset the new pollution they will emit. 42 U.S.C. §§ 7503, 7511a.

Each year, Texas must demonstrate compliance with federal minimum monitoring requirements. 40 C.F.R. § 58.10(a)(1), (b). The monitoring network plan must include detailed information about the network's design, including the exact location of each monitor in the network, how each monitor operates, and proposed changes to individual monitors. 40 C.F.R. § 58.10(b)(1)-(5), Part 58 App. D. EPA determines whether the plan meets minimum network design criteria, and the Regional Administrator may require additional information. 40 C.F.R. § 58.10(a)(1). EPA also has authority to order changes to a plan. 40 C.F.R. § 58.14(b). Plans that propose new monitoring sites or other modifications, like the TCEQ plan here, must be approved or denied by the Regional Administrator within 120 days of submission. 40 C.F.R. §§ 58.10(a), (e), 58.11(c), 58.14. Thus, after this comment period, TCEQ must submit the plan to EPA for authorization.

Federal regulations prescribe only minimum design criteria for State and Local Area Monitoring Stations ("SLAMS") networks to monitor for criteria pollutants, leaving room for states to establish enhanced air monitoring as areas in their states may require. *See* 40 C.F.R. § 58.1; *see also* 40 C.F.R. Part 58 App. D ¶¶ 4.1-4.8.1 (establishing "Pollutant-Specific Design Criteria" for monitoring networks). SLAMS networks are a collection of devices in various

locations that sample the ambient air (or outdoor air) to detect the level of a particular pollutant.[1] The design of a monitoring network—the number of monitors, their specific placement, how frequently they take samples—is critical to getting accurate and representative results. *See generally* 40 C.F.R. Part 58 App. D (establishing mandatory "Network Design Criteria for Ambient Air Quality Monitoring"). Because different pollutants and standards are especially sensitive to particular design criteria, such as the choice of monitor location, EPA provides monitoring network design guidance documents.[2] In part, the purpose of the network is "to provide support to the [SIP], national air quality assessments, and *policy decisions*." 40 C.F.R. § 58.2(a)(5) (emphasis added). Thus, network design and operating procedures are critical to assessing compliance with the public health goals of the Clean Air Act and for state and regional air quality planning efforts.

Apart from Act compliance, there are other uses for air quality data that call on Texas to enhance its monitoring network for the protection of public health. Federal regulations envision members of the public making use of publicly available air quality data—the regulations themselves require data dissemination in urban centers, 40 C.F.R. § 58.50, and EPA maintains daily reports via AirNow, available at https://airnow.gov/.[3] Because air quality data from Texas's network is publicly available near real-time,[4] it is crucial to community groups responding to disaster, such as the recent ITC and KMCO fires in the Houston area.

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[1] A map of the Texas air monitoring network is available here: https://tceq.maps.arcgis.com/apps/webappviewer/index.html?id=ab6f85198bda483a997a6956a8486539.

[2] *See*, e.g., EPA, Guidance for Network Design and Optimum Site Exposure for PM2.5 and PM10 at 2-7 (1997) ("A PM sampler location, especially its proximity to local sources, can play a large role in its ability to assess spatial variability and source contributions") (available at: https://www3.epa.gov/ttn/amtic/files/ambient/pm25/network/r-99-022.pdf); *see also* EPA, Guidance for Using Continuous Monitors in $PM_{2.5}$ Monitoring Networks at 6-1 to 6-2 (1998) (discussing the difference between Community Representative or "CORE" $PM_{2.5}$ monitors located where people live, work and play in comparison to hot spot monitor sites "located near an emitter with a microscale or middle-scale zone of influence" and Special Purpose Monitors ("SPMs") "used to understand the nature and causes of excessive concentrations measured at [CORE] or hot spot compliance monitoring sites.") (available at: https://www3.epa.gov/ttnamti1/files/ambient/pm25/r-98-012.pdf); *see also* EPA, Photochemical Assessment Monitoring Stations Implementation Manual at 2-6 (1994) ("Site selection is one of the most important tasks associated with monitoring network design and must result in the most representative location to monitor the air quality conditions being assessed.") (available at: https://www3.epa.gov/ttn/amtic/files/ambient/pams/b93-051a.pdf).

[3] AirNow data is also shared with and broadcast by major media outlets that disseminate air quality forecasts to individuals. *See* https://www.airnow.gov/index.cfm?action=ani.airnowUS (AirNow "[d]istributes air quality forecasts and data with The Weather Channel, USA Today, CNN, weather service providers, NOAA National Weather Service").

[4] TCEQ, AutoGC Data by Day by Site (all parameters), available at: https://www.tceq.texas.gov/cgi-bin/compliance/monops/agc_daily_summary.pl.

B. The public process afforded to the proposed Monitoring Network Plan violates the Clean Air Act.

TCEQ's proposed Monitoring Network Plan is a SIP revision that should be subject to notice and comment rulemaking. The CAA and its implementing regulations make it clear that a State's monitoring plan is part of its SIP.[5] Because an update to the monitoring plan is a SIP revision, federal law requires TCEQ to provide notice and undertake a public hearing before promulgating the plan. *See Hall v. EPA*, 273 F.3d 1146, 1162 (9th Cir. 2001) ("The Act requires that SIP revisions 'be adopted by the State after reasonable notice and public hearing.'") (quoting 42 U.S.C. § 7410(l)).

On its webpage, TCEQ solicits public comment for the proposed Plan but does not explain whether it will respond to comments or make changes in response to any comments. It also appears that TCEQ did not and will not hold any public meetings or hearings to explain this Plan to the public. "[N]otice and comment helps to prevent mistakes, because agencies receive more input and information before they make a final decision." *Ivy Sports Medicine v. Burwell*, 767 F.3d 81, 87 (D.C. Cir. 2014).

Indeed, not only is notice and comment for the Plan required by law and a basic value of American administrative law, TCEQ's lack of outreach continues to disenfranchise Texas communities long deprived of proportionate representation in environmental regulation, including native and non-English speaking communities who are deprived of critical information about air quality and public health by TCEQ's arbitrary refusal to publish air quality monitoring data and the monitoring plan itself in Spanish and other languages. As discussed below, many low-income communities and communities of color throughout Texas suffer from poor air quality and would benefit from greater air quality monitoring in their area. However, due to TCEQ's failure to publish notice and conduct public outreach regarding its proposed Plan—again, including its failure to publish this basic information in Spanish—Texans in these communities may be wholly unaware of Texas' air quality monitoring network or that it changes every year.

Commenters request that TCEQ remand this Plan and revise it through notice and comment rulemaking. Further, that TCEQ hold a public hearing, with Spanish interpretation services available, in Houston or El Paso to afford the public an opportunity to ask questions about the Plan of TCEQ staff responsible for its creation and implementation.

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[5] *See* 42 U.S.C. § 7410(A)(2)(b) (each SIP must "provide for establishment and operation of . . . systems . . . necessary to . . . monitor, compile, and analyze data on ambient air quality"); 40 C.F.R. § 51.17(b)(1)-(6) (each SIP "shall include a description of the . . . proposed air quality surveillance system, which shall set forth," among other things: the exact location of the monitors; how each monitor operates; and the timetable for installing any equipment needed to complete the monitoring system").

I. Public health warrants enhanced air quality monitoring in Houston and surrounding communities

A. We strongly support TCEQ's placement of a new federal reference monitor for $PM_{2.5}$ in west Houston, but more monitors are needed in Houston.

TCEQ's 2020 Annual Monitoring Plan recommends installing a new $PM_{2.5}$ FEM continuous monitor at the City of Houston's existing Westhollow monitoring station. Commenters strongly agree with TCEQ's plan to deploy a new $PM_{2.5}$ monitor at this location. In addition, we believe TCEQ should also install a new $PM_{2.5}$ monitor at TCEQ's Bayland Park monitoring station. We also strongly recommend that all existing $PM_{2.5}$ monitors be retained.

TCEQ should also work with the City of Houston, Harris County, and the U.S. EPA to support the installation of lower cost community monitors throughout Houston. Additional community monitors can play a key role in providing communities an early warning, and can help regulators take action against polluters. TCEQ should initiate a speciation/source apportionment study to determine the sources of $PM_{2.5}$ in western Houston and develop a plan of action to reduce $PM_{2.5}$ exposure in western Houston.

1. New peer-reviewed data demonstrates high concentrations of PM pollution in Western Houston.

Recent peer-reviewed, published research, described in greater depth below, provides nationwide high resolution (1km x 1km) annual $PM_{2.5}$ ambient concentration data for 2000 to 2015.[6] Using this research in an ensemble model of satellite and other data, Commenters were able to identify high concentrations of particulate pollution in areas of Houston with no current EPA federal reference monitors. According to this data, there are high concentrations of $PM_{2.5}$ pollution in western Houston that have never previously been identified due to a lack of monitors. EPA requires that "monitoring stations or sites must be sited to represent area-wide air quality," and be placed in "an area of expected maximum concentration" however, there is currently no monitor in this area. 40 C.F.R. Part 58 App. D. Based on this new $PM_{2.5}$ ambient concentration data and the population density data in the area, it is clear the existing monitoring network in Houston does not meet the EPA regulatory requirements. Even though the ensemble model draws on 2000-2015 data, it is highly likely that these areas in western Houston are still most likely the areas of maximum $PM_{2.5}$ concentration. TCEQ should finalize the monitor it proposes in Westhollow and install a new monitor at Bayland Park monitoring statement.

2. Overview of the data sources for Houston $PM_{2.5}$ air quality assessment

Each of the data sets described below were assembled into an interactive ArcGIS data platform. The geographical representation of the data allowed us to evaluate how well the existing FRM $PM_{2.5}$ monitors were meeting EPA's regulatory requirements for monitor placement.

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[6] Di, Q, Kloog, I, Koutrakis, P, Lyapustin, A, Wang, Y and Schwartz, J (2016). Assessing $PM_{2.5}$ exposures with high spatiotemporal resolution across the Continental United States. Environ Sci Technol 50(9): 4712-4721.

Ensemble Data To conduct our assessment, we used $PM_{2.5}$ ambient concentration data from an EPA funded peer reviewed study[7] that estimated daily $PM_{2.5}$ concentrations at a resolution of 1 km x 1 km for 2000 to 2015. The study combined estimates from three different model types: 1) neural network, 2) random forest and 3) gradient boosting. Each model was run nationwide and each used a unique combination of FRM $PM_{2.5}$ monitoring, EPA CMAQ, land-use, satellite and other data. A regression was performed comparing the results of each model against FRM monitors and then a weighted average was calculated for each 1km by 1km tract. The model performed well up to 60ug/m3 with an R^2 of 0.86 for the daily $PM_{2.5}$ predictions and 0.89 for the annual results.

In EPA's *Policy Assessment for the Review of the NAAQS for Particulate Matter*[8], they reviewed a wide range of new hybrid modeling methods, including the Di et al[9], approach. According to EPA, "Excellent performance in cross-validation tests suggests that hybrid methods are reliable for estimating $PM_{2.5}$ exposure in many applications."[10] While EPA noted that there are important limitations to these hybrid models, including their performance in rural areas, western U.S. and where emission concentrations are low, these limitations do not appear to be a factor for estimates in the Houston MSA area.

CMAQ Data CMAQ is the primary modeling tool used by States and EPA to support implementation of the Clean Air Act. CMAQ integrates the modeling of meteorology, emissions and chemistry to estimate ozone, PM and air toxics at the local, national and hemispheric levels. It has been in use by state and EPA air quality officials for over 20 years and is considered "EPA's premier modeling system for studying air pollution…"[11] For our analysis, we used EPA's annual $PM_{2.5}$ CMAQ concentrations averaged over the 2014-2016 period for the Houston MSA.

Population Density Population data was taken from the 2010 US Census.

$PM_{2.5}$ Monitor Locations The latitude and longitude for the Houston MPA FRM $PM_{2.5}$ monitors was taken from the EPA AirNow web site.[12]

Major $PM_{2.5}$ Stationary Sources Data for major $PM_{2.5}$ emissions is from TCEQ State of Texas Air Reporting System.[13]

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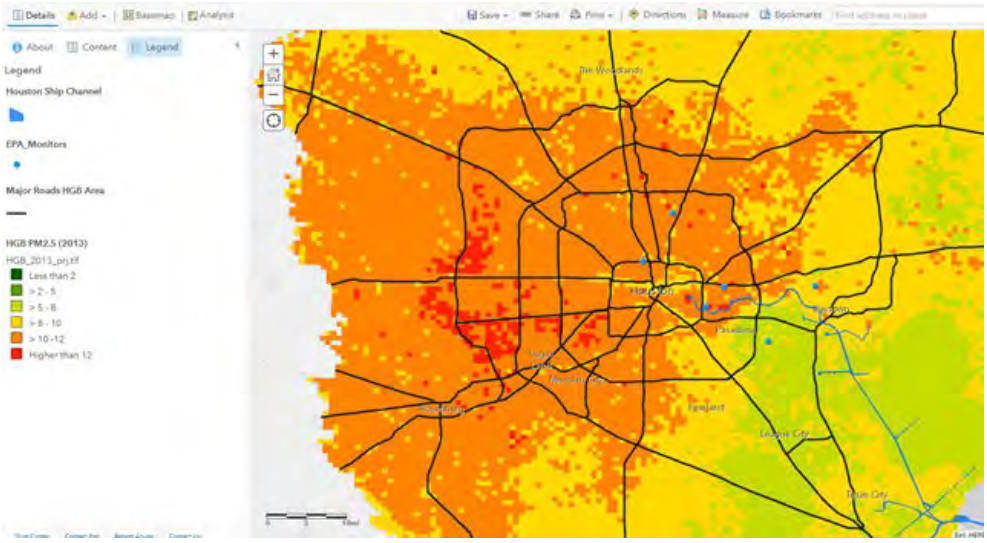
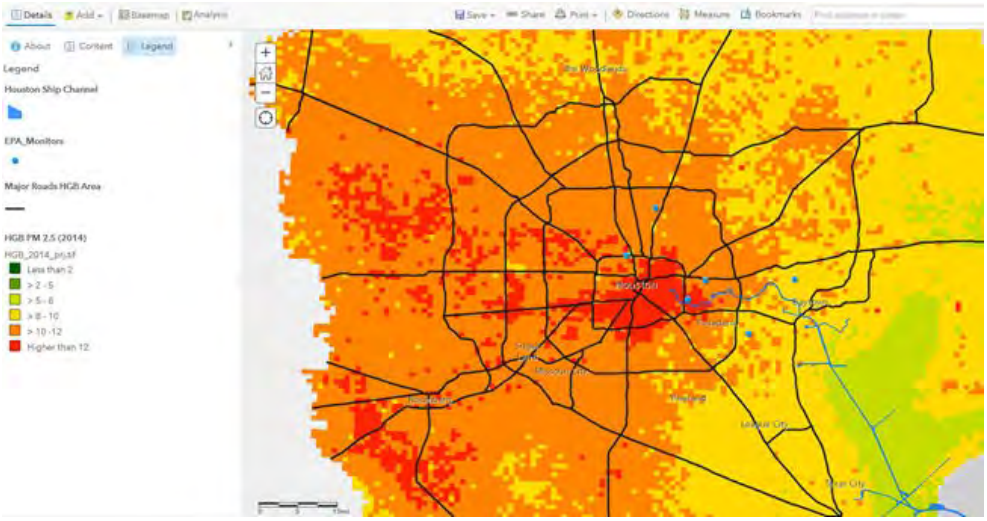
[7] Qian Di, et al. *An ensemble-based model of $PM_{2.5}$ concentration across the contiguous U.S. with high spatiotemporal resolution.* Environment International 130 (2019) 104909.
[8] U.S. EPA, *Policy Assessment for the Review of the National Ambient Air Quality Standards for Particulate Matter*, EPA-452/R-20-002 (Jan. 2020).
[9] Di, Q, Kloog, I, Koutrakis, P, Lyapustin, A, Wang, Y and Schwartz, J (2016). Assessing $PM_{2.5}$ exposures with high spatiotemporal resolution across the Continental United States. Environ Sci Technol 50(9): 4712-4721.
[10] U.S. EPA, *Policy Assessment for the Review of the National Ambient Air Quality Standards for Particulate Matter*, EPA-452/R-20-002 at 2-53 (Jan. 2020).
[11] U.S. EPA. Science in Action. *Community Multiscale Air Quality (CMAQ) Modeling System*. Office of Research and Development. (Aug. 2019), available at: https://www.epa.gov/sites/production/files/2018-10/documents/cmaq_factsheet_.pdf.
[12] https://www.epa.gov/outdoor-air-quality-data/download-daily-data.
[13] https://www.tceq.texas.gov/airquality/point-source-ei/psei.html.

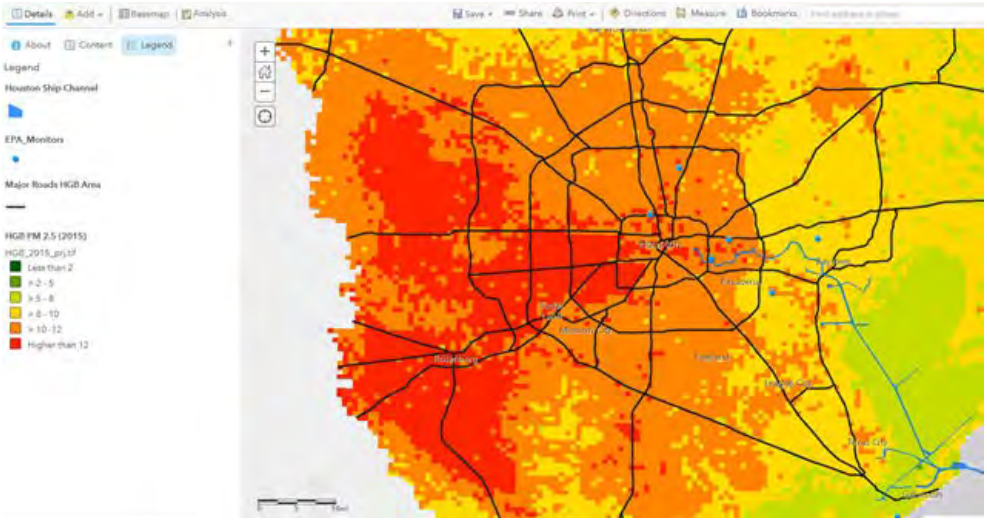
3. 2013 to 2015 $PM_{2.5}$ ambient concentrations in Houston

The maps below show the growth of a $PM_{2.5}$ plume in western Houston from 2013 to 2015, which is the most recent available data from the ensemble analysis. The ensemble analysis, including the satellite data, made it possible, for the first time, to identify this air pollution even though there were no FRM monitors located in western Houston.

We believe the $PM_{2.5}$ in western Houston is from secondary formation of NOx emissions, which are being transported from industrial and marine sources around the Houston Ship Channel, along with diesel vehicles and construction equipment, however, more research is needed.







4. Health damages from particulate matter pollution

These elevated levels of $PM_{2.5}$ have major health and economic consequences for residents of Houston. A new analysis[14] from the Harvard School of Public Health and EDF based on the ensemble data has found that the elevated levels of $PM_{2.5}$ in Houston were responsible for:

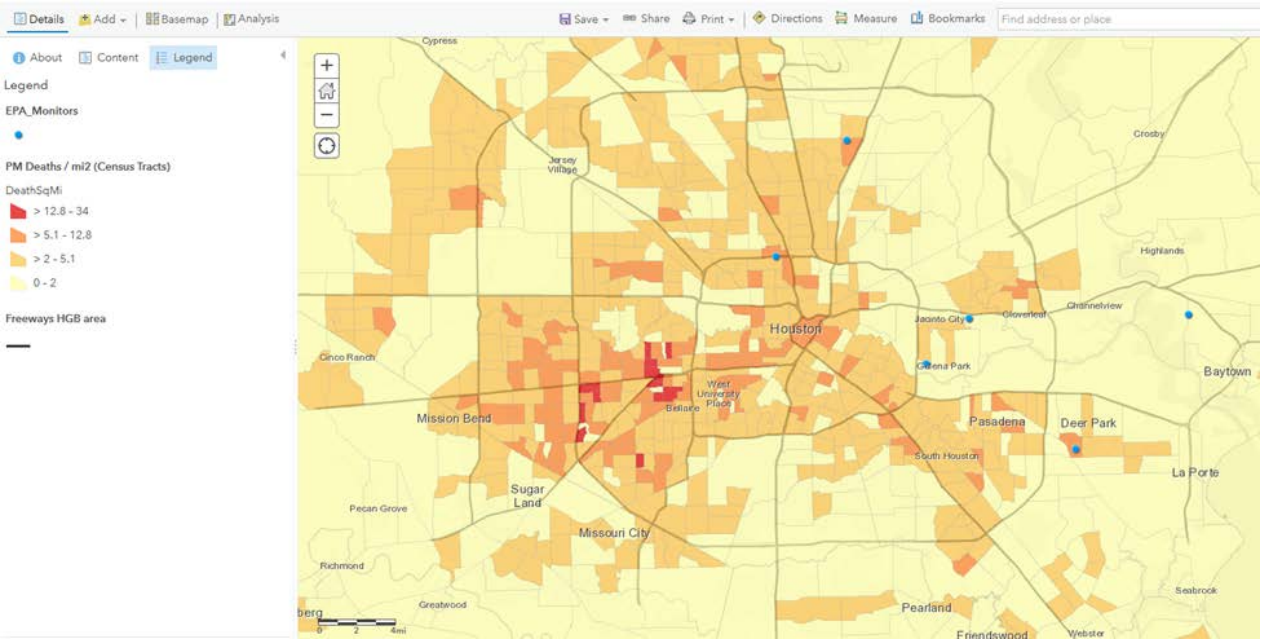
- Over 5,200 premature deaths, and
- Over $49 billion in economic damages.

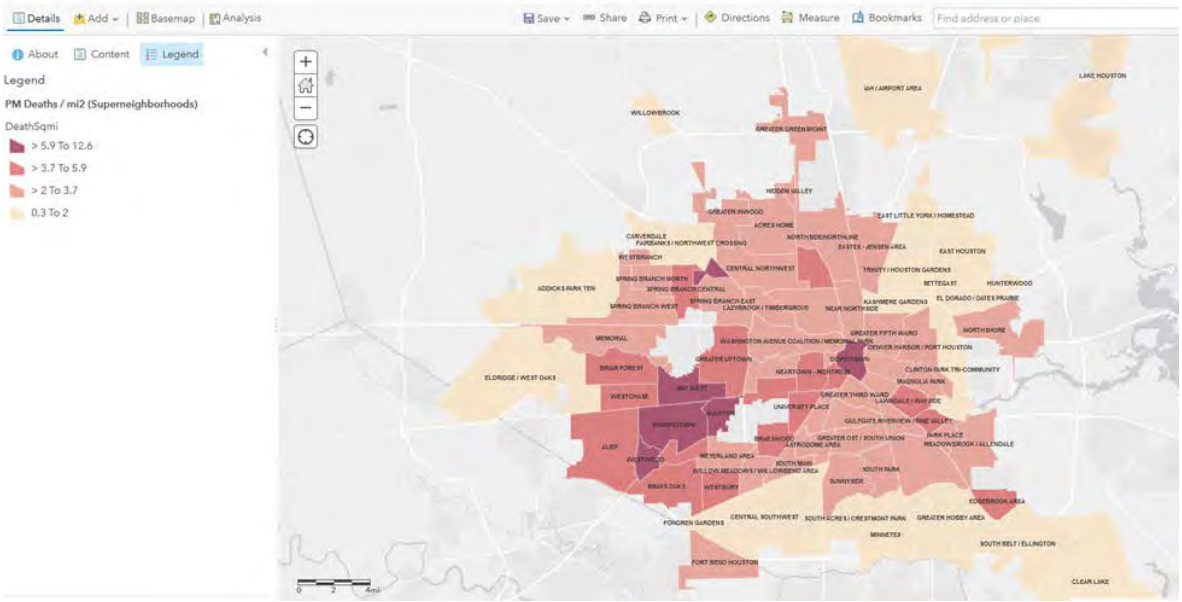
Particulate pollution is made up of small toxic airborne particles like dust, soot, and liquid particles, or aerosols. Most particulate pollution in Houston is from the chemical and petroleum industry, power generation, and diesel vehicles and construction equipment. These toxic particles penetrate deep into the lungs and are linked to heart attacks, lung disease, strokes, asthma, cancer, and can lead to early death. This pollution is particularly dangerous for young people – studies show that $PM_{2.5}$ exposure can impair childhood lung development.

The following maps show how the 5,213 deaths from $PM_{2.5}$ exposure in 2015 are distributed across Houston. The first map shows the deaths per square kilometer by census tract. The average number of deaths is 2.6 per square mile; however, in 23 census tracks the 2015 rate exceeded 10 deaths per square mile.

[14] http://blogs.edf.org/health/2020/05/11/pm-standards-houston-analysis/.

In Houston, residents are encouraged to work with their Super Neighborhood council to identity issues of concern that need to be raised to the City of Houston. For that reason, we have also presented the health damages from $PM_{2.5}$ for each Super Neighborhood. The white areas on the map are not currently represented by a Super Neighborhood.

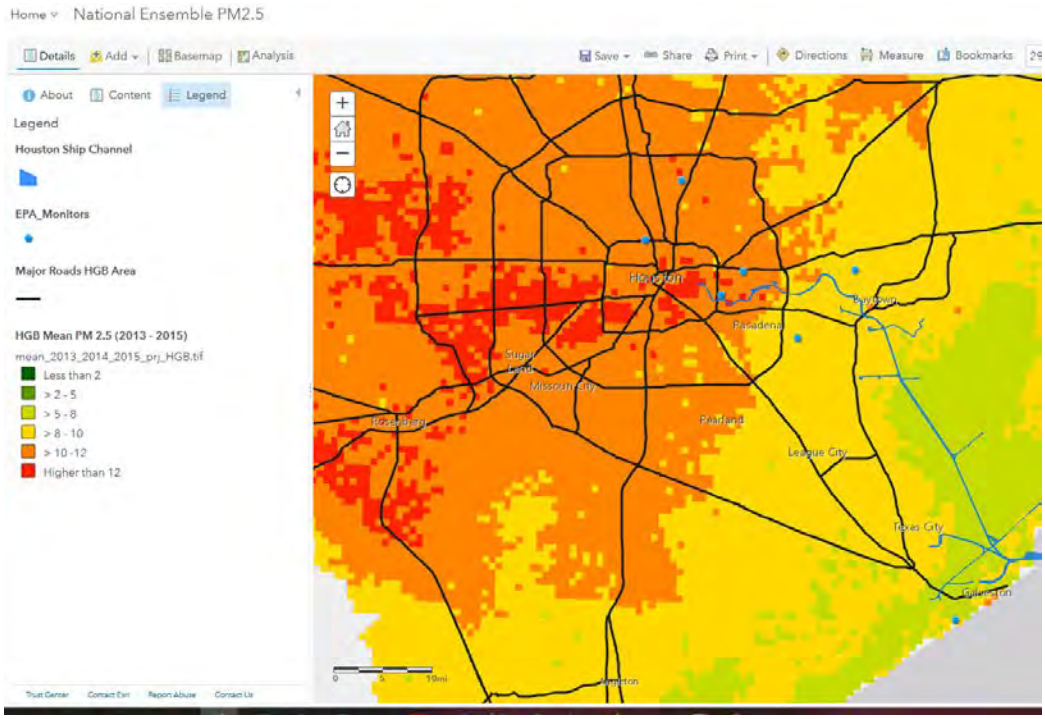


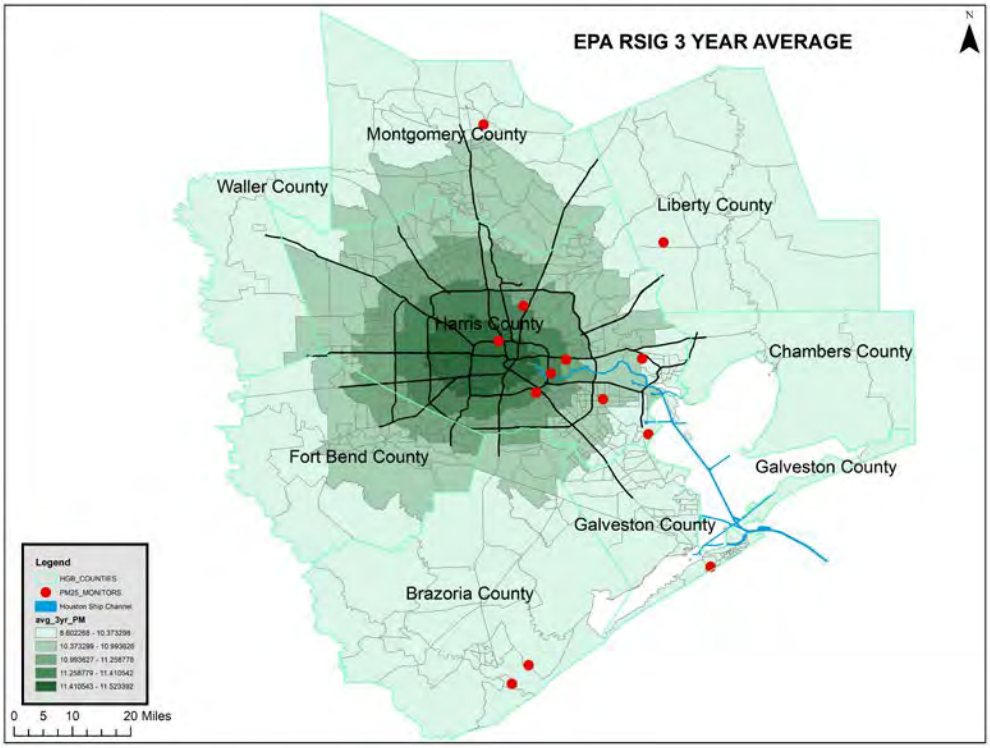


5. Assessment of federal reference monitors for $PM_{2.5}$ monitor locations in Houston

In this section, we review the co-location/spatial distribution of Houston's FRM $PM_{2.5}$ monitors and areas of elevated $PM_{2.5}$ concentration. We also review whether the FRM $PM_{2.5}$ monitors are in areas of high population density, and we compare the ensemble data with EPA's $PM_{2.5}$ CMAQ data.

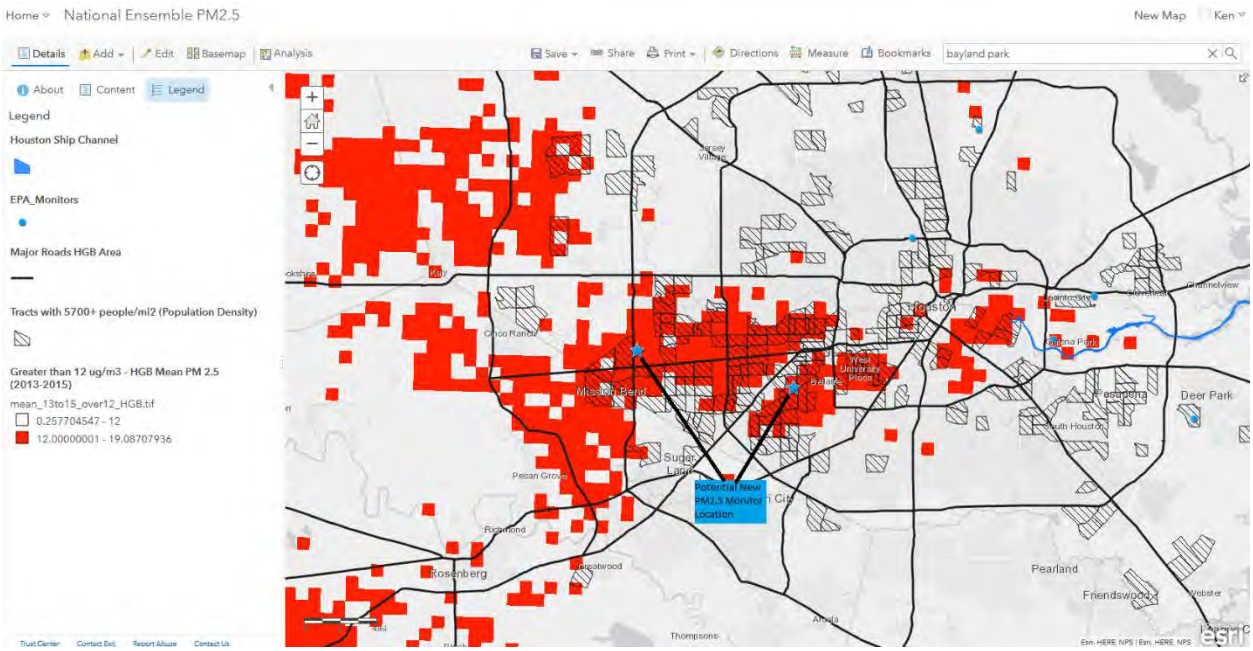
For our analysis, we defined areas of "maximum concentration" as areas where the average 2013-2015 $PM_{2.5}$ concentration exceeded the 12.0 ug/m3 NAAQS standard. As can be seen in the map below, there are currently no FRM $PM_{2.5}$ monitors (blue dots) in central and western Houston where average annual $PM_{2.5}$ concentrations exceeded 12.0 ug/m3 for 2013-15 (red areas). For comparison purposes, we have also included a map of EPA's $PM_{2.5}$ CMAQ/RSIG data for the same period. The CMAQ data also demonstrates that $PM_{2.5}$ levels in western Houston are elevated.





The second major criteria for determining the location of FRM $PM_{2.5}$ monitors is population density. The next map overlays areas in Houston where $PM_{2.5}$ is greater than 12.0ug/m3 and where population density is greater than 5,700 people per square mile.[15] As can be seen in the map, there are no existing FRM $PM_{2.5}$ monitors (blue dots) in central or western Houston where $PM_{2.5}$ is greater than 12.0ug/m3 and population density is greater than 5,700 people per square mile.

[15] We chose 5,700 people/mi^2 because ArcGIS identified it as a "Natural Break" in the population.



As TCEQ has acknowledged in their 2020 Annual Monitoring Plan, and as these analyses further demonstrate, there is compelling evidence for installation of at least one new FRM $PM_{2.5}$ monitor in the western or central part of Houston. Given the elevated levels of $PM_{2.5}$ and high population density, we believe TCEQ should also install a new $PM_{2.5}$ monitor at TCEQ's Bayland Park monitoring station. In addition, funding is needed to conduct a speciation/source apportionment study to understand what is causing these particulate matter concentrations, and to develop an action plan to reduce the sources of emissions. It is also critical that existing FRM $PM_{2.5}$ monitors be maintained in their current location.

B. Houston's Fifth Ward

Fifth Ward is a predominantly low-income African American community in east Houston that is home to the Many Diversified Interests, Inc. ("MDI") Superfund site.[16] MDI is a nuisance to its community and a constant source of offsite, onsite, and residential lead contamination, among other pollutants. Despite ongoing remediation efforts, a new housing development is being built on top of the MDI property.[17] Fifth Ward is also home to another nuisance; creosote contamination at the former Union Pacific Houston Wood Preserving Works facility.[18] Every

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[16] EPA, Superfund Site: Many Diversified Interests, Inc. Houston, Texas, available at: https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.contams&id=0605008 (last visited May 16, 2019)

[17] Houston Business Journal, Houston's Fifth Ward Redevelopment Efforts Continue With Plans for Single-Family Homes, (Mar. 3, 2014), available at: https://www.bizjournals.com/houston/morning_call/2014/02/houstons-fifth-ward-redevelopment-efforts-continue.html.

[18] Union Pacific has recently applied for a modification and renewal of its remediation permit; affected residents have objected to Union Pacific's proposed cost-cutting measures. TCEQ, Notice of Receipt of Application and Intent to Obtain Hazardous Waste Permit/Compliance

time it rains and in hot weather, residents report strong chemical smells from this only partially remediated site.

There is mounting evidence of public health threats in Fifth Ward from lead and other toxic contaminants. In 2014, a study reported that almost all of Fifth Ward experiences amongst the highest probabilities for very low birth weights which could result from exposure to contaminants like lead.[19] Even in 2019, Fifth Ward is a lead poisoning hot spot. Blood lead levels among children were among the highest in the state of Texas. [20] The Houston Health Department, Bureau of Community and Children's Environmental Health was also awarded a grant to expand a lead poisoning prevention pilot in the Fifth Ward. [21]

Now more information is needed about pollutants like lead in the air. Fifth Ward residents need air quality data so they can take action to protect their health from elevated levels of lead and volatile organic compounds ("VOC") and to alert regulatory officials when they need to take specific action against potential emitters. Currently, there are no lead or VOC air quality monitors in Fifth Ward. It is not enough that TCEQ believes meeting *minimum* federal requirements is enough to meet VOC monitoring requirements, TCEQ Annual Monitoring Network Plan 24, one of the purposes of the air monitoring network is provide data for policy decisions, 40 C.F.R. § 58.2(a)(5), Commenters request that TCEQ place a lead and VOC monitor in Fifth Ward. Lead and VOC monitors in Fifth Ward will allow residents not only to access "air pollution data…in a timely manner," 40 C.F.R. Part 58 App. D ¶ 1.1(a), but will inform public health policy decisions affecting Fifth Ward. Metal recycling is also a serious public health concern for residents of the 5th Ward. An analysis by the Environmental Defense Fund found levels of air pollution on roads adjacent to these facilities to be significantly elevated, comparable to being within 200 m of a highway and likely the result of diesel emissions. Some of these facilities are in close proximity to schools and other sensitive populations. There is a clear need for PM monitoring in this part of Houston.

C. Portland-Gregory Area

The commenters agree that the Portland-Gregory Area needs additional monitors, particularly to measure PM_{10}, and potentially $PM_{2.5}$, as well as enhanced VOC Monitoring. As the draft Monitoring report states:

Plan/Major Amendment/Renewal Permit/Compliance Plan No. 50343 (Mar. 13, 2015), available at: https://www14.tceq.texas.gov/epic/eNotice/index.cfm?fuseaction=main.PublicNoticeDescResults&requesttimeout=5000&CHK_ITEM_ID=963382312015077.

[19] Thompson, J.A., et al., Evaluating geostatistical modeling of exceedance probability as the first step in disease cluster investigations: very low birth weights near toxic Texas sites.607-611 (2014), available at: https://www.ncbi.nlm.nih.gov/pubmed/24906417.

[20] Agency for Toxic Substances & Disease Registry, Public Health Statement for Lead (Aug. 2007), available at: https://www.atsdr.cdc.gov/phs/phs.asp?id=92&tid=22.

[21] National Environmental Health Association, NEHA and Partners Award HiAP and Lead Poisoning Prevention Funds (Jan. 18, 2019), available at: https://www.neha.org/news-events/latest-news/neha-and-partners-award-hiap-and-lead-poisoning-prevention-funds.

> Due to industrial and population growth in the Gregory-Portland area north of Corpus Christi, the TCEQ Monitoring Division, Toxicology Division, Air Quality Division, and TCEQ Corpus Christi Regional Office continue to evaluate the potential placement of PM10 monitors in San Patricio County, as previously recommended in the 2019 AMNP.

Since then, new facilities including a steel mill, an ethane cracker, several expansions of other petro-chemical plants, and a major transmission upgrade have been either proposed or approved. Increased traffic connected to the Port of Corpus Christi, and its possible expansion, are other reasons to increase monitoring. The area north of Corpus Christi is in desperate need of further monitoring for both PM and VOC, and the TCEQ should add monitors to the region as part of this plan.

While Commenters appreciate enhanced PM_{10} monitoring in the Portland-Gregory Area, recent permitting actions by TCEQ urgently warrant enhanced VOC monitoring as well. In 2019, TCEQ pointed to recent industrial and population growth in the Portland/Gregory area as justification for the new PM_{10} monitor location. However, now that TCEQ has permitted a massive ethane cracker facility, additional pollutants like VOCs should be monitored for as well as PM_{10}.

Last June, TCEQ approved permits for Gulf Coast Growth Ventures Asset Holding LLC ("GCGV"), an ExxonMobil and SABIC joint venture, for the construction of the largest ethane cracker in North America to be sited in Gregory, Texas—a predominantly low-income Latino community.[22] At the hearing on the highly contested proposal, consulting engineering expert Dr. Ranajit Sahu testified that plant wide allowable emission totals for this facility will be:

Pollutant	**Tons per year (tpy)**
Volatile organic compounds	976.33
Nitrous oxides	525.03
Particulate matter	185.82
Particulate matter of 10 micrometers or less	176.35
Particulate matter of 2.5 micrometers or less	167.51
Sulfur dioxide	38.49

Permitted emission limits for this facility alone are staggering and point to the need for more monitors in the area to protect the community and ensure there are no NAAQS violations resulting from this new facility.[23] TCEQ's reasoning for a new PM monitor should apply to other pollutants emitted by this facility as emissions of VOCs will far exceed new emissions of PM_{10} by a factor of greater than five. This source alone is massive and threatens exceedances of

[22] Application of GCGV Asset Holding, LLC, for Air Quality Permit Nos. 146425/PSDTX1518 & 146459/PSDTX1520 in San Patricio County, Texas, SOAH Docket Nos. 582-18-4846, 582-18-4847; TCEQ Docket Nos. 2018-0899-AIR, 2018-0900-AIR.
[23] *Id.*, Direct Testimony of Ranajit Sahu, Ph.D., QEP, CEM (Nevada) at 12, 33 (Dec. 7, 2018).

applicable NAAQS with the addition of these annual emissions. Because one of the purposes of the air monitoring network is to "[s]upport compliance with ambient air quality standards and emissions strategy development," 40 C.F.R. Part 58 App. D ¶ 1.1(b), the TCEQ should install new VOC monitors in the Gregory-Portland Area in addition to new PM_{10} monitoring.

D. Houston Ship Channel

The Commission has a duty "to protect the public from cumulative risks in areas of concentrated operations" and "give priority to *monitoring* and enforcement in areas in which regulated facilities are concentrated." Tex. Water Code § 5.130 (emphasis added). The Houston area is home the Houston Ship Channel – an area of concentrated operations. There is a compelling need for additional VOC monitors along the Houston Ship Channel. Recent data demonstrate that there are likely systematic underreporting errors with existing air emissions reporting at facilities along the Channel. For example, testing for VOCs and benzene along the Channel, researchers found far higher emissions levels than the estimates produced and reported by the operators themselves.[24] In fact, the study found that VOC emissions were 41% higher than emissions inventories reported, and benzene emissions were 94% higher.[25] This means that operators along the Channel are exceeding their permitted limits, and communities are paying the price with their health.

The problem of unauthorized emissions is not evenly distributed; some communities along the Channel are exposed to far greater pollution than others. Recent data demonstrate a greater total emissions burden from unauthorized emissions borne by Manchester, Pasadena, Deer Park, and Baytown—all along the Channel.[26] When compared to other Channel communities, Manchester exhibited far greater emissions density, meaning that it is a Channel community at greatest vulnerability from its surrounding industrial polluters.[27] Indeed, a 2016 study found 26 Risk Management Plan facilities sited within Manchester.[28]

Daily unauthorized emissions are compounded by the steady stream of preventable plant disasters at Channel facilities. For example, the recent ITC fire in Deer Park exposed local

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[24] Daniel Hoyt & Loren H. Raun, Measured and Estimated Benzene and Volatile Organic Carbon (VOC) Emissions at a Major U.S. Refinery/Chemical Plant: Comparison and Prioritization, 65 J AIR & WASTE MGMT. ASS'N 1020, 1021 (2015), available at: https://www.tandfonline.com/doi/pdf/10.1080/10962247.2015.1058304?needAccess=true.
[25] *Id.* at 1029.
[26] Sustainable Systems Research, LLC, Vulnerability and Stationary Source Pollution in Houston at 25 (Feb. 8, 2019).
[27] *Id.* at 25.
[28] Union of Concerned Scientist & Texas Environmental Justice Advocacy Services, Double Jeopardy in Houston, Acute and Chronic Chemical Exposures Pose Disproportionate Risks for Marginalized Communities at 19 (Oct. 2016), available at https://www.ucsusa.org/sites/default/files/attach/2016/10/ucs-double-jeopardy-in-houston-full-report-2016.pdf.

residents to unhealthy levels of benzene.[29] TCEQ there relied on the air monitoring network for data. In Harvey's wake, a tank at Valero's refinery also released benzene and dozens of other pollutants into Manchester, but not due to hurricane damage— Valero's storage tank had previously failed an inspection and should have been decommissioned.[30] Chronic allowable emissions exceedances render the TCEQ air permit review process incapable of protecting public health because the technical assumptions upon which air permits are issued likely greatly underestimate actual pollution levels. As such, enhanced VOC monitoring in Houston Ship Channel communities is necessary to fill this regulatory gap.

Commenters request that TCEQ place additional VOC monitors along the Houston Ship Channel because of the staggering number of air polluting facilities there. Currently, there are no VOC monitors along the Channel on the southbound side of IH 610. Here, commenters recommend that TCEQ place a VOC monitor at or near J.R. Harris Elementary School—a public school where nearly all of the children are racial minorities and over two-thirds of the students are English Language Learners. Commenters would like to see additional monitoring in Manchester, Pasadena, Deer Park, and Baytown.

II. TCEQ Must Increase Monitoring of Ozone Pollution in the Greater San Antonio Area.

A. Ozone is a serious public health problem in the Greater San Antonio Area.

San Antonio is currently violating the 2015 ozone NAAQS. San Antonio's unhealthy air quality has consequences for the more than 1.9 million Texans who live in Bexar County, including approximately 505,510 children and 106,686 adults suffering from asthma.[31] Recent epidemiological studies suggest that even modest reductions in ozone levels, which could be achieved by reducing pollution from a handful of large sources, would save hundreds of millions of dollars in avoided public health costs, premature deaths, and lost work and school days in the San Antonio area. Indeed, a recent report, conducted using an EPA-approved modeling platform, concluded that compliance with the 2015 ozone NAAQS would prevent 24 premature deaths each year in Bexar County alone, resulting in approximately $220,000,000 in avoided public health costs.[32] The study also estimated that a modest drop in ozone levels would prevent over 38,000 lost school and work days annually in the San Antonio area. *Id.*

B. Additional monitoring is necessary to ensure San Antonio's smog problem is resolved in a prompt and cost-effective manner.

On July 25, 2018, EPA designated Bexar County as a non-attainment area for the 2015 ozone NAAQS. 83 Fed. Reg. 35,136. EPA designated Atascosa, Comal, and Guadalupe Counties as attainment/unclassifiable, even though EPA determined that these three counties

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[29] TCEQ, High levels of benzene detected at ITC fire site (Mar. 21, 2019), available at: https://www.tceq.texas.gov/news/releases/high-levels-of-benzene-detected-at-itc-fire-site.
[30] TCEQ, Investigation Report, Valero Energy Partners LP, Investigation No. 1408309 (Oct. 5, 2017 to Nov. 15, 2017).
[31] https://www.lung.org/our-initiatives/healthy-air/sota/city-rankings/states/texas/bexar.html.
[32] https://www.sanantonio.gov/Portals/0/Files/Sustainability/OzoneHealth/final-report.pdf.

were responsible for approximately 31 percent of the total ozone precursor emissions in the San Antonio area, that air-flow modeling showed air moving from these counties to violating monitors in Bexar County on exceedance days, and that these counties had no ozone monitors of their own, and thus might themselves be violating the NAAQS. EPA's decision to designate these counties as attainment/unclassifiable is currently the subject of litigation before the U.S. Court of Appeals for the Fifth Circuit. *See Texas v. EPA*, No. 18-60606 (5th Cir.).

Regardless of how this litigation is resolved, TCEQ must add additional ozone monitors in the San Antonio area. Among other things, TCEQ's monitoring network must be designed to "[p]rovide air pollution data to the general public in a timely manner" and "[s]upport compliance with ambient air quality standards and emissions strategy development." 40 C.F.R. Pt. 58, App. D, Section 1 (a), (b). Monitoring sites "*must* be capable of informing managers about . . . air pollution transported into and outside of a city or region." *Id.*, Section 1.1.1. Sites must also be designed "to determine the impact of significant sources or source categories on air quality." *Id.*

To support these goals, and to ensure that emission control strategies designed for the greater San Antonio area *solve* the region's smog problem—rather than simply causing industries to migrate from Bexar County to areas that are currently designated as attainment—TCEQ should add ozone monitors in surrounding counties. At minimum, monitors should be added in New Braunfels—to ensure that the approximately 300,000 people who live in Guadalupe and Comal counties have localized air quality data. Adding an additional monitor in New Braunfels is especially appropriate given that Comal County had the second highest growth rate of any county in the United States between 2017 and 2018, increasing by 5.4 percent.[33]

In addition, TCEQ should add an additional monitor north of the San Miguel Electric Plant, to help evaluate this plant's impact on Bexar County's ozone levels. According to EPA's 2014 National Emission Inventory, this 500 MW coal-fired power plant is responsible for nearly 2,400 tons of NOx a year. Consistent with its obligation to "determine the impact of significant sources or source categories on air quality," TCEQ should install an ozone monitor north of the San Miguel plant to help assess the impact of this plant on Bexar County's air quality.

III. <u>TCEQ must add additional monitors in the Permian Basin</u>

A. TCEQ must add two ozone monitors to protect residents of the Permian Basin.

40 C.F.R. Part 58, App. D establishes the minimum ozone monitoring requirements applicable to a state monitoring network. The regulations recognize that the number of ozone monitoring sites required will depend upon "area size (in terms of population and geographic characteristics) and typical peak concentrations (expressed in percentages below, or near the O_3 NAAQS)." *Id.*, § 4.1(a). Table D-2 sets forth the minimum number of monitoring sites required for a given metropolitan area, based on the population of the Metropolitan Statistical Area ("MSA") and the most recent 3-year design value for the area. The regulations clarify that the regulatory agencies should use population data for the Combined Statistical Area ("CSA") if

[33] *See New Census Bureau Estimates Show Counties in South and West Lead Nation in Population Growth* (Apr. 18, 2019), available at: https://www.census.gov/newsroom/press-releases/2019/estimates-county-metro.html.

there are "multiple MSAs" in a metropolitan area. *Id.*, § 4.1(b) ("Within an O_3 network, at least one O_3 site for each MSA, *or CSA if multiple MSAs are involved*, must be designed to record the maximum concentration for that particular metropolitan area.") (emphasis added).

Table D-2 provides a starting point but not an ending point. It is expected that "[t]he total number of O_3 sites needed to support the basic monitoring objectives of public data reporting, air quality mapping, compliance, and understanding O_3-related atmospheric processes *will include more sites than these minimum numbers* . . . ." *Id.* "The EPA Regional Administrator and the responsible State or local air monitoring agency must work together to design and/or maintain the most appropriate O_3 network to service the variety of data needs in an area." *Id.*

The Midland-Odessa Combined Statistical Area ("CSA"), composed of Martin and Midland counties (Midland, Texas) and Ector county (Odessa, Texas), is one of the fastest growing regions in the United States.[34] According to the U.S. Census Bureau, Midland experienced the greatest percentage growth from 2017 to 2018 of any metropolitan area in the nation—growing by 4.3 percent and adding 7,383 people.[35] Odessa was the fifth fastest growing area, experiencing a growth rate of 3.2 percent and adding 4,951 people. *Id*. Including Martin County as well as Midland and Odessa Counties, the combined population of the CSA was 348,826 as of July 1, 2019 (See Figure 1). Together, the CSA's population as of 2018 was 340,146, and it grew at a rate of 2.5 percent (meaning it was adding about 8,500 people per year). Assuming growth rates remain constant through the second half of 2019 and into 2020, the population of Midland-Odessa CSA will certainly be higher than 350,000 by 2020 (See Figure 1).[36]

Figure 1

Annual Estimates of the Resident Population for Counties in Texas: April 1, 2010 to July 1, 2019

Geographic Area	Population Estimate (as of July 1)							
	2013	2014	2015	2016	2017	2018	2019	2020
Texas	**26,480,266**	**26,964,333**	**27,470,056**	**27,914,410**	**28,295,273**	**28,628,666**	**28,995,881**	
Ector County, Texas	149,656	154,588	159,903	157,858	156,951	161,960	166,223	
Martin County, Texas	5,272	5,462	5,646	5,616	5,531	5,681	5,771	
Midland County, Texas	152,356	156,725	162,328	163,850	165,318	172,505	176,832	
Total Midland - Odessa CSA Popultion	307,284	316,775	327,877	327,324	327,800	340,146	348,826	At least higher than 350,000*

Note: The estimates are based on the 2010 Census and reflect changes to the April 1, 2010 population due to the Count Question Resolution program and geographic program revisions. All geographic boundaries for the 2019 population estimates are as of January 1, 2019. For population estimates methodology statements, see http://www.census.gov/programs-surveys/popest/technical-documentation/methodology.html.

Suggested Citation:
Annual Estimates of the Resident Population for Counties in Texas: April 1, 2010 to July 1, 2019 (CO-EST2019-ANNRES-48)

***Comment not included in US Census Bureau data, added as a clarification note**

[34] For reference to treatment of these counties as a CSA, see U.S. Department of Economics and Statistics Administration, U.S. Census Bureau: https://www2.census.gov/geo/maps/econ/ec2012/csa/EC2012_330M200US372M.pdf.

[35] See U.S. Census Bureau (2019) discussing metropolitan growth rates at https://www.census.gov/newsroom/press-releases/2019/estimates-county-metro.html (accessed on May 12, 2020).

[36] Figure comprised of data Published by U.S. Census Bureau (2019) "County Population Totals: 2010-2019" https://www.census.gov/data/tables/time-series/demo/popest/2010s-counties-total.html#par_textimage_242301767.

Midland and Odessa are part of the same metropolitan area, and should be treated as such for purposes of air quality monitoring network design. Together, the Midland-Odessa CSA includes three counties—Martin, Midland, and Ector Counties—which have an area of about 2,700 square miles. Odessa's north-east border (near Mission Blvd) is about 3 miles away from the Midland airport—which is incorporated within the city limits of Midland. About 20 miles separate the centers of each city. Under longstanding EPA regulations, Midland and Odessa are included in the same Intrastate Air Quality Control Region. *See* 40 C.F.R. § 81.137.

Where a metropolitan area is divided into multiple MSAs, EPA regulations require regulators to consider the entire CSA for purposes of designing the air quality monitoring network. *See* 40 C.F.R. Part 58, App. D, § 4.1(b) ("Within an O_3 network, *at least one O_3 site for each MSA, or CSA if multiple MSAs are involved,* must be designed to record the maximum concentration for that particular metropolitan area.") (emphasis added). Here, although the U.S. Census Bureau has characterized Midland-Odessa as an MSA consisting of two CSAs, it is clear that the two cities comprise a single metropolitan area. The combined population of the CSA exceeds the threshold above which an ozone monitor is required under Table D-2. Accordingly, under section 4.1(b), TCEQ must operate "at least one O_3 site for . . . [the] CSA" for the purpose of "record[ing] the maximum concentration for that particular metropolitan area." At present, TCEQ does not have a single ozone monitor in the Midland-Odessa area. That is unlawful under EPA regulations.

Failing to consider Midland and Odessa as a single unit would be arbitrary and capricious. Other metropolitan areas that span much greater distances are treated as a single unit for the purpose of Table D-2. The Houston MSA spans nine counties and has an area of 9,444 square miles. One can drive for 110 miles along I-10 (from Sealy to Winnie) without leaving the MSA. The Dallas-Fort Worth-Arlington MSA is over 9,000 square miles. About 30 miles separate downtown Dallas from downtown Fort Worth. The San Antonio MSA includes eight counties and has an area of 7,340 square miles. It would be arbitrary and capricious to treat these large urban conglomerations as single units under Table D-2, while refusing to do the same for the much smaller Midland-Odessa CSA.

Ironically, regardless of whether TCEQ treats Midland and Odessa as separate units for purposes of Table D-2, the end result is the same: two ozone monitors must be added in the area. That is because both the Midland MSA and the Odessa MSA have more than 50,000 people. As explained, neither city has an existing ozone monitor. As such, TCEQ must look to data that is available at the regional scale—which, pursuant to EPA's regulations, may require looking at "areas with dimensions of as much as hundreds of kilometers." *See* 40 C.F.R. Part 58, App. D, ¶ 4(c)(3). The nearest monitor is in Hobbs, New Mexico, which, like Midland-Odessa, is located in the Permian Basin region. The most recent, 3-year design value for this monitor is 0.070 ppm—100 percent of the 2015 eight-hour ozone NAAQS.[37] Absent some other data for Midland-Odessa, TCEQ must use this as the best estimate available for Midland-Odessa's design value. If TCEQ does have other information about the likely design value, it must provide this information and allow the public the opportunity to comment on it.

[37] https://www.env.nm.gov/air-quality/o3-initiative/.

Applying Table D-2, the result is the same regardless of whether the cities are treated as belonging to the same MSA or not. Table D-2 provides that two monitors are required for a metropolitan area with a population greater than 350,000 if the most recent 3-year design value is greater than or equal to 85 percent of any ozone NAAQS. The best available estimate for Midland-Odessa's design value comes from the monitor in Hobbs, which has a 3-year ozone design value of 0.070 ppm—100 percent of the 2015 eight-hour ozone NAAQS. Accordingly, the best available estimate indicates that Midland-Odessa's ozone levels exceed 85 percent of an ozone NAAQS. Notably, a recent study analyzing satellite observations of the Permian Basin from 2018-2019 estimated that methane emissions from oil and natural gas production in the Basin are approximately 2.7 ± 0.5 Tg a^{-1}, more than two times higher than bottom-up inventory-based estimates, and equivalent to 3.7% of the gross gas extracted in the Permian.[38] Because VOCs are co-emitted with methane during oil and gas production, this study suggests significant VOC emissions.

If the cities are treated as separate MSAs, each with a population greater than 50,000 but less than 50,000, the result is the same. Table D-2 requires cities with more than 50,000 people to have at least one ozone monitor if the most recent 3-year design value is greater than or equal to 85 percent of any ozone NAAQS. Again, the best available estimate for Midland-Odessa's design value exceeds 85 percent of the eight-hour ozone NAAQS. Accordingly, if this approach is used, TCEQ would be required to install one ozone monitor in Midland and a second in Odessa.

B. TCEQ must monitor and model sulfur dioxide emissions in the Permian Basin.

Last year, in our May 21, 2019, Comments on TCEQ's 2019 AMNP, we presented you with the unrefuted fact that, according to TCEQ's Emission Events data, Permian Basin operators reported more than 27 million pounds, or 13,500 tons, of sulfur dioxide emissions from flaring sour gas. We also provided you with a report showing that these unauthorized releases of SO_2 likely cause and contribute to exceedances of EPA's health-based sulfur dioxide NAAQS (1-hour standard) in Ector County.[39] The nearest SO_2 monitor is about 60 miles from Odessa, Ector County.[40] Thus, the existing monitoring network is plainly inadequate to assess SO_2 levels in Ector County, to say nothing of other portions of the Permian Basin. TCEQ must model SO_2 levels in Ector County and the remainder of the Permian Basin and install monitors at expected SO_2 hotspots to serve the purposes of air pollution monitoring. If those modeling and monitoring efforts reveal violations of the NAAQS, TCEQ must take action to fix them, including requesting designation as nonattainment if the data so show.

In addition to the TCEQ Emission Event data, sources under the Texas Railroad Commission's ("RRC") jurisdiction release even more air pollution. Based on the most recent

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[38] Ex. 5, Zhang, et al, *Quantifying methane emissions from the largest oil-producing basin in the United States from space*, Science Advances (April 22, 2020), *available at* https://advances.sciencemag.org/content/6/17/eaaz5120.

[39] *See* Envtl. Integrity Project, Sour Wind in West Texas at 2, 10-12 (May 9, 2019), available at: https://www.environmentalintegrity.org/wp-content/uploads/2019/05/West-Texas-Air-Pollution-Report-5.9.19.pdf.

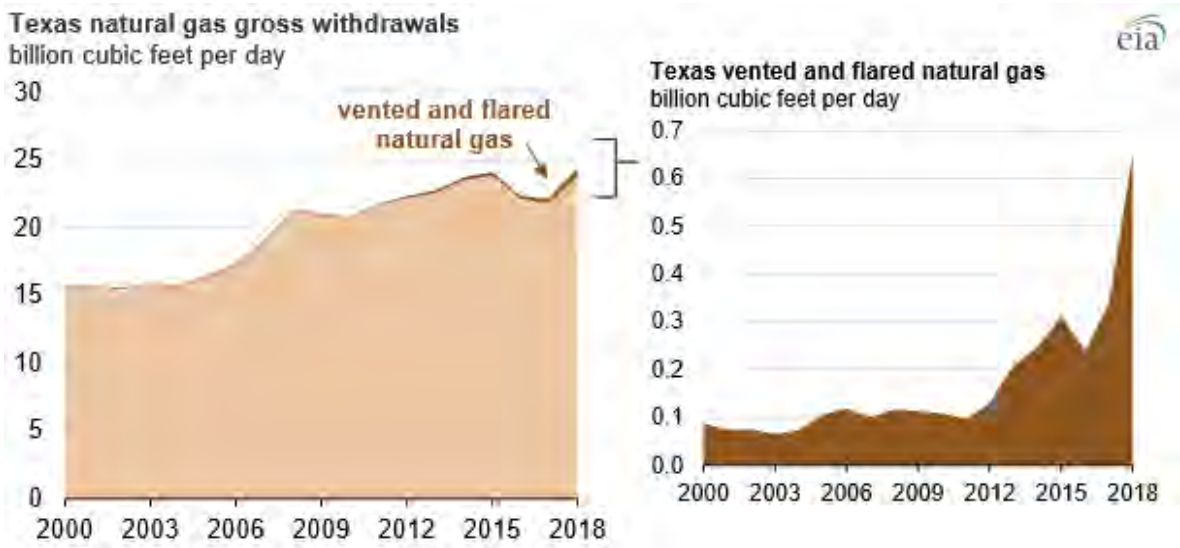
[40] *Id* at 2, 9.

available data from the Texas Railroad Commission, oil and gas drillers likely flared more than 48,000 TONS of sulfur dioxide into the air. We urge the TCEQ to revise the Plan to include monitoring of air quality around oil and gas production, where rampant flaring and venting is well-documented. The current oil bust only heightens the need for monitoring.

C. Railroad Commission flaring data reinforces the need for enhanced Sulfur Dioxide monitors in the Permian Basin.

Currently, there is only one SO_2 monitor in Big Spring Texas and one PM Monitor in Odessa. There are no ozone monitors in the area despite the relatively large population, vast truck traffic and oil and gas activities. While we believe the most immediate need are additional VOC, SO_2 and Hydrogen Sulfide monitors, placing an ozone monitor in the Odessa-Midland area and an additional PM monitor are also important.

According to the U.S. Energy Information Administration, in 2018, vented and flared gas from oil and gas wells in Texas reached over 0.65 Bcf/d, nearly double the 2017 level:



Source: U.S. E.I.A., available at https://www.eia.gov/todayinenergy/detail.php?id=42195

This rise in flared and vented gas tracks the rise in the Texas Railroad Commission's granting of flaring permits (or Rule 32 flaring exceptions). Flaring permits approved by RRC increased from slightly more than 300 in fiscal year 2010 to nearly 5,500 in fiscal year 2018. As Texas Railroad Commissioner Ryan Sitton has documented, oil and gas producers are currently flaring gas roughly at levels similar to those seen in the 1950s.[41]

The current oil bust that is a result of over-production and that has now been severely compounded by the Covid-19 pandemic, makes monitoring in the oil and gas production regions of Texas all the more urgent. All the publicly available data for 2020 indicate that

[41] *See* Table 1, page 3, available at: https://www.rrc.state.tx.us/media/56420/sitton-texas-flaring-report-q1-2020.pdf.

flaring at upstream oil and gas sites has not yet declined. In fact, TCEQ-regulated operators in the Permian Basin continue to file Emission Events reports which show continued flaring as a result of upsets and unplanned maintenance. At the same time, Railroad Commission-regulated sources continue to seek exceptions to that agency's flaring rules as a matter of routine practice.

Moreover, air monitoring in the oil and gas fields will be even more important during a severe oil bust, because air pollution could increase as cash-strapped operators defer maintenance and lay off workers. In addition, we now face heightened risk from volatile organic compounds and hydrogen sulfide emissions resulting from leaks and from orphaned and abandoned wells.

Therefore, we now have an even greater need for monitoring in the oil and gas producing areas than we did last year, as emissions from leaks (venting) and abandoned wells are expected to rise while flaring is still a major source of emissions.

As you know, TCEQ requires operators to report their annual point source emissions inventories. But oil and gas drillers who are regulated by the Railroad Commission do not report directly to TCEQ. Instead, oil and gas drillers report the annual amount of gas that is vented or flared at each oil and gas lease to the Railroad Commission, and then TCEQ obtains this data and uses it to develop area source emission estimates. These emissions are required to be included in the State's Emissions Inventory, and are also included in the State Implementation Plan for achieving and maintaining the national ambient air quality standards.

TCEQ reports detailing the oil and gas emissions estimates, i.e., TCEQ's upstream oil and gas "area source" emissions estimates do not include sulfur dioxide emissions from the RRC-regulated flares. TCEQ's estimates do include emissions from other, much smaller sources at well sites, including drilling rig engines, tanks, and other equipment. But emissions from the flares themselves – the source of most combustion pollution in the oil fields – is not included in the TCEQ's emissions estimates.

To demonstrate the magnitude of the oil and gas well flaring emissions that TCEQ has not considered in drafting the 2020 Annual Monitoring Network Plan, we reviewed the most recent available RRC flare data, which covered the period from October 2018 through September 2019,[42] for the Railroad Commission's District 8 (which covers a portion of the Permian Basin including Ector and Midland Counties. We relied on the Railroad Commission's Hydrogen Sulfide Fields Concentrations Listings for an average hydrogen sulfide concentration per field.[43] We acknowledge that we do not have access to the industry data that TCEQ and the Railroad Commission have, notably the hydrogen sulfide content of all the gas flared, which drives the sulfur dioxide emissions estimates. Therefore, our emission estimates rely on the Railroad Commission's published Fields Concentrations Listings for an average hydrogen sulfide concentration per field. Should TCEQ, RRC, or industry object to our methodology, we

[42] TX RRC Production Report Queries, available at: http://webapps.rrc.texas.gov/PR/publicQueriesMainAction.do.
[43] TX RRC Hydrogen Sulfide (H2S) Fields & Concentrations Listings, available at: https://www.rrc.state.tx.us/oil-gas/research-and-statistics/field-data/h2s/.

welcome your critique and invite you to provide your estimate of sulfur dioxide emissions from these oil and gas well flares. We assumed 98% conversion of hydrogen sulfide to sulfur dioxide, which is commonly used in the industry, although we acknowledge that 100% destruction of hydrogen sulfide is typically expected.

We used the following standard engineering calculations to determine how much hydrogen sulfide and sulfur dioxide oil and gas drillers emitted in the Railroad Commission District 8 over the one-year study period:

Flared Calculations:[44]

$$\boldsymbol{tons\ H_2S} = \frac{field\ concentration\ H_2S\ ppm}{1{,}000{,}000\ ppmv} \times Volume\ Vented\ (MCF) \times 1{,}000\ \left(\frac{scf}{MCF}\right) \times \frac{34.1\ molar\ weight\ H_2S\ \frac{lb}{lb-mol}}{379.3\frac{scf}{mol}} \times \frac{ton}{2{,}000\ lb} \times 0.02\ (gas\ not\ combusted)$$

$$\boldsymbol{tons\ SO_2} = \frac{field\ concentration\ H_2S\ ppm}{1{,}000{,}000\ ppmv} \times Volume\ Vented\ (MCF) \times 1{,}000\ \left(\frac{scf}{MCF}\right) \times \frac{34.1\ molar\ weight\ H_2S\ \frac{lb}{lb-mol}}{379.3\frac{scf}{mol}} \times \frac{64.1\ molar\ weight\ SO_2\ \frac{lb}{lb-mol}}{34.1\ molar\ weight\ H_2S\ \frac{lb}{lb-mol}} \times \frac{ton}{2{,}000\ lb} \times 0.98\ (gas\ combusted)$$

Vented Calculation:[45]

$$\boldsymbol{tons\ H_2S} = \frac{field\ concentration\ H_2S\ ppm}{1{,}000{,}000\ ppmv} \times Volume\ Vented\ (MCF) \times 1{,}000\ \left(\frac{scf}{MCF}\right) \times \frac{34.1\ molar\ weight\ H_2S\ \frac{lb}{lb-mol}}{379.3\frac{scf}{mol}} \times \frac{ton}{2{,}000\ lb}$$

Based on these calculations using the publicly available data, oil and gas operators in RRC District 8 flared roughly 141 BCF of gas between October 2018 and September 2019, and vented about 3,213 thousand cubic feet during that period. Flaring this much gas, much of it high in hydrogen sulfide content, would have resulted in an estimated 48,459 tons of SO_2 and 1,466 tons of H_2S. Venting and flaring on oil and gas leases located in Martin and Howard

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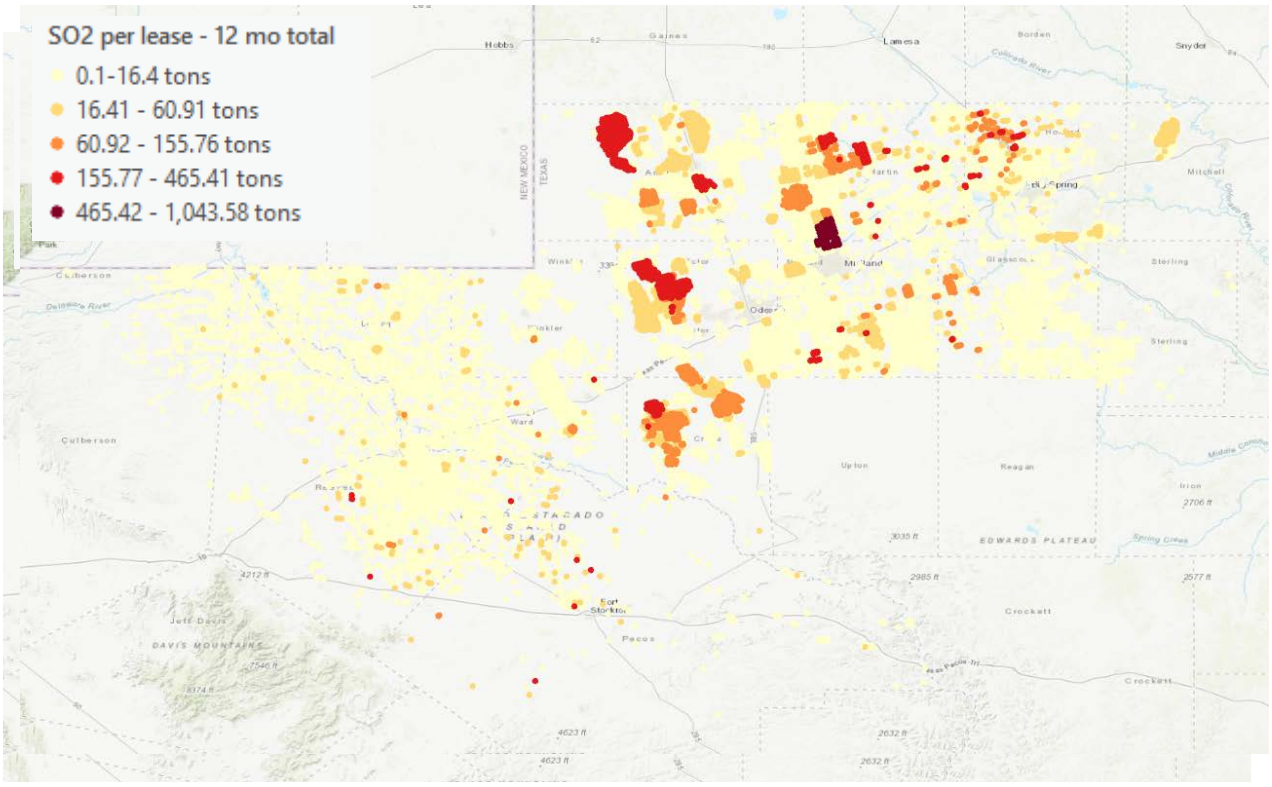
[44] *Id.*

[45] TCEQ, Air Permits Division, New Source Review (NSR) Emission Calculations, available at: https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/emiss_calc_flares.pdf.

counties likely resulted in the highest estimated emissions of SO_2 and H_2S, as shown in the following map:



This new information demonstrates that oil and gas drillers regulated by the Texas Railroad Commission flared even more pollution than the TCEQ-regulated sources that report Emission Events.

We appreciate that the TCEQ has to make hard choices about where to measure air quality in Texas. As Texas now faces its most recent – and hopefully the last – oil bust, we urge you to take action to protect air quality in the oil and gas producing regions of the state. Permian Basin residents, especially, need your protection due to the massive and dangerous emissions of sulfur dioxide and hydrogen sulfide prevalent in that region.

IV. <u>TCEQ's SO_2 monitoring network is insufficient to support compliance with the 1-Hour SO_2 NAAQS.</u>

To reflect the most current science on SO_2 impacts, in 2010, EPA set the new ambient standard at 75 ppb (196 µg/m3) as an hourly average.[46] Due both to its shorter averaging time (1-hour versus 24-hour) and significantly lower allowable concentration (75 ppb versus 140 ppb),

[46] 40 C.F.R. § 50.17(a); Primary NAAQS for Sulfur Dioxide, 75 Fed. Reg. 35,520, 35,520-21 (June 22, 2010).

the new standard is considerably more stringent than the prior SO_2 NAAQS. In adopting the 1-hour SO_2 NAAQS, EPA recognized the "strong source-oriented nature of SO_2 ambient impacts." 75 Fed. Reg. at 35,370. Unlike regional pollution problems, short term SO_2 air pollution problems are caused by single sources and occur in the near vicinity of that source. Thus, EPA concluded that the appropriate methodology for purposes of determining compliance, attainment, and nonattainment with the new NAAQS is *modeling*, since it would be virtually impossible to site sufficient monitors around each individual source of SO_2 pollution. *See* 75 Fed. Reg. at 35,551 (describing dispersion modeling as "the most technically appropriate, efficient, and readily available method for assessing short-term ambient SO_2 concentrations in areas with large point sources."). EPA also determined in the final SO_2 NAAQS rule that it did "not expect monitoring to become the primary method by which ambient concentrations are compared to the new 1-hour SO2 NAAQS."[47]

Aside from the difficulties EPA has recognized are inherent in using monitoring to determine compliance with the SO_2 NAAQS at each individual source in the country, Texas's monitoring and modeling plan is insufficient to demonstrate compliance with the NAAQS, for several reasons. First, Texas was required, but failed, to comply with EPA's Data Requirements Rule for all sources that emit more the 2,000 tons per year threshold, and must therefore use *modeling* to determine compliance with those sources. Second, monitors alone cannot accurately evaluate compliance with the SO_2 NAAQS. Third, TCEQ's proposed SO_2 monitoring network is inadequate to determine whether some of the largest pollution sources are causing unhealthy levels of SO_2. Fourth, even if the monitoring network was adequate, TCEQ has arbitrarily and unlawfully failed to take action to address demonstrated monitored violations of the NAAQS. Finally, for the sources that did rely on modeling to demonstrate compliance with the NAAQS, TCEQ has failed to properly address increases in emissions or explain how the area is meeting the NAAQS.

A. Texas was required to comply with the Data Requirements Rule for all sources that emit more the 2,000 tons per year threshold.

EPA's Data Requirements Rule ("DRR") requires TCEQ to provide data to characterize air quality around many major sources of SO_2.[48] In particular, the rule requires the state to characterize the air quality around sources that emit 2,000 tons per year (tpy) or more of SO_2 and that are not located in an area already designated nonattainment. To demonstrate compliance with the 2010 SO_2 NAAQS, Texas submitted modeling data for only seven of the 25 sources subject to the Data Requirements Rule.[49] Texas now suggests that it can demonstrate attainment for the other sources through monitoring. But the final DRR provides:

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[47] 75 Fed. Reg. at 35,551.

[48] Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO_2) Primary National Ambient Air Quality Standard (NAAQS), 80 Fed. Reg. 51,052 (Aug. 21, 2015) (codified at 40 C.F.R. § 51, Subpart BB).

[49] 2020 Air Monitoring Network Plan, App'x F, Sulfur Dioxide Ongoing Data Requirements Annual Report.

> each source area subject to requirements for air quality characterization, the air agency shall notify the EPA *by July 1, 2016*, whether it has chosen to characterize peak 1- hour SO2 concentrations in such area through ambient air quality monitoring; characterize peak 1-hour SO2 concentrations in such area through air quality modeling techniques; or provide federally enforceable emission limitations by *January 13, 2017*, that limit emissions of applicable sources to less than 2,000 tpy, in accordance with paragraph (e) of this section, or provide documentation that the applicable source has permanently shut down.

40 C.F.R. § 51.1203 (emphasis added). Because the state failed to meet those deadlines for demonstrating attainment through monitoring, the state was required to demonstrate attainment through modeling for some of the largest sources of SO2 pollution in the state, like Martin Lake and Harrington Station, both of which appear to be violating the NAAQS, as discussed below.

B. Monitors alone cannot accurately evaluate compliance with the SO_2 NAAQS.

As EPA explained in the final 2010 SO_2 NAAQS Rule, "even if monitoring does not show a violation," that absence of data is not determinative of attainment status absent modeling, and that monitoring in general is "less appropriate, more expensive, and slower to establish."[50] TCEQ's plan to deploy a more extensive monitoring network as part of the NAAQS implementation process suffers from a number of drawbacks that render this approach too slow, too impractical, and too ineffective for monitoring to replace modeling as the primary means of implementing the 1-hr SO_2 NAAQS.

First, a single monitor may not be sufficient to characterize SO_2 air quality or to determine compliance with the 1-hr SO_2 standard. For any area with fewer than three SO_2 monitors positioned to capture peak concentrations from a large SO_2 source, monitoring will be inadequate to establish 1-hr SO_2 compliance. If only one monitor is located near a large source, that source has a clear invitation to game the system by, for example, slightly adjusting its stack or operating parameters to ensure that high impacts will not occur at the one monitor.

Second, even if TCEQ were to have the resources to deploy a sufficient number of monitors, the state may not be able to locate a monitor where the modeling indicates the highest impacts are likely to occur for technical reasons, such as an inability to gain physical or legal access to the site, or lack of access to power supply.[51]

Third, even if a sufficiently extensive monitoring network were established, full implementation of the NAAQS through monitoring would take up to a decade, which presents

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[50] 75 Fed. Reg. at 35,551.

[51] An inability to place monitors at appropriate locations is another argument in favor of a modeling approach, as EPA has long recognized: "Although siting criteria may preclude the placement of ambient monitors at certain locations, this does not preclude the placement of model receptors at these sites." U.S. EPA 1994 SO_2 Guideline Document at 2-6, *available at* http://www.epa.gov/ttn/naaqs/aqmguide/collection/cp2/19940201_oaqps_epa-452_r-94-008_so2_guideline.pdf [hereinafter, "1994 SO_2 Guideline Document"].

unacceptable risk to vulnerable Texans. Not only would this delay be a disservice to the public, it would also be a disservice to the regulated entities, especially owners of coal-fired power plants, which must make critical decisions now about future operations. Many of these sources are already in distress due to a number of factors, including low natural gas prices, declining demand for energy, an increasing availability of zero- or low- SO_2 generating sources, and the age of the existing coal-fired power plant fleet. Evaluating and achieving compliance through more expeditious and cost-effective air dispersion modeling can thus provide the regulatory clarity needed to make prudent decisions about those plants now that reliance on increased monitoring alone cannot.

Finally, EPA itself has acknowledged that, for medium to large sources, monitoring is "less appropriate, more expensive, and slower to establish."[52] Moreover, the cost of modeling compliance with the SO_2 NAAQS is modest, particularly in comparison to the costs of installing and operating an adequate SO_2 monitoring network. This is particularly true where, as here, the vast majority of SO_2 pollution comes from a relatively small group of very large sources. If TCEQ does not have sufficient in-house modeling resources, the agency would incur some costs charged by third-party modelers, but even these costs are comparatively nominal. Independent third-party modelers could conduct AERMOD time series modeling for SO_2 for less than $5,000 per source, and in most instances less than $3,000. In stark contrast, simply purchasing and installing a single monitor can cost upwards of $100,000 per site. By focusing on modeling the sources subject to the DRR, TCEQ could ensure that the protections promised by the NAAQS are met in a cost-effective and expeditious manner.

C. TCEQ's proposed SO_2 monitoring network is inadequate to determine whether some of the largest pollution sources are causing unhealthy levels of SO_2.

The 25 Texas coal-burning power plants subject to the Data Requirements Rule emit more sulfur dioxide than all of the sources in Arkansas, Louisiana, Oklahoma, Arizona, Colorado, Kansas, New Mexico, and Mississippi, *combined*.[53] Nevertheless, TCEQ operates SO_2 ambient air monitors in the vicinity of only nine of those plants.[54] And four of those plants—Big Brown, Monticello, Sandow, and J.T. Deely—have ceased operations. By focusing on a subset of sources that is responsible for only a fraction of Texas's staggering SO_2 emissions, TCEQ undermines the core purposes of EPA's monitoring regulations: provide the public with accurate data on air pollution.[55]

The agency's 2020 monitoring plan also fails (as did the 2019 plan) to demonstrate that the current SO_2 monitors are placed in a location and manner that captures the peak predicted emissions concentrations, as required by EPA regulations.[56] By way of example, air dispersion modeling conducted according to EPA's SO_2 modeling protocol demonstrates that TCEQ's

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[52] 75 Fed. Reg. at 35,570.
[53] *Id.*
[54] TCEQ has SO_2 monitors near Harrington, Gibbons Creek, Big Brown, Martin Lake, Welsh, J.K. Spruce, J.T. Deely, Monticello, and Sandow.
[55] 40 C.F.R. Pt. 58 App. D ¶ 1.1.
[56] *Id.* at ¶ 1.1(c).

monitoring placements for the Martin Lake power plant does *not* capture peak predicted impacts from that source. Instead, the modeling demonstrates that the highest SO_2 concentrations—concentrations that violate the 2010 SO_2 NAAQS—caused by emissions from Martin Lake are in significantly different areas than the existing monitors. *Compare* Ex. 1 at 1-2 *with* 2019 Air Monitoring Plan App'x B at B-37 (location of the Martin Lake monitor at 32.2778 N, -94.5708 W). Indeed, air dispersion modeling indicates that location of peak impacts from Martin Lake are more than a half mile from TCEQ's location. Similarly, air dispersion modeling conducted according to EPA protocol demonstrates that the location of peak impacts for the Harrington power plant is also approximately a half mile away from TCEQ's monitor location. *Compare* Ex. 2 at 3-4 *with* 2019 Air Monitoring Plan App'x B at B-1 (location of the Harrington monitor at 35.3165 W, -101.7418 N).

EPA regulations require TCEQ to place monitors in a location that will capture the peak pollution concentrations caused by a particular source.[57] The attached modeling, which EPA concluded was conducted according to agency protocol and used recent actual emissions,[58] demonstrates that TCEQ failed to site monitors in locations with the highest predicted concentration of SO_2 pollution from the respective sources.

D. TCEQ has unlawfully failed to take action to protect the public from *monitored* violations of the NAAQS.

Even if TCEQ correctly sited its SO_2 monitors in locations with the highest predicted concentration of SO_2 pollution (and it did not), the agency's own *monitoring* data indicates that air quality at multiple monitors located near very large coal-burning power plants is regularly exceeding the health-based SO_2 NAAQS. In fact, TCEQ monitoring data demonstrates that the design values for the air quality monitors near Martin Lake in Rusk County and Harrington Station in Potter County are violating the 2010 standard.

The 2010 SO_2 NAAQS requires that the three-year average of the 99th percentile 1-hour daily maximum SO_2 concentration—*i.e.*, the average of the fourth highest maximum one-hour reading for three years—must not exceed 75 ppb. 40 C.F.R. § 50.17(b). Applying this standard, TCEQ's Martin Lake monitor will have a minimum 2017-2019 design value of 82.03 ppb, well above the NAAQS.[59] To calculate the design value, Sierra Club averaged the fourth-highest 1-hour daily maximum values from available data for 2017, 2018, and 2019. The fourth-highest value for 2018 was 109.1 ppb. The fourth-highest value for 2019 was 114.8 ppb. And although the monitor operated for just 32 days of 2017, the fourth-highest reading for that period was 22.2 ppb. The average of 109.1 ppb, 114.8 ppb, and 22.2 ppb is 82.03 ppb,[60] making clear that the

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[57] *Id.* at ¶ 1.1.

[58] *See generally* 81 Fed. Reg. 89,870 (Dec. 13, 2016).

[59] *See* Ex. 3 (CAMS 1082 monitoring data for Tatum CR 2181d Martin Creek Lake, EPA Site Number: 484011082, available at: https://www17.tceq.texas.gov/tamis/index.cfm?fuseaction=report.view_site&CAMS=1082).

[60] 109.1 ppb (2018 fourth highest hourly reading) + 114.8 ppb (2019 fourth highest hourly reading) + 22.2 ppb (2017 fourth highest hourly reading) = 246.1 ppb. 246.1 ppb ÷ 3 = 82.03 ppb.

area is failing the NAAQS. Significantly, the 82.03 ppb design value for 2017-2019 is almost certainly conservative because the Martin Lake monitor was not operable until November 2017, and thus the 82.03 ppb design value essentially assumes *zero* emissions for the first ten months of 2017. It is likely the design value for 2017 would have been comparable to the other two years (i.e., greater than 100 ppb) if the monitor had operated for the entire year.

Monitoring data is now available through April 27, 2020, and already yields a fourth-highest 1-hour daily maximum value of **61.6 ppb** for the first quarter of 2020.[61] Paired with the fourth-highest 2018 and 2019 values of **109.1 ppb** and **114.8 ppb**,[62] respectively, the newly-available data thus yields a minimum 2018-2020 design value of **95.2 ppb**—again, well above the NAAQS of 75 ppb. This design value is likewise extremely conservative in that it assumes no emissions for the remainder of the coming year. The fourth-highest 1-hour daily maximum value for 2020 may well exceed 61.6. ppb once all twelve months of monitoring data is available. Indeed, in just the first four months of 2020, the monitor has already (significantly) exceeded the 75 ppb health-based safeguard on three separate occasions—hitting 106.1 ppb on February 3; 86.8 ppb on February 9; and 83.9 ppb on March 1. Given that Martin Lake typically operates at a higher capacity factor in the summer months, monitored SO_2 levels could easily exceed 75 ppb yet again this year. Moreover, the 61.6 ppb value likely underestimates even year-to-date concentrations because, as noted above, the Martin Lake monitor is not sited so as to capture peak hourly SO_2 impacts.

Air quality in the area surrounding Xcel Energy's coal-burning Harrington Station similarly fails to meet EPA's health-based SO_2 standard. In fact, air quality surrounding Harrington is significantly worse. TCEQ's monitor indicates that in 2018, hourly SO_2 concentrations near the Harrington power plant were as high as 209.1 ppb—nearly *triple* the maximum concentration EPA has determined is safe to breathe.[63] The 99th percentile in 2018 was 132.8 ppb. The year before, in 2017, the 99th percentile was somewhat lower—114 ppb. And in 2019, the fourth highest hourly reading was 95.4, meaning that the 2017-2019 design value was 114.2—nearly double the NAAQS. Thus, even though these monitors do not actually capture the highest SO_2 concentrations near either plant, they indicate that the areas surrounding both Martin Lake and the Harrington power plants are violating the health-based NAAQS, exposing those communities to significant risk.

If air quality monitoring in 2019 continues to demonstrate violations of the standard, TCEQ must take steps to redesignate those areas as being in nonattainment with the 2010 SO_2 NAAQS. 40 C.F.R. § 51.1205(d); *see also* 30 Tex. Admin. Code § 101.21 ("The National Primary and Secondary Ambient Air Quality Standards as promulgated pursuant to section 109

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[61] *See* Ex. 3 (CAMS 1082 Monthly Monitoring Data, Tatum CR 2181d Martin Creek Lake C1082 - EPA Site: 484011082, available at: https://www.tceq.texas.gov/cgi-bin/compliance/monops/monthly_summary.pl?cams=1082).

[62] Newly-available data from September through December 2019 confirms 114.8 ppb as the fourth-highest daily maximum value for 2019.

[63] *See* Ex. 4 (CAMS 1077 Monthly Monitoring Data, Amarillo Xcel El Rancho, EPA Site Number: 483751077, available at: https://www.tceq.texas.gov/cgi-bin/compliance/monops/monthly_summary.pl?cams=1077).

of the Federal Clean Air Act, as amended, will be enforced throughout all parts of Texas."). At a minimum, TCEQ must take appropriate action, including requiring adoption of enforceable emission limits to ensure attainment of the 2010 SO_2 NAAQS near both power plants, or recommend that EPA redesignate the areas to nonattainment. Sierra Club also urges TCEQ to install additional air quality monitors in those areas to properly characterize ambient air quality near those plants and to inform the affected communities.

E. TCEQ should conduct additional modeling to reevaluate compliance with the SO_2 NAAQS at W.A. Parish, San Miguel, and Coleto Creek, or adopt enforceable emissions limitations to ensure attainment.

In its Sulfur Dioxide Ongoing Data Requirements Annual Report, TCEQ notes that total SO2 pollution from the San Miguel Electric Plant, W.A. Parish Electric Generating Station, and Coleto Creek Power Station have increased significantly since 2019.[64] In fact, in each of the past four years, each plant has increased its overall SO_2 emissions.

Under 40 C.F.R. §51.1205(b), TCEQ is required to provide EPA with an assessment of the cause of such emissions increase and a recommendation as to " whether additional modeling is needed to characterize air quality in any area to determine whether the area meets or does not meet the 2010 SO2 NAAQS." Although TCEQ acknowledges the emissions increases, the agency asserts that no further evaluation is needed because "the original designation modeling evaluated higher average emissions" for W.A Parish and Coleto Creek. Since higher emissions were evaluated, the original designation modeling provides "reasonable assurance" that the areas continue to meet the 2010 one-hour SO2 primary NAAQS. For San Miguel, TCEQ acknowledges that recent average emissions exceed the levels used for designation modeling by 151 tons per year, but the agency asserts that "this small increase of approximately 1.7 percent of SO2 emissions would not be expected to change the attainment/unclassifiable designation determined from the original modeling."[65]

That conclusory explanation for refusing to conduct additional modeling or monitoring is insufficient. As an initial matter, the modeling analyses supporting the original area designations for W.A. Parish, Coleto Creek, and San Miguel are not actually in TCEQ's monitoring network rulemaking record. Moreover, those air dispersion modeling analyses do not actually reflect total annual emissions for any of the three plants. Instead, the reports reflect emission rates that each company evaluated to demonstrate compliance with the *hourly* standard.

In any event, even if the earlier modeling evaluated higher total annual emissions for each plant, that does not ensure compliance with the *one-hour* NAAQS. In setting the 2010 standard, EPA explicitly recognized that short-term exposure to SO2 concentrations above 75 ppb were harmful to human health. Accordingly, the 2010 standard imposes a shorter averaging time (1-hour versus 24-hour), which is designed to protect against dangerous short-term exposure. TCEQ's facile observation that total annual emissions are lower than those modeled

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[64] 2020 Air Monitoring Network Plan, App'x F, Sulfur Dioxide Ongoing Data Requirements Annual Report.
[65] *Id*.

period does not adequately protect the surrounding communities against periods of high utilization and the associated concentration of SO_2 pollution from these essentially uncontrolled coal plants. And TCEQ's reference to total annual emissions does not ensure—nor is it even relevant to—compliance with the *hourly* standard. TCEQ should conduct additional modeling, based on the most-recent three years of actual hourly emissions and meteorological data to ensure compliance with the NAAQS at San Miguel, W.A. Parish, and Coleto Creek. Alternatively, the agency should impose more stringent emissions limitations under 40 C.F.R. § 1204 to ensure compliance with the standard.

V. TCEQ Should Install Additional Monitors in El Paso.

Western Refining Company, L.P., recently obtained TCEQ's approval to *double* the allowable amount of hydrogen cyanide emissions from its fluidized catalytic cracking unit. Residents of neighboring communities are currently being exposed to HCN emissions in amounts that can be expected to cause significant public health impacts. Modeling conducted in connection with Western Refining's application shows numerous exceedances of the one-hour Effects Screening Level for HCN at the fenceline directly north of the Sambrano neighborhood. To our knowledge, no health impact study has been conducted for members of this neighborhood, but this modeling raises serious concerns about potential health impacts on residents. TCEQ should require Western Refining to implement real-time emissions monitoring at the fence-line, so that residents and emergency personnel can be alerted of emissions exceedances in time to take appropriate response measures. TCEQ should also require Western Refining to conduct a health impact study of the Sambrano neighborhood to determine if residents are suffering adverse health effects as a result of HCN or other emissions.

TCEQ should also deploy a near-road NO_2/CO monitor at Zavala Elementary School. EPA regulations require "one near-road NO_2 monitoring station in each [core-based statistical area] with a population of 1,000,000 or more persons to monitor a location of expected maximum hourly concentrations sited near a major road with high [annual average daily traffic] counts . . . ." 40 C.F.R. Part 58, App. D, Section 4.3.2(a). In selecting the appropriate site for this station, a monitoring agency must rank all road segments and "identify[] a location or locations adjacent to those highest ranked road segments, considering fleet mix, roadway design, congestion patterns, terrain, and meteorology, where maximum hourly NO_2 concentrations are expected to occur . . . ." *Id.* If there are multiple acceptable candidates, the agency "shall consider the potential for population exposure" as a tie-breaking factor. *Id.* The monitor should be designed to reflect "the maximum expected NO_2 concentration . . . [at] the microscale." *Id.*, section 4.3.5(a). A CO monitor must generally be collocated with any near-road NO_2 site. *Id.*, section 4.2(b).

El Paso does not currently have a near-road monitoring station, and TCEQ lists the required number of near-road monitors as zero in Appendix D of this proposal. TCEQ has misread the regulations. The El Paso-Las Cruces CBSA, which includes El Paso and Hudspeth Counties, Texas, and Dona Ana County, New Mexico, has a population in excess of 1,000,000.[66] This understates the population using this area, however, as many residents of Ciudad Juarez (a

[66] https://www.epa.gov/sites/production/files/2017-12/documents/nm_tsd_final.pdf at page 15; https://www2.census.gov/geo/maps/metroarea/stcbsa_pg/Feb2013/cbsa2013_TX.pdf

city with over 1.3 million residents) use the roadways near Zavala. At minimum, TCEQ must install one near-road monitor in this CBSA.

A natural candidate for such a monitor would be Zavala Elementary School. The school is located directly adjacent to the Interstate 110 spur, which connects Interstate 10 with the Cordova International Bridge. This spur has an AADT value of 70,997 in 2017, while I-10 itself—less than a mile away—had an AADT value of over 175,000.[67] Heavy-duty trucks—many of which are Mexican-domiciled and thus not compliant with U.S. emission standards—often idle on this spur for an extended period of time. Monitoring the emissions at this location would provide important data to residents in the Chamizal community who are concerned about the impact of these vehicle emissions on their children.

VI. Conclusion

For the reasons discussed above, TCEQ's 2020 monitoring plan is inadequate and will not properly characterize peak pollution concentrations in many of the most vulnerable communities across the state. To protect the health of Texas citizens, TCEQ must enhance its air monitoring network as discussed above. Commenters further request that TCEQ remand the proposal, publish the plan in both English and Spanish, and allow the public to provide additional comment on the agency's network plan through the notice and comment rulemaking process.

Thank you for the opportunity to comment. If you have any questions or need additional information, please do not hesitate to contact us.

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67 http://www.arcgis.com/home/webmap/viewer.html?url=https://services.arcgis.com/KTcxiTD9dsQw4r7Z/ArcGIS/rest/services/TxDOT_AADT_Annuals_viewer/FeatureServer/0&source=sd

Exhibit 1

Martin Lake Generating Station

Tatum, Texas

Evaluation of Compliance with the 1-hour NAAQS for SO_2

March 31, 2016

Conducted by:

Steven Klafka, P.E., BCEE

Wingra Engineering, S.C.

Madison, Wisconsin

1. Introduction

Wingra Engineering, S.C. was hired by the Sierra Club to conduct an air modeling impact analysis to help USEPA, state and local air agencies identify facilities that are likely causing exceedences of the 1-hour sulfur dioxide (SO_2) national ambient air quality standard (NAAQS). This document describes the results and procedures for an evaluation of the Martin Lake Generating Station located in Tatum, Texas.

This analysis supplements the evaluation described in the September 11, 2015 report prepared on behalf of the Sierra Club. To improve the accuracy, this analysis used actual hourly emissions and stack exhaust flow rates for the 2013-15 period. This analysis also incorporates a more current and lower background concentration than the previous September 2015 modeling.

The dispersion modeling analysis predicted ambient air concentrations for comparison with the 1-hour SO_2 NAAQS. The modeling was performed using the most recent version of AERMOD, AERMET, and AERMINUTE, with data provided to the Sierra Club by regulatory air agencies and through other publicly-available sources as documented below. The analysis was conducted in adherence to all available USEPA guidance for evaluating source impacts on attainment of the 1-hour SO_2 NAAQS via aerial dispersion modeling, including the AERMOD Implementation Guide; USEPA's Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010; modeling guidance promulgated by USEPA in Appendix W to 40 CFR Part 51; USEPA's March 2011 Modeling Guidance for SO_2 NAAQS Designations; [1] and, USEPA's December 2013 SO_2 NAAQS Designations Technical Assistance Document.[2]

It was determined that based on measured actual emissions, the Martin Lake Generating Station is estimated to create SO_2 concentrations which exceed the 1-hour NAAQS.

2. Compliance with the 1-hour SO_2 NAAQS

2.1 1-hour SO_2 NAAQS

The 1-hour SO_2 NAAQS takes the form of a three-year average of the 99th percentile of the annual distribution of daily maximum 1-hour concentrations, which cannot exceed 75 parts per billion (ppb).[3] Compliance with this standard was verified using USEPA's AERMOD air dispersion model, which produces air concentrations in units of $\mu g/m^3$. The 1-hour SO_2 NAAQS of 75 ppb equals 196.2 $\mu g/m^3$, and this is the value used for determining whether modeled impacts exceed the

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[1] http://www.epa.gov/scram001/so2_modeling_guidance.htm
[2] http://www.epa.gov/oaqps001/sulfurdioxide/pdfs/SO2ModelingTAD.pdf
[3] USEPA, Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010.

NAAQS.[4] The 99th percentile of the annual distribution of daily maximum 1-hour concentrations corresponds to the fourth-highest value at each receptor for a given year.

2.2 Modeling Results

Modeling results for Martin Lake Generating Station are summarized in Table 1. It was determined that based on measured actual emissions, the Martin Lake Generating Station is estimated to create downwind SO_2 concentrations which exceed the 1-hour NAAQS. "Actual" represents the emissions which occurred during each hour of the 2013-15 period. Actual emission measurements were taken from two databases, USEPA *Clean Air Markets Program Data (CAMD)* [5] and the Emissions Modeling Clearinghouse State-Level Hourly Sulfur Dioxide (SO_2) Data. [6]

To more accurately predict the dispersion of emissions, hourly exit velocities were used. Continuous emissions monitor measurements were not publicly available for this analysis so exit velocities were derived from the hourly flow rates and heat input in the USEPA Clearinghouse and CAMD databases. The Clearinghouse emissions and exit velocities for 2013-14 were supplemented with CAMD emissions for 2015. The velocities for 2015 were derived from the hourly heat input reported in CAMD.

Air quality impacts in Texas are based on a background concentration of 5.2 $\mu g/m^3$. This is the 2012-14 design value for El Paso, Texas - the lowest measured background concentration in the state. This is the most recently available design value. See Section 5 for further discussion of the background concentrations used for this analysis.

Table 1 - SO_2 Modeling Results for Martin Lake Generating Station

Emission Rates	Averaging Period	99th Percentile 1-hour Daily Maximum ($\mu g/m^3$)				Complies with NAAQS?
		Impact	Background	Total	NAAQS	
Actual 2013-15	1-hour	244.1	5.2	249.3	196.2	No

[4] The ppb to $\mu g/m^3$ conversion is found in the source code to AERMOD v. 15181, subroutine Modules. The conversion calculation is 75/0.3823 = 196.2 $\mu g/m^3$.
[5] http://ampd.epa.gov/ampd/
[6] https://www3.epa.gov/ttn/chief/emch/so2naaqs/index.html

Figure 1 shows the extent of NAAQS violations based on actual hourly emissions for the 2013-15 period.

2.3 Conservative Modeling Assumptions

A dispersion modeling analysis requires the selection of numerous parameters which affect the predicted concentrations. For the enclosed analysis, several parameters were selected which under-predict facility impacts.

Assumptions used in this modeling analysis which likely under-estimate concentrations include the following:

- No consideration of building or structure downwash. These downwash effects typically increase predicted concentrations near the facility.
- No consideration of off-site sources. These other sources of SO_2 will increase the predicted impacts.
- Air quality impacts are based on a background SO_2 concentration of 5.2 µg/m3, which is the lowest measured background concentration in the state. Given the proximity to other major sources of SO_2, the actual background concentration is likely much higher.
- No evaluation has been conducted to determine if the stack height exceeds Good Engineering Practice or GEP height. If the stack height exceeds GEP, the predicted concentrations will increase.

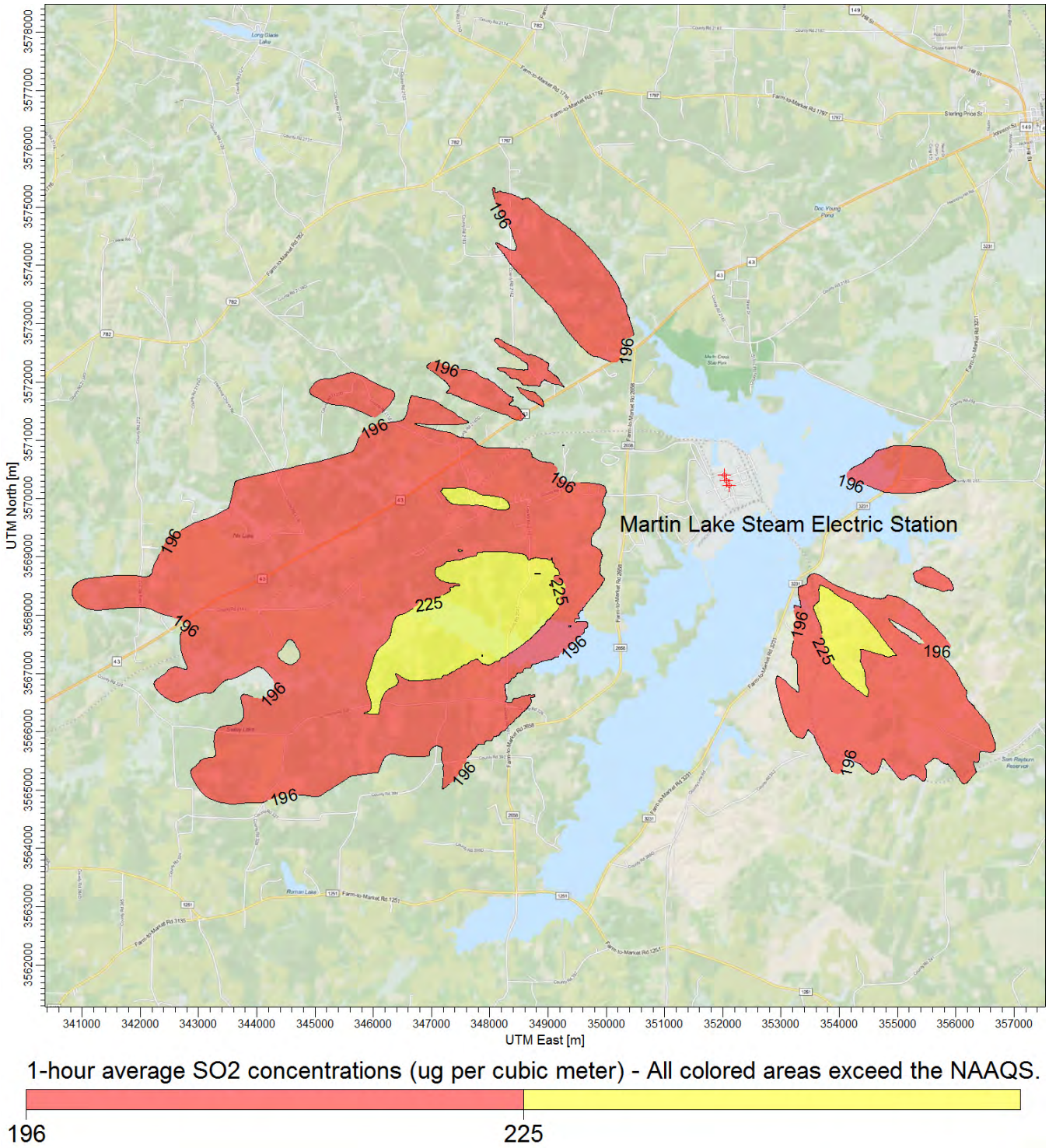

Figure 1 - Impacts Based on Actual Emissions & Exit Velocities from Martin Lake Generating Station

3. Modeling Methodology

3.1 Air Dispersion Model

The modeling analysis used USEPA's AERMOD program, v. 15181. AERMOD, as available from the Support Center for Regulatory Atmospheric Modeling (SCRAM) website, was used in conjunction with a third-party modeling software program, *AERMOD View*, sold by Lakes Environmental Software.

3.2 Control Options

The AERMOD model was run with the following control options:

- 1-hour average air concentrations
- Regulatory defaults
- Flagpole receptors

To reflect a representative inhalation level, a flagpole height of 1.5 meters was used for all modeled receptors. This parameter was added to the receptor file when running AERMAP, as described in Section 4.4.

An evaluation was conducted to determine if the modeled facility was located in a rural or urban setting using USEPA's methodology outlined in Section 7.2.3 of the Guideline on Air Quality Models.[7] For urban sources, the URBANOPT option is used in conjunction with the urban population from an appropriate nearby city and a default surface roughness of 1.0 meter. Methods described in Section 4.1 were used to determine whether rural or urban dispersion coefficients were appropriate for the modeling analysis.

3.3 Output Options

The AERMOD analysis was based on three years of recent meteorological data. The modeling analyses used one run with three years of sequential meteorological data from 2013-2015. Consistent with USEPA's Modeling Guidance for SO_2 NAAQS Designations, AERMOD provided a table of fourth-high 1-hour SO_2 impacts concentrations consistent with the form of the 1-hour SO_2 NAAQS.[8]

Please refer to Table 1 for the modeling results.

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[7] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005.
[8] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, pp. 24-26.

4. Model Inputs

4.1 Geographical Inputs

The "ground floor" of all air dispersion modeling analyses is establishing a coordinate system for identifying the geographical location of emission sources and receptors. These geographical locations are used to determine local characteristics (such as land use and elevation), and also to ascertain source to receptor distances and relationships.

The Universal Transverse Mercator (UTM) NAD83 coordinate system was used for identifying the easting (x) and northing (y) coordinates of the modeled sources and receptors. Stack locations were obtained from facility permits and prior modeling files provided by the state regulatory agency. The stack locations were then verified using aerial photographs.

The facility was evaluated to determine if it should be modeled using the rural or urban dispersion coefficient option in AERMOD. A GIS was used to determine whether rural or urban dispersion coefficients apply to a site. Land use within a three-kilometer radius circle surrounding the facility was considered. USEPA guidance states that urban dispersion coefficients are used if more than 50% of the area within 3 kilometers has urban land uses. Otherwise, rural dispersion coefficients are appropriate.[9]

USEPA's AERSURFACE v. 13016 was used to develop the meteorological data for the modeling analysis. This model was also used to evaluate surrounding land use within 3 kilometers. Based on the output from the AERSURFACE, approximately 6.4% of surrounding land use around the modeled facility was of urban land use types including Type 21 – Low Intensity Residential, Type 22 – High Intensity Residential and Type 23 – Commercial / Industrial / Transportation.

This is less than the 50% value considered appropriate for the use of urban dispersion coefficients. Based on the AERSURFACE analysis, it was concluded that the rural option would be used for the modeling summarized in this report. Please refer to Section 4.5.3 for a discussion of the AERSURFACE analysis.

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[9] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005, Section 7.2.3.

4.2 Emission Rates and Source Parameters

The modeling analyses only considered SO_2 emissions from the facility. Off-site sources were not considered. Stack parameters used for the modeling analysis are summarized in Table 2. The exit temperature was held constant but the hourly exit velocity varied based on flow rate and heat input information provided by USEPA Clearinghouse and CAMD databases.

Table 2 – Facility Stack Parameters[10]

Facility	Martin Lake		
Stack	S01	S02	S03
Description	Unit 1	Unit 2	Unit 3
X Coord. [m]	352028	352066.8	352107.1
Y Coord. [m]	3570404.46	3570314.64	3570224.87
Base Elevation [m]	95.18	94.95	94.79
Release Height [m]	137.77	137.77	137.8
Gas Exit Temperature [°K]	449.261	449.261	449.261
Inside Diameter [m]	7.01	7.01	7.01
Gas Exit Velocity [m/s]	-	-	-
Actual Emission Rate [g/s]	-	-	-

The above stack parameters and emissions were obtained from regulatory agency documents and databases identified in Section 2.2. Stack location, height and diameter were verified using aerial photographs, and flue gas flow rate and temperature were verified using combustion calculations.

4.3 Building Dimensions and GEP

No building dimensions or prior downwash evaluations were available. Therefore this modeling analysis did not address the effects of downwash and this may under-predict impacts.

4.4 Receptors

For Martin Lake Generating Station, three receptor grids were employed:

1. A 100-meter Cartesian receptor grid centered on Martin Lake Generating Station and extending out 5 kilometers.
2. A 500-meter Cartesian receptor grid centered on Martin Lake Generating Station and

[10] Height and exit area were obtained from the USEPA Emissions Modeling Clearinghouse State-Level Hourly Sulfur Dioxide (SO_2) Data. Exit temperatures were obtained from Environ, 2018 Base CaseCAMx Simulation, Texas Haze Evaluation, Appendix A: Stack Parameters of Major Units at the Selected 38 Facilities, September 7, 2013.

extending out 10 kilometers.

3. A 1,000-meter Cartesian receptor grid centered on Martin Lake Generating Station and extending out 50 kilometers. 50 kilometers is the maximum distance accepted by USEPA for the use of the AERMOD dispersion model.[11]

A flagpole height of 1.5 meters was used for all these receptors.

Elevations from stacks and receptors were obtained from National Elevation Dataset (NED) GeoTiff data. GeoTiff is a binary file that includes data descriptors and geo-referencing information necessary for extracting terrain elevations. These elevations were extracted from 1 arc-second (30 meter) resolution NED files. The USEPA software program AERMAP v. 11103 is used for these tasks.

4.5 Meteorological Data

To improve the accuracy of the modeling analysis, recent meteorological data for the 2013-2015 period were prepared using the USEPA's program AERMET which creates the model-ready surface and profile data files required by AERMOD. Required data inputs to AERMET included surface meteorological measurements, twice-daily soundings of upper air measurements, and the micrometeorological parameters surface roughness, albedo, and Bowen ratio. One-minute ASOS data were available so USEPA methods were used to reduce calm and missing hours.[12] The USEPA software program AERMINUTE v. 15272 is used for these tasks.

This section discusses how the meteorological data was prepared for use in the 1-hour SO_2 NAAQS modeling analyses. The USEPA software program AERMET v. 15181 is used for these tasks.

4.5.1 Surface Meteorology

Surface meteorology was obtained for Longview Texas Regional Airport located near the Martin Lake Generating Station. Integrated Surface Hourly (ISH) data for the 2013-2015 period were obtained from the National Climatic Data Center (NCDC). The ISH surface data was processed through AERMET Stage 1, which performs data extraction and quality control checks.

4.5.2 Upper Air Data

Upper-air data are collected by a "weather balloon" that is released twice per day at selected

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[11] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, Section A.1.(1), November 9, 2005.

[12] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, p. 19.

locations. As the balloon is released, it rises through the atmosphere, and radios the data back to the surface. The measuring and transmitting device is known as either a radiosonde, or rawindsonde. Data collected and radioed back include: air pressure, height, temperature, dew point, wind speed, and wind direction. The upper air data were processed through AERMET Stage 1, which performs data extraction and quality control checks.

For Martin Lake Generating Station, the concurrent 2013-2015 upper air data from twice-daily radiosonde measurements obtained at the most representative location were used. This location was the Shreveport, Louisiana measurement station. These data are in Forecast Systems Laboratory (FSL) format and were downloaded in ASCII text format from NOAA's FSL website.[13] All reporting levels were downloaded and processed with AERMET.

4.5.3 AERSURFACE

AERSURFACE is a program that extracts surface roughness, albedo, and daytime Bowen ratio for an area surrounding a given location. AERSURFACE uses land use and land cover (LULC) data in the U.S. Geological Survey's 1992 National Land Cover Dataset to extract the necessary micrometeorological data. LULC data was used for processing meteorological data sets used as input to AERMOD.

AERSURFACE v. 13016 was used to develop surface roughness, albedo, and daytime Bowen ratio values in a region surrounding the meteorological data collection site. AERSURFACE was used to develop surface roughness in a one kilometer radius surrounding the data collection site. Bowen ratio and albedo was developed for a 10 kilometer by 10 kilometer area centered on the meteorological data collection site. These micrometeorological data were processed for seasonal periods using 30-degree sectors. Seasonal moisture conditions were considered average with winter months having no continuous snow cover.

4.5.4 Data Review

Missing meteorological data were not filled as the data file met USEPA's 90% data completeness requirement.[14] The AERMOD output file shows there were 0.93% missing data.

To confirm the representativeness of the airport meteorological data, the surface characteristics of the airport data collection site and the modeled source location were compared. Since the Longview Texas Regional Airport is located close to Martin Lake Generating Station, this meteorological data

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[13] Available at: http://esrl.noaa.gov/raobs/
[14] USEPA, Meteorological Monitoring Guidance for Regulatory Modeling Applications, EPA-454/R-99-05, February 2000, Section 5.3.2, pp. 5-4 to 5-5.

set was considered appropriate for this modeling analysis.[15] Additionally, this weather station provided high quality surface measurements for the most recent 3-year time, and had similar land use, surface characteristics, terrain features and climate.

Finally, TCEQ provides pre-processed meteorological data suitable for modeling for each county.[16] For Rusk County, TCEQ recommends using data from the same surface and upper air stations used for this modeling analysis. The TCEQ data were not used for this project because they were not from the most recent years needed for this analysis and had not been processed using the latest versions of USEPA modeling software.

5. Background SO_2 Concentrations

Background concentrations were determined consistent with USEPA's Modeling Guidance for SO_2 NAAQS Designations.[17, 18] To preserve the form of the 1-hour SO_2 standard, based on the 99th percentile of the annual distribution of daily maximum 1-hour concentrations averaged across the number of years modeled, the background fourth-highest daily maximum 1-hour SO_2 concentration was added to the modeled fourth-highest daily maximum 1-hour SO_2 concentration.[19] Background concentrations were based on the 2012-14 design value measured by the ambient monitors located in Texas.[20]

6. Reporting

All files from the programs used for this modeling analysis are available to regulatory agencies. These include analyses prepared with AERSURFACE, AERMET, AERMAP, and AERMOD.

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[15] USEPA, AERMOD Implementation Guide, March 19, 2009, pp. 3-4.
[16] Texas Commission on Environmental Quality, Meteorological Data for Refined Screening with AERMOD, http://www.tceq.texas.gov/permitting/air/modeling/aermod-datasets.html, Last updated November 22, 2013.
[17] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, pp. 20-23.
[18] USEPA, SO_2 NAAQS Designations Modeling Technical Assistance Document, Dec. 2013, section 8.1, pp 27-28.
[19] USEPA, Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010, p. 3.
[20] http://www.epa.gov/airtrends/values.html

Exhibit 2

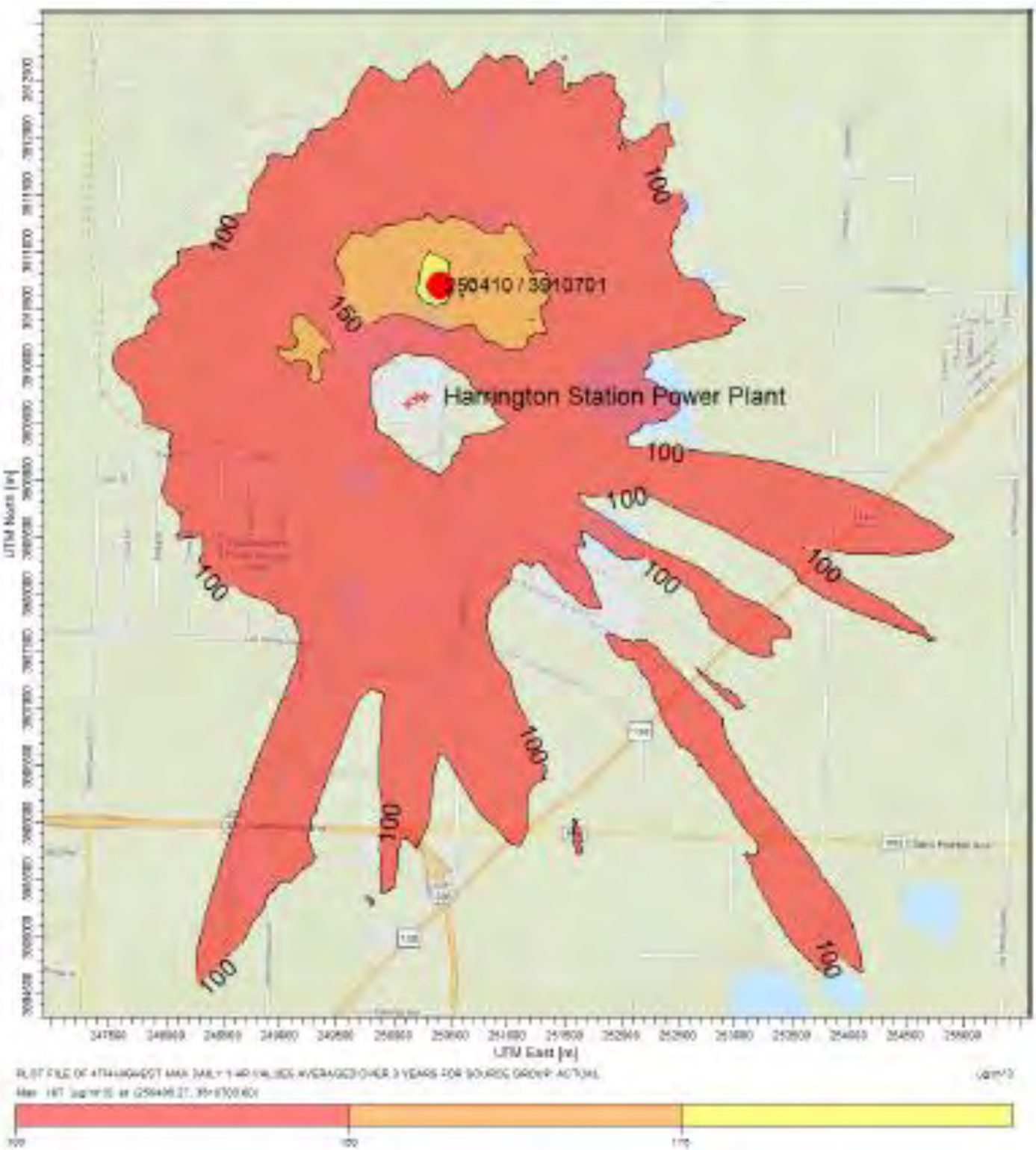

Figure 1 – Impacts Based on Actual Emissions from Harrington Station Power Plant. All colored areas exceed the 2010 SO_2 NAAQS. The red dot indicates the coordinates for the location with the highest modeled impacts.

Figure 2 – TCEQ Proposed Monitor Location for Harrington Relative to Modeled Peak Impacts

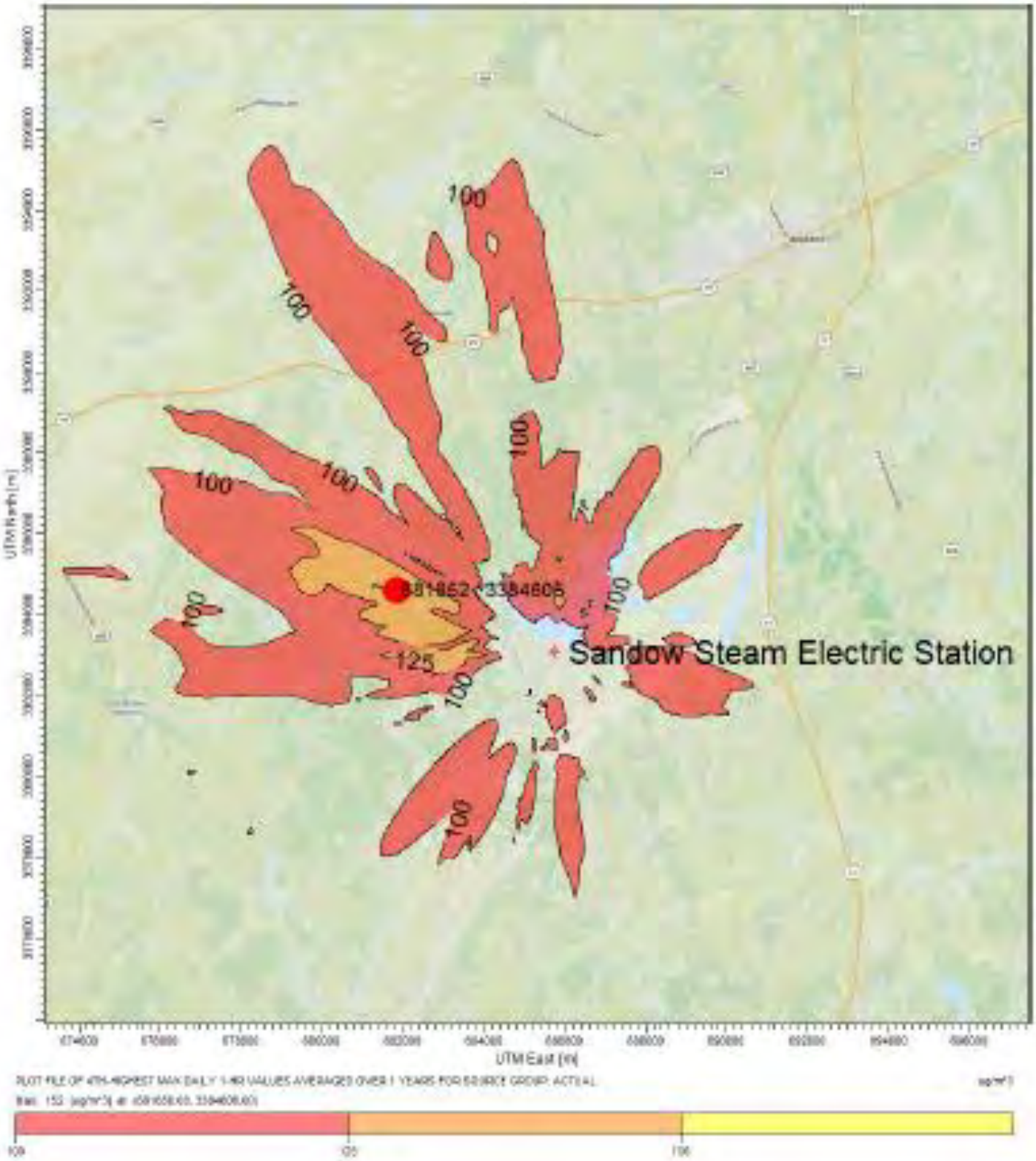

Figure 3 – Impacts Based on Actual Emissions from Sandow Steam Electric Station. All colored areas exceed the 2010 SO_2 NAAQS. The red dot indicates the coordinates for the location with the highest modeled impacts.

Figure 4 – TCEQ Proposed Monitor Location for Sandow Relative to Modeled Peak Impacts

Exhibit 3

CAMS 1082 Sulfur Dioxide Summary for 2020

Select a New Site, Different Parameters, or Change Report Options

Select a date:

2020 ▾ Generate Report

Tatum CR 2181d Martin Creek Lake C1082 - EPA Site: 48_401_1082

Report Year: 2020	Sulfur Dioxide MDL (POC 1 R) measured in parts per billion																								Central Standard Time	Statistics			
Date	Morning												Afternoon												Date	Max	SH	Min	Avg
	Mid	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00					
Jan 01	0.5	0.4	0.4	0.5	0.3	0.4	0.4	0.4	0.9	0.7	5.1	8.7	9.3	14.1	13.2	7.6	0.8	0.7	0.9	5.7	**14.9**	4.7	13.8	3.2	Jan 01	14.9	14.1	0.3	4.5
Jan 02	6.5	1.7	**8.1**	3.3	1.9	7.7	3.0	0.9	1.7	0.8	1.3	1.0	1.3	1.2	1.4	3.5	1.1	0.7	0.6	0.5	0.5	0.5	0.5	0.6	Jan 02	8.1	7.7	0.5	2.1
Jan 03	**2.1**	0.7	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.6	0.6	0.5	0.5	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	Jan 03	2.1	0.7	0.3	0.5
Jan 04	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	**0.5**	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.0	0.2	SPN	SPN	0.2	0.2	0.2	Jan 04	0.5	0.4	0.0	0.3
Jan 05	-0.0	NEG	0.2	0.2	0.3	0.5	0.5	0.8	0.9	0.6	0.4	0.6	0.7	0.7	0.5	0.4	0.4	0.3	0.2	**1.4**	0.8	0.6	0.5	1.2	Jan 05	1.4	1.2	-0.0	0.6
Jan 06	0.8	0.7	0.6	0.5	0.4	0.5	0.5	0.3	0.5	0.7	0.9	1.1	**1.2**	1.1	0.8	0.8	0.7	0.5	0.4	0.3	0.5	0.5	0.4	0.4	Jan 06	1.2	1.1	0.3	0.6
Jan 07	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.3	0.3	0.4	0.4	0.4	0.3	0.4	**1.6**	0.7	0.9	1.1	0.4	0.3	0.2	Jan 07	1.6	1.1	0.2	0.5
Jan 08	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.3	16.2	20.4	4.9	2.3	1.5	0.7	0.5	0.4	0.2	0.3	0.6	1.5	6.4	**25.0**	1.1	Jan 08	25.0	20.4	0.2	3.5
Jan 09	**1.2**	1.1	1.2	1.2	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	Jan 09	1.2	1.2	0.4	0.6
Jan 10	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	PMA	CAL	CAL	CAL	0.4	0.2	0.1	0.1	0.1	2.3	7.2	0.8	0.2	4.3	**15.1**	Jan 10	15.1	7.2	0.1	1.7
Jan 11	**3.7**	0.2	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.0	0.0	-0.0	-0.0	0.0	-0.1	-0.1	-0.0	CAL	CAL	-0.1	-0.0	-0.0	Jan 11	3.7	0.3	-0.1	0.2
Jan 12	-0.0	-0.0	0.0	-0.0	-0.1	-0.0	-0.2	0.0	-0.0	-0.1	-0.0	0.1	**1.7**	0.6	0.3	0.2	0.1	0.1	0.0	0.0	-0.1	-0.0	-0.0	0.0	Jan 12	1.7	0.6	-0.2	0.1
Jan 13	-0.0	-0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.5	**1.0**	0.9	0.7	0.7	0.9	0.7	0.5	0.3	-0.0	0.1	0.1	0.3	Jan 13	1.0	0.9	-0.0	0.3
Jan 14	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	1.4	**10.3**	7.5	4.5	3.2	2.3	1.6	1.4	0.7	0.3	0.1	0.2	0.2	0.1	Jan 14	10.3	7.5	0.0	1.4
Jan 15	0.1	0.1	1.1	1.3	0.7	0.5	0.5	0.3	1.4	1.2	0.7	0.3	0.2	0.2	0.3	0.1	0.0	-0.0	**3.2**	1.7	0.4	0.0	0.7	0.3	Jan 15	3.2	1.7	0.0	0.6
Jan 16	0.1	0.1	0.2	**0.5**	0.1	0.1	0.1	0.0	0.1	-0.0	-0.1	0.0	0.0	-0.0	0.0	0.0	-0.0	0.0	0.0	0.0	-0.2	0.0	0.1	0.0	Jan 16	0.5	0.2	-0.2	0.0
Jan 17	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	-0.0	-0.1	0.0	-0.0	-0.1	0.2	2.6	**3.7**	Jan 17	3.7	2.6	-0.1	0.3
Jan 18	**19.1**	7.0	3.3	7.0	3.8	0.3	0.2	0.1	0.1	0.1	0.1	-0.1	0.2	0.2	0.2	0.2	0.1	-0.0	-0.1	SPN	SPN	0.1	0.1	0.1	Jan 18	19.1	7.0	-0.1	1.9
Jan 19	0.1	0.1	0.1	0.1	0.2	**1.5**	1.1	0.5	0.5	0.3	0.1	0.1	1.5	1.2	0.2	0.2	0.1	0.1	0.0	0.1	-0.1	0.2	0.1	0.2	Jan 19	1.5	1.5	-0.1	0.4
Jan 20	0.1	0.1	0.2	0.1	0.2	0.1	0.0	0.0	0.3	0.4	0.4	1.8	2.2	1.9	**2.4**	1.8	0.6	0.0	0.1	0.2	-0.0	0.1	0.1	0.1	Jan 20	2.4	2.2	0.0	0.5
Jan 21	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	**0.6**	0.4	0.3	0.2	0.4	0.3	0.2	Jan 21	0.6	0.4	0.0	0.2
Jan 22	0.2	**0.3**	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.0	0.2	0.2	0.2	Jan 22	0.3	0.3	-0.0	0.2
Jan	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	**0.3**	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.0	0.2	0.2	0.2	Jan	0.3	0.3	0.0	0.2

23																										**23**			
Jan 24	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	**0.3**	0.2	0.1	0.1	0.1	0.1	-0.1	0.2	0.2	0.2	**Jan 24**	0.3	0.2	-0.1	0.2
Jan 25	0.2	0.2	0.3	0.2	0.4	0.5	0.3	0.2	0.2	0.3	1.5	1.7	**16.3**	11.5	3.3	1.4	0.3	0.2	0.3	SPN	SPN	0.6	1.2	9.0	**Jan 25**	16.3	11.5	0.2	2.3
Jan 26	**9.2**	0.6	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.0	0.0	-0.0	3.0	1.5	1.8	1.2	1.3	0.9	0.4	0.1	0.1	0.7	0.9	0.3	**Jan 26**	9.2	3.0	0.0	1.0
Jan 27	0.1	0.1	0.1	-0.0	-0.1	0.0	0.1	0.4	0.1	QAS	QAS	0.2	0.2	**0.6**	0.4	0.3	0.1	0.0	-0.2	0.0	0.2	0.0	0.0	0.0	**Jan 27**	0.6	0.4	-0.2	0.1
Jan 28	-0.0	-0.0	0.8	0.8	0.1	0.0	0.0	1.1	**5.7**	0.7	0.3	0.2	0.2	0.1	0.0	1.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	**Jan 28**	5.7	1.1	-0.0	0.5
Jan 29	0.1	0.1	0.0	0.0	-0.0	-0.0	0.0	-0.1	-0.0	0.0	-0.0	-0.0	-0.0	-0.1	0.0	0.0	-0.0	-0.0	0.0	-0.0	0.1	0.1	**0.3**	0.3	**Jan 29**	0.3	0.3	-0.1	0.0
Jan 30	**0.2**	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.1	0.1	-0.0	-0.0	-0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.2	0.0	-0.0	0.1	-0.0	**Jan 30**	0.2	0.1	-0.2	0.0
Jan 31	-0.0	-0.0	-0.1	-0.0	-0.0	0.1	0.2	0.3	0.2	**0.5**	0.5	PMA	0.2	0.1	0.0	0.0	0.0	0.0	-0.0	-0.1	-0.2	-0.0	-0.1	0.1	**Jan 31**	0.5	0.5	-0.2	0.1
Feb 01	0.1	0.1	-0.0	-0.2	-0.1	-0.1	-0.1	-0.0	-0.0	0.1	-0.0	0.0	0.1	0.1	0.2	0.2	0.1	-0.0	-0.2	SPN	SPN	**0.3**	0.3	0.3	**Feb 01**	0.3	0.3	-0.2	0.1
Feb 02	0.4	0.5	0.4	0.5	0.6	0.7	0.6	0.6	0.5	0.5	0.5	0.7	0.4	0.4	0.3	0.4	0.5	0.4	1.7	**2.3**	0.6	0.6	0.6	0.5	**Feb 02**	2.3	1.7	0.3	0.6
Feb 03	0.5	0.5	0.4	0.5	0.9	3.7	1.8	10.4	27.1	41.1	19.9	4.4	22.7	41.5	52.0	26.6	61.9	20.8	1.2	19.7	12.8	1.8	**106.1**	76.8	**Feb 03**	106.1	76.8	0.4	23.1
Feb 04	17.0	9.3	**47.8**	24.5	1.1	1.0	1.7	1.0	20.9	14.9	1.0	0.7	0.7	0.6	0.5	0.5	0.4	0.3	0.2	0.4	0.4	0.4	0.4	0.4	**Feb 04**	47.8	24.5	0.2	6.1
Feb 05	0.5	0.6	**0.7**	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	**Feb 05**	0.7	0.6	0.3	0.4
Feb 06	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.3	0.3	0.5	0.6	0.5	**0.7**	**Feb 06**	0.7	0.6	0.2	0.4
Feb 07	0.4	0.4	0.4	0.4	0.6	0.7	0.5	0.4	0.4	0.4	0.5	0.5	1.2	0.9	**1.4**	1.1	1.0	0.6	0.2	0.4	0.7	0.7	0.7	0.6	**Feb 07**	1.4	1.2	0.2	0.6
Feb 08	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	**0.6**	0.5	0.4	0.5	0.4	0.5	0.6	0.4	0.4	0.2	CAL	CAL	0.4	0.4	0.4	**Feb 08**	0.6	0.6	0.2	0.4
Feb 09	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.5	8.3	14.8	**86.8**	71.0	52.1	48.8	14.7	0.8	0.6	0.4	0.4	0.2	1.0	0.5	16.5	**Feb 09**	86.8	71.0	0.2	13.4
Feb 10	**23.0**	4.2	0.8	1.4	0.6	0.5	0.3	0.2	0.3	0.3	0.3	0.5	0.4	0.3	0.4	0.3	0.3	0.5	0.6	0.3	0.1	0.2	0.2	0.3	**Feb 10**	23.0	4.2	0.1	1.5
Feb 11	0.1	**0.2**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.0	0.1	-0.0	0.2	0.2	0.2	**Feb 11**	0.2	0.2	0.0	0.2
Feb 12	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	2.1	3.2	**5.3**	1.6	0.5	0.4	0.4	0.3	0.2	0.3	0.1	0.1	0.2	0.2	**Feb 12**	5.3	3.2	0.1	0.7
Feb 13	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.2	**0.4**	0.3	0.2	0.2	**Feb 13**	0.4	0.3	0.0	0.2
Feb 14	0.1	0.1	0.2	**0.5**	0.4	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	PMA	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.2	**Feb 14**	0.5	0.4	0.0	0.2
Feb 15	0.3	0.4	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.5	1.2	2.8	9.8	9.1	**13.1**	10.1	1.4	0.6	SPN	SPN	0.9	2.8	2.1	**Feb 15**	13.1	10.1	0.1	2.6
Feb 16	**6.8**	6.8	6.0	1.2	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.5	1.6	0.4	0.2	0.3	0.3	0.3	0.1	0.2	-0.0	0.2	0.2	0.3	**Feb 16**	6.8	6.8	-0.0	1.1
Feb 17	0.3	0.8	1.0	0.9	0.7	1.8	0.9	0.5	1.7	4.7	10.0	20.0	12.1	7.0	12.8	14.5	7.2	0.4	0.3	0.1	0.4	10.2	**25.2**	9.8	**Feb 17**	25.2	20.0	0.1	6.0
Feb 18	**9.5**	0.7	4.0	0.5	1.3	9.0	2.8	2.0	1.6	6.8	1.0	0.6	0.4	0.3	0.3	0.1	0.2	0.5	0.5	1.1	0.6	0.3	0.2	0.2	**Feb 18**	9.5	9.0	0.1	1.9
Feb 19	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	**0.3**	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	**Feb 19**	0.3	0.2	0.1	0.2
Feb 20	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.3	0.4	0.2	0.2	0.2	0.5	**0.6**	0.4	0.2	0.3	0.1	0.1	0.1	0.3	0.4	0.1	0.0	**Feb 20**	0.6	0.5	0.0	0.2
Feb 21	0.0	0.1	0.3	0.2	0.4	0.8	0.6	0.3	0.1	0.1	0.2	**2.1**	0.5	0.1	0.2	1.0	2.1	1.1	0.7	0.5	0.3	0.1	0.1	0.1	**Feb 21**	2.1	2.1	0.0	0.5
Feb 22	0.0	0.1	0.1	0.3	0.2	0.3	0.2	0.3	5.7	0.6	0.4	0.4	0.6	1.0	3.2	1.4	0.2	0.2	0.3	SPN	SPN	0.2	1.2	**7.8**	**Feb 22**	7.8	5.7	0.0	1.1
Feb 23	11.4	1.2	5.9	7.5	10.1	5.7	1.7	0.7	0.7	0.7	0.6	0.4	0.3	0.2	0.3	0.3	0.2	0.3	0.1	0.2	0.3	1.9	**34.9**	16.5	**Feb 23**	34.9	16.5	0.1	4.3
Feb 24	**31.5**	24.0	28.5	6.7	2.5	0.8	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.6	0.4	QAS	QAS	QAS	QAS	0.1	0.2	0.3	0.3	0.2	**Feb 24**	31.5	28.5	0.1	5.0

Feb 25	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	**0.7**	0.3	0.3	0.3	0.2	0.1	-0.1	0.1	0.2	0.2	0.2	0.2	**Feb 25**	0.7	0.3	-0.1	0.2
Feb 26	**0.2**	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	**Feb 26**	0.2	0.1	0.0	0.0
Feb 27	0.0	-0.0	-0.0	0.0	0.0	0.1	0.1	0.1	0.5	**3.1**	0.9	0.3	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.4	**Feb 27**	3.1	0.9	0.0	0.3
Feb 28	**0.5**	0.3	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.2	0.3	0.5	0.4	0.2	0.2	0.3	0.0	0.1	-0.2	-0.2	0.1	0.1	0.1	0.1	**Feb 28**	0.5	0.5	-0.2	0.2
Feb 29	0.1	0.1	0.3	0.1	-0.0	0.1	0.1	0.2	0.4	0.3	0.4	0.7	0.7	2.8	4.1	10.7	4.4	4.4	3.9	SPN	SPN	23.3	**34.5**	10.6	**Feb 29**	34.5	23.3	-0.0	4.6
Mar 01	25.6	20.8	5.8	0.8	0.7	1.0	11.7	2.8	1.4	29.7	80.5	44.3	**83.9**	57.7	67.1	34.1	8.7	2.7	4.6	0.8	1.9	18.2	44.2	42.5	**Mar 01**	83.9	80.5	0.7	24.6
Mar 02	**20.6**	9.4	1.8	0.8	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.6	0.5	0.6	0.6	0.6	0.6	0.7	0.5	0.5	3.0	5.9	1.5	0.7	**Mar 02**	20.6	9.4	0.5	2.2
Mar 03	0.6	0.5	0.5	0.5	0.6	0.8	1.0	0.6	0.6	0.6	0.7	0.6	0.7	0.7	PMA	**1.2**	1.2	0.9	0.8	0.7	0.5	0.6	0.6	0.6	**Mar 03**	1.2	1.2	0.5	0.7
Mar 04	0.6	0.6	0.6	**0.7**	0.7	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.3	0.4	0.4	0.5	**Mar 04**	0.7	0.7	0.3	0.5
Mar 05	0.4	0.5	0.4	0.4	0.5	0.4	0.5	0.4	**1.2**	1.1	0.8	0.7	0.7	0.7	0.8	0.5	0.5	0.4	-0.1	-0.4	0.2	0.4	0.5	0.5	**Mar 05**	1.2	1.1	-0.4	0.5
Mar 06	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.4	0.3	0.4	0.5	**0.6**	0.5	0.4	0.4	0.3	0.2	0.1	0.2	0.4	0.4	0.4	**Mar 06**	0.6	0.5	0.1	0.4
Mar 07	0.3	0.3	0.5	0.5	**1.5**	0.5	0.4	0.5	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.4	CAL	CAL	0.2	0.2	0.1	**Mar 07**	1.5	0.7	0.1	0.5
Mar 08	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.5	0.7	1.3	0.9	0.7	**2.5**	0.8	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	**Mar 08**	2.5	1.3	0.1	0.6
Mar 09	AQI	AQI	-0.3	-0.1	0.1	15.6	0.9	0.1	-0.2	-0.2	0.4	4.5	33.7	**55.5**	41.6	8.8	4.1	0.8	0.2	0.1	-0.2	0.0	-0.1	-0.1	**Mar 09**	55.5	41.6	-0.3	7.5
Mar 10	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.1	0.3	0.1	0.6	0.4	**1.8**	1.7	0.2	-0.0	0.0	1.0	-0.1	-0.1	-0.0	0.4	**Mar 10**	1.8	1.7	-0.1	0.2
Mar 11	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.3	0.4	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.1	2.2	-0.0	2.4	**4.3**	1.4	**Mar 11**	4.3	2.4	0.0	0.5
Mar 12	0.8	0.5	0.5	0.4	0.3	0.2	0.1	0.2	0.1	0.2	0.3	0.4	0.4	1.7	3.8	2.9	3.6	0.4	0.2	0.3	12.2	3.9	**18.6**	6.8	**Mar 12**	18.6	12.2	0.1	2.4
Mar 13	0.6	0.6	0.3	0.5	**1.4**	1.0	0.4	0.3	0.2	0.1	0.3	0.4	0.4	0.2	0.1	0.2	0.1	0.0	-0.0	-0.0	0.0	0.1	0.1	0.1	**Mar 13**	1.4	1.0	0.0	0.3
Mar 14	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	15.4	**16.2**	11.9	15.5	2.2	0.3	0.3	0.1	SPN	SPN	14.6	7.6	0.1	**Mar 14**	16.2	15.5	0.1	3.9
Mar 15	0.0	-0.0	-0.1	-0.1	-0.0	**0.3**	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.0	-0.3	-0.1	-0.1	-0.1	**Mar 15**	0.3	0.1	-0.3	-0.1
Mar 16	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	2.3	5.4	**8.2**	3.0	0.3	0.1	0.0	-0.1	-0.2	-0.0	-0.1	**Mar 16**	8.2	5.4	-0.2	0.7
Mar 17	-0.0	-0.0	0.0	-0.1	0.0	0.0	-0.0	0.0	QAS	QAS	PMA	0.7	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.2	0.1	**1.4**	0.1	-0.0	**Mar 17**	1.4	0.7	-0.1	0.2
Mar 18	-0.1	0.5	10.9	**17.5**	14.8	6.3	2.9	2.3	0.4	1.1	4.0	6.2	11.2	9.6	6.4	1.7	0.3	0.1	0.1	0.1	-0.1	0.2	0.5	3.1	**Mar 18**	17.5	14.8	-0.1	4.2
Mar 19	5.9	4.7	2.5	17.8	26.1	12.0	1.4	19.0	1.9	7.3	14.4	9.8	12.4	14.5	**39.6**	25.3	14.4	7.4	10.2	7.4	9.6	3.0	18.1	0.9	**Mar 19**	39.6	26.1	0.9	11.9
Mar 20	1.0	2.2	4.9	3.0	**5.5**	0.2	-0.0	-0.0	0.0	-0.1	-0.1	-0.0	-0.0	-0.1	0.0	-0.0	-0.1	-0.1	-0.0	-0.0	-0.0	-0.0	-0.1	-0.0	**Mar 20**	5.5	4.9	-0.1	0.7
Mar 21	**0.0**	-0.0	-0.1	-0.1	-0.1	-0.1	-0.0	-0.0	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	SPN	SPN	0.0	0.0	0.0	**Mar 21**	0.0	-0.0	-0.1	-0.1
Mar 22	0.1	0.0	-0.1	1.3	5.8	0.3	0.2	0.1	0.1	0.1	0.2	**6.4**	0.6	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	**Mar 22**	6.4	5.8	-0.1	0.7
Mar 23	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	**0.3**	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	**Mar 23**	0.3	0.2	0.1	0.2
Mar 24	1.2	**11.6**	8.2	2.4	1.8	0.6	0.4	0.3	0.3	0.4	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.2	**Mar 24**	11.6	8.2	0.1	1.3
Mar 25	0.3	0.2	0.1	0.2	0.1	0.3	0.4	0.2	0.3	0.4	0.2	0.4	1.0	1.4	7.9	4.9	5.6	1.1	0.2	0.5	0.2	0.3	**8.5**	7.7	**Mar 25**	8.5	7.9	0.1	1.8
Mar 26	6.1	2.1	0.6	0.4	1.4	5.1	5.1	9.0	13.4	1.3	0.7	4.9	5.7	3.1	7.2	13.7	9.0	4.8	1.4	0.6	33.7	40.7	**44.7**	42.5	**Mar 26**	44.7	42.5	0.4	10.7
Mar 27	**55.7**	22.7	24.8	33.3	31.3	10.9	20.6	17.9	16.2	5.7	7.0	2.9	2.9	2.7	8.3	17.0	4.4	3.7	22.0	21.2	7.8	1.3	0.6	0.9	**Mar 27**	55.7	33.3	0.6	14.2
Mar	5.2	10.9	5.7	8.1	**11.5**	8.3	5.0	4.6	3.3	5.7	4.4	0.8	2.9	0.2	0.0	0.3	0.2	0.2	0.2	SPN	SPN	0.2	0.2	0.1	**Mar**	11.5	10.9	0.0	3.5

28																									**28**				
Mar 29	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	**0.3**	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	-0.0	0.1	0.1	0.1	0.0	**Mar 29**	0.3	0.2	0.0	0.1
Mar 30	0.2	0.2	0.3	0.3	0.3	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.1	**0.7**	0.2	**Mar 30**	0.7	0.5	0.1	0.2
Mar 31	**0.2**	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.0	-0.1	0.2	0.1	0.1	0.1	**Mar 31**	0.2	0.2	-0.1	0.1
Apr 01	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.6	0.5	0.3	**7.8**	2.9	6.5	6.2	0.4	0.2	0.3	0.1	0.3	0.3	0.3	3.8	**Apr 01**	7.8	6.5	0.1	1.3
Apr 02	**18.0**	3.5	1.8	0.8	0.4	0.3	0.3	0.5	0.5	0.4	0.5	0.5	5.5	0.3	0.3	0.4	0.4	0.3	0.2	0.3	1.2	0.6	0.4	0.4	**Apr 02**	18.0	5.5	0.2	1.6
Apr 03	0.5	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.4	0.2	0.1	0.1	0.2	0.1	**0.6**	0.1	0.2	0.2	0.2	**Apr 03**	0.6	0.5	0.1	0.2
Apr 04	0.1	0.1	**0.2**	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	CAL	CAL	0.2	0.1	0.1	**Apr 04**	0.2	0.2	0.0	0.1
Apr 05	0.1	0.1	0.1	0.1	-0.0	0.1	0.1	0.2	0.2	0.1	0.2	**0.4**	0.4	0.1	0.1	0.1	0.1	0.1	-0.1	-0.1	-0.1	0.1	0.1	0.1	**Apr 05**	0.4	0.4	-0.1	0.1
Apr 06	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.7	0.4	0.4	0.4	0.3	0.3	0.3	0.1	0.2	0.0	0.0	0.5	**2.4**	1.7	**Apr 06**	2.4	1.7	0.0	0.4
Apr 07	3.3	0.5	0.8	2.2	1.0	0.3	0.2	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.3	**4.0**	0.5	0.2	0.2	**Apr 07**	4.0	3.3	0.1	0.7
Apr 08	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.0	0.1	0.3	0.1	0.3	0.3	**1.6**	1.5	0.5	0.3	0.2	0.2	0.1	0.2	0.2	0.1	**Apr 08**	1.6	1.5	0.0	0.3
Apr 09	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	**0.6**	0.2	0.2	0.0	0.1	0.0	0.0	**Apr 09**	0.6	0.3	0.0	0.2
Apr 10	0.1	0.1	0.1	0.2	**0.3**	0.2	0.1	0.1	0.0	0.2	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.0	-0.1	-0.3	-0.1	0.1	0.2	**Apr 10**	0.3	0.3	-0.3	0.1
Apr 11	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.5	0.6	0.9	10.4	**12.3**	0.7	0.4	0.3	0.4	0.3	0.4	SPN	SPN	0.4	0.3	0.2	**Apr 11**	12.3	10.4	0.1	1.3
Apr 12	**0.3**	0.2	0.2	0.2	0.3	0.2	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	**Apr 12**	0.3	0.3	0.2	0.2
Apr 13	0.0	0.0	0.0	-0.0	-0.1	0.0	0.2	-0.2	NEG	NEG	0.3	PMA	-0.2	0.1	0.4	**0.5**	0.3	0.2	-0.1	-0.1	0.0	-0.0	-0.0	-0.0	**Apr 13**	0.5	0.4	-0.2	0.1
Apr 14	0.0	-0.0	0.1	0.0	-0.0	-0.0	0.0	0.2	0.1	0.3	0.2	0.1	0.1	0.3	**0.5**	0.4	0.3	0.2	-0.1	0.0	0.0	0.0	-0.2	0.0	**Apr 14**	0.5	0.4	-0.2	0.1
Apr 15	0.0	-0.0	0.1	0.0	-0.0	0.0	0.0	-0.0	0.1	-0.0	0.1	**0.8**	0.1	0.6	0.6	0.3	0.5	0.7	0.2	-0.2	0.1	0.0	-0.0	-0.0	**Apr 15**	0.8	0.7	-0.2	0.2
Apr 16	0.0	0.1	0.2	-0.0	0.0	-0.0	0.0	0.1	0.1	0.3	0.5	2.0	**14.9**	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.2	2.7	8.2	4.0	**Apr 16**	14.9	8.2	0.0	1.4
Apr 17	3.2	1.5	0.8	0.5	0.7	0.9	6.2	**14.4**	3.2	1.0	3.8	1.2	2.9	0.5	0.3	0.3	0.1	0.0	0.0	0.1	0.1	0.2	0.5	0.4	**Apr 17**	14.4	6.2	0.0	1.8
Apr 18	**0.3**	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.2	0.3	0.1	0.1	0.2	SPN	SPN	0.3	0.2	0.3	**Apr 18**	0.3	0.3	0.0	0.2
Apr 19	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.2	0.3	**1.6**	0.7	0.3	0.8	0.6	0.4	0.3	0.2	0.2	0.3	0.2	0.2	**Apr 19**	1.6	0.8	0.2	0.4
Apr 20	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.4	4.7	5.9	3.4	2.6	4.9	**18.8**	9.4	1.2	0.4	0.1	0.1	0.2	0.2	**Apr 20**	18.8	9.4	0.1	2.3
Apr 21	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	**1.0**	0.9	0.5	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.1	0.3	0.3	0.4	0.3	**Apr 21**	1.0	0.9	0.1	0.3
Apr 22	0.3	0.2	0.3	0.3	0.5	0.4	0.2	0.2	0.1	0.3	0.3	0.3	0.3	0.3	**3.3**	0.6	1.1	1.2	0.5	0.3	0.3	0.6	0.3	0.2	**Apr 22**	3.3	1.2	0.1	0.5
Apr 23	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	**0.4**	0.3	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	**Apr 23**	0.4	0.3	0.1	0.2
Apr 24	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.4	0.7	0.7	0.5	0.5	**6.8**	5.7	3.2	1.5	0.5	0.4	0.5	0.3	0.2	0.2	**Apr 24**	6.8	5.7	0.2	1.0
Apr 25	**0.3**	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	SPN	SPN	-0.1	0.0	0.0	**Apr 25**	0.3	0.3	-0.1	0.2
Apr 26	0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	1.0	**7.1**	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	-0.0	0.0	0.1	**Apr 26**	7.1	1.0	0.0	0.4
Apr 27	0.1	0.2	0.2	0.1	0.4	**5.5**	3.3	1.2	1.0	NA															**Apr 27**	5.5	3.3	0.1	1.3
Date	**Mid**	**1:00**	**2:00**	**3:00**	**4:00**	**5:00**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**Noon**	**1:00**	**2:00**	**3:00**	**4:00**	**5:00**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**Date**	**Max**	**SH**	**Min**	**Avg**

Yearly Max	Yearly SH	Yearly Min	Yearly Avg	Yearly STD	Yearly Cap
106.1	86.8	-0.4	1.8	6.7	97.0 %
February 3 22:00	February 9 11:00	March 5 19:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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Exhibit 4

CAMS 1077 Monthly Summary for January 2017

Select a New Site, Different Parameters, or Change Report Options

Select a date:

January | 2017 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

January 2017						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.2	45.2	1.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	10.4	**57.0**	2.7	0.4	0.2	0.1	1	57.0	45.2	-0.1	4.9
2	0.1	**0.5**	0.3	0.1	0.1	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	-0.0	-0.1	-0.0	0.0	-0.1	-0.1	-0.1	2	0.5	0.3	-0.1	0.0
3	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4	-0.3	-0.3	-0.4	-0.4	-0.3	-0.3	**-0.0**	-0.2	3	-0.0	-0.1	-0.4	-0.3
4	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-0.1	-0.2	-0.3	-0.2	-0.3	0.8	2.1	0.6	10.1	QAS	0.2	0.0	-0.1	-0.1	**49.5**	4.2	0.2	1.9	4	49.5	10.1	-0.4	2.9
5	0.9	-0.1	-0.0	-0.0	0.3	-0.3	-0.3	-0.3	-0.4	-0.1	0.6	**1.2**	-0.1	-0.3	-0.3	-0.3	-0.4	-0.4	NEG	-0.4	-0.4	-0.4	-0.4	-0.3	5	1.2	0.9	-0.4	-0.1
6	**-0.2**	-0.4	-0.4	NEG	NEG	NEG	NEG	NEG	NEG	-0.4	-0.3	-0.3	-0.3	-0.3	-0.4	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	6	-0.2	-0.3	-0.4	-0.3
7	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	0.0	0.2	NEG	NEG	-0.2	SPN	SPN	0.0	**0.4**	0.3	7	0.4	0.3	-0.2	0.1
8	12.4	10.3	4.9	4.4	**31.1**	25.7	2.9	1.2	0.6	0.4	0.3	0.3	0.3	0.3	0.9	0.6	0.3	0.3	0.3	0.1	0.3	0.4	0.3	0.2	8	31.1	25.7	0.1	4.1
9	0.2	0.3	0.4	0.4	0.4	0.6	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	**0.9**	0.4	0.4	0.3	9	0.9	0.6	0.2	0.4
10	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.3	4.1	5.0	2.2	1.4	0.3	0.3	0.3	0.3	0.3	0.9	**37.2**	10	37.2	5.0	0.2	2.3
11	**57.4**	27.6	8.4	0.7	0.5	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	11	57.4	27.6	0.3	4.3
12	0.3	0.3	0.3	0.8	1.7	2.6	0.7	0.7	**3.1**	1.0	1.3	1.1	1.2	0.6	1.0	0.6	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	12	3.1	2.6	0.1	0.8
13	0.2	0.2	0.2	0.1	0.3	2.2	0.1	0.1	0.5	1.7	0.5	0.3	0.1	0.1	0.1	0.1	0.2	0.2	1.3	**2.6**	0.3	0.2	0.2	0.2	13	2.6	2.2	0.1	0.5
14	0.4	0.3	0.2	0.3	0.7	1.9	2.0	1.1	0.6	1.6	**3.9**	1.8	0.9	1.7	1.1	1.0	0.4	0.2	0.2	CAL	CAL	0.0	-0.0	-0.1	14	3.9	2.0	-0.1	0.9
15	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.9	**3.6**	1.1	0.3	0.1	0.1	15	3.6	1.1	-0.1	0.2
16	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	**0.2**	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	-0.0	16	0.2	0.1	0.0	0.1
17	-0.0	-0.0	-0.0	0.0	0.0	-0.1	-0.1	-0.0	-0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	1.0	2.2	0.2	0.1	0.1	10.6	**27.9**	17	27.9	10.6	-0.1	1.8
18	**58.6**	4.7	0.7	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	QAS	12.8	4.8	7.4	2.3	2.9	9.1	26.8	2.3	0.8	0.5	18	58.6	26.8	0.1	5.9
19	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.3	0.4	0.4	0.4	0.4	0.5	**0.6**	0.4	0.4	19	0.6	0.5	0.2	0.4
20	**0.4**	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	20	0.4	0.4	0.3	0.3
21	0.3	0.4	0.4	0.4	4.3	**21.6**	0.8	0.6	0.7	0.9	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	SPN	SPN	-0.0	-0.1	-0.1	21	21.6	4.3	-0.1	1.6
22	**-0.1**	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.1	-0.2	-0.1	-0.2	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	22	-0.1	-0.1	-0.3	-0.2
23	0.0	0.0	-0.0	**13.6**	10.3	0.4	2.4	0.2	-0.0	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	0.0	1.9	6.5	0.3	-0.0	-0.0	23	13.6	10.3	-0.1	1.5
24	-0.0	0.1	23.7	**84.9**	3.7	0.4	0.2	0.1	0.1	0.1	0.0	-0.0	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.2	-0.1	-0.2	24	84.9	23.7	-0.2	4.7
25	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	QAS	**0.3**	-0.0	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	25	0.3	-0.0	-0.3	-0.2
26	-0.2	-0.1	-0.0	-0.0	-0.0	0.0	-0.0	-0.1	-0.0	-0.0	0.1	0.5	1.3	1.2	0.8	1.7	**2.1**	1.0	0.7	0.8	0.7	0.7	0.6	0.6	26	2.1	1.7	-0.2	0.5
27	0.6	0.6	0.7	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.7	0.9	0.9	0.9	**1.0**	1.0	0.9	0.7	0.9	0.9	0.9	0.9	0.9	0.9	27	1.0	1.0	0.6	0.8
28	**0.9**	0.8	0.8	0.9	0.8	0.9	0.9	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.7	0.7	0.8	0.6	0.7	SPN	SPN	0.5	0.5	0.5	28	0.9	0.9	0.5	0.7
29	**0.5**	0.3	0.3	0.2	0.1	0.2	0.1	0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	-0.0	-0.1	-0.0	-0.1	-0.1	-0.1	29	0.5	0.3	-0.1	0.0
30	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	**0.1**	0.1	SPN	SPN	SPN	SPN	-0.1	-0.0	-0.0	-0.1	-0.0	-0.1	-0.2	-0.1	30	0.1	0.1	-0.2	-0.1

31	-0.1	-0.0	0.6	1.4	1.8	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.2	2.4	2.6	**3.0**	2.5	2.5	2.2	2.7	2.2	2.2	2.1	**31**	3.0	2.7	-0.1	1.9
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
84.9	58.6	-0.4	1.4	6.4	93.7 %
January 24 03:00	January 18 00:00	January 3 15:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for February 2017

Select a New Site, Different Parameters, or Change Report Options

Select a date:

February 2017 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

February 2017	Sulfur Dioxide MDL (POC 1 R) measured in parts per billion																			Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.4	CAL	CAL	0.5	0.6	1.1	**2.6**	0.3	0.0	-0.0	-0.1	-0.1	-0.2	-0.2	1	2.6	2.4	-0.2	1.3
2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2	0.4	**1.0**	0.1	-0.1	-0.1	-0.1	-0.1	-0.0	0.0	0.0	-0.0	-0.1	-0.0	-0.1	0.3	0.0	2	1.0	0.4	-0.3	-0.0
3	-0.1	-0.1	0.1	-0.1	0.0	0.1	-0.0	-0.1	-0.0	0.2	0.5	0.2	0.1	0.3	**0.6**	0.6	0.3	0.1	0.1	0.0	0.1	0.0	0.1	0.0	3	0.6	0.6	-0.1	0.1
4	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	**2.2**	0.6	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	SPN	SPN	0.2	0.3	0.4	4	2.2	0.6	0.0	0.3
5	0.1	0.0	-0.1	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.0	0.2	0.4	0.4	0.5	0.4	0.3	0.1	0.0	0.4	**1.0**	0.1	0.1	0.0	0.0	5	1.0	0.5	-0.1	0.1
6	0.0	0.0	0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.0	0.1	**0.2**	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	6	0.2	0.2	0.0	0.1
7	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	2.2	0.7	2.4	3.1	**6.3**	0.8	0.5	0.5	0.5	0.5	0.5	7	6.3	3.1	0.2	0.9
8	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.3	0.3	0.3	**2.1**	0.5	0.3	0.2	0.2	0.3	0.2	0.2	0.2	8	2.1	0.5	0.2	0.4
9	0.2	0.2	0.2	0.3	0.5	2.8	1.7	0.9	0.6	46.2	12.1	0.7	0.7	0.8	4.9	11.1	44.1	50.4	53.8	50.4	72.1	**96.9**	23.3	1.6	9	96.9	72.1	0.2	19.9
10	**2.4**	1.4	2.1	1.2	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.6	0.7	0.7	0.7	0.8	0.7	0.7	0.7	10	2.4	2.1	0.6	0.9
11	0.6	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.7	**0.9**	0.9	CAL	CAL	0.3	0.1	-0.0	11	0.9	0.9	-0.0	0.6
12	-0.1	-0.1	-0.1	-0.0	-0.1	-0.3	-0.3	NEG	NEG	-0.4	0.7	1.0	-0.2	-0.2	0.3	1.2	**1.3**	1.2	-0.3	NEG	-0.4	NEG	NEG	NEG	12	1.3	1.2	-0.4	0.2
13	NEG	NEG	NEG	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.8	**1.8**	QAS	0.3	0.1	0.0	0.0	0.1	-0.0	-0.1	-0.0	13	1.8	0.8	-0.4	0.0
14	**-0.0**	0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	-0.1	0.0	0.0	0.0	-0.0	0.0	-0.0	-0.0	-0.0	14	-0.0	0.0	-0.1	-0.0
15	-0.0	-0.0	-0.0	-0.1	-0.1	-0.0	-0.0	-0.0	-0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	**0.3**	0.3	0.2	0.2	15	0.3	0.3	-0.1	0.1
16	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.7	0.5	0.5	0.5	0.5	0.5	0.8	**1.4**	0.9	16	1.4	0.9	0.2	0.4
17	0.6	0.9	2.1	0.7	0.6	0.6	0.8	0.7	0.8	2.1	2.0	1.7	1.5	4.2	**7.8**	1.6	0.9	0.8	0.7	0.7	0.7	0.6	0.6	0.6	17	7.8	4.2	0.6	1.4
18	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.6	0.6	0.7	**2.7**	1.3	1.0	0.9	0.9	0.8	0.8	0.7	SPN	SPN	0.0	-0.0	-0.0	18	2.7	1.3	0.0	0.7
19	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	0.1	0.1	0.2	1.9	**9.4**	0.4	0.2	3.5	0.2	7.9	0.4	0.3	0.2	0.1	19	9.4	7.9	-0.1	1.0
20	**0.1**	0.0	0.1	0.0	0.1	0.0	-0.0	-0.1	-0.1	0.1	0.0	-0.0	-0.0	-0.0	0.1	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	20	0.1	0.1	-0.1	0.0
21	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	1.2	0.4	2.7	3.1	1.8	2.6	**5.4**	4.6	0.7	0.2	0.2	0.2	0.3	0.2	1.7	21	5.4	4.6	-0.1	1.0
22	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	**0.4**	0.4	0.4	0.3	22	0.4	0.4	0.1	0.2
23	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.7	**1.0**	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.3	23	1.0	0.7	0.3	0.5
24	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	QAS	**0.4**	0.2	0.2	0.3	0.2	0.1	0.4	0.1	0.1	0.1	24	0.4	0.4	0.1	0.2
25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.9	7.1	8.2	12.8	3.0	0.8	2.7	**19.6**	0.9	SPN	SPN	0.0	0.1	0.0	25	19.6	12.8	0.0	2.6
26	-0.0	0.0	**3.6**	0.4	0.3	0.2	0.0	0.0	0.1	0.3	0.1	0.1	0.1	2.5	0.6	1.7	0.2	0.2	0.5	0.6	0.7	0.1	0.1	0.1	26	3.6	2.5	-0.0	0.5
27	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	**0.6**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.5	0.3	0.3	27	0.6	0.5	0.0	0.2
28	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.3	0.4	0.4	0.4	0.5	**0.6**	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.5	28	0.6	0.6	0.3	0.4
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
96.9	72.1	-0.4	1.2	6.5	96.9 %

February 9 21:00	February 9 20:00	February 12 09:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

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Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for March 2017

Select a New Site, Different Parameters, or Change Report Options

Select a date:

March 2017 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

March 2017	Sulfur Dioxide MDL (POC 1 R) measured in parts per billion																			Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	QAS	QAS	QAS	QAS	0.5	**4.8**	1.5	0.4	0.3	0.2	0.2	0.2	1	4.8	1.5	0.1	0.5
2	0.2	0.2	0.2	0.2	**12.2**	3.4	0.3	0.5	CAL	CAL	CAL	QAS	QAS	CAL	CAL	CAL	0.0	0.1	0.1	-0.0	-0.1	0.0	3.9	0.8	2	12.2	3.9	-0.1	1.4
3	0.2	0.0	0.1	0.2	1.1	0.3	0.8	1.2	1.2	0.8	0.9	QAS	0.8	3.4	16.0	11.4	15.6	11.7	6.7	15.5	4.9	**41.3**	39.1	21.9	3	41.3	39.1	0.0	8.5
4	**27.5**	21.2	20.7	2.1	0.9	0.8	5.2	1.5	1.4	1.5	4.6	15.8	4.9	10.4	14.5	7.2	14.8	15.4	2.0	SPN	SPN	0.7	0.8	14.0	4	27.5	21.2	0.7	8.5
5	**15.7**	3.7	5.1	1.6	1.0	0.7	0.7	1.4	1.0	0.9	0.6	0.5	0.4	0.4	0.4	0.4	0.4	1.1	5.8	3.3	2.5	0.8	0.6	4.3	5	15.7	5.8	0.4	2.2
6	**24.8**	18.9	12.0	5.0	6.3	5.2	2.1	2.0	1.6	1.1	0.8	0.7	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.4	0.3	1.9	0.4	0.3	6	24.8	18.9	0.3	3.6
7	0.3	0.2	0.3	0.3	0.5	2.7	1.1	0.7	0.4	0.2	0.4	0.3	3.0	2.0	3.2	4.9	**8.2**	4.4	0.5	0.5	0.4	0.5	0.5	0.5	7	8.2	4.9	0.2	1.5
8	0.4	0.6	10.8	**21.3**	10.0	2.2	1.0	0.7	0.7	0.7	0.6	0.5	0.5	0.4	0.4	1.6	3.1	0.4	0.4	0.4	0.3	0.5	0.5	1.6	8	21.3	10.8	0.3	2.5
9	**0.7**	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.7	0.5	9	0.7	0.7	0.2	0.3
10	0.3	0.3	0.4	0.5	0.3	0.4	0.3	0.3	0.4	1.6	1.0	0.4	0.3	0.3	0.5	5.7	**12.6**	7.2	1.2	0.6	0.3	0.4	0.4	0.3	10	12.6	7.2	0.3	1.5
11	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.2	0.2	0.3	**0.6**	0.5	0.4	0.3	CAL	CAL	0.1	0.0	0.0	11	0.6	0.5	0.0	0.3
12	-0.0	0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.4	**4.8**	0.6	0.2	0.2	0.1	0.1	12	4.8	0.6	-0.0	0.3
13	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	**0.2**	0.1	0.2	0.1	0.1	0.0	-0.0	0.0	0.0	0.1	13	0.2	0.2	0.0	0.1
14	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	**18.5**	5.0	0.9	0.6	0.3	0.2	0.1	0.1	0.5	1.0	0.3	0.2	0.0	0.3	0.4	0.2	14	18.5	5.0	0.0	1.2
15	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.4	0.3	QAS	9.4	16.3	14.3	11.9	14.3	22.1	20.8	4.0	0.8	0.6	0.5	16.3	**110.0**	15	110.0	22.1	0.0	10.5
16	**82.7**	37.1	29.1	10.3	2.2	3.1	0.5	0.4	1.4	1.5	1.1	0.7	0.5	4.2	4.2	0.5	0.4	0.5	0.4	0.5	0.5	0.4	0.3	0.5	16	82.7	37.1	0.3	7.6
17	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.5	1.0	**1.1**	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.2	17	1.1	1.0	0.1	0.3
18	0.2	0.2	0.2	0.3	0.4	0.5	0.4	0.4	0.5	0.6	0.6	0.6	0.7	0.6	0.5	0.5	1.3	4.1	0.6	SPN	SPN	0.4	0.3	**9.9**	18	9.9	4.1	0.2	1.1
19	16.4	**31.5**	4.6	1.8	1.1	0.9	0.5	0.5	0.8	0.8	0.5	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.1	0.9	19	31.5	16.4	0.1	2.6
20	0.1	0.1	**0.2**	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	20	0.2	0.2	0.1	0.1
21	0.4	0.3	0.4	0.3	0.5	0.3	0.2	0.1	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	**1.7**	0.4	0.3	0.3	0.2	0.1	0.1	0.1	21	1.7	0.5	0.1	0.4
22	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.3	0.3	0.3	**0.4**	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	22	0.4	0.3	0.0	0.2
23	0.2	0.2	0.2	0.3	0.3	0.7	1.6	1.4	6.5	**8.1**	2.8	1.7	6.3	1.2	1.1	0.5	0.5	0.5	0.5	0.4	0.8	0.5	0.3	0.3	23	8.1	6.5	0.2	1.5
24	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	**0.3**	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	24	0.3	0.2	0.1	0.2
25	0.0	0.0	0.1	0.0	-0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	**8.8**	3.6	0.3	SPN	SPN	0.1	0.1	0.2	25	8.8	3.6	0.0	0.6
26	0.1	0.1	0.1	0.2	0.7	0.3	2.3	**5.0**	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.2	0.1	0.1	0.1	26	5.0	2.3	0.1	0.5
27	0.1	0.0	0.0	0.0	0.1	0.0	-0.0	0.0	0.1	0.3	0.2	0.3	0.8	0.3	0.7	**9.5**	1.2	0.3	0.3	0.6	0.2	1.1	0.8	0.3	27	9.5	1.2	0.0	0.7
28	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	**0.3**	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	28	0.3	0.3	0.1	0.2
29	0.1	0.1	**0.2**	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	29	0.2	0.2	0.1	0.1
30	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.1	1.0	2.4	6.6	4.7	**7.6**	3.9	0.4	0.4	0.3	0.1	0.2	0.2	30	7.6	6.6	0.1	1.2

31	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	QAS	0.2	0.3	0.3	**0.5**	0.4	0.3	0.3	0.2	0.0	0.1	0.2	0.2	**31**	0.5	0.4	0.0	0.2
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
110.0	82.7	-0.1	1.9	6.8	96.9 %
March 15 23:00	March 16 00:00	March 2 20:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for April 2017

Select a New Site, Different Parameters, or Change Report Options

Select a date:

April | 2017 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

April 2017						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	SPN	SPN	0.1	0.1	0.1	1	0.1	0.1	0.0	0.1
2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.1	-0.0	0.3	0.2	0.1	0.3	0.1	-0.0	0.1	0.2	0.2	2	0.3	0.3	0.0	0.1
3	2.0	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.8	4.4	4.1	0.7	0.5	0.4	0.1	0.3	0.2	0.2	3	4.4	4.1	0.1	0.7
4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	4	0.2	0.2	0.0	0.2
5	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	-0.1	0.0	0.0	0.0	5	0.1	0.1	-0.1	0.1
6	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.2	2.3	19.6	7.6	2.6	1.9	0.6	0.5	0.5	0.5	0.2	0.1	0.3	0.4	0.2	6	19.6	7.6	0.0	1.6
7	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.9	14.4	15.7	26.5	45.7	QAS	54.4	18.3	3.1	4.8	1.4	0.9	0.5	0.8	41.5	20.1	7	54.4	45.7	0.1	10.9
8	1.5	1.5	1.5	1.3	0.9	0.6	0.4	0.3	0.3	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	1.9	CAL	CAL	0.3	0.1	0.2	8	1.9	1.5	0.1	0.6
9	0.2	0.1	0.1	0.0	0.2	0.2	0.2	0.1	0.2	0.1	-0.0	-0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	-0.2	0.0	-0.1	0.0	9	0.2	0.2	-0.2	0.1
10	0.0	-0.0	0.0	-0.0	0.1	-0.0	-0.0	0.9	0.7	0.5	0.4	0.0	0.4	0.8	0.1	-0.1	-0.0	0.0	0.0	0.2	-0.2	-0.1	-0.0	-0.1	10	0.9	0.8	-0.2	0.1
11	0.3	0.2	0.2	0.0	-0.0	0.0	-0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	-0.0	-0.0	0.1	0.1	0.0	-0.0	-0.2	-0.0	0.0	-0.0	11	0.3	0.2	-0.2	0.0
12	-0.0	-0.0	0.0	0.1	0.1	0.1	0.3	0.1	0.7	0.4	0.4	2.9	0.9	0.9	0.5	QAS	1.4	0.9	0.2	0.1	-0.0	0.4	0.2	0.0	12	2.9	1.4	-0.0	0.5
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	2.9	1.7	4.8	2.2	1.0	2.5	3.7	1.7	1.9	0.4	0.3	0.1	0.1	0.1	0.1	13	4.8	3.7	0.0	1.0
14	0.1	0.1	0.1	0.2	0.3	0.3	4.1	1.9	0.9	1.3	5.0	9.8	7.5	6.7	2.4	1.4	1.8	0.9	0.6	0.4	0.1	0.4	0.3	0.2	14	9.8	7.5	0.1	1.9
15	0.1	0.2	0.2	0.2	0.2	1.3	3.6	1.8	1.1	0.8	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	SPN	SPN	0.3	0.3	0.3	15	3.6	1.8	0.1	0.6
16	0.8	0.7	0.6	0.4	0.3	0.3	0.1	0.1	0.1	0.3	0.4	0.2	0.2	0.1	0.1	0.1	0.5	0.4	0.2	0.3	0.3	0.1	0.1	0.0	16	0.8	0.7	0.0	0.3
17	1.7	0.4	0.2	0.1	0.1	-0.0	-0.0	0.1	0.3	0.5	3.4	6.8	2.6	1.3	0.8	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	17	6.8	3.4	-0.0	0.8
18	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.2	1.7	0.7	2.3	15.8	21.8	27.1	29.0	21.6	10.5	1.1	0.6	0.5	0.7	0.6	0.7	0.5	18	29.0	27.1	0.0	5.7
19	0.4	0.3	0.2	0.3	0.1	0.3	1.0	26.2	24.3	7.1	3.6	1.0	0.4	0.1	0.2	0.1	0.1	6.9	44.0	15.6	16.8	2.0	0.3	8.4	19	44.0	26.2	0.1	6.7
20	0.5	0.6	0.5	0.6	0.4	0.3	0.4	0.8	0.4	0.1	0.2	0.2	0.0	0.1	0.0	0.1	0.0	-0.0	0.0	0.1	-0.0	-0.1	0.0	0.1	20	0.8	0.6	-0.1	0.2
21	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.2	1.6	0.3	1.3	1.2	0.4	0.3	0.5	0.6	0.8	0.3	0.3	21	1.6	1.3	0.1	0.4
22	0.3	0.1	0.1	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	0.0	0.0	-0.0	-0.0	-0.1	-0.1	-0.0	-0.0	-0.1	-0.1	SPN	SPN	-0.1	-0.0	-0.1	22	0.3	0.1	-0.1	-0.0
23	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	0.7	1.7	1.6	7.5	11.3	3.8	7.7	15.7	34.4	28.6	24.2	3.6	0.3	0.4	0.1	0.2	0.1	23	34.4	28.6	-0.1	5.9
24	0.1	0.1	0.1	4.5	74.2	45.7	4.6	3.8	1.0	0.8	0.5	0.3	0.3	0.4	0.2	-0.0	-0.1	0.1	0.2	0.2	0.4	0.3	0.6	0.2	24	74.2	45.7	-0.1	5.8
25	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.3	0.3	0.2	0.3	0.2	1.0	0.7	0.4	0.2	0.1	0.2	0.3	25	1.0	0.7	0.1	0.2
26	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	QAS	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	-0.0	0.0	0.1	26	0.2	0.2	0.0	0.1
27	-0.0	0.1	0.2	0.3	8.9	0.6	0.3	0.3	0.5	17.7	16.6	2.6	1.8	0.3	1.5	0.5	0.2	0.1	0.1	0.2	0.2	0.4	0.3	0.2	27	17.7	16.6	-0.0	2.2
28	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.2	0.3	0.3	2.2	1.7	1.9	3.2	0.4	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	28	3.2	2.2	0.0	0.5
29	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	-0.0	-0.0	0.0	0.0	-0.0	-0.0	0.0	0.0	0.0	0.0	0.0	SPN	SPN	-0.0	0.0	0.0	29	0.1	0.1	0.0	0.0
30	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	-0.0	0.0	0.0	30	0.1	0.1	0.0	0.1

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
74.2	54.4	-0.2	1.6	6.1	98.2 %
April 24 04:00	April 7 14:00	April 9 20:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for May 2017

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Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

May 2017						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	-0.1	-0.1	-0.0	0.0	-0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	2.2	0.2	0.9	**4.9**	0.2	0.1	-0.1	0.0	0.1	1	4.9	2.2	-0.1	0.4
2	0.1	0.1	0.1	0.0	0.1	5.5	2.2	2.0	2.4	2.1	14.1	**14.3**	7.1	8.1	0.8	1.5	0.6	0.6	0.5	0.5	0.3	0.3	0.1	0.1	2	14.3	14.1	0.0	2.6
3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	**0.2**	0.1	0.1	0.1	0.1	0.1	0.2	0.2	-0.1	-0.0	0.0	0.1	0.1	0.0	-0.0	-0.0	3	0.2	0.2	-0.1	0.1
4	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.2	**0.4**	-0.0	-0.0	-0.0	4	0.4	0.2	-0.0	0.1
5	-0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.2	**5.8**	1.3	5.6	0.5	0.7	2.0	5.1	1.8	1.7	0.5	0.5	0.4	0.5	0.4	0.1	5	5.8	5.6	-0.0	1.2
6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8	3.9	**33.4**	18.4	7.0	18.6	1.9	1.0	0.5	0.5	0.6	CAL	CAL	0.4	0.3	0.1	6	33.4	18.6	0.1	4.0
7	-0.0	0.0	0.1	0.1	0.1	1.7	0.4	0.5	**18.5**	16.0	1.4	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	7	18.5	16.0	-0.0	1.7
8	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.5	**0.7**	0.6	0.5	0.4	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	8	0.7	0.6	0.0	0.2
9	0.1	0.0	0.1	-0.0	-0.0	0.0	-0.0	-0.0	0.0	0.1	0.0	0.0	0.0	-0.0	-0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.1	**0.5**	9	0.5	0.2	0.0	0.1
10	0.1	0.0	0.1	0.0	0.0	-0.0	0.0	0.0	QAS	0.2	0.1	0.1	0.1	0.1	0.1	0.1	**0.3**	0.2	0.1	0.0	0.1	0.1	-0.1	-0.1	10	0.3	0.2	-0.1	0.1
11	-0.0	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.0	0.0	0.0	-0.0	-0.1	0.0	**0.1**	-0.1	-0.0	-0.0	-0.0	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	11	0.1	-0.0	-0.2	-0.0
12	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	-0.0	0.0	-0.1	-0.1	-0.1	-0.0	-0.1	-0.0	-0.0	-0.1	-0.0	**0.2**	-0.2	-0.1	-0.1	12	0.2	-0.0	-0.2	-0.1
13	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	0.0	0.4	11.4	**20.4**	18.2	18.4	12.9	14.8	15.8	17.4	12.9	0.6	SPN	SPN	0.4	0.4	0.3	13	20.4	18.4	-0.1	6.5
14	0.2	0.3	0.2	0.2	0.3	6.0	1.2	2.7	1.4	1.4	1.0	1.8	**9.9**	9.2	1.7	0.8	0.6	0.5	0.4	1.0	0.3	0.4	0.3	0.1	14	9.9	9.2	0.1	1.7
15	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4	**14.0**	12.1	3.9	1.0	3.0	0.7	0.5	0.4	0.4	0.3	0.3	0.1	0.2	0.2	0.3	15	14.0	12.1	0.1	1.6
16	0.2	0.4	1.0	14.6	16.0	12.9	**37.4**	10.6	19.9	22.7	17.7	17.3	28.1	19.6	8.2	1.9	1.5	0.4	0.3	0.3	0.3	0.2	0.3	0.2	16	37.4	28.1	0.2	9.7
17	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	2.5	**19.9**	3.8	7.3	0.6	0.1	17	19.9	7.3	0.1	1.6
18	0.4	**8.2**	0.5	3.7	0.8	7.8	7.9	2.3	0.9	0.3	0.3	0.2	0.4	0.8	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	-0.0	0.0	18	8.2	7.9	-0.0	1.5
19	0.0	0.3	**0.4**	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.3	0.0	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	19	0.4	0.4	0.0	0.2
20	-0.0	0.0	0.0	-0.0	-0.0	-0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	-0.0	-0.0	-0.2	-0.1	-0.1	**0.9**	SPN	SPN	0.5	0.4	0.5	20	0.9	0.5	-0.2	0.1
21	0.4	0.5	0.5	0.4	0.4	0.4	0.6	0.6	0.5	0.5	0.6	0.5	2.6	**6.2**	2.7	2.4	0.6	0.5	0.4	0.5	0.7	0.4	0.5	0.4	21	6.2	2.7	0.4	1.0
22	0.3	1.2	0.5	0.5	0.5	0.5	0.5	0.5	0.7	0.6	**2.5**	1.6	0.7	0.6	0.6	0.5	0.5	0.6	0.6	0.5	0.7	0.4	0.5	0.5	22	2.5	1.6	0.3	0.7
23	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.5	0.4	0.5	**0.6**	0.2	0.2	0.4	0.4	23	0.6	0.5	0.2	0.4
24	0.4	0.3	0.4	0.4	0.4	0.4	0.5	0.5	QAS	0.4	0.5	0.5	0.5	0.6	0.4	0.6	0.6	0.6	1.0	**3.2**	2.9	1.8	0.7	0.6	24	3.2	2.9	0.3	0.8
25	0.6	0.6	3.7	**6.8**	1.2	0.8	0.8	0.8	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.6	0.7	0.7	0.7	0.7	0.5	0.7	0.7	0.6	25	6.8	3.7	0.5	1.1
26	0.5	0.6	0.7	0.5	0.4	0.5	0.5	0.8	0.8	0.5	0.6	0.6	1.2	5.0	4.2	2.1	**10.7**	4.1	0.8	0.7	0.3	0.7	0.8	0.8	26	10.7	5.0	0.3	1.6
27	0.8	0.8	**3.7**	0.7	0.3	0.5	0.6	0.7	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.7	SPN	SPN	0.3	0.1	-0.0	27	3.7	0.8	-0.0	0.7
28	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.3	-0.0	0.1	-0.1	-0.1	-0.0	0.1	0.1	0.1	0.1	0.1	0.1	**0.6**	0.0	0.3	28	0.6	0.3	-0.1	0.1
29	1.0	0.1	0.1	0.1	0.1	0.3	0.2	0.4	0.4	6.2	0.2	0.4	1.4	0.9	0.1	0.1	**7.8**	0.2	0.2	0.2	0.0	0.2	0.1	0.0	29	7.8	6.2	0.0	0.9
30	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.9	1.9	0.2	1.0	**8.8**	1.6	3.4	3.4	6.6	3.2	1.1	0.2	0.0	0.3	0.2	0.1	30	8.8	6.6	0.0	1.4

31	0.2	5.8	21.8	1.0	0.4	0.4	3.1	**23.9**	3.5	2.2	19.5	6.7	7.8	0.9	0.3	1.2	0.3	1.4	0.3	0.3	3.0	1.5	1.9	16.1	**31**	23.9	21.8	0.2	5.1
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	**Monthly SH**	**Monthly Min**	**Monthly Avg**	**Monthly STD**	**Monthly Cap**
37.4	33.4	-0.2	1.5	4.1	98.7 %
May 16 06:00	May 6 10:00	May 11 19:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for June 2017

Select a New Site, Different Parameters, or Change Report Options

Select a date:

June | 2017 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

June 2017	Sulfur Dioxide MDL (POC 1 R) measured in parts per billion																			Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	2.2	2.3	0.7	0.4	0.2	0.4	0.5	0.8	1.5	0.9	10.4	**17.5**	10.4	11.1	11.3	3.0	0.8	0.6	0.5	0.5	0.6	0.5	0.4	0.3	1	17.5	11.3	0.2	3.2
2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	**0.4**	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	2	0.4	0.3	0.2	0.3
3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.7	4.3	**4.8**	1.2	1.2	0.5	0.4	0.3	0.4	0.5	0.6	CAL	CAL	0.1	0.0	-0.2	3	4.8	4.3	-0.2	0.7
4	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	-0.0	-0.0	-0.2	-0.2	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	0.1	**0.3**	-0.0	-0.1	0.1	-0.0	4	0.3	0.1	-0.2	-0.1
5	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	0.1	0.1	0.1	-0.0	-0.1	QAS	-0.0	0.3	**0.6**	0.3	-0.0	0.0	-0.0	-0.1	-0.0	0.0	-0.1	5	0.6	0.3	-0.2	0.0
6	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	0.2	0.5	0.5	0.0	0.0	-0.0	-0.1	-0.1	-0.0	-0.1	-0.0	0.0	0.1	**1.6**	0.5	0.0	-0.1	6	1.6	0.5	-0.2	0.1
7	0.0	-0.1	0.1	0.0	-0.1	-0.2	0.0	0.0	-0.1	-0.1	0.0	-0.1	-0.0	-0.1	-0.1	-0.0	-0.1	-0.1	-0.1	-0.0	0.1	**0.4**	-0.0	-0.1	7	0.4	0.1	-0.2	-0.0
8	0.0	-0.0	-0.3	0.0	-0.0	-0.1	-0.1	0.0	0.0	-0.1	0.1	0.0	0.4	4.9	2.3	**10.2**	0.9	0.5	0.2	AQI	AQI	AQI	AQI	AQI	8	10.2	4.9	-0.3	1.0
9	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	**26.9**	24.3	20.7	15.1	12.7	6.0	6.9	7.6	0.8	0.4	0.3	0.5	0.3	0.3	0.1	9	26.9	24.3	0.1	8.2
10	0.2	0.1	0.1	0.1	8.9	5.6	1.3	36.7	**58.4**	24.5	23.1	12.8	18.4	7.8	2.8	1.0	0.7	0.5	0.5	SPN	SPN	0.7	0.6	0.5	10	58.4	36.7	0.1	9.3
11	0.6	0.6	0.5	0.6	0.6	0.9	**43.5**	32.0	27.7	25.9	11.5	36.0	32.5	20.0	18.0	3.3	2.7	1.3	1.0	1.0	0.9	0.9	0.7	0.8	11	43.5	36.0	0.5	11.0
12	0.7	0.7	0.7	0.6	1.5	**38.2**	8.6	29.7	30.4	7.8	2.2	5.7	4.5	13.5	4.6	5.3	1.9	6.2	1.1	1.0	0.8	0.8	0.8	0.5	12	38.2	30.4	0.5	7.0
13	0.6	0.5	0.7	0.7	0.8	22.3	**52.2**	51.5	6.9	3.2	2.1	3.3	5.2	25.8	20.8	39.0	36.7	5.6	2.4	1.5	1.4	1.1	0.6	0.5	13	52.2	51.5	0.5	11.9
14	2.0	15.4	1.8	0.8	0.3	0.1	0.1	0.3	0.6	0.3	QAS	QAS	1.7	5.8	13.2	**23.3**	4.7	15.3	4.5	0.5	0.7	0.3	0.4	0.6	14	23.3	15.4	0.1	4.2
15	1.9	24.6	**73.3**	11.1	3.0	1.7	1.9	1.7	1.2	0.7	0.6	0.5	0.3	QAS	QAS	0.0	0.7	0.5	0.4	0.4	0.6	0.4	0.3	0.2	15	73.3	24.6	0.0	5.7
16	0.2	0.2	0.1	**47.5**	6.2	1.2	1.2	0.9	0.9	0.7	0.6	0.3	0.2	0.1	0.1	0.2	0.3	0.2	0.3	0.6	0.5	0.4	0.4	0.4	16	47.5	6.2	0.1	2.7
17	0.3	0.3	**21.4**	10.8	4.4	4.3	1.0	0.5	0.3	0.6	0.9	0.7	0.4	0.5	2.0	10.6	19.7	6.3	1.2	SPN	SPN	0.4	0.4	0.3	17	21.4	19.7	0.3	4.0
18	0.2	0.3	0.4	0.1	0.8	**1.9**	0.7	0.3	0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.0	0.1	-0.0	18	1.9	0.8	-0.2	0.1
19	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	0.4	**0.6**	0.1	0.5	0.2	-0.1	-0.1	-0.0	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.0	-0.0	0.1	19	0.6	0.5	-0.1	0.0
20	-0.1	0.0	-0.0	-0.1	-0.0	-0.0	0.7	0.8	3.7	9.0	**14.5**	10.7	5.4	11.1	12.0	9.8	5.5	2.4	0.6	0.3	0.3	0.2	0.2	0.3	20	14.5	12.0	-0.1	3.6
21	0.3	0.2	0.2	**114.5**	73.1	58.9	4.1	1.5	0.8	0.6	0.4	QAS	13.6	11.8	33.1	15.4	14.9	1.5	0.8	0.7	0.6	0.3	0.5	0.3	21	114.5	73.1	0.2	15.1
22	0.4	0.2	0.4	0.5	0.5	0.3	0.2	0.0	0.2	0.2	0.4	15.0	14.3	**33.3**	8.8	0.8	0.6	6.6	2.4	0.8	1.0	6.7	0.6	0.4	22	33.3	15.0	0.0	3.9
23	0.3	0.2	0.4	0.2	0.3	0.3	0.1	**0.6**	0.5	0.2	0.1	0.3	0.3	0.1	0.0	0.1	0.1	0.0	0.0	0.0	-0.2	-0.0	-0.1	0.1	23	0.6	0.5	-0.2	0.2
24	0.0	-0.1	-0.2	-0.3	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	-0.0	-0.2	-0.2	-0.1	-0.0	-0.0	-0.0	SPN	SPN	**0.4**	0.3	0.4	24	0.4	0.4	-0.3	-0.0
25	0.4	0.3	0.4	0.3	0.2	0.4	0.3	0.3	0.4	0.5	0.4	0.8	**11.7**	2.9	0.7	0.5	0.4	0.5	0.5	0.4	0.4	0.3	0.2	0.2	25	11.7	2.9	0.2	1.0
26	0.3	0.4	1.3	0.6	0.3	0.4	0.3	0.4	0.5	0.4	0.4	0.4	0.4	1.4	4.5	**11.7**	2.4	4.8	1.0	0.7	0.5	0.5	3.1	6.4	26	11.7	6.4	0.3	1.8
27	21.6	2.3	1.0	1.4	51.4	21.9	8.4	2.5	1.5	11.0	9.1	20.1	39.2	28.3	27.1	60.7	71.2	**75.5**	34.4	2.1	1.5	1.1	0.9	1.3	27	75.5	71.2	0.9	20.0
28	1.0	6.0	45.6	19.9	**48.8**	18.2	3.2	2.0	2.0	1.1	1.2	1.0	1.1	5.3	9.5	2.2	3.4	3.7	1.0	1.2	1.1	0.8	0.9	0.8	28	48.8	45.6	0.8	7.5
29	0.8	42.3	**59.6**	4.5	2.2	2.6	1.9	1.5	1.2	1.0	0.7	0.6	0.7	0.6	0.7	0.6	1.3	6.4	0.7	0.7	1.1	0.9	0.9	1.4	29	59.6	42.3	0.6	5.6
30	1.1	0.8	**1.5**	0.8	0.8	0.9	0.7	0.7	0.4	1.2	1.5	0.5	0.4	0.5	0.5	0.4	0.5	0.6	0.5	0.5	1.2	0.6	0.5	0.5	30	1.5	1.5	0.4	0.7

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
114.5	75.5	-0.3	4.3	11.4	96.1 %
June 21 03:00	June 27 17:00	June 8 02:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

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Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for July 2017

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Select a date:

July 2017 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

July 2017						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.5	0.4	0.4	0.5	0.3	0.5	0.3	0.5	0.4	0.4	0.3	2.9	9.1	11.3	10.0	13.6	**14.7**	3.0	3.2	CAL	CAL	0.5	0.3	0.4	1	14.7	13.6	0.3	3.3
2	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.3	0.1	0.1	-0.0	-0.0	1.2	-0.0	0.1	**4.8**	2.1	3.5	3.2	0.3	0.3	-0.0	0.1	2	4.8	3.5	0.0	0.7
3	0.8	**58.8**	3.9	16.4	10.6	3.9	19.3	3.0	1.0	6.7	9.5	16.0	8.1	11.3	17.3	12.7	22.4	8.6	0.8	0.4	4.1	0.8	0.8	7.6	3	58.8	22.4	0.4	10.2
4	1.6	0.4	4.3	0.7	0.1	-0.1	0.1	0.4	0.4	6.1	2.1	0.4	0.3	3.3	**21.2**	4.4	19.7	2.8	1.1	0.8	0.7	0.2	0.6	0.2	4	21.2	19.7	-0.1	3.0
5	0.0	0.0	-0.0	0.0	0.0	-0.1	-0.2	0.2	0.1	0.1	0.0	-0.0	-0.0	**18.2**	10.6	3.4	9.6	5.4	0.4	0.3	0.3	0.3	0.1	-0.0	5	18.2	10.6	-0.2	2.0
6	0.1	-0.1	-0.0	0.0	-0.1	-0.1	-0.1	0.2	-0.1	0.0	0.0	20.2	**21.2**	9.8	QAS	0.6	9.8	3.9	0.5	0.2	0.3	0.2	0.1	0.1	6	21.2	20.2	-0.1	2.9
7	0.2	-0.0	0.1	-0.0	0.2	-0.1	0.1	0.1	0.1	0.1	0.7	2.9	5.0	1.6	**7.4**	2.4	0.3	0.1	0.2	0.3	0.2	0.1	0.2	0.1	7	7.4	5.0	-0.1	0.9
8	0.1	0.1	0.7	1.3	0.5	0.0	0.2	0.1	0.1	0.1	0.1	0.2	8.8	**17.4**	4.2	1.7	1.4	0.4	0.5	SPN	SPN	0.3	0.2	0.2	8	17.4	8.8	0.0	1.8
9	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	3.4	6.3	6.4	8.3	5.5	2.2	**12.3**	2.5	2.5	0.6	0.4	0.3	9	12.3	8.3	0.1	2.2
10	4.4	2.5	1.6	0.7	0.3	0.5	0.6	0.6	0.4	0.6	0.5	0.4	1.6	8.7	24.5	24.4	9.1	**31.6**	22.9	10.5	1.0	0.6	0.6	0.5	10	31.6	24.5	0.3	6.2
11	10.1	**50.2**	5.6	0.9	1.5	2.2	1.5	1.3	1.0	0.7	1.6	28.2	23.3	14.6	17.0	8.1	18.8	6.9	4.0	0.8	0.3	0.4	0.3	0.2	11	50.2	28.2	0.2	8.3
12	0.7	**72.2**	67.4	5.8	1.2	0.7	0.6	0.5	1.0	10.9	16.2	15.5	28.2	26.9	19.4	40.8	31.4	13.5	14.2	7.7	0.9	0.6	0.4	0.2	12	72.2	67.4	0.2	15.7
13	0.3	0.3	32.8	**45.2**	21.2	1.1	0.7	0.5	0.4	3.2	23.6	12.1	10.2	14.8	8.9	8.1	5.3	0.8	9.4	2.5	2.7	0.4	0.7	0.8	13	45.2	32.8	0.3	8.6
14	0.5	0.3	0.3	0.2	0.3	0.1	0.3	0.4	0.6	0.3	0.2	3.1	9.6	4.6	2.5	2.2	3.5	**16.1**	11.8	SPZ	0.4	0.3	0.5	0.4	14	16.1	11.8	0.1	2.5
15	0.3	0.3	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.5	**18.9**	10.8	3.4	8.3	12.6	2.4	3.7	7.9	SPN	SPN	0.2	-0.0	-0.0	15	18.9	12.6	-0.0	3.2
16	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.1	**0.8**	0.2	0.2	0.2	0.1	0.3	0.0	-0.0	0.1	16	0.8	0.3	0.0	0.1
17	-0.0	0.0	0.2	8.2	1.1	0.4	0.2	0.2	0.3	13.1	16.5	**27.7**	20.4	23.4	13.6	21.6	5.0	0.6	0.4	0.3	0.5	0.2	0.1	0.2	17	27.7	23.4	-0.0	6.4
18	0.2	0.0	0.1	0.4	4.1	**48.6**	7.3	1.8	0.6	0.4	1.2	17.3	26.7	13.2	7.9	1.4	0.2	0.3	0.3	0.1	0.0	0.1	0.0	0.2	18	48.6	26.7	0.0	5.5
19	0.1	0.2	0.2	1.4	3.7	5.0	0.7	0.5	QAS	QAS	0.5	6.0	7.3	12.0	**20.5**	5.6	10.6	3.0	0.3	0.3	0.2	0.2	0.1	0.2	19	20.5	12.0	0.1	3.6
20	0.2	0.2	0.4	1.3	0.3	0.7	0.6	0.2	0.0	0.1	1.2	20.2	22.2	21.7	**25.1**	11.5	17.9	8.4	4.6	0.6	1.2	0.4	0.3	0.2	20	25.1	22.2	0.0	5.8
21	0.3	12.7	13.1	1.1	0.7	0.4	0.4	0.4	0.4	0.3	0.2	1.2	13.4	11.0	**14.1**	13.1	11.6	4.5	4.4	1.7	0.2	0.2	0.2	2.8	21	14.1	13.4	0.2	4.5
22	0.4	3.2	0.6	0.3	0.1	0.0	0.3	-0.0	-0.1	0.1	-0.1	13.1	**19.1**	2.4	0.3	1.1	2.2	0.5	1.4	SPN	SPN	0.3	0.9	0.4	22	19.1	13.1	-0.1	2.1
23	0.7	0.4	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	**1.1**	0.4	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.4	23	1.1	0.7	0.1	0.3
24	0.8	0.5	0.1	0.3	0.1	0.1	0.1	1.1	4.1	7.6	**11.3**	0.9	0.4	0.9	4.6	QAS	0.7	0.6	0.4	0.3	0.6	0.4	0.3	0.3	24	11.3	7.6	0.1	1.6
25	0.3	0.3	0.2	0.3	0.2	0.2	0.2	13.1	1.6	0.9	4.3	1.3	5.4	**27.8**	15.1	4.4	3.9	1.1	0.7	0.4	0.5	0.5	0.4	0.4	25	27.8	15.1	0.2	3.5
26	0.3	4.5	**62.6**	35.0	3.2	2.3	3.5	1.7	1.7	2.9	2.7	0.8	2.9	5.3	10.5	5.0	3.8	1.0	5.3	2.4	0.6	0.5	0.5	2.1	26	62.6	35.0	0.3	6.7
27	0.9	0.6	0.5	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.3	3.0	3.2	**4.8**	1.8	0.9	0.6	0.7	0.4	0.4	0.5	27	4.8	3.2	0.1	0.9
28	0.4	0.3	0.2	0.1	0.3	0.3	0.2	0.2	0.2	2.6	10.5	**11.3**	7.8	2.1	1.8	7.6	8.7	1.1	0.7	0.6	0.8	0.6	0.6	0.4	28	11.3	10.5	0.1	2.5
29	0.2	0.4	**0.5**	0.4	0.3	0.4	0.2	0.2	0.4	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.4	CAL	CAL	0.1	0.0	-0.1	29	0.5	0.4	-0.1	0.3
30	-0.1	-0.1	-0.0	-0.0	-0.0	-0.1	-0.1	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.2	-0.0	-0.1	-0.0	0.0	0.0	0.1	**0.3**	0.0	-0.1	0.3	30	0.3	0.3	-0.2	-0.0

31	0.3	0.0	-0.0	0.0	0.0	-0.1	-0.1	0.1	0.0	0.0	-0.0	-0.1	-0.1	0.2	1.6	**2.1**	1.4	0.3	0.3	0.1	0.2	0.1	-0.1	-0.0	**31**	2.1	1.6	-0.1	0.3
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
72.2	67.4	-0.2	3.8	8.2	98.0 %
July 12 01:00	July 12 02:00	July 5 06:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for August 2017

Select a New Site, Different Parameters, or Change Report Options

Select a date:

August | 2017 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

August 2017						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	-0.0	-0.0	-0.0	-0.1	0.0	0.0	-0.2	-0.0	-0.0	-0.1	QAS	0.0	0.1	0.1	0.4	**0.5**	0.4	0.1	0.0	-0.0	-0.0	-0.0	-0.1	0.0	1	0.5	0.4	-0.2	0.0
2	-0.1	-0.0	0.0	-0.2	-0.0	-0.1	0.0	-0.1	-0.2	-0.2	-0.2	-0.1	0.3	0.4	**0.7**	0.4	0.1	-0.1	0.0	0.0	-0.1	0.1	0.0	-0.1	2	0.7	0.4	-0.2	0.0
3	-0.2	-0.1	0.2	-0.1	0.0	-0.1	-0.1	0.2	0.0	0.0	0.2	0.0	0.1	2.4	0.2	**2.9**	0.5	0.3	0.1	0.1	0.1	0.2	0.1	0.1	3	2.9	2.4	-0.2	0.3
4	-0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.0	-0.2	-0.0	-0.0	0.1	-0.1	-0.0	5.4	3.9	8.3	8.8	3.6	**9.4**	4.4	6.3	0.9	0.5	4	9.4	8.8	-0.2	2.1
5	0.3	0.2	**5.4**	2.6	0.8	0.4	0.2	4.7	1.4	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	SPN	SPN	0.1	0.2	0.2	5	5.4	4.7	0.1	0.9
6	0.2	0.1	0.2	-0.1	0.0	-0.0	0.1	0.2	0.1	0.1	0.1	0.0	**0.4**	-0.0	0.0	0.0	0.0	-0.0	0.0	0.0	0.2	0.0	-0.0	0.0	6	0.4	0.2	-0.1	0.1
7	-0.1	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	0.0	-0.0	0.0	0.0	**0.1**	-0.1	-0.0	-0.1	-0.2	-0.1	0.1	-0.0	-0.1	-0.0	7	0.1	0.1	-0.2	-0.0
8	-0.1	0.1	-0.0	-0.1	-0.1	-0.1	-0.0	-0.1	-0.2	-0.1	-0.1	-0.2	-0.1	-0.0	0.0	**3.3**	2.7	0.3	0.1	0.0	0.2	0.1	0.0	-0.0	8	3.3	2.7	-0.2	0.2
9	-0.0	0.1	0.2	0.1	2.7	**11.3**	1.0	0.8	0.4	0.3	0.2	0.1	0.1	0.0	2.4	0.3	0.5	0.9	0.4	0.4	0.6	0.2	0.2	0.2	9	11.3	2.7	-0.0	1.0
10	0.2	0.1	0.1	0.0	0.8	0.6	0.1	-0.1	0.1	0.2	0.5	5.7	4.1	3.5	8.0	**9.4**	4.0	2.2	1.7	0.9	0.9	2.5	0.3	0.2	10	9.4	8.0	-0.1	1.9
11	0.1	0.2	1.4	0.3	0.1	-0.1	-0.1	0.1	0.0	0.2	0.2	1.3	1.6	2.4	**10.6**	5.5	1.2	0.6	0.8	0.5	0.6	0.2	0.0	0.1	11	10.6	5.5	-0.1	1.2
12	0.2	0.3	0.1	-0.1	-0.1	**5.7**	1.7	1.2	0.7	0.6	0.9	0.4	0.3	0.6	0.4	0.6	0.4	0.1	0.1	SPN	SPN	0.3	0.1	0.3	12	5.7	1.7	-0.1	0.7
13	0.0	0.2	0.2	0.0	0.2	0.1	-0.1	0.3	-0.0	0.1	0.1	0.2	0.2	0.4	**0.5**	0.2	0.2	0.2	0.2	AQI	AQI	AQI	LST	LST	13	0.5	0.4	-0.1	0.2
14	LST	LST	LST	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	0.2	2.2	**2.7**	0.8	0.5	0.3	0.4	0.6	0.2	0.1	0.2	14	2.7	2.2	0.1	0.7
15	0.1	0.1	1.1	1.7	0.6	4.9	1.3	0.5	7.2	4.7	0.7	0.5	2.6	19.7	**31.2**	24.4	8.4	4.6	2.6	1.2	3.3	31.1	3.6	1.9	15	31.2	31.1	0.1	6.6
16	1.8	**6.3**	1.3	0.9	0.4	1.3	0.6	0.6	0.5	0.5	0.5	0.3	QAS	0.5	0.3	0.4	0.4	0.4	0.3	0.5	0.5	0.5	0.3	0.3	16	6.3	1.8	0.3	0.8
17	0.4	0.1	0.3	0.3	0.3	0.2	0.3	1.0	0.4	0.4	0.4	0.3	0.3	1.0	5.1	4.0	**7.1**	7.1	1.3	1.1	0.7	0.7	0.5	0.2	17	7.1	7.1	0.1	1.4
18	0.8	21.9	**34.4**	2.7	1.2	0.8	0.6	0.6	0.3	0.6	0.4	2.7	20.6	13.0	1.4	0.9	0.9	0.6	0.7	0.6	1.0	0.7	0.6	0.4	18	34.4	21.9	0.3	4.5
19	0.3	0.5	1.3	1.0	0.6	0.7	0.6	0.4	0.3	0.4	0.5	0.6	3.9	7.2	6.1	3.9	**11.7**	9.5	2.5	SPN	SPN	0.8	0.6	0.4	19	11.7	9.5	0.3	2.4
20	2.3	3.8	**40.2**	27.5	2.8	1.3	1.0	0.7	7.1	6.4	1.1	1.0	0.8	0.9	10.1	10.9	6.0	3.1	1.4	0.8	0.6	0.5	0.5	0.4	20	40.2	27.5	0.4	5.5
21	0.2	0.2	0.2	0.3	1.0	5.3	3.9	1.6	0.6	0.4	0.4	0.4	1.2	10.1	**17.6**	10.8	12.5	1.9	1.8	2.7	2.2	1.2	1.2	2.6	21	17.6	12.5	0.2	3.3
22	1.4	**5.7**	1.1	0.8	0.6	0.5	0.3	0.3	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.7	1.0	0.7	0.5	0.7	0.3	0.1	0.2	22	5.7	1.4	0.1	0.7
23	0.2	-0.1	0.1	**0.3**	0.1	-0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.1	23	0.3	0.3	-0.1	0.1
24	0.1	-0.0	0.2	0.1	0.0	0.1	0.0	0.1	0.1	-0.0	-0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	**0.4**	0.3	0.1	0.1	24	0.4	0.3	-0.0	0.1
25	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.2	0.1	0.0	**1.1**	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.4	0.2	0.0	0.1	25	1.1	0.4	0.0	0.2
26	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.4	1.1	**1.7**	0.6	0.7	0.4	0.5	0.1	0.2	0.2	0.1	CAL	CAL	0.2	-0.1	-0.1	26	1.7	1.1	-0.1	0.3
27	-0.2	-0.1	-0.4	0.0	NEG	-0.0	-0.1	-0.3	0.0	-0.1	0.5	0.4	0.5	0.2	-0.0	0.0	-0.2	-0.1	-0.1	0.0	0.5	0.1	-0.1	**0.8**	27	0.8	0.5	-0.4	0.1
28	0.3	0.3	-0.3	-0.0	-0.2	-0.3	-0.3	-0.1	**0.5**	0.1	-0.2	-0.2	-0.2	-0.1	0.0	-0.1	-0.1	-0.2	-0.1	0.0	0.1	0.1	-0.1	-0.3	28	0.5	0.3	-0.3	-0.1
29	-0.3	-0.3	-0.4	-0.3	-0.1	-0.2	-0.2	-0.0	0.1	-0.2	0.2	0.3	0.1	0.0	QAS	0.4	**1.4**	0.7	0.3	0.1	-0.1	-0.1	-0.2	-0.2	29	1.4	0.7	-0.4	0.0
30	-0.3	-0.3	-0.3	-0.2	-0.3	-0.3	-0.1	-0.1	0.5	0.1	-0.2	-0.3	-0.3	-0.1	**1.1**	0.1	0.3	0.4	0.1	0.1	0.0	-0.1	-0.3	-0.2	30	1.1	0.5	-0.3	-0.0

31	-0.3	-0.4	-0.4	-0.1	-0.2	-0.2	-0.2	-0.0	0.3	0.0	5.5	**23.3**	8.8	9.8	13.7	11.1	4.2	0.7	0.3	0.5	0.1	0.1	-0.1	-0.2	**31**	23.3	13.7	-0.4	3.2
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
40.2	34.4	-0.4	1.3	3.9	96.0 %
August 20 02:00	August 18 02:00	August 27 02:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for September 2017

Select a New Site, Different Parameters, or Change Report Options

Select a date:

September 2017 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

September 2017						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Av
1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	3.4	**43.0**	19.3	1.6	15.2	22.5	34.6	25.0	14.6	5.3	3.0	1.2	0.8	0.6	0.2	1.2	1	43.0	34.6	-0.2	7.9
2	**4.1**	0.3	0.3	0.0	0.1	0.2	0.1	0.1	-0.0	-0.0	0.1	0.1	0.0	0.6	0.6	0.1	0.1	0.0	0.0	SPN	SPN	1.0	0.3	-0.1	2	4.1	1.0	-0.1	0.4
3	-0.2	-0.3	-0.3	-0.2	-0.3	-0.3	-0.3	0.0	0.2	-0.1	**5.3**	0.6	-0.1	-0.1	2.9	2.2	0.2	-0.1	-0.0	-0.0	0.2	0.0	-0.3	-0.0	3	5.3	2.9	-0.3	0.4
4	-0.1	-0.2	0.7	0.7	-0.0	-0.2	-0.3	0.0	0.1	0.0	0.2	0.4	0.3	0.1	1.0	7.9	9.7	**10.6**	2.6	0.6	0.2	0.1	0.1	0.3	4	10.6	9.7	-0.3	1.5
5	-0.1	-0.0	-0.3	0.0	-0.3	-0.0	**0.7**	0.2	0.1	0.1	0.1	-0.3	-0.2	-0.2	-0.3	-0.2	-0.2	-0.2	-0.4	-0.1	0.1	-0.4	NEG	NEG	5	0.7	0.2	-0.4	-0.
6	-0.3	-0.4	-0.3	-0.3	-0.4	-0.2	-0.1	-0.2	-0.0	-0.1	0.1	0.0	-0.2	0.3	6.1	**8.1**	5.3	0.7	-0.2	-0.3	NEG	-0.3	-0.3	-0.3	6	8.1	6.1	-0.4	0.7
7	-0.2	-0.3	-0.4	0.1	71.4	**141.1**	113.6	87.4	11.5	21.0	38.7	21.1	15.4	19.6	18.0	7.8	3.4	10.8	0.6	0.3	0.2	0.4	0.4	-0.1	7	141.1	113.6	-0.4	24.
8	1.9	8.4	10.0	33.1	43.2	91.6	110.5	**120.2**	22.8	4.3	28.8	31.4	45.0	9.3	8.4	7.6	1.9	1.1	0.4	0.2	0.1	0.1	0.3	0.1	8	120.2	110.5	0.1	24.
9	0.1	0.0	0.0	-0.0	-0.1	0.1	-0.0	0.2	0.3	7.2	**17.5**	8.5	2.1	6.3	8.1	0.4	0.2	0.1	0.1	SPN	SPN	0.6	0.5	0.3	9	17.5	8.5	-0.1	2.4
10	0.2	0.1	0.0	-0.1	0.1	0.1	0.1	0.1	1.4	**7.9**	5.5	6.5	4.3	4.9	4.9	3.1	3.4	0.6	0.4	0.4	0.2	0.4	0.2	0.1	10	7.9	6.5	-0.1	1.9
11	-0.1	-0.2	-0.1	-0.1	0.0	5.5	1.1	0.4	1.3	0.9	0.5	0.7	0.6	7.3	**8.4**	7.4	2.3	0.6	0.5	0.5	0.3	0.2	0.4	0.2	11	8.4	7.4	-0.2	1.6
12	0.0	0.0	-0.0	-0.1	0.2	0.1	0.1	0.3	0.9	0.3	0.1	10.6	**52.8**	4.2	2.8	17.6	2.0	1.1	0.8	0.8	0.5	0.3	0.4	0.2	12	52.8	17.6	-0.1	4.0
13	0.2	0.1	0.1	-0.0	-0.1	-0.1	-0.1	0.2	1.5	9.9	16.7	QAS	QAS	30.8	8.5	**32.8**	3.8	5.9	0.8	0.8	0.7	0.4	0.3	0.2	13	32.8	30.8	-0.1	5.2
14	0.3	0.2	0.0	1.8	1.0	0.1	1.0	1.2	5.2	16.4	3.5	**35.4**	3.8	4.3	1.5	6.3	2.5	1.5	0.4	0.4	0.3	0.6	0.3	0.3	14	35.4	16.4	0.0	3.7
15	0.2	0.1	0.4	0.1	0.1	0.2	0.1	0.5	0.6	1.1	0.2	0.1	0.0	0.1	0.2	0.0	5.8	5.0	1.2	**6.5**	0.5	1.4	0.3	0.3	15	6.5	5.8	0.0	1.0
16	0.3	9.4	3.7	1.1	0.4	8.3	**28.8**	1.3	0.6	0.3	0.0	0.0	0.1	-0.1	5.8	7.4	5.7	0.5	0.6	SPN	SPN	0.2	0.1	0.1	16	28.8	9.4	-0.1	3.4
17	0.3	-0.0	0.4	0.3	-0.0	0.6	0.5	0.8	0.6	-0.0	-0.0	1.5	1.1	0.3	0.4	0.5	0.5	**4.7**	1.3	0.4	0.2	0.4	0.2	-0.1	17	4.7	1.5	-0.1	0.6
18	0.0	0.5	0.5	0.1	-0.1	-0.0	0.0	0.1	0.0	0.3	2.0	**26.6**	20.6	3.8	2.5	2.1	5.7	16.6	6.4	1.2	0.9	0.5	0.3	0.3	18	26.6	20.6	-0.1	3.8
19	0.2	8.1	**104.5**	46.1	3.3	2.0	2.5	1.4	0.7	0.3	0.2	0.2	0.1	-0.0	0.2	0.1	0.2	0.2	0.3	2.7	4.3	3.8	0.8	3.4	19	104.5	46.1	-0.0	7.1
20	0.4	0.2	0.6	**2.1**	0.4	0.1	-0.2	-0.1	0.2	0.5	0.4	-0.1	-0.2	0.1	0.1	0.1	0.2	1.0	1.2	0.3	1.0	0.4	0.1	0.4	20	2.1	1.2	-0.2	0.4
21	0.3	0.4	0.4	0.5	23.4	5.8	7.5	3.8	0.9	0.4	0.1	0.0	0.1	0.0	10.8	20.8	**57.3**	37.0	3.5	1.4	0.8	0.8	0.6	0.3	21	57.3	37.0	0.0	7.4
22	0.5	0.5	32.1	**87.8**	3.5	3.7	1.3	0.8	0.7	33.3	32.3	2.3	0.9	0.6	0.6	0.5	0.5	0.5	0.4	0.5	0.5	0.3	0.3	0.2	22	87.8	33.3	0.2	8.5
23	0.1	0.1	0.2	0.2	0.1	**0.4**	0.1	0.3	-0.0	0.3	0.0	0.3	0.1	0.0	0.2	0.2	0.1	0.2	0.1	CAL	CAL	0.3	0.2	0.2	23	0.4	0.3	-0.0	0.2
24	0.1	0.1	-0.1	0.1	0.1	0.1	0.2	0.1	**0.3**	0.1	-0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.0	-0.1	-0.0	0.3	-0.0	0.2	0.1	24	0.3	0.3	-0.1	0.1
25	-0.1	0.0	0.3	-0.2	0.3	-0.1	0.2	0.2	-0.1	**1.7**	0.9	0.2	-0.0	0.1	0.3	0.3	0.1	0.0	0.2	0.0	0.2	-0.1	0.6	0.4	25	1.7	0.9	-0.2	0.2
26	0.4	0.3	0.1	-0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	**0.8**	CAL	CAL	CAL	CAL	CAL	CAL	CAL	CAL	CAL	CAL	26	0.8	0.4	-0.0	0.1
27	CAL	CAL	CAL	CAL	CAL	CAL	CAL	CAL	**2.7**	1.7	1.0	0.6	0.4	0.3	0.3	0.2	0.1	0.1	-0.0	-0.1	0.3	-0.2	-0.1	0.1	27	2.7	1.7	-0.2	0.5
28	-0.0	0.1	-0.0	0.0	0.0	0.0	-0.1	-0.1	-0.0	0.1	0.0	0.1	-0.1	0.0	-0.0	-0.0	0.0	-0.1	0.0	0.0	**0.2**	-0.0	0.0	0.0	28	0.2	0.1	-0.1	0.0
29	0.0	0.0	0.0	0.0	-0.1	-0.0	-0.0	0.0	0.0	0.0	-0.0	0.2	**0.3**	0.3	0.3	-0.1	-0.0	0.3	0.1	-0.1	0.2	-0.1	-0.2	-0.1	29	0.3	0.3	-0.2	0.0
30	-0.0	-0.0	-0.1	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	0.1	0.2	0.6	0.2	0.1	0.6	0.5	0.1	0.0	SPN	SPN	-0.3	1.7	**2.4**	30	2.4	1.7	-0.3	0.3

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Av

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
141.1	120.2	-0.4	3.9	13.7	95.4 %
September 7 05:00	September 8 07:00	September 5 18:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for October 2017

Select a New Site, Different Parameters, or Change Report Options

Select a date:

October ▾ 2017 ▾ Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

October 2017						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**
1	2.9	0.9	0.9	0.6	0.7	8.6	13.4	13.3	19.4	4.1	1.1	16.8	**22.1**	11.4	15.4	3.2	1.0	0.5	0.5	0.5	0.4	0.3	0.1	0.1	**1**	22.1	19.4	0.1	5.8
2	0.0	-0.0	13.1	41.7	13.6	24.2	**43.9**	33.9	18.2	3.3	0.9	0.7	0.5	0.6	1.3	3.7	0.6	0.3	0.4	0.3	0.9	0.4	0.2	0.1	**2**	43.9	41.7	0.0	8.5
3	0.0	0.2	1.7	**23.2**	13.9	2.7	0.6	1.9	2.5	0.6	0.2	0.2	-0.0	-0.1	-0.0	0.1	-0.0	-0.0	-0.0	-0.1	-0.0	0.1	NEG	-0.0	**3**	23.2	13.9	-0.1	2.1
4	0.0	-0.2	-0.1	-0.3	-0.0	-0.3	0.1	NEG	0.4	0.4	1.1	**1.7**	0.9	0.4	0.2	0.1	0.1	-0.2	0.0	0.0	0.0	0.1	-0.1	-0.1	**4**	1.7	1.1	-0.3	0.2
5	0.1	-0.3	0.1	-0.3	-0.2	**1.9**	1.5	0.6	0.2	0.1	0.1	0.1	0.0	0.0	-0.0	0.0	0.1	-0.0	-0.0	0.1	-0.0	0.0	-0.1	-0.2	**5**	1.9	1.5	-0.3	0.2
6	-0.1	5.3	**11.2**	1.8	0.3	0.5	0.5	0.3	1.3	1.2	0.3	0.3	0.1	0.1	0.2	0.3	0.2	0.1	0.3	4.4	1.3	0.2	0.1	-0.3	**6**	11.2	5.3	-0.3	1.2
7	-0.4	-0.3	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	0.1	0.1	0.4	-0.0	-0.4	-0.3	-0.2	-0.1	0.7	0.5	0.4	SPN	SPN	9.8	11.2	**99.2**	**7**	99.2	11.2	-0.4	5.5
8	**47.0**	32.6	10.5	1.2	0.7	0.5	0.2	0.3	0.4	0.7	0.6	0.2	0.2	-0.0	0.1	0.0	0.3	0.2	0.3	1.0	1.0	1.1	0.4	0.1	**8**	47.0	32.6	-0.0	4.1
9	**0.1**	0.1	-0.1	-0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	QAS	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.0	-0.1	**9**	0.1	0.1	-0.2	-0.0
10	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	0.0	0.0	0.1	-0.1	-0.1	0.1	**0.3**	-0.1	0.2	0.1	-0.1	-0.4	-0.2	-0.1	-0.1	-0.1	**10**	0.3	0.2	-0.4	-0.1
11	-0.0	-0.0	0.2	0.1	0.0	0.0	1.0	3.1	26.9	8.2	2.1	1.7	11.0	1.5	15.5	31.7	23.9	29.9	3.0	0.7	0.7	0.1	9.7	**63.0**	**11**	63.0	31.7	-0.0	9.7
12	35.4	7.9	4.4	1.2	0.6	1.1	0.6	0.7	0.6	1.0	0.4	0.1	0.2	0.1	0.2	0.6	0.4	5.6	4.2	10.4	4.6	36.4	**77.2**	75.5	**12**	77.2	75.5	0.1	11.2
13	**7.8**	2.4	1.9	1.7	0.9	0.6	0.6	0.4	0.2	0.3	0.1	0.0	0.3	3.4	2.9	1.7	1.1	0.6	1.5	0.6	0.7	0.5	0.0	0.3	**13**	7.8	3.4	0.0	1.3
14	0.4	8.7	1.6	**10.6**	8.1	2.4	1.7	1.1	1.0	0.5	0.5	0.5	0.4	0.2	0.2	0.3	0.3	0.0	-0.1	SPN	SPN	-0.1	0.1	0.5	**14**	10.6	8.7	-0.1	1.8
15	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.5	0.5	**0.6**	0.6	0.6	0.2	0.4	0.2	0.4	0.6	0.5	0.2	0.2	0.3	0.4	0.4	**15**	0.6	0.6	0.2	0.4
16	0.4	0.5	0.4	0.4	0.6	0.5	0.4	0.5	1.1	2.4	0.6	1.0	2.0	8.8	2.4	1.3	15.5	11.4	1.2	0.6	0.2	2.1	**23.8**	11.4	**16**	23.8	15.5	0.2	3.7
17	2.6	1.1	0.9	0.7	0.6	0.6	0.5	0.6	0.7	0.8	1.1	0.6	0.6	QAS	1.0	0.8	0.8	0.7	1.4	1.7	5.5	5.9	**17.7**	5.3	**17**	17.7	5.9	0.5	2.3
18	2.4	2.5	1.3	1.0	0.8	0.7	0.5	0.7	1.1	1.3	2.3	2.7	3.0	4.5	**13.5**	1.1	0.8	0.9	1.2	0.8	1.2	0.5	0.5	0.5	**18**	13.5	4.5	0.5	1.9
19	0.6	0.7	0.7	0.7	0.8	0.8	0.7	0.8	1.5	2.3	2.5	**3.1**	1.4	1.2	1.2	1.8	1.7	1.6	1.0	0.9	1.0	0.9	0.7	0.6	**19**	3.1	2.5	0.6	1.2
20	0.5	0.7	0.7	0.5	0.7	0.7	18.1	12.5	2.3	6.3	12.3	12.2	6.6	1.3	3.3	15.8	**28.2**	12.9	1.9	1.5	1.2	1.1	1.0	4.2	**20**	28.2	18.1	0.5	6.1
21	36.2	**38.0**	18.1	6.5	15.9	7.5	2.2	1.6	1.5	1.5	1.3	0.5	0.6	0.7	0.5	0.5	0.8	0.6	0.3	CAL	CAL	0.2	0.3	0.3	**21**	38.0	36.2	0.2	6.2
22	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.5	0.5	0.7	0.6	0.3	0.3	0.3	1.6	0.4	0.5	0.5	28.3	**30.8**	1.8	0.6	**22**	30.8	28.3	0.2	2.9
23	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.5	0.6	1.9	**3.5**	3.0	0.3	0.2	0.3	0.4	0.5	0.1	0.0	0.1	0.1	0.2	0.2	**23**	3.5	3.0	0.0	0.6
24	0.2	0.1	0.1	0.4	0.4	0.3	0.3	0.3	0.4	0.6	**0.7**	0.5	0.7	0.5	0.1	0.2	0.3	0.6	0.1	-0.3	0.2	0.2	0.2	0.3	**24**	0.7	0.7	-0.3	0.3
25	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.6	0.6	0.6	0.2	0.2	QAS	QAS	**0.7**	0.6	0.4	0.6	0.6	0.6	0.7	0.5	**25**	0.7	0.7	0.2	0.4
26	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.6	**1.1**	0.6	0.1	0.2	0.3	0.2	0.4	0.5	0.5	0.5	-0.1	0.0	0.2	0.3	0.2	**26**	1.1	0.6	-0.1	0.3
27	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.3	QAS	-0.0	0.2	0.3	**0.4**	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	**27**	0.4	0.3	-0.0	0.2
28	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.1	0.4	**0.7**	0.7	0.6	0.1	SPN	SPN	0.0	0.1	0.1	**28**	0.7	0.7	0.0	0.3
29	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.4	0.5	0.4	**0.7**	0.2	-0.2	-0.3	0.1	0.3	0.2	0.3	0.2	-0.1	-0.2	0.1	0.2	**29**	0.7	0.5	-0.3	0.2
30	0.1	0.1	1.4	0.4	0.1	0.2	0.1	0.1	0.1	1.1	0.8	1.4	1.2	0.7	0.4	0.2	0.1	0.2	0.1	0.2	0.2	**2.4**	0.9	0.1	**30**	2.4	1.4	0.1	0.5

31	0.1	0.1	-0.0	-0.0	0.1	-0.0	-0.0	0.1	0.2	0.2	4.5	25.4	**58.8**	37.6	1.0	0.9	0.5	15.6	4.5	0.8	1.6	27.0	1.0	0.6	**31**	58.8	37.6	-0.0	7.5
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
99.2	77.2	-0.4	2.8	8.7	98.0 %
October 7 23:00	October 12 22:00	October 7 00:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.

Maximum daily values are **bold** within the table.

R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for November 2017

Select a New Site, Different Parameters, or Change Report Options

Select a date:

November | 2017 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

November 2017						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.5	0.4	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.4	**0.7**	0.5	-0.1	-0.1	0.3	0.4	0.1	0.1	0.1	0.4	0.5	-0.1	-0.2	-0.1	1	0.7	0.5	-0.2	0.2
2	-0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.3	0.3	0.6	0.3	0.1	0.1	-0.2	-0.0	0.3	**4.3**	0.9	0.1	0.3	0.0	0.1	0.1	2	4.3	0.9	-0.2	0.4
3	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.2	0.8	2.2	5.4	**6.2**	6.0	3.5	2.0	0.3	0.5	0.5	0.1	-0.1	0.2	0.5	3	6.2	6.0	-0.1	1.3
4	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.4	0.6	0.0	0.0	0.0	-0.1	0.1	0.3	0.2	0.3	SPN	SPN	**0.7**	0.3	0.6	4	0.7	0.6	-0.1	0.2
5	0.3	0.1	0.0	0.2	0.2	0.4	0.5	0.4	0.6	0.8	0.6	0.1	0.0	-0.1	0.5	**0.9**	0.7	0.8	0.5	-0.1	0.2	0.2	0.3	0.3	5	0.9	0.8	-0.1	0.4
6	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.4	0.3	0.4	4.1	5.6	**11.8**	10.0	11.5	1.4	0.5	0.0	-0.0	0.2	0.3	0.3	0.3	6	11.8	11.5	0.0	2.0
7	0.3	0.3	0.2	0.2	0.1	0.3	0.9	0.8	1.8	1.5	1.0	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.5	1.7	**3.8**	1.5	7	3.8	1.8	0.1	0.7
8	1.1	0.5	0.2	0.1	0.2	0.2	0.5	0.6	0.5	0.6	0.6	0.5	0.3	0.0	0.3	1.2	**5.3**	0.7	0.5	0.5	0.5	0.3	0.4	0.4	8	5.3	1.2	0.0	0.7
9	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.5	0.6	0.7	0.8	0.9	0.8	**1.8**	1.4	QAS	0.2	0.5	0.1	0.3	0.4	0.3	0.3	0.3	9	1.8	1.4	0.1	0.5
10	0.3	0.1	0.3	0.3	0.3	0.2	1.4	1.8	5.5	3.2	1.6	3.5	2.9	1.3	0.7	0.6	0.5	0.2	0.5	0.6	0.5	0.8	9.3	**13.2**	10	13.2	9.3	0.1	2.1
11	**3.7**	1.4	1.0	0.7	0.7	0.6	0.5	0.6	0.6	0.7	0.6	0.8	1.0	0.3	0.2	0.1	-0.0	0.1	0.7	SPN	SPN	0.4	0.5	0.5	11	3.7	1.4	-0.0	0.7
12	0.7	**0.8**	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.5	0.6	0.6	0.6	0.5	0.8	0.6	0.5	0.5	0.7	0.5	0.5	0.5	12	0.8	0.8	0.4	0.6
13	0.5	0.5	0.5	0.5	0.5	0.6	0.5	1.5	1.1	3.0	1.7	1.1	0.9	0.9	1.0	0.5	0.7	0.7	0.7	0.2	2.1	0.9	**10.9**	2.6	13	10.9	3.0	0.2	1.4
14	1.2	1.0	0.8	0.7	0.7	0.6	0.7	0.8	0.8	**4.2**	3.0	1.7	1.3	0.7	0.6	0.7	0.7	0.5	1.6	2.5	0.3	0.8	0.6	0.3	14	4.2	3.0	0.3	1.1
15	0.3	0.6	0.7	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.8	1.5	**2.7**	1.4	0.9	0.3	0.2	0.3	0.5	0.5	0.6	0.6	15	2.7	1.5	0.2	0.7
16	0.6	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	13.8	**25.3**	21.3	8.2	0.9	2.0	1.6	1.2	1.1	2.6	5.4	17.4	1.1	1.0	16	25.3	21.3	0.5	4.5
17	0.7	0.7	0.8	0.8	0.8	0.7	0.8	0.7	0.8	1.0	**1.3**	0.7	0.6	0.5	0.7	0.7	0.9	1.0	1.0	1.0	1.0	0.6	0.5	0.7	17	1.3	1.0	0.5	0.8
18	0.7	0.6	0.6	0.3	0.1	0.9	0.6	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.3	0.5	0.4	CAL	CAL	-0.1	-0.1	**4.4**	18	4.4	0.9	-0.1	0.6
19	1.0	0.8	0.6	1.4	0.6	0.3	0.1	0.3	0.7	0.7	0.4	0.3	0.2	0.2	0.8	0.9	1.4	2.4	12.4	14.8	**46.6**	10.4	3.2	3.6	19	46.6	14.8	0.1	4.3
20	0.7	0.6	0.4	0.3	0.3	0.2	0.1	0.2	0.3	0.3	0.2	QAS	0.5	0.4	**3.4**	0.2	0.3	-0.2	-0.2	0.1	0.4	0.3	0.3	0.4	20	3.4	0.7	-0.2	0.4
21	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.3	0.4	0.8	0.3	0.3	0.5	0.4	0.3	0.2	-0.2	NEG	0.0	0.2	0.3	**4.3**	1.1	0.3	21	4.3	1.1	-0.2	0.5
22	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.7	**1.0**	0.4	0.3	0.4	0.4	0.5	0.5	0.5	0.4	-0.2	NEG	0.3	0.1	0.2	0.2	22	1.0	0.7	-0.2	0.3
23	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.4	0.2	0.5	**0.8**	0.2	0.3	0.3	0.4	0.6	0.1	0.2	0.1	0.4	0.3	0.2	23	0.8	0.6	0.1	0.3
24	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.3	0.6	0.6	0.7	-0.2	-0.0	0.1	0.1	-0.1	-0.1	0.2	0.4	0.2	-0.0	0.7	**6.6**	24	6.6	0.7	-0.2	0.5
25	0.6	**4.9**	1.1	0.3	0.3	0.3	0.2	0.1	0.3	1.2	0.9	0.4	0.5	0.2	0.0	0.0	0.5	0.7	-0.1	SPN	SPN	0.1	0.2	0.2	25	4.9	1.2	-0.1	0.6
26	0.2	0.2	4.4	**4.7**	0.6	0.3	0.2	0.3	0.5	0.6	0.4	0.5	0.8	0.8	0.3	0.5	0.4	0.5	0.5	-0.0	0.2	0.2	0.3	0.3	26	4.7	4.4	-0.0	0.7
27	0.3	0.3	0.3	0.4	0.6	0.5	0.4	0.5	0.7	0.8	0.8	0.7	0.3	0.1	0.2	0.4	40.5	23.2	11.4	5.5	**41.3**	30.4	32.8	20.1	27	41.3	40.5	0.1	8.9
28	**8.9**	3.9	1.2	0.7	0.5	0.5	0.4	0.3	0.4	0.4	0.3	0.3	0.2	0.2	QAS	QAS	-0.1	0.7	0.3	0.2	0.0	0.2	0.0	0.1	28	8.9	3.9	-0.1	0.9
29	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.4	0.3	0.5	0.5	0.4	0.6	5.2	**9.5**	1.9	0.6	0.3	0.3	29	9.5	5.2	0.2	1.0
30	0.2	0.1	0.4	0.3	0.2	0.1	0.1	0.2	0.9	**2.3**	0.6	0.4	0.3	0.3	0.5	0.5	0.2	-0.2	0.3	0.4	0.1	0.2	0.1	0.1	30	2.3	0.9	-0.2	0.4

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
46.6	41.3	-0.2	1.3	4.0	98.1 %
November 19 20:00	November 27 20:00	November 1 22:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.

Maximum daily values are **bold** within the table.

R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for December 2017

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December | 2017 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

December 2017						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.2	0.1	0.1	0.4	56.6	50.4	38.9	48.6	**114.3**	90.1	2.4	1.2	0.8	0.9	0.7	-0.1	0.5	0.2	0.3	-0.1	0.5	0.4	0.5	0.4	1	114.3	90.1	-0.1	17.0
2	0.4	0.5	0.5	0.4	0.4	0.3	0.2	0.1	0.3	0.5	0.6	0.6	0.8	0.8	3.5	2.8	1.1	3.8	**6.9**	SPN	SPN	3.8	1.2	0.8	2	6.9	3.8	0.1	1.4
3	0.7	0.5	0.4	0.6	0.8	0.7	0.7	0.6	0.6	0.7	0.8	1.0	0.6	0.4	0.2	0.2	0.5	1.8	15.5	**62.4**	58.6	2.8	11.6	32.4	3	62.4	58.6	0.2	8.1
4	**10.4**	1.5	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.2	0.3	0.5	0.5	0.3	-0.4	0.1	0.7	-0.1	-0.0	2.5	5.9	4.8	4	10.4	5.9	-0.4	1.3
5	0.1	0.1	0.1	1.5	1.4	0.1	0.1	0.2	0.2	0.1	0.4	0.3	0.3	1.7	1.9	**3.5**	0.9	0.5	0.4	0.3	0.1	0.2	0.3	0.2	5	3.5	1.9	0.1	0.6
6	0.2	0.2	0.1	0.1	0.1	0.0	-0.1	0.0	0.0	1.3	1.6	**3.7**	3.2	0.5	1.1	0.1	0.2	0.2	0.1	0.2	2.2	2.4	0.4	0.2	6	3.7	3.2	-0.1	0.7
7	0.1	-0.0	-0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	QAS	0.2	**0.3**	0.1	0.1	0.0	0.1	0.2	0.2	7	0.3	0.2	-0.1	0.1
8	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.4	**0.5**	0.1	0.2	0.3	0.0	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	8	0.5	0.4	0.0	0.2
9	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.4	**0.6**	0.5	0.5	0.1	NEG	SPN	SPN	-0.1	0.2	0.4	9	0.6	0.5	-0.1	0.2
10	1.0	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.2	0.1	0.1	0.1	0.4	**8.0**	7.9	0.2	-0.2	0.7	0.4	0.4	0.1	0.0	0.1	0.1	10	8.0	7.9	-0.2	0.8
11	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.3	0.2	**0.4**	0.3	0.1	0.2	0.2	NEG	-0.0	-0.0	-0.0	0.0	0.1	11	0.4	0.3	-0.0	0.1
12	0.1	0.1	-0.0	-0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	**0.4**	0.4	0.3	0.1	NEG	-0.1	0.1	0.1	0.1	0.1	12	0.4	0.4	-0.1	0.1
13	0.2	-0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.1	0.7	2.9	2.7	1.4	0.8	1.7	0.1	0.0	**6.0**	4.1	0.8	0.6	13	6.0	4.1	-0.0	1.0
14	0.5	**1.7**	1.6	1.2	0.5	0.4	0.4	0.6	0.8	0.4	0.2	0.2	0.2	0.1	0.2	0.3	0.1	0.0	0.2	0.2	0.1	-0.0	-0.0	-0.0	14	1.7	1.6	0.0	0.4
15	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.3	0.0	0.3	0.2	0.1	0.2	0.0	0.3	**0.4**	0.3	15	0.4	0.3	0.0	0.1
16	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.7	11.0	27.6	29.9	25.3	**39.8**	16.7	8.4	0.8	0.9	0.5	CAL	CAL	0.2	0.0	0.1	16	39.8	29.9	0.0	7.5
17	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	**0.3**	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.0	0.0	0.1	17	0.3	0.2	0.0	0.1
18	0.2	**5.3**	2.8	0.5	1.3	0.7	1.7	1.4	0.9	0.9	0.7	QAS	0.8	-0.0	0.5	1.2	2.7	3.5	1.0	3.4	1.1	0.5	0.3	0.3	18	5.3	3.5	-0.0	1.4
19	**0.4**	0.3	0.2	0.2	0.0	0.3	0.2	0.1	0.1	0.3	0.4	0.2	0.3	0.4	0.4	0.4	0.3	0.1	NEG	-0.1	0.2	0.2	0.2	0.2	19	0.4	0.4	-0.1	0.2
20	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.5	**3.6**	0.7	0.3	0.4	2.5	0.6	1.1	0.9	-0.0	0.1	0.2	0.3	0.2	0.2	20	3.6	2.5	0.0	0.5
21	0.2	0.2	0.2	**0.3**	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.2	-0.0	0.1	0.2	-0.0	21	0.3	0.3	0.0	0.2
22	0.0	**0.2**	0.2	-0.0	0.0	-0.1	-0.1	-0.1	0.1	0.1	0.1	-0.1	0.1	0.1	0.1	0.1	-0.0	-0.1	-0.1	-0.0	0.0	0.0	0.1	0.1	22	0.2	0.2	-0.1	0.0
23	0.0	0.0	0.1	0.1	0.0	0.0	0.9	0.5	0.4	2.5	8.0	**9.9**	0.3	0.2	0.3	0.3	0.1	0.9	0.2	SPN	SPN	0.2	0.2	0.3	23	9.9	8.0	0.0	1.2
24	0.2	0.2	-0.1	-0.0	0.2	-0.0	0.0	0.1	0.0	-0.1	0.1	-0.0	-0.1	-0.1	0.0	0.3	**2.5**	0.7	0.1	0.0	-0.1	-0.0	-0.0	-0.0	24	2.5	0.7	-0.1	0.2
25	0.0	0.7	2.6	0.6	1.0	11.6	75.3	**116.0**	95.7	47.9	75.1	56.3	28.4	41.9	13.1	38.9	16.8	1.0	0.6	0.5	0.2	0.3	0.3	0.1	25	116.0	95.7	0.0	26.0
26	0.3	0.0	-0.0	-0.1	0.1	0.1	-0.1	-0.1	-0.1	-0.0	0.0	0.0	-0.0	-0.0	0.2	**1.1**	0.4	0.1	0.0	0.0	-0.2	-0.0	0.0	0.0	26	1.1	0.4	-0.2	0.1
27	0.1	0.3	0.2	0.0	-0.1	-0.1	-0.1	0.1	0.1	0.0	0.1	0.4	0.3	1.3	1.1	**1.7**	0.4	0.4	0.3	0.1	0.3	0.2	-0.0	0.0	27	1.7	1.3	-0.1	0.3
28	0.2	21.8	**42.5**	2.9	1.2	0.7	0.5	0.4	0.5	0.8	0.8	0.8	0.7	0.5	0.6	0.7	0.4	-0.0	0.2	0.4	0.2	0.2	0.2	0.0	28	42.5	21.8	-0.0	3.2
29	0.3	0.3	0.1	-0.0	0.2	0.3	**4.7**	1.8	0.9	1.1	1.1	0.9	0.6	0.7	0.7	0.1	0.1	0.5	0.2	NEG	0.4	0.3	0.5	0.3	29	4.7	1.8	-0.0	0.7
30	0.2	0.5	0.3	0.2	0.0	0.0	0.0	0.2	0.2	0.0	-0.1	0.3	0.2	0.4	**1.2**	0.7	0.5	0.5	0.3	SPN	SPN	0.1	0.0	0.2	30	1.2	0.7	-0.1	0.3

31	-0.1	-0.0	0.0	0.0	0.1	0.1	0.1	0.0	-0.2	-0.2	-0.3	-0.3	-0.2	-0.1	0.4	**1.0**	1.0	0.4	-0.1	-0.1	0.0	0.1	0.1	0.0	**31**	1.0	1.0	-0.3	0.1
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
116.0	114.3	-0.4	2.4	10.9	97.7 %
December 25 07:00	December 1 08:00	December 4 16:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for January 2018

Select a New Site, Different Parameters, or Change Report Options

Select a date:

January 2018 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

January 2018						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	-0.0	-0.0	0.0	-0.2	-0.3	-0.4	-0.4	-0.3	-0.1	0.1	0.6	1.0	1.5	**3.4**	3.4	0.8	-0.0	0.1	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	1	3.4	3.4	-0.4	0.3
2	-0.2	-0.2	-0.2	-0.1	-0.2	0.0	-0.1	-0.3	-0.1	-0.0	0.1	**1.1**	0.4	0.1	0.1	0.2	0.0	0.0	-0.1	-0.0	-0.0	-0.2	0.0	-0.2	2	1.1	0.4	-0.3	0.0
3	-0.1	-0.0	-0.1	-0.0	0.0	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	0.0	-0.0	-0.1	0.1	0.2	0.1	-0.1	**1.8**	1.0	-0.0	-0.1	0.0	0.0	3	1.8	1.0	-0.2	0.1
4	0.2	0.5	0.4	0.4	0.3	0.3	0.1	-0.0	0.2	0.4	0.5	0.3	1.3	0.6	**1.6**	1.2	0.6	0.3	0.0	-0.0	-0.1	-0.0	0.1	0.1	4	1.6	1.3	-0.1	0.4
5	0.1	0.1	0.0	0.1	0.1	0.1	-0.0	-0.0	-0.0	0.2	QAS	0.3	0.4	0.5	0.3	0.5	**1.1**	0.1	NEG	-0.2	0.1	0.0	0.2	0.2	5	1.1	0.5	-0.2	0.2
6	0.2	0.1	0.3	0.2	0.2	0.5	0.7	0.3	0.4	0.7	1.2	1.2	1.2	1.3	0.9	1.0	0.7	0.7	0.6	SPN	SPN	0.7	0.7	**9.3**	6	9.3	1.3	0.1	1.0
7	**40.5**	1.2	0.6	0.5	0.3	0.3	0.2	0.1	0.1	0.3	0.3	0.3	0.5	0.4	0.3	0.0	-0.0	-0.0	0.0	-0.0	0.2	0.1	0.1	0.1	7	40.5	1.2	0.0	1.9
8	0.0	0.1	0.1	-0.0	-0.1	-0.1	-0.1	-0.0	-0.0	0.2	1.1	3.1	4.3	13.3	9.7	**21.1**	0.9	0.1	0.1	0.2	0.3	0.0	8.1	4.6	8	21.1	13.3	-0.1	2.8
9	29.9	**48.0**	1.4	0.8	0.6	0.5	0.3	0.3	0.2	0.2	0.2	0.3	0.5	0.7	-0.0	-0.1	-0.3	-0.2	0.4	0.2	0.3	-0.2	-0.0	0.2	9	48.0	29.9	-0.3	3.5
10	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	1.0	5.3	0.7	0.4	0.1	0.2	0.3	0.3	0.3	-0.2	-0.1	3.8	**10.6**	8.3	10	10.6	8.3	-0.2	1.4
11	0.6	0.5	0.4	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	-0.1	-0.2	-0.1	-0.0	-0.0	0.0	0.0	-0.1	-0.1	-0.1	**3.2**	1.7	11	3.2	1.7	-0.2	0.3
12	1.2	0.9	0.4	0.4	0.2	0.1	0.3	1.9	0.3	0.2	0.1	**40.7**	23.4	21.9	19.7	11.0	1.0	0.4	0.0	0.1	-0.3	-0.0	0.0	0.0	12	40.7	23.4	-0.3	5.2
13	0.1	-0.1	-0.1	-0.0	-0.2	-0.2	-0.0	-0.0	0.0	0.2	1.3	2.8	1.4	0.3	3.1	1.6	**12.0**	4.9	0.2	CAL	CAL	0.2	0.2	0.6	13	12.0	4.9	-0.2	1.3
14	0.9	0.4	0.4	0.3	0.1	0.2	0.1	0.2	0.1	0.5	0.5	0.5	0.5	1.6	1.2	1.7	7.6	0.9	-0.3	-0.1	0.1	0.2	0.4	**16.3**	14	16.3	7.6	-0.3	1.4
15	**39.6**	1.0	1.1	0.9	0.6	0.5	0.2	0.2	0.0	0.2	0.2	0.3	1.2	1.4	0.7	0.2	0.3	0.0	0.1	0.1	-0.1	0.4	2.7	1.6	15	39.6	2.7	-0.1	2.2
16	**0.7**	-0.1	-0.2	-0.1	0.1	0.1	-0.1	-0.2	-0.1	-0.1	0.1	-0.1	-0.2	-0.2	-0.0	-0.0	0.2	0.1	0.1	0.0	-0.1	-0.1	-0.0	-0.0	16	0.7	0.2	-0.2	-0.0
17	-0.1	0.0	24.5	**55.5**	4.8	1.0	0.4	0.2	0.3	0.4	0.4	0.3	0.3	0.2	0.2	5.3	24.9	23.0	9.6	0.4	12.4	53.4	0.9	0.5	17	55.5	53.4	-0.1	9.1
18	1.2	0.5	0.7	0.5	0.6	0.4	0.2	0.3	0.4	0.5	0.5	0.4	0.4	0.2	0.3	QAS	0.9	-0.1	-0.1	0.6	**14.5**	3.5	1.3	0.5	18	14.5	3.5	-0.1	1.2
19	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.5	0.4	0.4	0.6	0.7	0.0	0.1	0.9	0.7	0.7	**1.5**	0.5	0.3	0.2	19	1.5	0.9	0.0	0.4
20	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.6	0.8	0.3	-0.2	0.1	0.4	0.2	0.1	0.5	SPN	SPN	0.4	**1.1**	0.1	20	1.1	0.8	-0.2	0.3
21	0.0	-0.1	0.0	1.4	6.8	**7.4**	1.2	0.3	0.1	0.3	0.1	-0.1	-0.1	-0.0	-0.0	0.1	0.1	-0.0	0.1	0.0	0.0	-0.1	-0.1	-0.1	21	7.4	6.8	-0.1	0.7
22	**-0.1**	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.1	-0.2	-0.2	-0.1	22	-0.1	-0.1	-0.3	-0.1
23	-0.2	-0.1	-0.2	-0.1	-0.2	-0.2	-0.1	-0.2	-0.1	-0.1	0.0	-0.1	-0.3	-0.0	0.7	**1.2**	1.1	0.6	0.0	0.1	-0.1	-0.2	-0.3	-0.2	23	1.2	1.1	-0.3	0.0
24	-0.2	-0.3	-0.2	-0.2	-0.2	-0.1	-0.2	-0.1	-0.1	0.0	0.6	0.9	0.4	0.0	-0.1	0.2	0.2	0.1	-0.3	-0.1	**1.4**	0.5	0.3	0.6	24	1.4	0.9	-0.3	0.1
25	0.8	1.1	0.7	0.7	0.4	1.3	1.3	0.8	1.0	1.0	0.9	3.3	7.0	10.8	22.5	26.6	27.1	4.3	0.4	0.2	0.4	0.4	0.2	**36.8**	25	36.8	27.1	0.2	6.3
26	**125.3**	85.8	13.6	1.6	1.2	0.9	0.6	0.3	0.4	0.7	0.5	0.3	0.3	0.2	0.2	0.4	0.3	0.2	-0.3	NEG	NEG	-0.1	-0.1	-0.0	26	125.3	85.8	-0.3	10.6
27	-0.1	-0.0	-0.1	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.0	0.0	-0.1	2.2	0.0	**2.5**	1.8	0.2	NEG	SPN	SPN	0.1	0.1	0.1	27	2.5	2.2	-0.2	0.3
28	0.1	0.1	0.3	0.6	5.2	**23.3**	1.0	0.5	1.3	1.2	0.7	0.3	0.1	0.2	0.5	0.1	1.1	0.1	-0.3	-0.4	-0.0	0.1	-0.0	-0.0	28	23.3	5.2	-0.4	1.5
29	-0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.3	0.4	**2.4**	1.6	0.4	0.5	1.4	0.8	0.6	-0.1	-0.0	-0.2	-0.1	0.2	0.2	29	2.4	1.6	-0.2	0.4
30	0.4	**6.3**	2.5	0.6	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.6	0.5	0.9	0.4	-0.0	0.5	0.3	-0.0	0.4	0.1	-0.3	0.1	0.2	30	6.3	2.5	-0.3	0.7

31	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.5	0.5	0.5	0.5	-0.1	0.2	**3.0**	1.6	1.1	0.3	-0.4	-0.1	0.2	0.2	0.1	**31**	3.0	1.6	-0.4	0.4
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
125.3	85.8	-0.4	1.7	7.8	98.1 %
January 26 00:00	January 26 01:00	January 1 05:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for February 2018

Select a New Site, Different Parameters, or Change Report Options

Select a date:

February 2018 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

February 2018						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.7	0.8	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.4	1.4	**1.6**	QAS	QAS	-0.1	-0.0	0.3	0.1	0.1	0.0	0.0	0.1	0.1	1	1.6	1.4	-0.1	0.3
2	0.1	-0.0	0.0	0.2	0.1	-0.3	0.1	0.0	0.8	3.9	16.4	14.1	**17.1**	10.6	9.4	14.2	12.3	6.1	0.6	0.3	0.3	0.2	0.3	0.5	2	17.1	16.4	-0.3	4.5
3	1.6	**8.7**	1.5	1.0	1.3	1.0	0.6	0.5	0.6	1.0	0.5	0.6	0.6	1.1	0.5	0.3	0.5	0.6	1.0	SPN	SPN	0.6	0.8	1.1	3	8.7	1.6	0.3	1.2
4	**2.2**	0.9	0.7	0.6	0.8	0.8	0.5	0.5	0.8	0.9	1.1	1.2	0.2	0.3	0.5	0.7	0.5	0.8	0.6	0.7	0.5	0.5	0.3	0.4	4	2.2	1.2	0.2	0.7
5	0.6	0.7	0.6	0.5	0.6	**1.3**	1.1	0.9	0.9	0.9	0.9	1.0	0.9	1.0	0.9	0.1	0.6	0.9	0.3	-0.1	0.6	0.5	0.5	0.5	5	1.3	1.1	-0.1	0.7
6	0.4	0.5	0.4	0.5	0.4	0.5	0.3	0.3	0.5	0.6	0.4	0.5	0.5	0.5	1.1	1.0	1.7	**2.7**	1.2	0.9	0.6	0.5	0.5	0.6	6	2.7	1.7	0.3	0.7
7	0.5	0.5	0.5	0.5	0.7	0.5	0.3	0.5	0.6	0.8	0.8	0.9	2.1	10.6	3.6	10.0	**27.3**	7.6	0.7	0.5	0.6	0.6	0.5	0.5	7	27.3	10.6	0.3	3.0
8	11.3	**77.8**	12.4	1.7	1.2	1.5	1.3	1.2	1.8	15.2	7.1	1.6	1.3	1.6	1.4	2.1	6.9	22.3	18.4	1.0	0.4	0.5	6.7	45.3	8	77.8	45.3	0.4	10.1
9	**4.4**	1.7	1.4	0.8	0.6	0.5	0.5	0.5	0.7	0.8	0.8	0.5	0.4	0.5	0.5	1.1	1.2	0.7	0.5	0.5	0.6	0.6	0.6	0.6	9	4.4	1.7	0.4	0.9
10	0.3	0.4	0.3	0.3	0.4	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.3	0.3	0.5	0.4	**0.8**	0.4	CAL	CAL	-0.2	-0.2	-0.3	10	0.8	0.6	-0.3	0.4
11	-0.3	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	-0.3	-0.1	-0.2	-0.1	-0.1	-0.0	-0.2	-0.3	-0.4	-0.2	**0.2**	-0.0	-0.2	-0.0	-0.1	-0.0	-0.1	11	0.2	-0.0	-0.4	-0.2
12	-0.1	**-0.0**	-0.1	-0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	12	-0.0	-0.0	-0.2	-0.1
13	-0.1	-0.2	-0.3	-0.2	-0.0	-0.1	-0.1	-0.2	-0.2	2.4	5.8	4.1	1.5	0.7	0.9	5.1	1.1	0.5	-0.1	0.3	1.3	6.2	12.8	**29.4**	13	29.4	12.8	-0.3	2.9
14	**15.0**	1.3	1.9	1.1	0.8	0.5	0.2	0.1	0.2	0.3	0.2	0.5	0.2	-0.2	QAS	-0.3	NEG	NEG	-0.1	NEG	0.3	-0.1	-0.0	-0.1	14	15.0	1.9	-0.3	1.1
15	-0.2	-0.2	-0.2	-0.3	0.2	0.2	0.2	0.1	0.3	0.3	0.3	0.2	**0.6**	0.1	-0.1	-0.2	0.1	0.1	0.3	0.2	0.3	-0.4	NEG	NEG	15	0.6	0.3	-0.4	0.1
16	-0.3	-0.2	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.0	**2.5**	0.8	-0.0	-0.1	0.0	-0.0	-0.1	-0.1	0.2	2.2	16	2.5	2.2	-0.3	0.1
17	**1.8**	0.9	0.6	0.4	0.1	-0.1	0.0	-0.0	0.1	0.5	0.4	-0.0	0.1	0.3	0.9	0.6	0.4	-0.4	-0.4	SPN	SPN	0.0	0.3	0.2	17	1.8	0.9	-0.4	0.3
18	0.2	0.2	0.3	0.4	0.4	0.4	21.4	**77.2**	33.0	2.5	1.9	1.3	0.9	1.2	0.6	0.5	0.3	0.8	0.7	0.3	0.8	0.3	0.3	0.3	18	77.2	33.0	0.2	6.1
19	0.4	0.4	0.7	1.4	1.8	16.1	30.0	7.3	2.7	2.5	1.2	1.1	1.2	0.4	0.5	0.4	0.3	0.3	2.0	14.6	0.6	3.2	**52.1**	15.5	19	52.1	30.0	0.3	6.5
20	**37.7**	4.3	1.8	1.0	0.6	-0.0	0.3	0.2	0.3	0.5	0.3	0.4	0.1	0.2	0.2	0.3	0.2	1.0	0.3	0.4	0.2	0.2	0.2	1.3	20	37.7	4.3	-0.0	2.2
21	**2.9**	0.1	1.1	2.1	0.3	0.2	0.2	2.6	2.1	0.6	0.6	0.7	0.3	0.3	0.9	0.5	0.6	0.5	0.1	0.1	0.2	0.2	0.3	1.0	21	2.9	2.6	0.1	0.8
22	0.4	0.4	0.6	0.8	1.1	1.0	0.8	0.7	0.6	0.8	0.9	1.2	3.0	12.6	11.4	8.6	**16.4**	5.4	0.7	0.6	0.4	0.4	2.0	7.6	22	16.4	12.6	0.4	3.3
23	**6.3**	3.4	2.1	1.2	0.9	0.8	0.7	0.4	0.7	1.0	0.9	0.8	4.0	QAS	QAS	0.5	0.0	0.5	0.7	0.7	0.5	0.5	0.5	0.5	23	6.3	4.0	0.0	1.3
24	0.5	0.4	0.4	0.6	0.7	0.7	0.6	0.4	0.6	**0.8**	0.5	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.4	SPN	SPN	-0.3	-0.1	-0.1	24	0.8	0.7	-0.3	0.4
25	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.2	-0.0	0.1	0.0	-0.0	-0.1	-0.2	-0.1	-0.1	-0.1	NEG	-0.3	-0.3	-0.1	-0.2	**0.3**	-0.1	25	0.3	0.1	-0.3	-0.1
26	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	1.4	37.7	**68.0**	45.6	3.3	0.1	7.8	26.8	36.1	52.3	21.0	-0.1	NEG	0.1	-0.0	0.0	0.1	26	68.0	52.3	-0.2	13.0
27	-0.0	-0.2	-0.0	0.9	37.6	**39.8**	9.2	2.0	1.4	0.9	1.8	2.2	1.8	1.8	1.7	2.6	6.4	2.5	1.5	0.7	0.6	3.9	2.7	1.5	27	39.8	37.6	-0.2	5.1
28	1.5	**1.9**	1.4	0.9	0.4	0.2	0.2	0.1	0.1	0.1	0.3	0.4	0.5	-0.1	AQI	-0.0	0.1	0.1	0.5	-0.2	-0.3	NEG	0.0	0.0	28	1.9	1.5	-0.3	0.4
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
77.8	77.2	-0.4	2.4	7.9	96.7 %

February 8 01:00	February 18 07:00	February 11 06:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for April 2018

Select a New Site, Different Parameters, or Change Report Options

Select a date:

April 2018 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

April 2018						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.3	0.2	0.1	0.8	1.8	1.5	1.3	1.0	2.9	2.3	3.3	**3.5**	1.6	0.5	0.3	0.2	0.6	1.7	1.2	0.4	0.2	0.3	0.4	0.2	1	3.5	3.3	0.1	1.1
2	0.3	0.3	0.2	0.3	0.4	0.4	0.4	**9.7**	3.2	1.1	0.8	1.3	0.3	0.1	0.2	0.2	0.3	0.4	0.3	0.3	0.6	0.1	0.2	0.3	2	9.7	3.2	0.1	0.9
3	0.3	0.1	-0.1	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.1	-0.0	0.1	**0.6**	0.1	-0.2	0.1	-0.0	0.1	3	0.6	0.3	-0.2	0.1
4	0.1	0.1	-0.1	0.1	0.0	0.0	0.0	11.2	**59.5**	26.9	25.9	43.5	28.9	12.7	20.5	30.1	27.5	42.8	53.5	5.5	0.1	0.4	0.3	0.3	4	59.5	53.5	-0.1	16.2
5	0.4	1.1	0.8	**1.2**	0.8	0.6	0.4	0.5	0.5	0.7	0.9	0.2	0.1	0.3	0.2	0.3	0.4	0.4	0.5	0.4	0.3	-0.2	-0.0	0.4	5	1.2	1.1	-0.2	0.5
6	0.4	0.5	0.6	0.8	1.0	0.9	0.6	0.6	0.8	0.5	0.6	0.3	0.4	1.0	1.6	0.8	0.7	2.2	**2.4**	1.7	0.2	0.3	0.3	0.3	6	2.4	2.2	0.2	0.8
7	0.1	0.2	0.0	0.1	0.1	-0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.2	**2.8**	1.1	1.0	0.3	0.1	0.2	CAL	CAL	0.0	-0.1	-0.1	7	2.8	1.1	-0.1	0.3
8	-0.1	-0.2	-0.1	0.0	0.8	1.6	0.1	0.1	3.7	**5.2**	3.0	0.8	0.8	0.2	0.5	1.8	0.3	0.1	0.4	NEG	0.1	0.1	-0.1	-0.1	8	5.2	3.7	-0.2	0.8
9	0.1	-0.0	-0.1	-0.1	-0.1	-0.2	-0.1	-0.0	0.4	0.9	2.0	**2.5**	1.1	0.2	-0.1	-0.0	-0.3	0.0	-0.3	-0.3	0.2	0.0	-0.1	-0.2	9	2.5	2.0	-0.3	0.2
10	-0.3	-0.2	-0.2	-0.2	-0.3	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	0.1	0.8	**1.4**	0.1	0.1	0.2	0.2	0.5	0.4	0.1	NEG	-0.1	0.5	10	1.4	0.8	-0.3	0.1
11	2.2	-0.1	13.7	**45.9**	7.7	0.9	0.5	0.7	0.7	0.7	0.4	0.1	PMA	PMA	PMA	CAL	CAL	CAL	0.3	0.3	0.1	0.1	0.4	0.4	11	45.9	13.7	-0.1	4.2
12	**21.7**	7.5	0.5	0.2	0.1	0.2	0.2	0.3	0.9	0.5	0.2	0.2	0.2	0.1	0.3	0.1	0.1	0.3	0.2	0.2	20.4	5.6	0.3	0.4	12	21.7	20.4	0.1	2.5
13	0.2	0.4	0.3	**0.5**	0.2	-0.2	-0.2	-0.0	0.2	PMA	0.4	0.3	-0.1	-0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.0	13	0.5	0.4	-0.2	0.1
14	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.0	-0.0	-0.2	-0.1	0.1	SPN	SPN	**0.3**	0.3	AQI	14	0.3	0.3	-0.2	0.0
15	AQI	AQI	AQI	AQI	AQI	-0.4	-0.1	0.0	0.2	0.1	0.1	0.2	0.0	0.3	0.2	0.2	0.2	0.9	**4.2**	-0.1	0.0	0.2	0.2	0.2	15	4.2	0.9	-0.4	0.3
16	0.3	0.3	0.2	0.2	0.3	1.3	**69.5**	18.8	8.5	36.1	11.2	1.7	3.1	0.7	0.6	0.7	0.5	0.4	0.6	0.7	4.0	1.0	0.3	0.5	16	69.5	36.1	0.2	6.7
17	**6.9**	5.0	4.1	2.3	1.4	0.7	0.5	0.5	0.6	0.5	0.3	0.3	0.3	0.3	0.5	0.4	0.4	0.4	0.5	0.5	0.3	0.6	0.4	0.4	17	6.9	5.0	0.3	1.2
18	0.5	**0.6**	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	QAS	QAS	QAS	-0.0	CAL	CAL	CAL	0.3	0.3	-0.2	0.1	0.6	0.3	0.2	18	0.6	0.6	-0.2	0.3
19	0.1	0.2	0.2	**0.4**	0.3	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.4	-0.0	0.4	0.3	0.0	-0.3	0.1	0.2	0.3	0.3	19	0.4	0.4	-0.3	0.2
20	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0.3	0.2	0.4	0.3	0.2	0.3	0.3	**0.5**	0.5	0.5	0.5	0.4	0.2	0.3	0.5	0.3	0.3	20	0.5	0.5	0.1	0.3
21	0.3	0.3	0.3	**0.4**	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	SPN	SPN	0.2	0.2	0.1	21	0.4	0.3	0.1	0.2
22	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	-0.0	0.2	**0.3**	-0.0	0.0	0.2	0.3	0.2	0.2	22	0.3	0.3	-0.0	0.1
23	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.2	PMA	2.8	1.2	**7.1**	5.4	5.3	7.1	3.9	4.2	0.4	0.5	-0.0	0.0	0.3	0.3	23	7.1	7.1	0.0	1.7
24	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	**0.8**	0.5	0.4	0.2	0.4	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	24	0.8	0.5	0.0	0.2
25	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	**0.4**	0.2	0.2	0.2	25	0.4	0.2	0.0	0.1
26	0.2	0.1	0.2	0.2	**1.1**	0.5	0.3	0.5	0.4	0.3	0.7	0.2	0.0	0.4	0.2	0.2	0.6	0.3	-0.0	0.2	0.3	0.2	0.2	0.1	26	1.1	0.7	0.0	0.3
27	-0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.2	0.2	0.6	0.6	PMA	1.9	0.7	0.9	**2.4**	1.0	0.4	0.1	0.6	-0.1	0.3	0.3	0.4	27	2.4	1.9	-0.1	0.5
28	0.4	0.4	0.2	0.1	0.1	0.2	0.4	19.7	**21.4**	12.0	6.1	4.5	4.9	2.1	1.2	2.1	0.6	0.7	0.4	SPN	SPN	0.5	0.6	0.7	28	21.4	19.7	0.1	3.6
29	0.6	0.6	0.7	0.7	20.0	47.2	55.5	**93.8**	46.0	64.9	6.4	9.5	1.0	0.7	0.8	0.8	1.2	0.7	0.8	0.8	0.5	0.6	0.5	10.7	29	93.8	64.9	0.5	15.2
30	0.9	9.2	1.0	0.9	0.9	0.9	1.0	0.9	3.2	8.0	12.2	15.5	21.7	16.2	23.3	**26.6**	8.4	5.3	1.1	1.0	1.4	1.6	1.6	1.1	30	26.6	23.3	0.9	6.8

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
93.8	69.5	-0.4	2.2	8.2	95.7 %
April 29 07:00	April 16 06:00	April 15 05:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for May 2018

Select a New Site, Different Parameters, or Change Report Options

Select a date:

May | 2018 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

May 2018						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	1.0	1.3	1.2	4.6	5.7	9.2	16.8	**46.9**	31.4	35.6	18.3	2.1	1.4	1.0	32.8	2.9	0.9	0.9	0.7	1.2	1.0	1.0	1.6	2.6	1	46.9	35.6	0.7	9.3
2	10.5	7.8	22.5	2.2	7.7	38.5	**65.5**	31.3	7.4	27.1	31.0	30.2	3.6	1.0	0.9	1.7	1.3	1.1	0.8	1.1	2.3	2.0	1.7	0.7	2	65.5	38.5	0.7	12.5
3	0.9	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	**1.0**	0.7	0.8	0.5	0.6	0.5	0.7	0.7	0.8	0.8	0.6	0.7	0.3	0.8	0.8	3	1.0	0.9	0.3	0.7
4	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.5	0.8	**1.0**	0.6	0.6	0.6	0.4	0.3	0.3	0.4	0.6	0.6	0.6	0.5	0.6	0.5	4	1.0	0.8	0.3	0.6
5	0.6	0.6	0.7	0.8	0.8	0.8	1.0	0.9	1.2	1.1	0.7	0.6	0.7	0.7	1.0	**6.1**	2.2	2.0	0.9	CAL	CAL	0.8	-0.2	-0.1	5	6.1	2.2	-0.2	1.1
6	-0.1	-0.1	-0.1	11.8	6.2	4.0	0.3	0.6	0.8	0.3	0.2	0.1	0.8	1.8	3.1	1.8	0.0	-0.0	0.0	0.1	0.7	15.5	**30.3**	1.0	6	30.3	15.5	-0.1	3.3
7	-0.2	0.5	1.8	2.1	1.0	0.5	0.4	0.7	0.1	0.0	0.0	0.1	0.1	-0.0	4.4	0.0	2.9	13.5	21.4	7.1	19.0	16.1	4.1	**114.2**	7	114.2	21.4	-0.2	8.7
8	**69.1**	0.1	1.1	1.0	1.8	1.5	1.3	1.0	0.9	0.8	0.6	0.2	0.2	0.1	-0.0	0.1	0.1	0.1	0.1	0.3	0.8	0.4	0.1	-0.1	8	69.1	1.8	-0.1	3.4
9	0.5	0.0	1.1	0.2	0.0	0.3	0.7	0.2	0.6	0.5	0.7	0.6	0.5	0.5	5.4	**23.2**	14.5	14.4	0.9	0.4	0.5	0.3	0.4	1.3	9	23.2	14.5	0.0	2.8
10	0.6	-0.1	4.0	0.6	1.5	0.3	0.9	0.7	1.1	0.9	1.1	PMA	11.7	22.3	19.7	35.6	**40.4**	8.6	12.7	0.7	5.0	0.5	4.4	40.3	10	40.4	40.3	-0.1	9.3
11	**109.2**	77.2	92.6	27.3	3.6	1.6	1.3	1.8	1.5	1.0	1.0	0.6	0.2	1.0	4.8	22.4	14.6	0.3	0.1	0.2	0.2	0.2	6.7	0.7	11	109.2	92.6	0.1	15.4
12	3.0	80.0	84.9	**100.7**	4.7	2.3	3.0	2.1	1.8	1.5	1.0	0.7	6.4	35.7	17.0	10.9	9.7	10.2	8.1	SPN	SPN	0.8	0.8	0.6	12	100.7	84.9	0.6	17.5
13	0.6	0.6	**72.3**	25.8	3.1	1.5	2.5	2.7	3.6	1.3	0.5	0.9	7.0	7.8	19.9	25.8	30.8	33.9	27.5	7.1	0.8	1.0	0.6	0.9	13	72.3	33.9	0.5	11.6
14	0.7	0.4	0.2	0.5	0.3	1.4	**8.2**	0.5	0.3	-0.1	0.1	0.3	0.2	0.4	0.4	0.2	0.2	4.1	3.7	0.4	0.5	0.6	0.3	0.0	14	8.2	4.1	-0.1	1.0
15	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.4	0.5	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.3	0.2	**13.1**	0.7	0.5	0.1	2.6	15	13.1	2.6	0.1	0.9
16	0.4	0.5	0.2	0.1	-0.0	0.0	0.0	0.1	1.4	1.0	10.4	**18.3**	6.3	1.3	0.5	4.1	7.2	3.2	0.5	0.4	0.3	0.6	0.3	-0.1	16	18.3	10.4	-0.1	2.4
17	-0.1	0.0	0.2	0.1	0.0	0.0	0.1	0.3	0.6	0.9	**1.5**	0.7	0.5	0.3	0.3	0.2	0.2	0.3	0.4	0.2	0.1	0.1	0.0	0.2	17	1.5	0.9	-0.1	0.3
18	0.2	0.0	0.0	0.2	0.2	0.1	0.2	0.2	7.3	**78.9**	25.9	20.1	22.6	21.8	15.9	3.9	29.6	25.7	5.4	0.4	0.5	0.3	0.5	0.2	18	78.9	29.6	0.0	10.8
19	0.1	3.6	**16.6**	0.1	0.1	0.1	0.4	0.4	0.3	0.5	0.2	0.1	0.1	0.6	0.1	-0.1	0.1	0.0	0.2	SPN	SPN	2.9	0.0	0.2	19	16.6	3.6	-0.1	1.2
20	0.1	0.1	0.1	0.0	0.1	-0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.4	-0.0	-0.0	0.1	**1.0**	0.3	0.3	0.2	NEG	0.6	0.2	0.1	20	1.0	0.6	-0.1	0.2
21	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.4	0.2	15.1	13.4	20.7	**26.7**	4.6	0.8	0.7	0.3	0.2	0.5	0.3	0.3	0.2	0.3	21	26.7	20.7	0.1	3.6
22	0.3	0.4	0.3	0.0	0.2	0.3	0.2	0.3	0.3	0.8	1.1	11.5	7.8	11.5	7.2	5.7	**24.4**	0.9	0.6	0.9	0.2	0.3	0.2	0.3	22	24.4	11.5	0.0	3.2
23	0.2	0.0	0.3	0.1	0.2	**3.8**	1.5	0.9	1.6	2.6	PMA	0.2	0.3	0.3	0.7	0.2	0.2	0.2	0.2	0.2	0.0	0.3	0.3	0.1	23	3.8	2.6	0.0	0.6
24	0.1	0.0	0.1	0.1	0.0	0.5	0.2	0.3	0.4	0.5	1.2	**14.4**	11.4	8.9	3.8	1.3	0.3	0.2	0.2	0.3	0.5	0.5	0.4	0.6	24	14.4	11.4	0.0	1.9
25	0.4	0.2	**8.0**	2.4	1.5	1.4	1.2	0.8	0.7	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.7	0.6	0.1	25	8.0	2.4	0.1	0.9
26	0.2	0.2	0.4	0.3	0.1	0.5	**37.2**	3.1	2.5	2.4	2.0	9.9	0.9	0.7	8.7	12.2	0.6	0.7	0.6	SPN	SPN	0.8	0.7	0.5	26	37.2	12.2	0.1	3.9
27	0.8	0.8	0.6	0.5	0.4	0.3	0.2	0.6	0.9	1.0	0.7	0.7	0.6	0.5	0.5	**7.4**	0.8	0.6	0.8	0.3	0.5	0.5	0.5	0.4	27	7.4	1.0	0.2	0.9
28	0.8	-0.0	0.4	0.4	0.3	0.2	0.2	0.5	0.9	0.3	0.7	0.6	0.6	0.4	2.6	**7.3**	0.7	0.4	0.4	0.4	0.2	0.4	0.4	0.3	28	7.3	2.6	-0.0	0.8
29	0.5	0.4	0.2	0.1	0.3	0.3	0.3	0.3	0.8	18.5	2.8	**27.2**	6.2	0.8	0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.6	0.2	0.4	29	27.2	18.5	0.1	2.6
30	0.5	0.3	0.5	0.4	0.4	0.4	0.4	0.7	**1.0**	0.5	0.3	0.5	0.6	0.5	0.5	0.6	0.7	1.0	0.9	1.0	0.5	0.6	1.0	0.6	30	1.0	1.0	0.3	0.6

31	0.9	1.1	0.8	0.5	0.3	0.3	0.4	0.8	0.4	0.2	0.3	0.3	QAS	QAS	9.5	**19.4**	14.9	17.6	0.5	1.4	0.8	2.0	1.8	1.4	**31**	19.4	17.6	0.2	3.4
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
114.2	109.2	-0.2	4.4	12.4	98.3 %
May 7 23:00	May 11 00:00	May 5 22:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for June 2018

Select a New Site, Different Parameters, or Change Report Options

Select a date:

June | 2018 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

June 2018						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Av
1	0.9	0.7	0.7	0.7	0.6	**48.7**	3.1	1.7	1.1	1.0	0.8	0.7	3.0	11.0	12.9	2.7	0.5	0.6	0.6	0.4	6.6	22.7	2.2	3.4	1	48.7	22.7	0.4	5.
2	3.7	**38.4**	2.7	1.4	0.5	0.7	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.6	1.2	1.4	1.2	0.4	0.3	CAL	CAL	0.0	0.2	0.0	2	38.4	3.7	0.0	2.
3	0.3	0.1	0.1	0.0	-0.1	0.0	0.1	1.3	0.5	0.3	0.0	-0.1	0.0	0.2	**3.5**	1.2	0.6	0.7	0.4	0.3	-0.1	1.0	-0.0	0.3	3	3.5	1.3	-0.1	0.
4	4.5	7.8	13.9	0.8	0.3	0.2	0.2	0.1	0.5	0.6	26.6	**31.5**	27.2	2.2	1.0	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.7	4	31.5	27.2	0.1	5.
5	0.2	0.4	0.2	0.3	0.5	0.2	0.4	1.0	0.7	0.5	0.3	0.4	4.0	5.3	**8.1**	2.7	2.8	0.5	0.4	0.4	0.2	0.2	0.2	0.4	5	8.1	5.3	0.2	1.
6	0.1	-0.0	-0.0	0.0	0.2	0.5	0.3	0.9	7.2	**48.2**	PMA	9.9	15.5	3.2	0.8	0.8	0.7	0.7	1.0	1.0	0.4	0.4	0.5	0.3	6	48.2	15.5	-0.0	4.
7	0.2	0.2	0.4	1.0	**15.3**	2.2	2.0	3.6	0.4	0.7	1.7	1.2	0.7	0.6	1.2	4.7	0.4	0.7	0.4	0.3	0.0	1.3	7.5	2.8	7	15.3	7.5	0.0	2.
8	34.1	37.3	34.7	26.1	**105.0**	63.8	55.4	2.6	1.2	0.9	1.1	8.9	0.9	10.8	30.0	18.0	0.9	0.6	0.7	0.6	0.7	0.7	0.7	-0.0	8	105.0	63.8	-0.0	18.
9	-0.0	4.2	13.4	0.3	0.4	0.5	0.0	1.0	2.4	1.3	0.3	0.4	1.3	12.4	8.7	**17.4**	2.7	0.7	0.3	SPN	SPN	0.6	0.4	0.3	9	17.4	13.4	-0.0	3.
10	0.2	0.3	0.6	0.6	3.6	24.2	47.2	13.6	6.2	5.7	**51.6**	19.7	10.1	13.4	5.4	18.6	1.5	8.8	1.7	0.8	0.4	0.3	0.3	0.4	10	51.6	47.2	0.2	9.
11	0.4	0.9	7.3	0.9	0.7	**15.9**	4.3	10.8	1.4	0.5	0.4	0.3	0.5	0.5	0.4	0.4	1.1	1.0	0.4	0.3	0.2	0.4	0.4	0.3	11	15.9	10.8	0.2	2.
12	0.5	0.5	-0.2	0.6	0.4	0.2	0.4	0.8	0.6	5.5	**7.4**	3.3	1.5	4.7	1.3	5.6	5.6	0.7	0.7	0.7	0.5	0.5	0.1	0.2	12	7.4	5.6	-0.2	1.
13	0.6	0.2	0.3	0.3	0.3	0.2	**24.4**	QAS	QAS	QAS	QAS	QAS	QAS	0.6	1.0	0.8	0.5	0.4	0.3	0.2	0.4	0.3	0.3	0.4	13	24.4	1.0	0.2	1.
14	1.6	5.7	8.8	1.3	0.5	0.0	0.3	0.7	29.8	1.9	1.6	4.1	55.0	46.1	**65.7**	27.3	61.4	9.5	1.0	0.7	0.5	0.7	0.7	0.3	14	65.7	61.4	0.0	13.
15	0.4	0.3	63.0	**130.9**	13.1	10.6	10.9	2.3	7.6	72.9	66.0	48.1	32.6	27.8	14.6	7.9	0.9	1.4	0.5	0.6	0.3	0.5	0.5	0.5	15	130.9	72.9	0.3	21.
16	0.4	0.2	0.5	0.3	0.3	0.7	0.1	0.6	1.1	**18.7**	3.4	6.6	6.3	1.9	0.7	0.4	0.5	1.1	0.6	SPN	SPN	0.5	0.4	0.5	16	18.7	6.6	0.1	2.
17	0.5	0.5	0.6	0.4	0.4	6.4	**17.8**	4.2	1.9	1.1	2.4	3.9	3.1	5.1	9.2	5.9	6.3	1.7	1.0	0.9	0.7	0.9	0.6	0.4	17	17.8	9.2	0.4	3.
18	0.5	0.4	1.1	2.3	1.0	0.6	1.8	2.5	3.1	6.9	5.1	2.1	6.1	4.4	11.0	**14.7**	5.6	0.7	0.7	0.7	0.9	0.8	-0.0	-0.2	18	14.7	11.0	-0.2	3.
19	0.4	0.4	0.5	0.3	0.3	0.3	0.5	1.2	10.3	7.6	**12.5**	7.4	2.2	1.1	2.8	0.8	0.6	0.6	0.5	0.7	0.6	0.7	0.6	0.4	19	12.5	10.3	0.3	2.
20	0.6	0.7	0.6	0.4	-0.0	0.3	0.3	0.3	0.4	0.5	4.2	5.3	PMA	PMA	6.5	**7.0**	5.2	5.0	3.5	1.6	1.3	1.6	1.2	0.6	20	7.0	6.5	-0.0	2.
21	0.4	0.4	0.4	0.5	0.6	0.5	0.8	0.9	0.6	0.7	**5.2**	2.9	1.1	0.7	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.5	0.4	21	5.2	2.9	0.4	0.
22	0.5	0.8	0.3	1.2	0.6	0.8	0.5	0.7	0.5	0.4	0.5	0.6	0.8	0.8	0.7	0.9	10.2	**28.7**	9.3	1.3	0.9	1.0	0.8	0.3	22	28.7	10.2	0.3	2.
23	0.5	0.3	0.7	0.7	0.7	0.6	0.5	0.4	0.8	0.7	0.4	0.6	0.4	0.5	0.6	0.5	0.5	0.4	0.5	SPN	SPN	0.8	**1.1**	0.5	23	1.1	0.8	0.3	0.
24	0.6	0.4	0.2	0.5	0.6	0.4	0.6	0.3	**12.4**	4.8	1.0	0.6	0.5	0.3	0.5	0.3	0.4	0.3	0.5	0.4	0.9	0.9	0.5	-0.1	24	12.4	4.8	-0.1	1.
25	0.2	0.1	0.0	0.1	0.1	-0.0	0.0	0.1	0.4	0.2	0.1	0.1	2.7	10.6	**12.8**	8.6	6.3	4.7	0.7	0.2	0.1	0.3	0.3	0.3	25	12.8	10.6	0.0	2.
26	0.1	0.1	0.1	0.0	-0.0	-0.0	12.2	6.6	2.3	4.0	22.0	14.7	52.0	39.5	41.2	26.7	15.6	4.0	1.0	0.7	0.6	4.8	117.5	**209.1**	26	209.1	117.5	0.0	23.
27	**166.5**	72.0	3.5	2.5	2.7	3.9	2.4	3.7	2.3	15.4	17.0	9.8	23.4	34.6	16.3	18.5	47.2	24.2	0.6	0.6	0.6	0.6	0.5	0.5	27	166.5	72.0	0.5	19.
28	0.5	2.6	34.2	1.5	1.9	1.0	1.9	2.3	2.7	9.7	**61.9**	36.5	30.0	29.9	31.6	41.2	25.0	14.1	8.5	0.7	0.8	0.9	0.8	0.7	28	61.9	41.2	0.5	14.
29	0.6	0.6	0.5	0.2	0.3	0.5	0.5	0.6	5.5	27.6	**32.2**	16.5	18.4	21.5	7.2	1.9	0.8	5.3	0.7	2.3	7.6	15.7	15.9	1.3	29	32.2	27.6	0.2	7.
30	0.9	0.2	0.5	0.5	8.9	1.6	8.2	**64.0**	29.0	43.3	45.2	32.3	29.2	25.9	35.5	11.2	23.6	6.1	1.4	CAL	CAL	1.1	1.1	0.9	30	64.0	45.2	0.2	16.

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Av

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
209.1	166.5	-0.2	6.6	16.9	97.4 %
June 26 23:00	June 27 00:00	June 12 02:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

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CAMS 1077 Monthly Summary for July 2018

Select a New Site, Different Parameters, or Change Report Options

Select a date:

July 2018 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

July 2018	Sulfur Dioxide MDL (POC 1 R) measured in parts per billion																			Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.6	0.6	0.5	0.6	0.4	2.2	2.4	0.8	0.7	0.5	0.7	1.4	1.3	0.3	0.2	0.2	0.1	0.2	0.1	0.3	0.4	0.4	0.1	0.5	1	2.4	2.2	0.1	0.6
2	0.3	5.7	0.8	0.4	0.4	0.2	0.1	0.1	0.3	0.8	0.7	6.4	5.2	8.4	1.3	0.4	0.3	0.2	0.2	1.6	0.7	0.0	-0.0	-0.1	2	8.4	6.4	-0.1	1.4
3	-0.1	-0.1	0.3	0.2	0.1	-0.0	-0.3	1.9	0.6	12.9	36.5	59.0	13.3	13.3	3.8	13.7	9.3	7.7	0.7	0.5	0.2	0.5	0.3	0.3	3	59.0	36.5	-0.3	7.3
4	0.1	0.4	-0.3	0.2	-0.2	-0.2	0.1	0.3	-0.1	4.8	16.4	1.2	0.6	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.0	0.6	0.5	0.0	4	16.4	4.8	-0.3	1.1
5	-0.0	0.1	0.2	-0.3	0.2	0.1	0.1	-0.1	0.0	0.2	-0.1	-0.1	-0.1	PMA	-0.0	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	0.0	-0.1	-0.1	5	0.2	0.2	-0.3	-0.0
6	0.0	-0.3	-0.1	0.1	0.1	-0.1	-0.1	-0.1	-0.0	-0.1	0.0	0.1	0.3	-0.0	-0.0	-0.1	-0.1	-0.1	0.1	NEG	0.2	0.3	0.0	-0.0	6	0.3	0.3	-0.3	0.0
7	-0.3	-0.1	0.0	0.1	-0.0	-0.1	-0.1	0.1	0.3	0.4	0.5	0.1	-0.1	-0.1	0.0	-0.1	-0.2	-0.1	-0.0	SPN	SPN	0.5	0.8	0.5	7	0.8	0.5	-0.3	0.1
8	0.6	0.4	0.4	0.3	0.1	0.4	0.5	0.8	0.5	4.7	4.4	1.2	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.7	0.5	0.4	8	4.7	4.4	0.1	0.8
9	0.1	0.7	0.6	0.4	0.3	0.3	0.3	0.6	0.4	5.1	11.4	1.1	6.3	4.6	0.6	0.4	0.5	0.4	0.5	0.4	0.3	0.6	0.6	1.2	9	11.4	6.3	0.1	1.6
10	0.5	0.3	0.3	0.3	0.2	0.4	1.0	1.0	0.7	0.6	5.3	7.4	0.9	1.7	10.8	1.1	0.6	0.6	1.3	1.0	0.5	0.5	0.8	-0.1	10	10.8	7.4	-0.1	1.6
11	0.6	0.5	0.5	0.5	0.6	1.1	0.8	1.7	2.6	2.3	3.7	9.7	13.1	7.2	1.5	10.7	2.2	0.7	0.8	0.5	0.6	0.6	0.8	1.6	11	13.1	10.7	0.5	2.7
12	1.3	6.3	6.4	1.5	0.7	0.5	0.5	0.5	0.0	0.7	0.5	0.7	1.7	9.3	19.4	4.8	8.6	4.5	0.9	0.7	0.3	0.6	0.7	0.5	12	19.4	9.3	0.0	3.0
13	0.4	0.4	0.7	0.5	0.4	24.3	2.2	1.5	0.9	1.3	1.0	11.2	9.7	12.3	18.4	1.0	0.9	0.5	0.3	0.3	0.7	0.5	0.6	1.3	13	24.3	18.4	0.3	3.8
14	0.5	0.5	0.5	0.4	0.6	0.2	0.3	0.7	0.4	0.5	0.7	1.2	2.6	16.1	31.0	41.0	17.8	25.0	5.8	SPN	SPN	2.2	1.1	2.6	14	41.0	31.0	0.2	6.9
15	9.9	9.0	10.9	16.7	5.0	1.6	0.9	41.6	2.7	1.6	1.9	16.2	39.9	16.5	26.4	6.2	1.3	1.1	4.0	0.7	0.3	0.5	0.5	0.6	15	41.6	39.9	0.3	9.0
16	0.6	-0.0	0.7	0.6	0.6	0.4	0.8	0.7	0.8	0.7	0.4	4.1	8.5	6.3	0.9	0.9	0.2	0.2	0.2	0.1	0.2	0.6	0.5	0.5	16	8.5	6.3	-0.0	1.2
17	1.9	1.2	2.7	5.8	4.4	0.9	0.4	0.6	0.6	0.7	0.7	1.7	5.6	16.2	18.2	26.3	25.6	17.9	6.3	0.8	0.6	0.7	7.1	10.5	17	26.3	25.6	0.4	6.6
18	0.9	0.9	0.8	0.5	0.4	0.4	0.5	0.8	21.0	3.6	1.0	0.7	QAS	QAS	16.9	1.2	13.7	2.4	15.8	1.0	1.1	0.8	0.6	0.9	18	21.0	16.9	0.4	3.9
19	0.7	0.7	0.8	0.7	0.3	0.8	0.8	1.0	1.4	1.2	1.1	1.0	12.9	27.6	27.7	20.4	12.2	19.0	1.6	0.8	0.7	0.6	0.9	0.5	19	27.7	27.6	0.3	5.6
20	0.5	0.4	0.7	7.6	0.9	0.9	1.1	1.1	1.3	1.2	1.0	0.9	1.5	19.6	35.8	32.2	20.9	7.0	3.5	7.0	SPZ	1.5	0.9	1.3	20	35.8	32.2	0.4	6.5
21	30.5	26.2	2.0	3.0	2.0	2.2	0.9	1.3	1.1	1.1	1.1	1.8	11.2	18.7	17.5	16.4	20.6	22.2	17.8	SPN	SPN	1.3	1.3	1.0	21	30.5	26.2	0.9	9.1
22	0.8	0.7	0.9	6.1	2.0	1.1	1.2	1.1	0.8	0.4	0.4	0.4	6.5	11.3	20.9	38.3	23.8	22.3	5.1	1.3	0.6	0.7	0.9	5.2	22	38.3	23.8	0.4	6.4
23	0.9	0.6	1.0	0.9	0.8	0.6	0.5	0.8	1.6	2.4	1.5	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.4	0.5	0.4	23	2.4	1.6	0.3	0.7
24	0.4	0.4	0.4	0.4	0.4	0.2	0.5	0.4	0.6	0.5	1.0	0.6	0.4	0.4	0.6	0.4	0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.3	24	1.0	0.6	0.2	0.4
25	0.3	0.3	0.5	0.5	0.6	0.4	0.4	0.9	33.0	28.8	34.1	47.9	23.0	10.4	23.9	23.1	5.9	11.6	9.7	0.9	0.6	0.7	0.4	0.5	25	47.9	34.1	0.3	10.8
26	1.0	2.8	0.4	0.9	0.5	0.2	0.2	0.5	0.9	0.4	0.3	0.5	0.4	0.2	0.4	0.3	0.7	0.4	0.4	0.3	0.9	0.5	0.3	0.6	26	2.8	1.0	0.2	0.6
27	0.1	0.6	-0.1	0.6	0.3	0.1	0.1	0.5	0.5	0.6	0.8	2.4	0.6	0.6	14.9	4.2	0.8	0.8	0.8	0.8	0.4	0.6	0.3	0.3	27	14.9	4.2	-0.1	1.3
28	0.6	0.5	1.8	0.7	0.3	0.3	0.5	0.4	0.5	25.0	4.5	0.8	0.7	0.7	0.6	1.1	4.1	5.7	1.6	CAL	CAL	1.0	0.9	4.8	28	25.0	5.7	0.3	2.6
29	55.0	111.8	2.8	1.2	2.1	3.9	1.1	1.2	1.5	1.6	26.2	2.6	4.9	0.8	1.7	4.5	1.5	1.0	1.3	1.4	2.1	0.8	0.7	0.4	29	111.8	55.0	0.4	9.7
30	0.5	0.4	0.3	0.1	0.2	0.2	0.2	0.4	0.6	0.7	0.3	0.3	0.4	0.1	0.1	0.1	0.2	0.4	0.4	0.2	0.3	0.6	0.2	0.0	30	0.7	0.6	0.0	0.3

31	0.0	0.4	1.9	1.1	0.6	0.3	0.2	1.1	2.2	**3.1**	1.8	1.1	0.9	0.4	0.3	0.4	1.4	0.8	1.0	0.8	0.2	1.5	0.3	0.1	**31**	3.1	2.2	0.0	0.9
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
111.8	59.0	-0.3	3.4	8.4	98.3 %
July 29 01:00	July 3 11:00	July 3 06:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for August 2018

Select a New Site, Different Parameters, or Change Report Options

Select a date:

August 2018 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

August 2018						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Av
1	0.2	0.3	0.3	0.1	0.1	0.1	0.3	4.0	**35.3**	15.9	3.9	PMA	PMA	PMA	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	1	35.3	15.9	0.1	5.5
2	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	PMA	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	2				
3	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	CAL	CAL	**31.4**	11.6	2.6	0.8	0.8	0.5	0.4	-0.0	7.8	3	31.4	11.6	-0.0	6.2
4	0.4	-0.0	0.1	0.0	2.5	**37.9**	1.2	1.3	0.6	0.9	1.0	0.8	15.0	18.5	12.4	22.5	4.3	17.2	1.8	SPN	SPN	0.2	0.0	0.0	4	37.9	22.5	-0.0	6.3
5	0.0	0.1	0.1	0.2	**52.4**	11.7	0.7	1.0	2.1	0.2	0.5	12.9	29.7	14.8	7.8	33.1	17.1	13.0	0.6	0.2	-0.1	-0.0	0.1	41.7	5	52.4	41.7	-0.1	10.
6	**140.0**	55.8	45.3	3.4	1.0	0.8	0.7	1.6	0.4	0.3	5.2	15.3	13.9	27.6	25.1	6.5	16.1	19.0	10.7	2.4	0.3	0.2	0.1	0.1	6	140.0	55.8	0.1	16.
7	0.3	0.2	0.2	0.3	0.1	1.0	0.4	0.8	1.8	1.1	0.6	6.0	7.7	7.9	**17.4**	8.5	13.0	9.9	8.0	0.6	0.0	0.2	0.1	0.1	7	17.4	13.0	0.0	3.6
8	0.0	0.1	-0.0	0.1	-0.1	-0.1	0.3	NEG	-0.1	-0.0	-0.0	-0.1	0.1	0.1	-0.1	-0.1	**12.0**	6.2	0.1	0.0	3.8	0.5	-0.1	-0.2	8	12.0	6.2	-0.2	1.0
9	-0.2	-0.0	0.2	-0.1	-0.0	-0.1	0.1	0.3	0.1	0.2	-0.0	1.0	10.3	31.6	**32.8**	15.0	12.1	0.4	0.4	0.6	-0.1	0.2	-0.2	0.4	9	32.8	31.6	-0.2	4.4
10	0.0	-0.1	0.0	-0.0	0.0	-0.1	0.0	0.1	0.3	0.7	1.5	0.3	**1.8**	0.5	0.4	0.4	0.0	0.2	0.3	-0.1	-0.3	0.4	0.6	-0.2	10	1.8	1.5	-0.3	0.3
11	-0.1	0.2	0.4	2.1	2.2	**4.5**	2.1	1.3	0.8	0.3	-0.2	-0.1	-0.1	0.1	0.1	0.1	0.3	3.4	3.7	SPN	SPN	0.3	-0.0	-0.1	11	4.5	3.7	-0.2	1.0
12	-0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.4	0.0	0.2	0.7	**1.0**	0.5	0.5	0.5	0.0	0.2	0.1	-0.1	-0.2	0.3	0.3	0.4	12	1.0	0.7	-0.2	0.2
13	0.2	0.1	-0.0	0.1	0.3	0.2	0.2	0.2	0.2	0.4	5.0	**16.4**	2.2	1.8	5.6	7.7	0.3	0.4	0.2	0.1	0.2	0.4	0.2	0.1	13	16.4	7.7	-0.0	1.8
14	0.2	**25.0**	19.0	5.1	1.4	1.8	0.8	0.8	0.9	0.4	0.5	0.5	9.1	4.3	11.2	13.0	1.9	0.8	0.6	0.5	-0.1	0.4	0.8	1.2	14	25.0	19.0	-0.1	4.2
15	0.4	0.2	0.4	0.1	0.1	0.2	0.1	0.3	0.2	0.4	0.3	PMA	0.5	1.5	**2.1**	0.6	0.5	0.5	0.3	0.2	0.6	0.3	0.2	0.3	15	2.1	1.5	0.1	0.4
16	-0.2	0.2	0.1	0.1	1.6	1.0	0.5	0.4	0.2	0.4	0.5	1.1	1.9	5.2	7.9	1.7	**8.0**	1.6	1.4	1.1	0.6	1.0	0.3	7.2	16	8.0	7.9	-0.2	1.8
17	1.4	**3.6**	0.5	0.3	0.1	0.1	0.2	0.3	0.2	-0.0	0.3	0.2	0.3	0.6	0.8	1.0	0.4	0.5	0.2	0.1	0.5	0.6	0.0	-0.0	17	3.6	1.4	-0.0	0.5
18	-0.0	-0.1	0.1	-0.1	0.0	-0.0	-0.0	0.0	-0.0	0.4	0.2	0.2	0.8	3.6	11.0	6.9	**14.0**	11.1	4.0	SPN	SPN	0.5	-0.3	-0.1	18	14.0	11.1	-0.3	2.4
19	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	**0.2**	0.1	-0.1	-0.2	-0.1	-0.4	-0.1	0.2	0.1	0.1	0.2	NEG	-0.0	-0.2	0.0	19	0.2	0.2	-0.4	-0.
20	-0.1	-0.1	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	-0.0	-0.1	-0.1	0.1	**0.2**	0.0	-0.1	-0.2	-0.1	0.0	20	0.2	0.1	-0.2	-0.
21	-0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.0	-0.0	0.1	4.1	12.8	**20.6**	17.8	9.8	14.0	9.7	0.5	0.1	0.0	0.1	0.1	0.2	-0.0	21	20.6	17.8	-0.2	3.7
22	-0.2	-0.3	-0.0	0.1	0.0	0.0	0.1	-0.0	-0.1	0.3	7.4	9.7	0.6	2.2	6.0	**21.1**	4.5	3.7	0.5	0.3	0.4	0.3	-0.0	-0.2	22	21.1	9.7	-0.3	2.4
23	-0.2	-0.2	0.1	-0.0	12.2	2.0	7.7	5.3	0.8	0.3	0.3	1.8	3.3	1.3	1.0	0.6	0.5	0.4	0.2	0.2	0.4	0.4	7.0	**45.0**	23	45.0	12.2	-0.2	3.8
24	32.8	**66.3**	12.2	2.5	1.7	1.4	0.6	1.4	1.6	1.3	0.5	0.1	0.0	0.1	0.8	0.0	0.1	-0.0	-0.0	-0.1	0.0	5.7	0.5	0.4	24	66.3	32.8	-0.1	5.4
25	0.2	0.0	0.0	0.0	7.9	1.9	1.4	0.9	0.2	0.3	0.2	0.1	0.3	0.3	2.4	9.7	**14.4**	9.8	8.5	CAL	CAL	0.2	0.1	0.0	25	14.4	9.8	0.0	2.7
26	-0.1	-0.1	1.2	0.1	0.0	-0.0	10.3	**21.9**	2.3	4.0	1.6	4.3	5.8	9.0	3.5	8.2	14.3	13.3	2.2	9.0	0.0	0.2	0.1	-0.0	26	21.9	14.3	-0.1	4.6
27	9.4	**36.7**	16.5	1.0	1.0	0.8	0.5	1.3	0.8	0.7	0.7	0.7	0.2	0.2	0.0	0.0	0.1	-0.0	0.1	11.1	-0.0	0.0	32.7	23.5	27	36.7	32.7	0.0	5.8
28	12.6	0.8	3.1	5.3	**45.3**	10.0	1.4	1.9	1.4	0.9	0.3	0.1	0.1	1.0	3.9	0.5	0.8	0.3	0.1	0.1	0.0	0.3	0.0	-0.3	28	45.3	12.6	-0.3	3.7
29	-0.3	-0.2	0.1	**0.9**	0.7	0.5	-0.0	-0.1	-0.2	-0.2	-0.3	0.0	-0.3	-0.2	-0.0	-0.0	0.1	-0.0	0.1	-0.1	-0.3	-0.0	-0.1	-0.3	29	0.9	0.7	-0.3	-0.
30	-0.2	-0.2	6.4	42.6	**58.3**	8.8	2.1	1.4	0.6	0.3	0.2	0.2	4.5	13.4	14.4	30.4	19.5	7.3	25.2	3.8	0.2	0.3	2.0	0.4	30	58.3	42.6	-0.2	10.

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Av
31	12.7	23.7	**109.5**	106.0	29.7	30.6	2.0	1.1	0.9	PMA	0.5	16.6	19.8	20.8	23.2	20.8	20.6	18.7	16.6	0.5	0.2	0.4	0.0	-0.2	31	109.5	106.0	-0.2	20.

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
140.0	109.5	-0.4	4.2	11.4	91.4 %
August 6 00:00	August 31 02:00	August 19 14:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for September 2018

Select a New Site, Different Parameters, or Change Report Options

Select a date:

September | 2018 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

September 2018						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	-0.1	0.1	0.1	0.0	5.8	8.0	0.3	0.7	0.5	0.0	-0.2	6.9	7.8	11.7	8.5	1.2	1.3	**14.9**	0.2	SPN	SPN	0.7	0.5	0.6	1	14.9	11.7	-0.2	3.2
2	0.5	0.5	0.8	0.8	0.8	0.5	0.5	0.7	0.6	2.1	**19.8**	10.6	1.0	2.2	3.6	9.5	4.7	3.0	0.7	0.7	2.0	2.5	8.6	1.1	2	19.8	10.6	0.5	3.2
3	0.7	0.8	2.6	1.1	1.1	**3.5**	1.6	0.8	0.6	0.8	0.6	0.6	0.7	0.6	0.7	0.5	0.5	0.5	0.7	0.7	0.7	0.4	0.3	0.6	3	3.5	2.6	0.3	0.9
4	0.6	0.1	0.5	0.6	0.5	0.4	0.5	0.5	0.7	0.5	0.8	4.1	**15.2**	12.5	15.1	2.4	3.4	1.9	0.9	0.6	0.5	0.7	2.1	4.1	4	15.2	15.1	0.1	2.9
5	**10.1**	1.1	0.8	0.6	0.5	0.3	0.5	0.7	0.8	0.5	0.7	QAS	QAS	0.3	0.6	0.6	0.7	1.8	1.3	0.5	2.0	0.5	0.2	0.5	5	10.1	2.0	0.2	1.2
6	0.4	0.4	0.2	0.3	0.3	0.4	0.5	0.3	0.3	0.4	0.6	0.4	0.5	0.5	0.5	0.4	0.6	**0.8**	0.8	0.6	0.5	0.3	0.2	0.4	6	0.8	0.8	0.2	0.4
7	0.3	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.8	0.8	0.6	0.5	0.5	0.3	0.5	0.6	0.8	0.7	**1.4**	0.8	0.5	0.5	0.4	0.4	7	1.4	0.8	0.3	0.5
8	0.3	0.4	0.4	0.4	0.3	0.4	0.5	0.4	0.4	0.5	0.7	0.4	0.5	0.7	1.1	**1.2**	1.1	1.0	0.8	SPN	SPN	-0.4	-0.2	-0.3	8	1.2	1.1	-0.4	0.5
9	-0.2	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	-0.3	-0.2	0.9	6.3	3.9	3.3	**11.6**	11.5	2.2	0.2	-0.2	-0.2	0.3	NEG	3.5	-0.3	-0.1	9	11.6	11.5	-0.4	1.8
10	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.3	-0.2	-0.1	-0.1	1.7	**8.6**	0.6	3.6	0.7	3.1	0.1	0.2	-0.0	-0.0	-0.2	-0.3	-0.3	-0.2	10	8.6	3.6	-0.3	0.6
11	-0.3	-0.3	-0.2	-0.2	-0.0	3.0	2.0	2.2	**22.7**	3.3	5.8	9.8	2.4	5.0	5.5	3.1	0.6	-0.1	-0.1	-0.2	0.2	-0.2	-0.4	-0.2	11	22.7	9.8	-0.4	2.6
12	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.1	4.6	7.1	4.2	6.2	PMA	8.4	**11.2**	8.1	7.7	2.1	0.0	-0.1	-0.0	-0.1	-0.1	-0.2	-0.3	12	11.2	8.4	-0.3	2.5
13	-0.1	-0.2	0.1	**12.6**	4.0	1.4	0.1	0.1	2.5	7.9	7.9	7.6	11.8	11.5	7.7	9.7	9.2	3.0	-0.1	-0.2	0.0	-0.1	0.2	-0.1	13	12.6	11.8	-0.2	4.0
14	-0.2	-0.3	-0.3	-0.1	7.1	3.7	0.5	7.2	**18.4**	13.7	7.8	10.8	7.1	0.9	1.2	1.3	0.7	-0.1	-0.2	-0.0	-0.3	-0.4	0.0	-0.1	14	18.4	13.7	-0.4	3.3
15	-0.3	-0.1	-0.1	-0.2	-0.3	-0.2	-0.3	-0.4	0.0	**1.1**	0.4	-0.2	-0.1	-0.3	-0.3	-0.4	-0.2	-0.1	-0.2	SPN	SPN	0.4	0.4	0.4	15	1.1	0.4	-0.4	-0.0
16	0.5	0.4	0.4	0.5	0.3	0.5	0.3	0.5	0.5	2.9	1.6	4.0	5.9	6.4	**8.2**	3.0	4.6	2.4	1.2	0.6	0.5	0.9	0.5	0.3	16	8.2	6.4	0.3	2.0
17	0.3	0.4	2.1	1.6	2.5	2.4	1.1	2.2	1.7	1.0	6.4	3.3	4.5	9.2	9.3	5.9	7.3	3.0	1.2	1.6	1.3	1.0	8.4	**21.3**	17	21.3	9.3	0.3	4.1
18	4.8	1.0	1.1	1.2	1.1	0.8	0.7	2.0	2.0	3.2	3.2	5.3	5.1	4.5	8.9	**12.0**	7.5	8.4	1.3	0.6	0.7	2.1	1.9	0.8	18	12.0	8.9	0.6	3.3
19	1.5	2.2	6.2	1.8	2.7	2.4	1.2	5.6	2.9	9.5	13.5	9.2	**15.2**	7.7	9.8	9.6	4.2	1.5	4.1	0.6	0.9	0.6	0.4	0.5	19	15.2	13.5	0.4	4.7
20	0.9	4.9	15.9	2.5	0.8	0.7	1.1	7.4	16.4	**22.8**	11.6	11.2	17.4	10.8	11.6	3.7	6.0	6.6	1.9	2.0	0.6	0.6	0.7	0.6	20	22.8	17.4	0.6	6.6
21	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.6	0.5	0.7	**1.1**	0.5	0.3	0.5	0.6	1.1	0.7	0.5	0.4	0.3	0.3	0.4	0.4	0.4	21	1.1	1.1	0.3	0.5
22	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.4	2.8	**3.6**	1.0	0.4	0.3	0.4	0.5	1.4	0.6	0.4	CAL	CAL	0.3	0.1	0.1	22	3.6	2.8	0.1	0.7
23	-0.0	-0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.3	11.4	**18.7**	0.3	0.2	0.2	0.2	0.3	0.1	0.1	0.3	0.0	0.2	0.1	0.1	23	18.7	11.4	-0.0	1.4
24	0.1	0.1	0.1	0.2	0.1	0.1	0.2	12.5	**38.4**	27.5	0.8	1.3	8.9	0.2	0.4	1.0	7.0	3.4	16.8	0.5	0.7	0.8	6.8	38.2	24	38.4	38.2	0.1	6.9
25	**33.1**	1.3	2.7	17.2	5.2	1.5	0.9	1.0	0.9	0.5	0.2	0.2	0.2	0.1	0.1	0.1	1.1	0.5	0.0	-0.2	0.0	0.1	0.0	-0.1	25	33.1	17.2	-0.2	2.8
26	-0.1	0.0	-0.0	-0.0	0.0	0.1	**0.2**	0.0	0.0	-0.0	-0.1	-0.0	QAS	0.1	0.2	0.1	0.2	0.1	-0.2	0.0	0.1	0.1	0.1	0.1	26	0.2	0.2	-0.2	0.0
27	0.1	0.0	-0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.2	5.1	3.8	3.7	1.4	0.6	0.7	**8.1**	0.7	0.4	27	8.1	5.1	0.0	1.1
28	0.5	0.2	0.2	0.2	0.1	0.2	5.9	**13.4**	1.7	1.0	0.4	0.3	0.1	0.0	-0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.2	28	13.4	5.9	0.0	1.0
29	0.1	0.1	0.0	-0.0	0.1	-0.0	0.1	0.0	0.0	0.1	0.2	0.7	0.4	0.2	17.1	**24.4**	2.0	4.3	0.7	SPN	SPN	0.0	0.1	0.1	29	24.4	17.1	0.0	2.3
30	0.0	3.1	**67.3**	7.1	1.6	0.9	0.7	0.5	16.3	19.1	23.1	18.9	16.8	15.8	0.9	1.8	3.1	0.3	0.1	0.2	0.3	0.2	0.1	0.0	30	67.3	23.1	0.0	8.3

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
67.3	38.4	-0.4	2.5	5.3	97.9 %
September 30 02:00	September 24 08:00	September 8 21:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for October 2018

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Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

October 2018						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.1	4.3	0.9	2.5	0.7	0.9	0.4	1.8	10.4	19.7	**25.6**	18.0	14.4	4.8	5.0	2.3	6.3	0.3	0.1	0.5	0.1	0.2	0.2	0.1	1	25.6	19.7	0.1	5.0
2	0.1	19.7	**32.7**	18.2	17.0	2.9	1.2	0.6	5.5	16.0	14.8	11.3	5.7	1.1	6.3	11.0	0.6	0.3	0.2	0.3	0.1	0.3	0.4	2.8	2	32.7	19.7	0.1	7.0
3	13.6	0.7	4.5	4.2	13.4	2.3	1.1	0.8	0.5	0.5	0.3	0.3	0.1	0.1	0.1	0.0	0.1	0.1	0.6	13.7	4.0	4.7	30.1	**67.9**	3	67.9	30.1	0.0	6.8
4	**35.8**	2.0	1.2	0.6	0.3	0.1	0.3	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.6	-0.1	0.6	0.2	-0.2	-0.2	-0.1	-0.0	-0.1	-0.1	-0.0	4	35.8	2.0	-0.2	1.7
5	-0.1	-0.0	0.1	3.1	27.6	**29.3**	2.6	1.0	0.6	0.5	0.1	0.5	1.9	14.1	12.5	13.0	17.5	0.7	0.5	0.5	0.4	-0.1	15.8	3.6	5	29.3	27.6	-0.1	6.1
6	**0.8**	0.3	0.0	-0.1	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.2	0.1	-0.0	0.0	0.1	SPN	SPN	0.5	0.4	0.4	6	0.8	0.5	-0.3	0.0
7	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.3	**0.9**	0.7	0.5	0.4	0.6	0.5	0.4	7	0.9	0.7	0.3	0.4
8	0.5	0.5	0.4	0.4	0.3	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.7	**1.0**	1.0	0.8	0.9	0.5	0.5	0.4	0.4	0.4	0.5	0.5	8	1.0	1.0	0.3	0.5
9	**0.5**	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.2	0.4	0.4	0.4	9	0.5	0.4	0.2	0.4
10	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	3.9	1.2	2.1	**9.3**	5.6	1.6	0.6	0.4	0.2	0.4	0.4	0.3	10	9.3	5.6	0.2	1.2
11	**0.3**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	QAS	QAS	QAS	CAL	CAL	CAL	0.1	0.1	0.1	0.1	0.1	0.1	SPZ	LIM	LIM	LIM	11	0.3	0.3	0.1	0.2
12	LIM	LIM	LIM	LIM	LIM	LIM	LIM	LIM	LIM	LIM	LIM	QAS	CAL	CAL	CAL	**1.3**	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	12	1.3	0.3	0.1	0.3
13	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	16.0	17.5	**30.9**	25.4	9.8	0.6	0.3	0.2	SPN	SPN	0.1	0.1	0.1	13	30.9	25.4	0.0	4.6
14	0.1	4.3	0.9	**6.3**	2.4	0.5	0.2	-0.0	-0.0	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	14	6.3	4.3	-0.2	0.5
15	-0.3	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4	NEG	-0.4	-0.4	NEG	NEG	-0.1	0.7	**3.0**	2.0	-0.2	-0.2	0.6	2.0	15	3.0	2.0	-0.4	0.2
16	**0.7**	-0.2	-0.3	-0.4	-0.3	-0.4	NEG	-0.4	-0.3	-0.3	-0.3	-0.2	NEG	NEG	NEG	NEG	NEG	NEG	-0.1	NEG	NEG	NEG	NEG	-0.4	16	0.7	-0.1	-0.4	-0.2
17	NEG	AQI	AQI	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	17				
18	LST	LST	LST	LST	LST	LST	LST	LST	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	0.1	0.3	**0.5**	0.5	0.2	0.3	0.5	0.5	18	0.5	0.5	0.1	0.4
19	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.6	0.6	0.4	0.4	0.6	**0.7**	0.5	0.5	0.6	0.5	0.3	0.4	0.3	0.5	0.5	0.6	19	0.7	0.6	0.3	0.5
20	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.6	0.6	**1.5**	1.3	0.9	0.8	0.7	0.6	0.6	0.5	0.8	0.3	CAL	CAL	0.1	0.6	1.0	20	1.5	1.3	0.1	0.6
21	1.1	0.7	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.2	0.3	0.6	3.2	4.7	0.9	0.3	0.3	0.3	**8.2**	6.2	0.7	21	8.2	6.2	0.2	1.3
22	0.7	0.5	0.5	0.5	0.6	0.4	0.3	0.5	0.5	0.4	0.4	0.6	0.6	0.5	0.9	**2.4**	1.0	0.6	0.3	0.1	0.3	0.4	0.4	0.3	22	2.4	1.0	0.1	0.6
23	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.4	**0.9**	0.8	0.7	0.8	0.7	0.5	0.2	0.3	0.4	0.3	0.4	0.5	0.5	0.4	23	0.9	0.8	0.2	0.4
24	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	PMA	0.4	0.4	**0.6**	0.5	0.4	0.4	0.4	0.4	0.4	24	0.6	0.5	0.3	0.4
25	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	**0.7**	0.5	0.6	0.6	0.3	0.5	0.5	0.6	0.6	0.5	25	0.7	0.6	0.3	0.5
26	0.5	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.5	0.7	0.6	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.3	0.5	0.5	0.6	**1.1**	26	1.1	0.7	0.3	0.5
27	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.5	1.0	**14.3**	1.9	0.6	0.8	0.7	0.4	1.1	SPN	SPN	0.5	0.5	0.2	27	14.3	1.9	0.2	1.2
28	0.3	0.2	0.2	0.0	0.1	0.2	0.1	0.2	0.2	**1.6**	0.6	0.3	0.0	0.3	0.2	0.2	0.1	0.3	-0.1	0.1	0.2	0.1	0.2	0.1	28	1.6	0.6	-0.1	0.2
29	0.1	0.2	0.1	0.1	1.1	**1.6**	0.5	0.6	0.6	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.5	0.4	0.6	0.3	0.9	0.3	0.3	0.3	29	1.6	1.1	0.1	0.5
30	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	1.1	**1.5**	0.3	30	1.5	1.1	0.2	0.3

31	0.2	0.2	0.2	0.1	1.1	**1.2**	0.6	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.4	0.2	0.2	0.2	0.1	**31**	1.2	1.1	0.1	0.3
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
67.9	35.8	-0.4	1.5	5.0	88.2 %
October 3 23:00	October 4 00:00	October 15 10:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for November 2018

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Select a date:

November ▾ 2018 ▾ Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

November 2018						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.1	0.1	0.2	0.1	0.1	-0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.2	-0.1	0.1	0.0	0.1	**0.3**	0.2	0.1	0.1	0.1	1	0.3	0.2	-0.1	0.1
2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.4	0.4	-0.1	0.4	0.1	0.4	0.4	0.2	5.6	**8.9**	0.4	2	8.9	5.6	-0.1	0.8
3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.4	**0.6**	0.4	0.2	0.4	0.1	0.3	0.1	0.1	0.1	0.2	SPN	SPN	0.1	0.1	0.0	3	0.6	0.4	0.0	0.2
4	0.1	0.1	0.1	0.3	0.2	0.1	-0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.3	1.9	0.7	13.2	4.1	0.6	9.5	**23.6**	8.7	1.1	4	23.6	13.2	-0.1	2.7
5	**0.7**	0.4	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.6	0.7	0.4	0.5	0.0	0.1	0.3	0.2	0.4	0.1	0.3	0.5	0.4	0.2	0.4	5	0.7	0.7	0.0	0.3
6	0.5	1.0	0.2	0.3	0.4	**5.3**	2.7	0.7	0.6	1.2	4.9	3.9	1.0	0.6	0.4	PMA	0.0	0.2	0.1	1.0	0.3	0.2	0.2	0.1	6	5.3	4.9	0.0	1.1
7	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	-0.0	0.0	-0.1	-0.1	0.0	-0.0	0.0	0.1	0.1	0.1	0.1	0.0	**0.2**	0.2	0.1	0.1	7	0.2	0.2	-0.1	0.1
8	0.0	-0.0	0.0	-0.0	0.1	-0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	**0.9**	0.8	0.3	0.1	0.1	0.0	-0.2	0.0	-0.0	-0.0	8	0.9	0.8	-0.2	0.1
9	0.0	-0.0	-0.1	-0.0	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.3	**0.5**	0.1	-0.1	0.1	0.0	0.1	9	0.5	0.3	-0.2	-0.0
10	1.1	1.1	**59.0**	50.2	7.6	1.1	0.7	0.5	0.4	0.5	0.4	0.2	0.9	0.6	2.1	0.9	30.7	39.5	4.5	SPN	SPN	46.2	28.9	5.7	10	59.0	50.2	0.2	12.9
11	**4.1**	1.0	0.6	0.4	0.3	0.2	0.0	0.1	0.1	0.2	0.1	-0.1	-0.0	-0.1	-0.0	0.0	-0.0	-0.0	-0.0	-0.1	-0.2	-0.0	0.1	-0.1	11	4.1	1.0	-0.2	0.3
12	**0.1**	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.4	-0.2	-0.2	-0.3	12	0.1	-0.1	-0.4	-0.2
13	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	**-0.1**	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	13	-0.1	-0.1	-0.3	-0.2
14	-0.2	-0.2	-0.2	-0.1	-0.2	-0.1	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	**-0.0**	-0.1	-0.0	0.0	-0.0	-0.0	-0.0	-0.1	-0.1	14	-0.0	-0.0	-0.2	-0.1
15	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	-0.0	-0.0	0.0	-0.0	-0.2	0.1	0.1	-0.1	-0.2	0.0	0.2	0.2	0.6	0.1	0.4	**0.9**	15	0.9	0.6	-0.2	0.1
16	1.0	0.3	0.2	0.1	0.0	-0.1	-0.1	-0.1	0.1	0.2	0.2	0.0	2.6	0.9	1.1	1.2	0.3	2.9	0.1	-0.0	2.0	14.3	**36.0**	6.7	16	36.0	14.3	-0.1	2.9
17	**3.9**	0.5	0.2	0.1	0.0	0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	CAL	CAL	0.2	0.2	0.1	17	3.9	0.5	-0.2	0.2
18	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	-0.1	0.1	0.1	**0.2**	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	18	0.2	0.2	-0.1	0.1
19	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.4	**0.6**	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	19	0.6	0.4	0.1	0.2
20	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.3	0.7	PMA	4.3	1.7	3.6	2.4	0.4	0.2	0.3	0.4	2.8	37.2	**43.1**	20	43.1	37.2	0.1	4.3
21	4.4	0.8	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.7	1.5	0.5	0.4	9.9	**30.3**	1.2	1.0	21	30.3	9.9	0.3	2.4
22	0.9	1.0	1.0	0.7	0.5	0.4	0.3	0.3	0.4	0.8	3.9	13.7	20.4	**43.5**	24.8	10.5	0.9	0.9	0.7	0.8	0.6	27.7	5.3	11.0	22	43.5	27.7	0.3	7.1
23	**2.1**	0.7	0.6	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.1	0.4	0.4	0.3	0.0	0.3	0.2	0.2	0.4	0.2	0.2	23	2.1	0.7	0.0	0.4
24	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.3	**0.6**	0.3	0.3	0.3	0.4	SPN	SPN	-0.0	0.0	-0.0	24	0.6	0.4	-0.0	0.3
25	**-0.1**	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.1	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	NEG	-0.2	-0.3	-0.3	25	-0.1	-0.1	-0.3	-0.2
26	-0.3	-0.2	-0.3	-0.2	-0.3	-0.3	-0.3	NEG	-0.3	-0.3	NEG	NEG	-0.3	-0.3	-0.3	-0.1	-0.3	-0.2	0.0	0.0	-0.1	**2.8**	0.9	0.1	26	2.8	0.9	-0.3	-0.0
27	-0.1	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.0	0.4	**3.3**	1.9	0.6	0.0	-0.0	-0.4	-0.1	0.0	0.1	27	3.3	1.9	-0.4	0.1
28	**0.0**	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	0.0	-0.0	-0.0	-0.1	-0.0	28	0.0	0.0	-0.2	-0.1
29	-0.1	-0.1	-0.1	-0.1	-0.0	-0.1	-0.0	-0.0	0.0	-0.1	-0.0	-0.1	-0.1	-0.1	0.1	-0.2	-0.2	-0.1	-0.1	0.1	-0.1	-0.1	0.1	**0.5**	29	0.5	0.1	-0.2	-0.0
30	0.1	0.1	0.0	0.0	0.4	0.2	0.5	0.3	0.2	0.2	1.8	0.8	**13.8**	0.9	0.3	0.0	0.0	0.1	0.1	0.0	0.0	-0.0	-0.0	0.1	30	13.8	1.8	0.0	0.8

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
59.0	50.2	-0.4	1.2	5.6	98.1 %
November 10 02:00	November 10 03:00	November 12 20:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.

Maximum daily values are **bold** within the table.

R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for April 2019

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April | 2019 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

April 2019						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.2	0.6	0.3	0.1	0.1	0.1	0.1	0.8	1.6	0.2	0.1	0.3	0.4	0.4	0.5	0.4	0.2	0.3	0.3	0.3	0.0	0.3	0.3	**2.2**	1	2.2	1.6	0.0	0.4
2	1.8	7.8	**28.0**	27.0	10.7	11.4	1.1	1.1	2.0	1.5	1.1	0.8	0.5	1.2	2.0	3.2	2.9	0.9	0.5	0.3	0.8	0.5	0.9	0.3	2	28.0	27.0	0.3	4.5
3	0.2	0.2	0.2	0.2	0.3	0.5	1.4	0.4	**7.4**	1.5	1.2	1.1	3.8	6.1	1.4	2.5	1.2	0.1	0.2	0.3	0.4	0.2	0.2	0.1	3	7.4	6.1	0.1	1.3
4	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.0	0.1	0.3	0.3	0.3	0.3	0.3	0.2	3.7	6.2	**9.0**	1.7	0.1	0.7	0.3	0.4	0.2	4	9.0	6.2	0.0	1.0
5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.8	4.3	0.4	14.5	12.4	**16.4**	0.8	0.5	0.3	0.1	0.0	0.2	0.2	0.1	5	16.4	14.5	0.0	2.2
6	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	**2.2**	1.6	0.5	0.4	0.6	0.3	0.2	0.1	0.1	CAL	CAL	0.5	0.6	0.5	6	2.2	1.6	0.1	0.4
7	0.4	0.3	0.3	0.3	0.4	0.2	0.2	0.2	0.5	0.3	0.1	0.3	1.2	1.4	0.8	1.5	1.4	**1.8**	1.1	0.6	0.6	0.6	0.3	0.3	7	1.8	1.5	0.1	0.6
8	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.5	**8.5**	1.1	0.8	0.9	0.7	1.7	6.3	1.0	0.8	0.5	0.2	0.4	0.4	0.3	8	8.5	6.3	0.2	1.1
9	0.3	0.3	0.4	0.3	0.4	0.3	0.4	0.6	1.1	0.9	**1.5**	1.2	PMA	PMA	CAL	CAL	0.2	0.0	0.0	0.2	0.2	0.2	-0.0	0.2	9	1.5	1.2	0.0	0.4
10	0.0	0.0	0.0	-0.1	-0.1	-0.0	-0.1	-0.0	0.1	0.1	**0.4**	0.2	0.1	0.1	-0.1	0.1	0.1	0.1	0.1	0.1	-0.3	0.0	-0.0	-0.1	10	0.4	0.2	-0.3	0.0
11	-0.1	0.1	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.2	0.2	-0.1	-0.2	**0.3**	-0.1	-0.1	11	0.3	0.2	-0.2	-0.1
12	-0.2	0.1	0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	0.1	-0.0	0.1	**0.4**	-0.3	0.2	0.1	-0.1	12	0.4	0.2	-0.3	-0.0
13	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.5	**0.8**	-0.0	0.6	0.4	0.2	0.0	-0.1	-0.0	0.0	0.4	0.1	0.4	SPN	SPN	0.4	0.2	0.3	13	0.8	0.6	-0.1	0.2
14	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.6	0.4	0.4	0.4	0.3	0.4	1.0	**1.2**	0.7	0.5	0.3	14	1.2	1.0	0.2	0.4
15	0.3	0.2	0.3	0.3	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.2	0.3	**15.3**	6.0	1.2	15	15.3	6.0	0.1	1.2
16	2.4	0.8	0.8	0.6	1.4	1.2	1.0	1.2	1.8	1.8	2.8	QAS	5.7	1.7	1.6	1.3	1.3	1.2	1.1	1.1	0.6	0.8	0.6	**16.2**	16	16.2	5.7	0.6	2.1
17	2.5	0.7	0.6	0.4	0.9	0.9	1.0	1.0	1.1	**10.9**	0.6	0.5	1.1	1.9	0.7	1.1	0.4	1.7	0.4	0.4	0.3	0.2	0.2	0.2	17	10.9	2.5	0.2	1.2
18	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.4	0.3	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.9	**2.0**	18	2.0	0.9	0.1	0.3
19	**0.7**	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.4	0.6	0.6	0.5	0.4	19	0.7	0.6	0.1	0.3
20	0.4	0.4	0.4	2.3	2.4	1.1	4.6	**27.6**	7.9	1.2	1.3	16.4	6.3	5.3	0.7	0.5	0.4	0.5	3.7	SPN	SPN	0.6	0.5	0.8	20	27.6	16.4	0.4	3.9
21	28.7	**47.1**	6.8	1.2	1.3	0.9	0.6	0.6	0.5	0.4	0.2	0.3	0.3	0.1	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	21	47.1	28.7	0.1	3.8
22	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.3	0.1	0.2	0.5	**1.0**	0.2	0.1	0.2	-0.0	0.8	0.3	0.2	22	1.0	0.8	-0.0	0.3
23	0.3	0.4	0.2	0.3	0.4	0.2	0.1	0.2	0.6	0.2	0.1	PMA	0.4	**1.1**	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.3	0.3	0.2	23	1.1	0.6	0.0	0.3
24	0.0	0.2	0.1	0.2	0.2	0.2	NEG	0.3	0.2	0.1	0.1	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.2	**0.4**	-0.1	0.1	0.3	0.3	24	0.4	0.3	-0.1	0.2
25	0.3	**0.5**	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.5	0.4	-0.2	0.2	0.1	0.1	25	0.5	0.5	-0.2	0.2
26	0.1	0.2	0.3	0.1	0.1	0.2	0.1	0.2	0.3	0.2	0.2	9.5	2.0	24.0	26.6	19.3	28.8	**28.9**	10.3	11.4	19.6	2.8	7.5	0.5	26	28.9	28.8	0.1	8.1
27	0.3	0.3	0.5	0.5	0.4	0.4	0.5	0.6	0.5	**0.7**	0.5	0.7	0.4	0.2	0.2	0.3	0.2	0.4	0.2	SPN	SPN	0.2	0.2	0.2	27	0.7	0.7	0.2	0.4
28	0.2	-0.0	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.6	**0.7**	0.6	0.6	0.4	0.4	0.2	0.3	0.4	0.3	0.4	0.4	0.4	28	0.7	0.6	-0.0	0.3
29	0.4	0.7	0.9	0.7	0.3	0.1	0.1	0.1	0.1	0.0	-0.0	0.0	0.0	0.4	1.2	**1.3**	0.4	0.0	0.1	0.1	-0.1	0.2	0.1	0.1	29	1.3	1.2	-0.1	0.3
30	0.0	0.1	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.4	0.3	0.2	**1.2**	0.2	0.3	0.4	0.1	0.3	0.2	0.2	30	1.2	0.4	0.0	0.3

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
47.1	28.9	-0.3	1.2	4.0	97.9 %
April 21 01:00	April 26 17:00	April 10 20:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for April 2020

Select a New Site, Different Parameters, or Change Report Options

Select a date:

April | 2020 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

April 2020						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Av
1	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.6	0.9	0.7	0.8	0.8	0.8	1.0	1.0	0.8	0.3	0.5	0.6	0.6	0.4	0.3	0.4	0.5	1	1.0	1.0	0.2	0.5
2	0.5	0.5	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.0	0.6	0.2	0.2	0.2	2	0.6	0.6	0.0	0.3
3	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	PMA	-0.0	0.1	0.1	0.1	1.0	1.2	0.2	0.2	0.2	0.1	0.1	0.2	3	1.2	1.0	0.0	0.2
4	0.4	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.6	0.5	0.3	1.3	0.4	0.3	0.3	0.3	0.2	0.2	CAL	CAL	-0.0	-0.0	0.1	4	1.3	0.6	0.0	0.3
5	-0.0	-0.0	-0.0	-0.0	0.0	-0.1	-0.1	12.5	47.5	25.9	11.4	6.3	0.5	0.4	0.4	0.3	0.4	0.3	0.2	0.4	0.3	0.4	0.4	0.2	5	47.5	25.9	-0.1	4.5
6	0.1	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.4	0.1	0.0	0.2	0.2	0.2	0.2	-0.0	-0.3	-0.2	0.1	0.3	6	0.4	0.4	-0.3	0.1
7	0.5	0.3	0.0	-0.0	0.1	0.0	0.0	0.1	0.0	-0.1	0.2	0.4	-0.1	-0.1	-0.1	-0.0	-0.0	0.0	0.0	2.2	-0.3	-0.3	-0.2	0.0	7	2.2	0.5	-0.3	0.1
8	0.1	0.1	0.1	0.1	0.0	-0.0	-0.0	0.0	-0.1	0.1	0.2	0.4	QAS	QAS	QAS	0.1	0.2	0.2	0.2	0.1	-0.1	-0.2	0.2	0.2	8	0.4	0.2	-0.2	0.1
9	0.1	0.1	0.0	0.1	6.8	0.3	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	-0.1	0.1	0.0	0.1	9	6.8	0.3	-0.1	0.4
10	-0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.4	1.7	15.2	1.4	0.3	0.3	0.3	0.2	0.2	0.1	-0.0	0.2	0.2	-0.0	10	15.2	1.7	-0.0	0.9
11	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.1	SPN	0.0	0.1	0.3	0.2	11	0.4	0.4	0.0	0.2
12	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	12	0.4	0.4	0.1	0.2
13	0.1	0.0	-0.0	-0.0	0.0	0.2	0.9	0.6	0.2	0.0	0.0	-0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	-0.0	0.1	-0.1	0.0	0.0	13	0.9	0.6	-0.1	0.1
14	-0.0	-0.0	-0.0	-0.0	0.0	-0.1	-0.0	0.0	-0.1	-0.0	1.0	12.6	2.3	0.6	0.2	0.1	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.0	14	12.6	2.3	-0.1	0.7
15	0.1	0.1	0.0	-0.0	0.0	0.0	-0.0	0.2	0.5	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.0	0.1	0.3	0.1	0.2	0.2	0.1	15	0.5	0.3	0.0	0.1
16	0.2	0.1	0.1	0.2	0.1	0.2	0.5	0.7	0.9	0.9	0.7	0.5	0.6	0.5	0.4	0.2	0.2	0.3	0.2	0.2	-0.2	0.0	0.1	0.1	16	0.9	0.9	-0.2	0.3
17	-0.0	0.1	0.0	-0.0	0.0	0.0	0.1	0.0	-0.0	-0.0	-0.0	0.0	0.1	0.2	0.9	0.6	0.3	0.2	0.3	0.2	0.1	0.1	0.0	0.1	17	0.9	0.6	-0.0	0.1
18	0.1	0.1	0.1	0.0	0.0	0.1	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.6	0.6	0.6	0.3	0.1	SPN	0.4	0.4	0.4	0.4	18	0.6	0.6	0.0	0.3
19	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.5	0.6	0.5	0.3	0.3	0.2	0.4	0.2	0.3	-0.0	0.2	0.3	0.3	19	0.6	0.5	-0.0	0.3
20	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	16.5	1.8	1.1	1.9	2.5	8.2	5.2	3.9	10.7	0.8	0.4	0.3	0.2	0.2	20	16.5	10.7	0.2	2.3
21	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	PMA	0.1	0.1	0.3	0.4	0.6	1.3	1.3	1.0	0.3	0.0	0.1	0.4	0.3	21	1.3	1.3	0.0	0.4
22	0.4	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.1	0.1	0.1	0.3	0.2	0.3	0.3	22	0.5	0.4	0.1	0.3
23	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.1	0.4	0.6	0.3	0.3	0.5	0.3	3.1	0.4	0.5	0.3	0.1	-0.0	0.2	0.3	23	3.1	0.6	-0.0	0.4
24	0.3	0.3	0.3	0.3	0.2	0.1	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.0	-0.0	0.4	0.4	0.3	0.1	24	0.4	0.4	0.0	0.3
25	0.2	0.3	0.3	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.3	0.5	0.4	0.3	0.2	2.6	1.8	2.0	SPN	0.2	0.3	0.2	0.2	25	2.6	2.0	0.1	0.5
26	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.4	0.4	0.3	0.3	0.3	0.6	0.8	0.7	0.5	0.5	0.5	0.4	0.5	0.3	0.3	0.4	0.4	26	0.8	0.7	0.1	0.4
27	0.3	10.6	1.9	0.9	0.8	0.6	0.4	0.3	0.4	0.4	0.7	0.7	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.0	0.3	0.4	27	10.6	1.9	0.0	0.9
28	0.4	0.4	0.5	5.1	9.3	0.9	0.7	0.6	0.5	0.5	0.9	0.7	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.6	0.1	0.1	0.4	0.4	28	9.3	5.1	0.1	1.0
29	0.3	0.6	0.5	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.4	0.5	0.5	0.3	0.3	0.3	0.3	0.3	-0.1	0.2	0.2	0.3	29	0.6	0.5	-0.1	0.3
30	0.2	0.2	0.2	0.3	0.4	159.3	107.2	48.2	3.4	1.0	1.1	0.8	0.5	0.4	0.5	2.5	0.8	0.9	8.5	33.7	0.3	0.5	0.5	0.4	30	159.3	107.2	0.2	15.

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Av

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
159.3	107.2	-0.3	1.1	7.9	98.6 %
April 30 05:00	April 30 06:00	April 6 20:00	-- -- -- --	-- -- -- --	-- -- -- --

Maximum daily values are **bold** within the table.

R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.

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Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for August 2019

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Select a date:

August 2019 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

August 2019	Sulfur Dioxide MDL (POC 1 R) measured in parts per billion																			Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	QAS	AQI	AQI	AQI	QAS	PMA	CAL	CAL	CAL	**24.3**	10.8	0.8	0.8	0.9	12.3	1	24.3	12.3	0.8	8.3
2	13.0	**25.1**	21.3	13.9	1.1	1.0	1.1	1.1	SPN	SPN	0.6	0.6	0.7	0.7	0.6	1.4	0.5	0.7	0.6	0.7	1.0	0.5	3.4	0.5	2	25.1	21.3	0.5	4.1
3	0.5	0.3	0.3	0.4	0.2	0.4	0.5	0.2	1.0	2.4	**2.8**	1.2	0.7	1.0	0.8	0.5	0.3	0.4	0.4	SPN	0.4	0.2	0.1	0.0	3	2.8	2.4	0.0	0.7
4	0.0	0.1	0.1	0.1	0.1	0.0	-0.0	0.2	0.6	0.3	0.2	**1.4**	0.4	0.1	0.0	0.1	0.5	0.2	0.1	0.1	0.4	0.7	0.3	0.2	4	1.4	0.7	0.0	0.3
5	-0.0	-0.1	0.2	-0.1	0.1	0.0	-0.1	0.0	3.0	6.0	5.1	9.5	10.5	6.0	2.4	**20.2**	1.5	0.5	0.3	0.1	0.2	0.2	-0.1	1.2	5	20.2	10.5	-0.1	2.8
6	0.2	-0.0	0.1	0.1	0.1	0.0	0.1	0.0	14.3	**43.2**	29.5	10.6	1.5	0.6	1.2	15.5	5.2	0.9	4.0	1.3	0.3	0.4	0.6	0.2	6	43.2	29.5	-0.0	5.4
7	0.1	0.1	12.9	**16.9**	1.3	1.5	1.6	1.2	1.0	0.8	0.6	0.3	0.2	1.1	5.9	0.8	0.2	0.3	0.5	0.3	0.3	0.5	0.4	0.3	7	16.9	12.9	0.1	2.0
8	0.2	0.3	1.3	0.3	0.1	**37.6**	17.8	1.8	0.9	1.5	20.8	34.1	26.7	21.2	7.3	2.5	0.9	0.5	0.1	0.1	0.5	0.1	0.1	0.2	8	37.6	34.1	0.1	7.4
9	-0.2	0.0	0.2	0.2	0.1	0.0	-0.1	-0.0	0.3	0.6	0.5	3.0	3.3	5.0	**7.8**	1.7	2.9	3.3	0.6	0.4	1.2	0.2	0.1	0.1	9	7.8	5.0	-0.2	1.3
10	2.4	0.2	0.3	0.1	0.0	-0.0	-0.0	0.2	0.2	6.1	3.8	1.3	1.0	1.7	**7.7**	3.6	0.6	0.4	0.3	SPN	0.5	0.6	0.3	0.2	10	7.7	6.1	0.0	1.4
11	0.3	1.2	0.4	**46.3**	7.1	3.0	14.4	1.9	1.6	1.4	1.1	8.8	3.6	6.3	4.6	0.8	0.9	0.7	0.5	0.2	0.4	0.3	0.1	0.2	11	46.3	14.4	0.1	4.4
12	0.0	0.2	0.2	0.0	0.1	0.2	0.2	0.9	**5.7**	1.1	1.0	0.9	1.3	1.2	4.3	2.0	1.1	0.5	0.3	0.3	0.6	0.3	-0.0	0.0	12	5.7	4.3	0.0	0.9
13	0.0	-0.0	0.0	-0.0	0.1	-0.0	-0.0	0.0	0.1	1.2	**2.3**	1.4	PMA	PMA	0.3	0.1	0.2	0.2	0.1	0.1	0.2	0.3	0.6	0.0	13	2.3	1.4	0.0	0.3
14	0.3	-0.1	-0.1	0.0	0.1	-0.0	0.1	0.0	0.1	0.2	0.5	0.2	2.3	10.8	28.0	**30.3**	22.4	8.9	1.6	0.7	0.7	0.7	0.3	0.1	14	30.3	28.0	-0.1	4.5
15	0.2	0.2	0.3	0.2	2.1	0.3	0.1	0.2	0.4	**10.6**	8.8	0.6	0.5	0.4	0.4	0.3	2.0	0.4	0.2	0.2	0.2	0.5	0.4	0.2	15	10.6	8.8	0.1	1.2
16	8.8	84.1	**117.8**	86.7	74.8	31.2	2.1	1.2	4.6	0.9	0.6	0.4	1.2	4.8	1.6	9.0	11.6	0.6	0.5	0.4	0.6	0.4	0.4	0.3	16	117.8	86.7	0.3	18.5
17	0.2	0.4	0.3	0.1	1.1	0.2	0.4	0.4	**8.0**	1.6	1.1	0.6	1.4	3.9	0.4	0.4	0.3	3.1	0.4	SPN	0.4	0.3	0.2	0.1	17	8.0	3.9	0.1	1.1
18	0.2	0.1	0.1	0.3	**20.3**	8.8	1.5	1.4	1.3	1.1	0.3	0.2	0.3	0.3	0.4	0.3	0.4	0.3	0.3	0.5	0.5	0.6	0.3	0.3	18	20.3	8.8	0.1	1.7
19	0.3	0.2	0.2	0.1	0.1	0.0	0.1	**32.1**	4.5	3.2	2.6	10.0	9.4	6.5	15.4	11.1	5.2	0.7	0.4	0.4	0.1	0.3	0.2	0.6	19	32.1	15.4	0.0	4.3
20	0.2	0.0	-0.1	28.1	**112.7**	67.1	27.8	2.3	0.8	0.7	0.5	0.3	4.4	1.6	2.4	19.4	4.4	5.5	1.6	0.2	0.2	0.2	2.2	22.3	20	112.7	67.1	-0.1	12.1
21	1.5	0.2	0.2	0.1	0.1	2.5	**47.8**	5.8	1.3	0.8	0.5	0.3	17.4	9.1	1.0	0.6	5.2	2.1	0.3	0.1	0.1	-0.0	-0.0	-0.0	21	47.8	17.4	-0.0	4.0
22	0.0	0.1	0.0	0.4	0.1	0.1	-0.0	0.0	0.2	0.2	0.5	**6.6**	1.1	1.2	5.1	0.6	0.2	0.2	0.3	0.4	0.1	0.2	0.1	0.3	22	6.6	5.1	0.0	0.8
23	6.4	1.5	0.3	0.3	0.3	0.3	0.1	0.2	-0.1	2.2	1.3	**11.5**	3.2	0.5	0.2	0.2	0.2	0.2	0.1	0.2	0.4	-0.0	-0.1	-0.1	23	11.5	6.4	-0.1	1.2
24	-0.1	0.1	0.1	0.0	0.0	-0.0	-0.1	0.1	1.1	0.3	-0.0	0.0	2.7	3.6	3.8	11.4	11.8	**17.3**	0.8	CAL	CAL	0.6	0.2	-0.0	24	17.3	11.8	-0.1	2.4
25	0.0	-0.1	0.1	0.4	**11.3**	1.1	0.2	0.4	3.8	2.9	0.6	0.6	1.5	1.2	0.7	0.5	0.5	0.5	0.3	0.3	0.5	0.4	0.2	0.2	25	11.3	3.8	-0.1	1.2
26	0.2	0.2	0.0	-0.0	-0.0	-0.0	0.2	0.3	0.5	0.4	0.3	0.2	0.2	0.3	0.2	0.2	**0.7**	0.3	0.2	0.1	0.5	0.2	0.1	-0.2	26	0.7	0.5	-0.2	0.2
27	0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.2	-0.1	-0.2	-0.2	-0.1	-0.0	-0.0	-0.1	-0.1	0.0	-0.0	-0.1	**0.3**	-0.1	-0.0	0.0	27	0.3	0.1	-0.2	-0.1
28	0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.0	6.9	**27.8**	16.4	PMA	16.6	1.2	0.4	0.3	0.2	0.4	0.1	0.1	0.0	28	27.8	16.6	-0.2	3.0
29	0.2	-0.1	0.2	0.0	-0.1	0.2	0.0	1.0	**54.0**	13.0	6.3	QAS	QAS	6.1	18.7	7.0	10.8	9.6	2.2	2.5	0.6	0.4	0.3	0.3	29	54.0	18.7	-0.1	6.1
30	**9.8**	0.8	0.4	0.3	0.4	0.3	0.2	0.3	2.4	0.9	0.2	0.1	0.3	0.3	0.2	0.2	0.1	0.2	0.3	0.4	0.3	0.3	0.4	0.1	30	9.8	2.4	0.1	0.8

31	-0.0	-0.1	-0.1	-0.1	-0.1	-0.0	-0.1	0.3	0.7	1.7	0.3	0.4	0.5	0.1	0.1	0.1	0.0	0.1	0.1	SPN	0.2	-0.0	-0.4	**3.0**	**31**	3.0	1.7	-0.4	0.3
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
117.8	112.7	-0.4	3.2	10.3	95.8 %
August 16 02:00	August 20 04:00	August 31 22:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for December 2018

Select a New Site, Different Parameters, or Change Report Options

Select a date:

December 2018 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

December 2018						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Av
1	0.1	0.1	0.0	0.1	0.0	-0.0	0.0	0.0	0.0	0.1	0.1	-0.1	-0.0	0.0	-0.0	0.1	-0.0	-0.1	-0.1	SPN	SPN	0.1	0.1	0.1	1	0.1	0.1	-0.1	0.0
2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.1	0.1	0.3	0.1	0.1	2	0.3	0.1	-0.1	0.1
3	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	-0.1	-0.1	-0.1	-0.0	0.1	0.5	0.1	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	3	0.5	0.1	-0.1	-0.
4	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.0	0.3	-0.1	-0.1	-0.1	-0.1	-0.1	4	0.3	-0.0	-0.2	-0.
5	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	0.0	1.7	1.2	2.1	8.4	10.3	4.8	1.2	7.7	47.1	62.4	66.4	19.0	14.3	113.1	54.7	2.1	5	113.1	66.4	-0.2	17.
6	1.0	0.8	0.6	0.1	0.1	0.0	-0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	1.2	0.7	-0.1	-0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	6	1.2	1.0	-0.2	0.
7	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	QAS	QAS	1.0	12.8	5.3	2.0	1.5	1.5	1.3	0.2	0.3	0.1	0.1	0.0	0.1	7	12.8	5.3	-0.2	1.
8	0.1	0.1	0.0	0.0	0.2	2.8	1.5	0.1	0.0	-0.0	-0.1	-0.1	2.5	3.9	1.1	0.2	0.1	-0.1	0.1	SPN	SPN	0.5	0.4	0.3	8	3.9	2.8	-0.1	0.
9	0.3	0.3	0.1	0.3	0.4	0.3	0.3	0.3	0.4	0.5	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.6	1.0	1.1	1.6	9	1.6	1.1	0.1	0.
10	2.6	2.0	2.0	1.1	0.6	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.1	0.3	0.2	0.3	0.4	0.4	0.4	2.5	1.1	1.4	10	2.6	2.5	0.1	0.
11	2.9	0.7	0.6	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.9	0.7	0.6	0.7	11	2.9	0.9	0.3	0.
12	0.5	0.6	0.6	0.6	0.6	0.4	0.5	0.5	0.6	0.7	1.6	2.3	1.5	0.9	0.8	0.6	0.7	0.4	0.5	0.5	0.4	0.6	0.5	0.4	12	2.3	1.6	0.4	0.
13	0.5	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	13	0.6	0.5	0.2	0.
14	-0.1	0.0	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.1	0.3	0.2	0.4	14	0.4	0.4	-0.1	0.
15	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.3	0.3	0.4	0.3	0.2	0.3	0.2	0.3	0.3	CAL	CAL	0.1	-0.0	-0.0	15	0.5	0.4	-0.0	0.
16	0.0	0.0	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.4	1.6	0.6	0.1	0.1	0.1	-0.1	0.0	-0.0	0.0	16	1.6	0.6	-0.1	0.
17	-0.0	-0.0	0.0	0.0	0.0	-0.1	0.1	-0.0	0.0	0.3	0.6	1.7	0.9	0.6	4.0	0.2	0.5	0.3	0.2	0.1	0.3	16.9	3.9	3.3	17	16.9	4.0	-0.1	1.
18	29.4	2.3	2.1	2.0	1.8	1.6	1.1	0.7	0.9	1.4	5.9	2.8	2.6	1.8	1.4	1.2	0.8	0.7	0.9	0.5	0.4	0.6	0.6	0.4	18	29.4	5.9	0.4	2.
19	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.4	0.3	0.4	0.3	0.3	0.1	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.3	0.3	19	0.4	0.4	0.0	0.
20	0.1	0.1	0.1	0.1	0.1	0.0	0.0	-0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	20	0.2	0.2	0.0	0.
21	0.0	0.0	0.0	0.1	0.2	1.5	3.3	1.7	0.7	0.4	0.3	0.3	0.3	0.3	0.3	28.7	0.9	0.3	0.3	1.3	0.2	0.2	0.2	0.1	21	28.7	3.3	0.0	1.
22	0.1	0.1	0.0	0.3	0.2	0.2	0.4	0.2	0.2	0.3	0.3	0.3	0.5	9.3	36.8	0.9	0.3	0.3	0.2	SPN	SPN	0.8	0.2	0.2	22	36.8	9.3	0.0	2.
23	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.2	0.7	0.2	0.2	12.8	54.7	132.8	114.0	23	132.8	114.0	0.1	13.
24	50.8	2.7	1.5	8.2	9.7	2.3	1.4	1.0	0.8	0.8	0.8	0.7	0.6	0.5	0.5	0.2	0.2	0.3	0.3	0.4	0.3	0.4	0.4	0.3	24	50.8	9.7	0.2	3.
25	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.6	0.4	0.5	0.5	0.5	0.6	0.6	0.9	1.1	0.8	0.5	0.4	0.5	0.5	0.4	25	1.1	0.9	0.2	0.
26	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.6	1.1	0.7	0.5	0.5	26	1.1	0.7	0.3	0.
27	0.4	0.5	0.4	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.3	0.2	0.4	0.4	0.4	0.3	0.3	0.3	0.1	0.2	0.3	0.3	27	0.6	0.5	0.1	0.
28	0.2	0.3	0.3	0.3	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	-0.0	0.1	0.1	0.0	28	0.3	0.3	0.0	0.
29	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	SPN	SPN	0.1	0.1	0.2	29	0.2	0.2	0.1	0.
30	0.1	-0.0	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.9	0.5	1.5	1.4	0.4	0.4	30	1.5	1.4	-0.0	0.

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Av
31	2.2	**9.4**	2.0	0.5	0.5	0.4	0.3	0.3	0.3	0.4	0.6	0.7	0.6	0.8	0.3	0.3	0.3	0.2	0.1	0.2	-0.0	0.1	0.1	0.1	31	9.4	2.2	-0.0	0.9

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
132.8	114.0	-0.2	1.7	9.5	98.4 %
December 23 22:00	December 23 23:00	December 4 02:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.

Maximum daily values are **bold** within the table.

R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for February 2019

Select a New Site, Different Parameters, or Change Report Options

Select a date:

February 2019 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

February 2019	Sulfur Dioxide MDL (POC 1 R) measured in parts per billion																			Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.4	0.6	1.2	1.0	**7.1**	6.7	0.5	1.1	0.6	0.6	0.6	0.5	0.3	0.4	0.3	0.3	1	7.1	6.7	0.3	1.0
2	0.3	0.2	**7.1**	4.1	1.0	1.7	0.9	0.8	0.9	1.0	0.8	0.6	0.5	0.4	0.5	0.5	0.5	0.3	0.4	SPN	SPN	0.2	0.1	0.1	2	7.1	4.1	0.1	1.0
3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	**0.2**	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	-0.0	0.0	0.1	0.0	3	0.2	0.2	0.0	0.1
4	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.2	-0.1	0.1	0.1	0.2	0.2	0.1	0.1	**0.5**	0.2	0.1	4	0.5	0.2	-0.1	0.1
5	0.1	0.1	0.1	1.2	1.5	0.3	0.4	0.4	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.2	2.5	0.7	0.2	4.0	**7.1**	1.0	0.2	5	7.1	4.0	0.1	0.9
6	0.1	0.1	0.3	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.9	**13.0**	0.2	0.2	0.2	0.1	0.1	0.2	0.1	-0.0	-0.0	6	13.0	0.9	-0.0	0.7
7	**0.1**	0.1	0.0	-0.0	-0.0	0.0	-0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.1	-0.1	0.0	-0.1	-0.1	-0.2	-0.2	7	0.1	0.1	-0.2	-0.1
8	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1.8	**2.1**	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	8	2.1	1.8	-0.2	0.0
9	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.1	-0.0	-0.1	-0.0	-0.0	-0.0	CAL	CAL	0.0	**12.0**	0.8	9	12.0	0.8	-0.2	0.5
10	15.6	23.3	5.5	0.7	0.6	0.5	0.4	0.3	0.3	0.4	0.4	0.5	0.3	0.3	0.4	0.3	0.2	0.4	0.5	0.5	0.3	0.4	0.4	**31.4**	10	31.4	23.3	0.2	3.5
11	**3.4**	3.3	2.4	0.8	0.6	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.2	11	3.4	3.3	0.0	0.6
12	0.1	0.1	0.1	0.1	0.1	0.1	0.0	-0.1	0.0	0.1	0.2	0.2	PMA	0.3	3.1	0.2	0.6	0.0	0.3	1.8	**23.0**	0.4	1.9	0.4	12	23.0	3.1	-0.1	1.4
13	0.1	-0.2	0.2	0.2	0.3	**0.4**	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.3	13	0.4	0.4	-0.2	0.2
14	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	-0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.0	0.6	0.3	0.2	0.3	1.4	**1.9**	14	1.9	1.4	-0.1	0.3
15	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	**5.5**	1.2	0.4	0.2	0.7	0.3	0.2	0.2	1.3	0.7	0.2	0.2	0.0	0.1	0.2	0.1	15	5.5	1.3	0.0	0.6
16	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.4	58.4	**88.7**	13.9	0.4	0.2	0.3	0.3	SPN	SPN	0.5	0.3	0.3	16	88.7	58.4	0.1	7.5
17	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	4.5	**7.7**	2.8	0.5	0.3	0.3	0.6	0.6	0.3	0.2	0.2	0.1	17	7.7	4.5	0.1	0.8
18	0.1	0.0	0.1	0.1	-0.0	-0.0	-0.1	-0.0	-0.0	-0.0	1.8	**2.3**	1.5	0.2	-0.0	0.0	0.1	0.0	0.0	-0.0	-0.2	0.0	0.0	-0.0	18	2.3	1.8	-0.2	0.2
19	0.1	0.0	0.0	-0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.2	0.1	**1.6**	19	1.6	0.2	0.0	0.1
20	**7.1**	0.7	0.4	0.4	0.2	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	-0.0	0.2	0.2	0.1	20	7.1	0.7	0.0	0.5
21	0.3	0.4	0.4	0.3	**6.3**	0.4	0.3	0.3	0.6	0.4	0.5	0.8	1.1	0.6	0.4	0.4	0.3	0.4	0.5	0.9	0.2	0.2	0.1	0.2	21	6.3	1.1	0.1	0.7
22	**0.3**	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.3	0.2	0.2	22	0.3	0.3	0.0	0.2
23	0.2	0.2	0.2	**0.3**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.0	0.0	0.1	0.2	SPN	SPN	0.0	-0.0	-0.1	23	0.3	0.3	-0.1	0.2
24	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	0.0	0.1	**0.2**	0.1	0.1	0.1	-0.1	-0.1	0.0	0.0	0.0	-0.0	-0.0	-0.3	-0.0	-0.1	-0.1	24	0.2	0.1	-0.3	-0.0
25	-0.0	-0.1	-0.1	-0.1	-0.0	0.0	-0.0	0.0	8.5	**47.1**	22.6	16.4	8.0	4.9	4.5	8.6	1.4	8.7	3.8	0.6	0.2	0.4	0.4	3.6	25	47.1	22.6	-0.1	5.8
26	5.7	0.0	-0.0	0.1	0.0	-0.0	-0.1	-0.1	-0.0	-0.1	-0.0	7.4	5.2	**18.7**	9.2	0.5	0.3	0.5	0.3	0.4	0.3	0.4	0.2	-0.0	26	18.7	9.2	-0.1	2.0
27	0.0	0.0	0.1	0.1	-0.0	0.1	-0.0	0.0	-0.0	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	0.1	0.1	0.1	0.2	**1.3**	-0.0	0.0	0.0	0.0	27	1.3	0.2	-0.1	0.1
28	0.0	-0.1	-0.0	-0.0	-0.1	-0.1	-0.0	-0.1	**3.2**	2.6	1.3	1.1	PMA	PMA	CAL	CAL	0.4	0.1	0.2	0.3	-0.1	0.0	0.0	0.1	28	3.2	2.6	-0.1	0.4
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
88.7	58.4	-0.3	1.0	5.2	98.1 %

February 16 13:00	February 16 12:00	February 24 20:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for February 2020

Select a New Site, Different Parameters, or Change Report Options

Select a date:

February 2020 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

February 2020						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.3	0.3	0.3	0.3	0.3	0.1	SPN	0.1	0.2	0.1	0.1	1	0.3	0.3	0.1	0.2
2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.4	1.4	0.0	0.2	0.4	0.6	0.4	0.4	0.3	2	1.4	0.6	0.0	0.2
3	0.3	0.3	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.3	2.0	3.6	1.1	0.3	0.3	0.4	1.5	0.5	3	3.6	2.0	0.2	0.6
4	0.4	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	-0.0	0.1	0.1	0.1	4	0.4	0.3	0.0	0.1
5	0.0	0.1	0.1	0.1	0.1	0.0	-0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.4	0.5	0.2	5	0.5	0.4	-0.2	0.2
6	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.3	0.3	0.3	6	0.4	0.3	0.1	0.3
7	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.5	0.2	0.3	1.7	0.4	7	1.7	0.5	0.1	0.3
8	0.2	0.2	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.3	32.4	61.5	36.0	6.3	0.5	0.4	0.5	0.5	0.5	CAL	CAL	0.6	0.7	0.9	8	61.5	36.0	0.0	6.5
9	0.8	0.7	1.0	1.8	1.1	0.5	0.3	0.3	0.4	0.4	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	3.6	9	3.6	1.8	0.1	0.5
10	1.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.4	0.3	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.6	4.4	0.6	0.4	10	4.4	1.3	0.1	0.4
11	0.2	0.2	0.5	1.3	0.3	0.2	0.2	0.1	0.1	0.3	0.5	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	11	1.3	0.5	0.1	0.3
12	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	12	0.3	0.3	-0.1	0.2
13	0.2	0.1	0.1	0.0	0.2	0.2	1.5	0.4	0.1	0.2	0.1	0.2	0.1	PMA	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	13	1.5	0.4	0.0	0.2
14	0.1	0.1	-0.1	0.0	0.1	0.1	0.1	0.1	0.1	5.3	4.0	0.8	4.5	0.7	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.3	0.4	14	5.3	4.5	-0.1	0.8
15	0.4	0.4	0.6	0.5	0.6	0.5	0.4	0.3	0.3	0.4	0.3	0.4	0.3	0.3	1.4	2.8	0.8	0.2	0.2	SPN	0.3	0.3	0.3	0.2	15	2.8	1.4	0.2	0.5
16	0.3	0.2	0.3	29.2	17.6	0.7	0.4	0.3	0.3	0.3	0.3	0.2	0.3	1.7	5.7	3.2	0.4	0.3	0.4	0.5	0.4	0.3	0.4	0.4	16	29.2	17.6	0.2	2.7
17	0.4	0.3	0.3	0.2	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.2	0.3	0.5	0.9	0.4	0.3	0.3	0.3	0.4	0.2	0.3	0.2	0.3	17	0.9	0.5	0.2	0.3
18	0.2	0.2	0.2	0.2	0.2	2.4	2.1	2.9	2.3	1.4	0.2	0.6	2.3	1.2	1.3	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.3	0.2	18	2.9	2.4	0.0	0.8
19	0.1	0.1	0.2	0.1	0.1	0.1	0.6	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	19	0.6	0.3	0.0	0.1
20	0.4	0.1	0.3	0.7	0.1	-0.0	-0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.1	-0.0	-0.0	-0.0	0.1	2.2	0.1	-0.1	-0.2	-0.0	0.0	-0.0	20	2.2	0.7	-0.2	0.1
21	-0.0	0.0	0.3	0.6	4.4	0.3	0.1	0.2	0.3	0.4	0.4	0.5	0.3	0.2	0.3	0.2	0.3	1.7	2.8	5.0	0.3	0.5	1.1	4.7	21	5.0	4.7	-0.0	1.0
22	3.2	2.7	0.9	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.2	0.3	0.3	0.3	0.2	0.4	0.5	SPN	0.4	0.4	0.4	0.6	22	3.2	2.7	0.2	0.6
23	0.7	0.5	0.4	0.6	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	-0.1	-0.1	0.2	0.1	0.0	0.2	-0.1	0.1	23	0.7	0.6	-0.1	0.2
24	0.1	0.1	0.2	0.1	0.0	-0.0	0.1	0.0	-0.0	-0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	-0.2	0.1	-0.0	0.0	24	0.2	0.2	-0.2	0.1
25	-0.0	-0.1	-0.0	0.0	-0.0	-0.1	-0.1	0.0	-0.0	-0.0	-0.1	0.0	-0.1	-0.1	-0.0	-0.1	-0.0	-0.1	-0.1	-0.1	-0.3	-0.1	-0.2	-0.2	25	-0.0	-0.0	-0.3	-0.1
26	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	PMA	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.1	-0.2	-0.1	26	-0.1	-0.1	-0.3	-0.2
27	-0.1	-0.2	-0.2	0.0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.2	-0.1	-0.2	-0.1	-0.2	-0.1	-0.1	0.1	-0.2	-0.2	-0.3	27	0.1	0.0	-0.3	-0.1
28	-0.2	-0.3	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.1	0.2	-0.1	-0.1	-0.1	-0.2	-0.2	0.6	0.1	-0.0	-0.1	-0.2	28	0.6	0.2	-0.3	-0.1
29	-0.2	-0.2	-0.0	-0.0	-0.1	23.9	64.0	46.9	1.6	1.6	12.4	0.6	0.3	0.3	1.6	0.3	1.8	0.0	-0.2	SPN	0.5	0.4	0.4	0.2	29	64.0	46.9	-0.2	6.8
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
64.0	61.5	-0.3	0.8	4.6	98.9 %
February 29 06:00	February 8 11:00	February 25 20:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.

Maximum daily values are **bold** within the table.

R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.

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Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for January 2019

Select a New Site, Different Parameters, or Change Report Options

Select a date:

January 2019 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

January 2019						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	-0.0	-0.0	0.1	0.0	-0.0	0.1	0.1	0.1	0.1	0.1	-0.1	0.1	0.0	0.1	1	0.2	0.1	-0.1	0.1
2	-0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.5	6.3	3.9	0.7	0.1	0.2	0.1	0.1	2	6.3	3.9	-0.0	0.6
3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.1	0.1	-0.0	0.2	0.2	0.2	3	0.4	0.3	-0.0	0.2
4	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.5	0.2	0.3	0.6	0.3	4	0.6	0.5	0.1	0.2
5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.0	0.2	0.3	0.2	0.2	0.3	3.9	SPN	SPN	0.1	-0.1	-0.1	5	3.9	0.3	-0.1	0.3
6	-0.0	-0.0	0.1	0.1	0.1	-0.1	-0.0	-0.0	0.0	-0.0	-0.0	0.1	0.0	0.1	0.2	0.1	-0.1	-0.1	0.1	0.1	-0.3	0.0	0.0	-0.0	6	0.2	0.1	-0.3	0.0
7	0.1	0.1	0.1	-0.1	-0.1	-0.1	-0.1	-0.0	-0.1	0.0	-0.0	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	-0.2	-0.2	-0.1	-0.2	-0.1	-0.2	-0.1	7	0.1	0.1	-0.2	-0.1
8	-0.1	-0.2	-0.1	-0.1	-0.2	-0.2	0.6	0.5	0.1	0.3	0.5	0.5	-0.1	0.6	0.7	-0.0	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	8	0.7	0.6	-0.2	0.0
9	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	2.3	0.9	0.1	-0.3	-0.2	25.8	32.5	5.2	0.4	1.6	16.8	0.1	-0.1	-0.1	2.5	37.2	61.8	9	61.8	37.2	-0.3	7.7
10	70.9	91.4	7.5	0.9	2.6	0.5	0.8	0.5	1.9	21.9	0.8	0.6	0.7	0.3	0.2	0.2	0.1	7.5	0.5	0.4	0.2	0.4	0.3	0.3	10	91.4	70.9	0.1	8.8
11	0.2	0.3	1.0	0.3	1.5	0.5	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	-0.0	-0.0	-0.1	0.0	-0.1	0.1	-0.1	-0.1	-0.0	11	1.5	1.0	-0.1	0.2
12	-0.1	-0.0	-0.1	-0.1	-0.2	0.0	-0.1	-0.1	-0.4	-0.2	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.3	-0.1	CAL	CAL	0.0	0.1	0.0	12	0.1	-0.0	-0.4	-0.1
13	-0.1	-0.0	0.0	-0.0	0.0	0.7	0.2	0.1	0.0	0.1	0.1	0.2	0.8	1.5	1.1	0.9	0.8	0.3	0.3	0.2	0.1	0.1	0.0	-0.0	13	1.5	1.1	-0.1	0.3
14	0.0	-0.0	-0.0	0.0	-0.0	0.1	0.0	-0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	14	0.3	0.3	0.0	0.1
15	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	QAS	QAS	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.2	15	0.2	0.2	0.0	0.1
16	0.2	0.2	0.1	0.2	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.2	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	16	0.2	0.2	0.0	0.1
17	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	2.8	6.6	2.9	1.9	1.4	1.2	0.4	0.4	0.3	0.1	0.2	0.2	0.2	17	6.6	2.9	0.0	0.8
18	1.2	2.4	0.4	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	18	2.4	1.2	0.1	0.3
19	0.1	0.0	0.1	0.1	0.0	-0.0	0.0	-0.0	0.0	0.1	0.0	0.0	0.0	-0.0	0.1	0.0	0.0	-0.0	0.0	SPN	SPN	0.1	0.2	0.2	19	0.2	0.2	0.0	0.0
20	0.1	0.0	0.1	0.1	0.2	11.1	26.4	23.2	1.5	1.2	1.2	1.0	0.7	0.4	0.5	2.4	0.3	0.3	0.3	0.2	0.4	0.3	0.4	0.6	20	26.4	23.2	0.0	3.0
21	2.7	0.7	0.5	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.3	0.4	0.5	0.3	0.6	0.6	0.3	0.5	0.6	0.6	0.6	0.7	0.6	0.6	21	2.7	0.7	0.3	0.6
22	0.8	0.9	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.1	22	0.9	0.8	0.1	0.3
23	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.4	0.4	0.0	0.2	23	0.4	0.4	0.0	0.2
24	0.3	0.3	0.3	0.2	0.2	0.2	2.2	0.8	2.5	0.4	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.5	0.3	0.2	0.2	0.1	0.0	0.1	24	2.5	2.2	0.0	0.4
25	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	25	0.2	0.2	0.1	0.2
26	0.2	0.2	0.2	1.7	0.4	0.3	0.2	0.2	0.3	0.6	1.1	0.8	0.4	0.5	0.6	0.4	0.2	0.1	0.1	SPN	SPN	0.2	0.2	0.2	26	1.7	1.1	0.1	0.4
27	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.6	0.4	0.4	0.4	27	0.6	0.4	0.2	0.3
28	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.1	0.2	0.2	0.1	0.2	0.2	0.1	28	0.4	0.4	0.0	0.2
29	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.5	0.5	0.4	0.4	QAS	0.5	0.4	0.3	0.4	0.7	0.5	19.8	20.9	17.5	11.8	29	20.9	19.8	0.1	3.3
30	0.7	0.5	0.4	0.3	0.3	0.2	0.4	1.0	0.7	0.8	1.1	1.1	1.4	3.5	0.7	1.4	1.9	0.9	1.0	0.4	0.2	0.4	0.5	0.9	30	3.5	1.9	0.2	0.9

31	13.6	**67.3**	3.6	1.4	0.9	0.6	0.4	0.4	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.3	1.4	0.3	0.4	0.3	0.3	**31**	67.3	13.6	0.2	3.9
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
91.4	70.9	-0.4	1.1	6.2	98.5 %
January 10 01:00	January 10 00:00	January 12 08:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for January 2020

Select a New Site, Different Parameters, or Change Report Options

Select a date:

January 2020 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

January 2020						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.6	1.4	1.1	1.0	0.9	0.7	0.5	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.4	1	1.4	1.1	0.2	0.5
2	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	PMA	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.2	0.3	2	0.4	0.4	0.2	0.3
3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.5	0.4	0.2	3	0.5	0.4	0.1	0.2
4	0.1	0.0	-0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.8	1.1	0.4	20.7	5.3	0.6	0.2	0.3	0.2	SPN	0.3	0.2	0.2	0.2	4	20.7	5.3	-0.1	1.3
5	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.7	0.4	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	5	0.7	0.4	0.0	0.2
6	0.2	0.2	0.1	0.2	0.4	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.1	-0.0	6	0.4	0.3	0.0	0.1
7	0.1	0.0	0.1	0.0	-0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	-0.0	0.7	0.9	0.3	0.1	0.2	0.1	0.3	1.5	0.5	7	1.5	0.9	0.0	0.2
8	1.9	1.7	0.9	0.7	0.5	0.4	0.3	0.8	0.9	-0.1	0.7	0.5	0.4	0.2	0.6	0.8	0.9	0.9	0.7	0.6	0.4	0.5	0.5	0.6	8	1.9	1.7	-0.1	0.7
9	0.8	0.8	0.6	0.5	0.4	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	9	0.8	0.8	0.2	0.3
10	0.4	0.4	0.4	0.5	0.3	0.4	0.4	0.5	0.3	0.6	0.3	0.3	0.6	0.6	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.3	10	0.6	0.6	0.1	0.3
11	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.6	0.4	0.3	0.8	0.6	4.2	0.5	CAL	CAL	0.1	2.4	15.6	11	15.6	4.2	0.1	1.2
12	0.5	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.1	0.0	-0.0	0.0	0.0	-0.0	0.0	0.1	-0.0	-0.0	-0.0	-0.0	0.9	2.7	12.5	2.3	12	12.5	2.7	0.0	0.8
13	36.1	43.7	62.2	18.6	9.8	0.7	0.7	0.9	0.7	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	13	62.2	43.7	0.0	7.3
14	0.0	0.0	-0.1	-0.0	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	-0.0	-0.1	PMA	0.1	0.1	0.2	0.4	0.2	0.2	0.2	0.2	14	0.4	0.2	-0.1	0.1
15	0.2	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	0.1	-0.0	0.0	0.6	2.6	2.4	1.1	0.9	2.3	0.4	0.1	0.4	-0.1	-0.1	-0.0	-0.2	15	2.6	2.4	-0.2	0.5
16	-0.1	-0.1	-0.2	-0.1	-0.2	-0.1	-0.1	-0.1	0.7	1.4	0.8	0.6	0.1	0.1	QAS	QAS	0.1	0.3	2.1	0.2	0.1	-0.0	-0.0	0.0	16	2.1	1.4	-0.2	0.2
17	-0.0	-0.0	0.1	0.0	0.1	4.7	18.8	FEW	AQI	LST	LST	LST	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	-0.2	-0.2	-0.2	-0.3	17	18.8	4.7	-0.3	2.1
18	-0.2	-0.4	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.1	0.6	1.6	0.1	-0.2	-0.2	-0.1	SPN	0.1	0.1	0.2	0.1	18	1.6	0.6	-0.4	-0.0
19	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.9	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	19	0.9	0.3	0.0	0.2
20	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	1.7	0.5	0.4	0.3	0.3	0.2	0.3	20	1.7	0.5	0.0	0.3
21	0.8	1.8	1.2	1.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.5	4.4	5.9	2.0	1.4	0.6	4.6	2.9	0.6	0.4	0.4	1.8	21	5.9	4.6	0.2	1.4
22	12.6	3.0	0.8	0.7	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	22	12.6	3.0	0.4	1.1
23	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	23	0.4	0.3	0.2	0.3
24	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.6	0.4	0.3	0.4	0.4	0.5	0.6	0.5	0.3	0.3	0.3	24	0.6	0.6	0.2	0.3
25	0.7	0.7	0.6	0.5	0.4	0.4	0.9	0.7	0.6	0.5	0.4	0.4	0.5	0.7	0.7	0.6	0.9	0.9	0.8	SPN	0.8	0.9	0.4	0.4	25	0.9	0.9	0.4	0.6
26	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.3	26	0.3	0.3	0.1	0.2
27	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.5	0.4	2.1	0.3	0.2	0.3	0.3	0.7	0.6	0.6	0.5	1.4	0.3	0.3	0.4	27	2.1	1.4	0.2	0.5
28	0.2	0.3	0.4	0.3	0.3	1.0	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	28	1.0	0.4	0.1	0.2
29	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.2	0.2	0.2	0.3	0.2	0.1	29	0.5	0.5	0.0	0.2
30	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	2.6	0.4	1.8	2.3	0.7	0.2	0.2	0.2	0.2	0.1	0.1	30	2.6	2.3	0.1	0.4

31	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1	QAS	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	**0.5**	0.4	0.3	0.3	**31**	0.5	0.4	0.0	0.2
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
62.2	43.7	-0.4	0.7	3.5	96.9 %
January 13 02:00	January 13 01:00	January 18 01:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

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CAMS 1077 Monthly Summary for July 2019

Select a New Site, Different Parameters, or Change Report Options

Select a date:

July 2019 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

July 2019						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time					Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	1				
2	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	2				
3	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	3				
4	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	4				
5	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	5				
6	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	SPN	AQI	AQI	AQI	AQI	6				
7	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	7				
8	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	8				
9	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	9				
10	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	10				
11	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	11				
12	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	12				
13	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	SPN	AQI	AQI	AQI	AQI	13				
14	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	14				
15	LST	LST	LST	LST	LST	LST	LST	LST	LST	LST	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	15				
16	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	16				
17	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	17				
18	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	QAS	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	18				
19	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	QAS	QAS	QAS	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	19				
20	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	SPN	AQI	AQI	AQI	AQI	20				
21	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	21				
22	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	22				
23	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	23				
24	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	24				
25	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	QAS	QAS	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	25				
26	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	26				
27	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	CAL	CAL	AQI	AQI	AQI	27				
28	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	28				
29	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	29				

30	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	PMA	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	**30**				
31	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	CAL	CAL	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	**31**				
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	**Monthly SH**	**Monthly Min**	**Monthly Avg**	**Monthly STD**	**Monthly Cap**
					%
			-- -- -- --	-- -- -- --	-- -- -- --

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CAMS 1077 Monthly Summary for June 2019

Select a New Site, Different Parameters, or Change Report Options

Select a date:

June 2019 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

June 2019						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	19.6	**77.5**	30.8	26.5	29.1	3.5	1.5	1.1	0.9	0.6	0.6	2.5	3.3	0.5	0.5	0.3	0.4	0.3	0.5	CAL	CAL	0.2	0.2	0.2	1	77.5	30.8	0.2	9.1
2	0.2	0.1	0.1	0.2	0.1	0.2	0.3	0.4	0.6	1.9	1.3	1.8	**5.0**	0.7	1.0	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.2	2	5.0	1.9	0.1	0.7
3	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.3	7.7	20.8	21.4	28.9	**41.2**	23.9	15.7	27.0	27.0	10.4	1.2	1.0	0.5	0.9	28.7	3	41.2	28.9	0.1	10.7
4	8.6	**41.0**	1.8	0.8	0.8	0.7	0.6	0.6	1.6	3.5	16.1	11.3	4.6	13.6	24.4	12.9	8.1	1.1	0.6	0.4	0.4	0.4	0.3	0.0	4	41.0	24.4	0.0	6.4
5	0.1	0.2	0.2	0.5	**6.1**	1.0	1.2	1.6	0.9	0.7	0.6	PMA	1.5	5.6	0.9	0.4	0.5	0.4	0.2	0.2	0.1	0.2	0.2	0.1	5	6.1	5.6	0.1	1.0
6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	**0.4**	0.3	0.3	0.3	0.1	0.3	0.4	0.2	0.2	0.3	0.2	0.2	0.1	0.1	6	0.4	0.4	0.1	0.2
7	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	**2.2**	2.0	0.9	1.0	0.4	0.1	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.3	0.1	0.0	7	2.2	2.0	0.0	0.4
8	0.3	0.2	0.2	0.1	0.2	0.4	0.2	0.2	5.3	**28.1**	20.0	19.4	8.1	19.4	13.2	7.8	2.4	0.8	0.7	SPN	SPN	0.4	0.2	0.4	8	28.1	20.0	0.1	5.8
9	-0.1	0.2	0.1	0.1	0.1	0.1	-0.0	-0.0	-0.1	0.0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.1	-0.2	-0.1	-0.1	-0.1	1.3	**3.1**	9	3.1	1.3	-0.2	0.1
10	**0.8**	0.2	0.0	0.2	-0.0	-0.2	-0.1	-0.2	-0.2	-0.3	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.3	10	0.8	0.2	-0.3	-0.1
11	-0.2	-0.2	-0.2	-0.0	-0.0	0.1	1.4	**58.8**	11.3	0.8	0.8	0.3	0.2	0.2	0.1	-0.1	-0.0	0.1	0.1	1.3	0.4	0.1	0.1	0.1	11	58.8	11.3	-0.2	3.1
12	**1.9**	0.4	0.2	0.1	0.0	0.1	0.1	0.2	0.1	0.0	0.0	-0.2	-0.1	-0.0	-0.1	-0.0	0.0	-0.0	-0.0	-0.0	0.1	-0.1	0.1	0.4	12	1.9	0.4	-0.2	0.1
13	0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.4	0.1	17.9	53.2	66.5	53.9	47.1	73.3	**95.4**	90.1	56.6	0.9	0.6	0.6	0.5	0.2	0.0	13	95.4	90.1	-0.1	23.2
14	0.1	0.1	0.1	0.1	0.0	0.0	0.2	1.7	**20.7**	1.0	0.5	0.3	0.2	0.3	2.2	0.9	0.4	0.5	0.4	0.7	0.5	0.4	0.3	0.2	14	20.7	2.2	0.0	1.3
15	0.2	0.4	0.3	0.5	0.2	0.2	0.1	0.2	0.3	0.3	0.1	0.3	0.2	0.3	1.0	0.4	0.2	0.4	**8.7**	SPN	SPN	0.4	0.3	0.4	15	8.7	1.0	0.1	0.7
16	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.6	0.4	0.4	0.3	0.3	0.4	0.5	0.7	**1.0**	0.6	0.3	0.4	0.3	16	1.0	0.7	0.3	0.4
17	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.7	1.0	2.2	9.5	11.0	**13.8**	0.5	0.3	0.4	0.3	0.4	0.4	0.6	0.4	0.5	0.1	0.5	17	13.8	11.0	0.1	1.9
18	0.6	2.0	26.3	20.8	9.1	0.7	0.6	0.5	0.6	0.3	0.5	0.4	0.5	0.6	7.7	11.2	15.5	2.0	4.8	**34.7**	2.9	0.8	0.4	0.9	18	34.7	26.3	0.3	6.0
19	0.6	0.5	0.4	0.4	0.3	0.4	0.5	0.7	0.7	1.0	1.3	0.9	0.7	0.5	0.6	0.4	0.5	0.6	0.5	0.4	1.5	**1.6**	0.9	0.6	19	1.6	1.5	0.3	0.7
20	0.5	0.5	0.6	0.5	0.4	0.5	0.6	**9.5**	1.7	PMA	PMA	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	20	9.5	1.7	0.4	1.6
21	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	21				
22	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	SPN	AQI	AQI	AQI	AQI	22				
23	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	23				
24	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	24				
25	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	25				
26	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	26				
27	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	27				
28	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	28				
29	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	CAL	CAL	AQI	AQI	AQI	29				
30	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	30				

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
95.4	90.1	-0.3	3.7	11.5	63.6 %
June 13 15:00	June 13 16:00	June 10 09:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.

Maximum daily values are **bold** within the table.

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CAMS 1077 Monthly Summary for March 2019

Select a New Site, Different Parameters, or Change Report Options

Select a date:

March | 2019 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

March 2019						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.0	0.0	-0.1	-0.1	-0.0	0.0	-0.1	0.0	0.0	0.1	0.0	-0.1	-0.1	0.1	-0.3	0.0	0.4	**1.6**	-0.0	-0.1	-0.2	-0.0	0.1	0.5	1	1.6	0.5	-0.3	0.1
2	-0.0	-0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	SPN	SPN	**0.2**	0.2	0.2	2	0.2	0.2	-0.2	-0.1
3	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.4	0.8	0.6	1.4	**2.3**	0.4	0.4	3	2.3	1.4	0.1	0.4
4	0.4	0.8	1.4	**1.6**	0.9	0.4	0.8	0.3	0.2	0.2	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	-0.0	0.2	0.1	0.1	4	1.6	1.4	0.0	0.4
5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.4	**0.9**	0.2	0.2	0.3	0.1	-0.1	0.1	0.0	0.1	5	0.9	0.4	-0.1	0.2
6	0.2	0.2	0.9	**24.6**	20.4	18.5	7.7	0.9	0.8	1.8	3.4	2.0	0.9	0.9	3.4	13.8	QAS	QAS	QAS	SPZ	1.0	17.3	3.2	2.4	6	24.6	20.4	0.2	6.2
7	2.6	2.2	1.4	0.9	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.2	0.3	0.4	0.3	0.3	0.0	0.1	0.6	1.0	**3.3**	7	3.3	2.6	0.0	0.7
8	1.3	0.7	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.7	3.1	5.8	3.6	1.9	0.9	0.6	0.5	0.4	0.5	0.6	12.9	**38.1**	0.6	0.5	8	38.1	12.9	0.2	3.1
9	0.4	0.4	0.4	**0.5**	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.1	0.2	0.3	0.0	0.2	0.2	0.2	0.3	CAL	CAL	0.1	0.1	0.2	9	0.5	0.4	0.0	0.3
10	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	-0.0	0.0	0.1	0.1	**0.2**	0.1	0.1	0.2	0.1	0.1	-0.1	0.1	0.1	0.0	10	0.2	0.2	-0.1	0.1
11	-0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	QAS	QAS	0.1	**0.2**	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	11	0.2	0.2	-0.0	0.1
12	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.3	**0.4**	0.4	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.4	12	0.4	0.4	0.0	0.3
13	0.8	0.6	0.5	**4.8**	0.8	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.6	0.5	0.3	0.4	0.3	0.3	0.3	0.3	13	4.8	0.8	0.3	0.7
14	0.2	0.2	0.2	0.2	**0.3**	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	-0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	14	0.3	0.2	-0.2	0.1
15	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	4.1	**17.1**	4.9	0.8	0.4	0.0	-0.1	0.1	0.0	0.0	15	17.1	4.9	-0.1	1.2
16	0.0	0.1	**2.4**	0.6	0.3	0.2	0.1	0.2	0.4	0.6	0.4	0.2	0.5	0.7	0.6	0.2	1.6	0.4	0.4	SPN	SPN	0.3	0.9	0.4	16	2.4	1.6	0.0	0.5
17	0.3	0.2	0.3	0.3	0.2	0.1	0.3	0.4	0.6	0.6	0.6	0.7	0.8	**2.5**	0.6	0.5	1.0	0.6	0.6	0.5	0.3	0.3	0.4	0.3	17	2.5	1.0	0.1	0.5
18	0.8	0.4	1.6	0.6	0.4	0.3	0.3	0.2	0.5	0.5	0.5	0.6	2.4	**11.7**	8.6	5.5	8.9	3.8	0.4	0.4	0.1	0.5	0.5	0.3	18	11.7	8.9	0.1	2.1
19	0.5	0.5	2.3	**14.7**	1.1	1.3	1.2	0.8	0.6	0.6	0.6	0.6	0.7	0.8	0.5	0.4	0.5	0.4	0.3	1.2	0.2	0.4	0.3	0.3	19	14.7	2.3	0.2	1.3
20	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.2	0.3	0.4	0.4	0.2	0.3	0.1	0.3	0.2	**0.5**	0.2	0.3	0.1	0.3	0.3	0.2	20	0.5	0.4	0.1	0.2
21	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.4	0.6	0.8	**1.0**	1.0	0.6	0.3	0.3	0.2	0.3	0.3	0.4	21	1.0	1.0	0.2	0.4
22	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.7	0.7	0.7	0.4	0.5	0.4	0.6	1.9	0.5	0.6	0.8	**2.2**	0.6	0.3	0.4	0.4	0.4	22	2.2	1.9	0.3	0.6
23	0.3	0.4	0.4	0.1	0.3	0.4	0.4	0.4	0.3	0.3	**0.5**	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.2	SPN	SPN	0.2	0.1	0.1	23	0.5	0.4	0.1	0.3
24	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.9	**1.2**	0.6	0.6	0.2	0.3	0.2	0.0	0.2	0.2	0.1	24	1.2	0.9	0.0	0.2
25	-0.0	0.0	0.1	-0.0	0.1	0.1	-0.0	0.0	-0.0	-0.1	-0.1	-0.0	0.0	**2.4**	1.8	1.2	0.2	0.2	0.1	-0.1	-0.1	0.1	0.0	0.1	25	2.4	1.8	-0.1	0.2
26	0.0	0.0	0.0	-0.0	-0.1	-0.0	-0.0	-0.0	-0.0	0.1	-0.0	PMA	PMA	6.5	**9.5**	5.9	1.2	0.9	0.2	0.2	0.1	0.1	0.0	0.0	26	9.5	6.5	-0.1	1.1
27	-0.0	0.0	0.1	0.3	0.6	0.1	0.3	0.3	3.2	2.6	6.0	4.3	9.3	5.2	5.0	12.2	19.7	**27.9**	12.6	1.0	0.2	0.3	0.4	0.3	27	27.9	19.7	-0.0	4.7
28	0.9	15.6	28.9	**31.5**	5.3	1.2	15.2	2.0	1.2	0.8	0.8	0.5	0.2	0.3	0.3	0.8	4.6	1.5	0.7	0.1	0.3	0.3	0.3	0.2	28	31.5	28.9	0.1	4.7
29	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	**15.2**	0.3	0.5	0.5	0.2	0.1	0.2	0.1	0.1	29	15.2	0.5	0.1	0.9
30	**0.1**	0.1	0.1	0.0	0.0	-0.0	0.0	-0.0	-0.0	-0.0	-0.1	-0.2	-0.0	-0.1	-0.1	-0.0	-0.1	-0.0	0.0	SPN	SPN	-0.0	-0.1	-0.0	30	0.1	0.1	-0.2	-0.0

31	-0.0	-0.1	-0.1	-0.1	-0.1	-0.0	-0.1	-0.1	-0.0	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.1	-0.0	0.0	-0.0	-0.3	0.0	**0.9**	0.0	**31**	0.9	0.5	-0.3	0.1
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
38.1	31.5	-0.3	1.0	3.4	97.6 %
March 8 21:00	March 28 03:00	March 1 14:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for March 2020

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March | 2020 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

March 2020	Sulfur Dioxide MDL (POC 1 R) measured in parts per billion																				Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.3	0.1	0.1	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.1	0.2	0.3	**0.4**	0.4	0.1	0.3	0.2	-0.0	-0.2	0.1	0.1	0.2	0.1	1	0.4	0.4	-0.2	0.2
2	0.2	0.5	0.3	0.3	0.2	0.5	0.4	0.2	0.3	0.8	2.5	1.8	0.7	0.4	0.6	0.3	0.3	0.3	1.1	**9.5**	8.6	0.5	0.3	0.2	2	9.5	8.6	0.2	1.3
3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.7	0.3	0.3	**1.1**	0.3	0.5	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.6	0.1	-0.1	3	1.1	0.7	-0.1	0.3
4	0.1	0.2	0.3	0.8	0.7	1.0	1.1	1.2	1.3	1.2	0.3	-0.0	0.0	-0.0	0.0	0.1	0.1	-0.0	-0.0	0.1	-0.1	**5.7**	-0.0	0.3	4	5.7	1.3	-0.1	0.6
5	0.3	0.2	0.1	0.1	0.1	-0.0	-0.1	-0.0	-0.0	0.3	QAS	QAS	**0.9**	0.4	0.3	0.2	0.3	0.3	0.0	0.1	-0.1	-0.0	-0.0	0.0	5	0.9	0.4	-0.1	0.2
6	-0.1	0.1	-0.0	0.0	0.0	-0.1	-0.1	16.8	**34.3**	22.5	27.4	23.1	23.3	16.4	16.3	25.5	29.6	27.1	4.2	0.6	0.4	0.3	0.2	0.2	6	34.3	29.6	-0.1	11.2
7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	4.2	**25.1**	15.5	21.8	13.3	12.9	17.5	19.8	19.9	11.9	14.9	CAL	CAL	0.7	0.4	0.3	7	25.1	21.8	0.1	8.1
8	8.4	18.3	14.0	19.8	19.4	1.8	5.7	2.8	1.1	6.3	4.2	2.6	15.9	8.8	**21.2**	15.1	8.0	2.9	2.4	0.8	0.5	0.3	0.4	0.5	8	21.2	19.8	0.3	7.6
9	**0.5**	0.4	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	-0.0	0.1	0.2	0.1	-0.0	0.0	-0.2	0.0	0.1	0.2	0.1	9	0.5	0.4	-0.2	0.1
10	0.0	0.1	-0.0	-0.0	0.0	0.0	-0.1	-0.0	-0.0	0.1	6.4	**28.9**	1.1	0.4	0.4	0.4	0.2	0.1	0.0	-0.2	0.0	-0.0	0.2	0.1	10	28.9	6.4	-0.2	1.6
11	0.1	0.1	0.1	0.1	-0.0	0.1	-0.0	-0.1	0.0	0.2	PMA	0.9	0.6	0.3	0.3	0.3	0.2	2.8	0.4	0.1	0.2	1.0	**11.6**	0.5	11	11.6	2.8	-0.1	0.9
12	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	-0.1	0.6	**2.5**	1.0	0.2	-0.2	0.1	0.1	0.1	0.2	12	2.5	1.0	-0.2	0.3
13	0.0	**0.1**	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	-0.0	-0.0	-0.1	-0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	13	0.1	0.1	-0.1	0.0
14	0.1	0.0	-0.0	-0.0	-0.0	0.0	0.1	0.1	0.0	0.0	0.0	-0.0	0.1	1.8	**2.5**	1.0	2.3	1.1	0.0	SPN	0.1	0.1	0.0	0.1	14	2.5	2.3	0.0	0.4
15	**0.0**	-0.1	-0.0	0.0	-0.1	-0.0	-0.1	-0.0	0.0	-0.0	-0.0	-0.1	-0.0	0.0	0.0	-0.1	-0.0	-0.0	-0.1	0.0	-0.1	-0.0	-0.0	0.0	15	0.0	-0.0	-0.1	-0.0
16	0.5	0.2	0.9	**2.7**	1.9	1.4	0.6	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.3	1.8	1.1	0.1	0.1	0.2	0.2	0.2	0.2	16	2.7	1.9	0.1	0.6
17	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	**0.3**	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	17	0.3	0.3	0.0	0.2
18	0.2	**5.4**	1.4	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	2.1	0.8	0.8	0.3	2.2	1.4	1.2	1.0	0.8	0.2	0.3	0.4	0.3	18	5.4	2.2	0.2	0.9
19	**0.4**	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.0	0.1	0.0	0.1	19	0.4	0.3	-0.0	0.2
20	0.1	0.1	0.0	-0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	-0.0	-0.1	-0.1	0.0	0.1	**0.9**	0.0	-0.0	-0.0	0.0	-0.0	-0.0	-0.0	20	0.9	0.1	-0.1	0.0
21	-0.0	-0.1	-0.1	0.0	-0.1	0.0	-0.0	-0.0	0.0	-0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	SPN	0.2	1.7	1.2	**5.7**	21	5.7	1.7	-0.1	0.4
22	1.5	**1.7**	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.1	0.1	0.2	0.1	0.5	0.2	0.2	22	1.7	1.5	0.1	0.3
23	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.3	0.3	0.3	1.2	2.1	2.1	2.1	**10.3**	1.3	0.8	0.6	0.4	0.6	0.3	0.5	0.5	0.7	23	10.3	2.1	0.1	1.1
24	0.4	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	1.5	1.6	3.4	**3.5**	0.6	0.2	0.3	0.2	0.4	0.3	24	3.5	3.4	0.2	0.7
25	0.3	**2.2**	0.3	0.2	0.2	0.3	0.1	0.3	0.3	PMA	0.2	0.4	0.6	0.3	0.2	0.3	0.3	0.3	0.3	0.3	-0.1	0.1	0.2	0.4	25	2.2	0.6	-0.1	0.3
26	0.2	0.3	0.3	0.4	0.2	0.3	0.4	0.4	0.5	0.5	0.5	**0.7**	0.4	0.4	0.5	0.3	0.3	0.3	0.4	0.2	0.0	0.1	0.2	0.3	26	0.7	0.5	0.0	0.3
27	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.3	0.4	0.5	0.4	0.4	**0.7**	0.7	0.4	27	0.7	0.7	0.3	0.4
28	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.2	SPN	0.2	**0.9**	0.1	0.1	28	0.9	0.3	0.1	0.3
29	0.1	0.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	1.2	0.0	1.0	11.3	14.0	4.6	**17.8**	13.1	0.4	0.2	0.2	0.2	0.2	0.2	0.2	29	17.8	14.0	0.0	2.7
30	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.6	0.6	**0.7**	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.3	30	0.7	0.6	0.1	0.2

31	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.2	0.6	2.7	**6.6**	4.5	4.4	0.1	0.0	0.1	0.3	0.3	0.2	0.2	**31**	6.6	4.5	0.0	0.9
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
34.3	29.6	-0.2	1.4	4.3	98.8 %
March 6 08:00	March 6 16:00	March 1 19:00	-- -- -- --	-- -- -- --	-- -- -- --

Maximum daily values are **bold** within the table.

R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for May 2019

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Select a date:

May | 2019 | Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

May 2019						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.3	6.6	**10.7**	2.8	2.2	0.1	0.2	NEG	0.3	0.1	0.0	0.2	0.3	0.2	1	10.7	6.6	0.0	1.1
2	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.3	**0.9**	0.8	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.0	-0.0	-0.0	0.2	2	0.9	0.8	0.0	0.2
3	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.4	0.2	0.3	0.3	**1.4**	0.8	0.2	0.1	0.2	-0.0	0.1	0.1	0.1	3	1.4	0.8	-0.0	0.2
4	0.1	0.1	0.2	0.1	0.0	0.1	0.7	**5.3**	2.7	3.0	1.5	0.3	1.1	2.8	0.9	0.2	0.4	-0.0	2.8	CAL	CAL	0.3	0.2	0.4	4	5.3	3.0	0.0	1.1
5	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	1.1	3.4	1.6	2.5	6.0	5.5	11.3	**11.9**	4.2	3.4	0.6	0.3	0.3	0.3	0.3	0.2	5	11.9	11.3	0.1	2.3
6	0.2	0.2	0.1	21.6	20.0	4.8	1.2	1.4	2.0	19.7	9.2	4.0	2.1	0.5	0.4	0.4	0.4	0.3	0.4	0.1	0.2	0.2	**28.4**	9.1	6	28.4	21.6	0.1	5.3
7	18.2	12.3	0.9	0.4	2.3	2.4	**26.7**	2.8	0.8	0.6	0.7	0.2	0.3	0.3	0.5	0.3	0.1	0.2	0.2	0.2	0.4	0.7	1.3	1.4	7	26.7	18.2	0.1	3.1
8	**0.5**	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.2	0.0	0.2	0.1	0.1	8	0.5	0.3	0.0	0.2
9	**0.2**	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	-0.1	0.0	-0.0	0.0	0.0	-0.0	-0.0	0.1	0.1	0.0	0.0	-0.2	0.1	0.1	0.0	9	0.2	0.2	-0.2	0.0
10	-0.0	0.5	**6.6**	NEG	-0.3	-0.2	-0.1	0.3	-0.0	-0.1	-0.1	-0.1	-0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.0	-0.0	0.0	10	6.6	0.5	-0.3	0.3
11	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.0	0.1	-0.0	0.0	0.0	0.0	0.0	0.1	1.8	**2.8**	0.8	SPN	SPN	0.3	0.3	0.2	11	2.8	1.8	0.0	0.3
12	0.0	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.3	2.2	**2.8**	0.4	0.4	0.3	0.2	0.3	0.3	0.1	0.4	0.2	0.4	0.3	0.3	12	2.8	2.2	0.0	0.5
13	0.3	0.7	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	5.5	5.3	**8.4**	5.0	3.3	6.7	0.7	0.4	0.8	2.6	0.6	0.4	13	8.4	6.7	0.3	1.8
14	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.1	0.3	0.3	0.4	5.9	5.9	3.4	6.9	7.3	1.6	0.3	0.2	1.3	**8.0**	2.1	14	8.0	7.3	0.1	1.9
15	1.1	0.9	1.1	0.6	0.4	0.6	1.5	1.2	2.5	2.7	1.6	2.8	12.8	9.8	**16.1**	14.4	15.2	9.3	0.8	0.6	0.6	0.3	0.4	0.3	15	16.1	15.2	0.3	4.1
16	0.4	0.6	0.7	0.4	0.4	0.8	**1.5**	1.1	0.9	0.7	1.1	0.9	0.8	1.0	1.0	0.7	0.4	0.5	0.5	0.5	0.6	0.3	0.2	0.3	16	1.5	1.1	0.2	0.7
17	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.7	0.9	0.8	**1.0**	0.9	0.8	0.7	0.5	0.4	0.5	0.4	0.5	0.4	0.5	0.7	0.4	0.4	17	1.0	0.9	0.4	0.6
18	0.2	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.5	0.5	**0.7**	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.4	SPN	SPN	0.3	0.2	0.2	18	0.7	0.5	0.2	0.4
19	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.9	1.6	0.4	**1.7**	0.3	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.4	0.3	19	1.7	1.6	0.1	0.4
20	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	**0.5**	0.4	20	0.5	0.4	0.3	0.4
21	0.4	0.4	0.4	0.4	**0.5**	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.2	0.3	0.4	0.4	0.5	0.5	0.4	0.2	0.4	0.4	0.4	0.3	21	0.5	0.5	0.2	0.4
22	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.8	1.6	0.8	2.2	6.8	6.2	6.4	5.5	**7.2**	0.6	0.7	1.3	0.4	0.6	0.7	0.5	22	7.2	6.8	0.3	1.9
23	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.3	0.5	PMA	0.5	0.6	**0.7**	0.5	0.3	0.4	0.4	0.4	0.2	0.3	0.4	0.4	23	0.7	0.6	0.2	0.4
24	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.4	1.6	0.6	0.4	2.2	**8.6**	3.0	2.3	0.7	0.6	0.5	0.5	0.6	0.3	0.5	0.5	24	8.6	3.0	0.3	1.1
25	0.5	1.2	0.4	0.4	0.5	0.4	0.4	0.4	2.4	**11.6**	7.0	1.3	0.7	0.6	2.0	0.6	1.0	0.7	0.5	SPN	SPN	0.4	0.2	0.3	25	11.6	7.0	0.2	1.5
26	0.3	0.4	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.5	0.2	0.4	0.2	0.4	0.3	**1.2**	0.6	0.4	0.5	26	1.2	0.6	0.2	0.3
27	0.9	1.2	0.4	0.2	0.3	0.4	27.2	13.7	1.7	1.0	0.6	0.6	2.1	14.9	19.3	14.0	32.5	**42.2**	2.7	0.9	0.5	0.7	0.7	0.7	27	42.2	32.5	0.2	7.5
28	10.2	**14.5**	1.5	0.6	0.4	0.3	0.4	0.4	0.4	0.5	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.4	0.3	0.2	0.0	0.2	0.3	0.3	28	14.5	10.2	0.0	1.4
29	0.2	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.4	0.4	0.4	0.3	0.4	0.2	0.1	**0.5**	0.2	0.2	29	0.5	0.4	0.1	0.3
30	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	2.2	8.7	22.9	**26.6**	14.0	15.1	2.6	6.7	0.3	0.4	0.4	0.4	0.0	0.2	0.2	0.2	30	26.6	22.9	0.0	4.3

31	0.1	2.0	**2.3**	0.4	0.2	0.2	0.2	0.2	0.3	0.4	0.2	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.7	0.3	0.2	0.3	**31**	2.3	2.0	0.1	0.5
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	**Monthly SH**	**Monthly Min**	**Monthly Avg**	**Monthly STD**	**Monthly Cap**
42.2	32.5	-0.3	1.4	4.0	98.5 %
May 27 17:00	May 27 16:00	May 10 04:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for November 2019

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Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

November 2019						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	1.2	0.7	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.0	0.0	-0.0	1	1.2	0.7	0.0	0.3
2	-0.1	-0.0	0.0	0.0	-0.2	-0.1	-0.0	-0.1	-0.0	0.2	2.9	1.9	0.6	0.6	1.3	2.0	0.4	9.8	0.8	SPN	0.2	4.3	11.9	46.1	2	46.1	11.9	-0.2	3.6
3	35.0	6.6	5.4	1.3	0.8	0.7	0.5	0.4	0.3	0.3	0.3	0.3	0.4	0.2	0.2	7.7	0.4	0.4	0.1	0.3	0.3	0.3	0.4	0.3	3	35.0	7.7	0.1	2.6
4	0.4	0.4	0.4	0.2	0.3	0.3	0.2	0.3	0.5	0.5	0.5	0.7	1.9	1.7	0.6	0.6	0.6	0.4	0.2	0.4	0.3	0.3	0.3	0.3	4	1.9	1.7	0.2	0.5
5	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.8	7.3	2.9	0.4	PMA	4.5	0.3	0.4	0.3	0.2	0.3	0.0	0.1	0.1	0.1	5	7.3	4.5	0.0	0.8
6	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.8	1.3	1.2	0.9	0.9	0.7	0.5	0.3	0.2	6.5	0.6	0.5	0.2	0.2	0.1	0.1	6	6.5	1.3	0.1	0.7
7	0.1	0.0	-0.0	-0.0	0.0	0.1	-0.0	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	-0.1	-0.1	-0.0	-0.1	-0.0	0.0	-0.0	-0.2	0.1	-0.0	0.0	7	0.1	0.1	-0.2	-0.0
8	0.2	0.4	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.2	0.0	0.1	8	0.4	0.3	0.0	0.1
9	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.6	0.9	0.4	0.3	-0.0	0.0	SPN	0.1	0.2	0.1	0.2	9	0.9	0.6	0.0	0.2
10	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.1	0.2	0.3	0.0	0.2	0.2	0.3	10	0.4	0.3	0.0	0.2
11	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0	-0.0	-0.1	-0.1	-0.3	-0.1	-0.1	-0.1	11	0.3	0.1	-0.3	-0.0
12	-0.1	2.9	1.3	2.5	0.8	0.2	0.1	0.1	0.1	0.1	-0.0	-0.1	-0.0	3.4	5.1	4.2	0.3	8.2	2.6	14.0	30.6	12.1	0.5	0.3	12	30.6	14.0	-0.1	3.7
13	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.1	0.1	0.4	0.6	0.3	0.2	0.3	0.2	0.1	0.2	0.2	0.1	13	0.6	0.4	0.1	0.2
14	0.3	1.0	0.9	0.4	0.1	0.1	-0.0	0.1	0.3	0.9	0.1	0.2	0.8	2.4	0.9	1.1	0.5	0.2	0.3	0.1	0.2	0.1	0.1	0.0	14	2.4	1.1	-0.0	0.5
15	0.5	0.7	0.2	0.1	0.2	0.1	0.1	0.2	0.5	0.4	4.1	2.7	0.4	0.2	0.6	5.6	12.7	3.8	0.6	0.9	0.9	2.9	8.5	24.9	15	24.9	12.7	0.1	3.0
16	31.4	20.4	4.7	1.1	1.1	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.6	0.2	0.3	2.6	1.7	0.8	0.8	CAL	CAL	0.4	0.3	0.5	16	31.4	20.4	0.2	3.2
17	0.4	0.1	-0.1	-0.0	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.1	-0.1	0.0	0.0	-0.0	0.1	1.2	0.5	0.1	0.2	17	1.2	0.5	-0.2	0.0
18	0.0	-0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	-0.0	-0.0	-0.1	0.0	0.1	-0.0	-0.0	0.3	1.5	0.0	-0.4	-0.1	0.1	-0.0	-0.0	-0.0	18	1.5	0.3	-0.4	0.0
19	-0.0	-0.1	-0.1	-0.2	-0.0	0.0	0.2	0.2	0.6	0.7	0.8	0.9	19.8	CAL	CAL	CAL	1.3	1.0	0.9	0.7	0.6	0.3	0.4	1.3	19	19.8	1.3	-0.2	1.4
20	2.8	2.2	1.8	1.2	0.6	0.5	0.3	0.6	0.6	0.8	0.6	0.2	0.1	0.1	-0.1	-0.1	0.0	0.1	0.1	0.1	0.0	-0.1	-0.2	-0.1	20	2.8	2.2	-0.2	0.5
21	0.1	-0.1	-0.1	-0.2	-0.2	-0.0	-0.1	-0.2	-0.2	-0.2	-0.2	0.1	0.5	0.3	0.1	0.5	0.6	0.0	0.3	0.7	0.1	0.0	-0.1	-0.2	21	0.7	0.6	-0.2	0.1
22	-0.1	0.1	0.0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.1	-0.1	-0.3	-0.2	-0.1	-0.2	-0.1	-0.2	-0.1	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	22	0.1	0.1	-0.3	-0.1
23	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.2	-0.2	-0.1	-0.0	-0.2	-0.1	0.1	-0.1	-0.0	-0.1	-0.1	SPN	0.2	0.2	0.2	0.2	23	0.2	0.2	-0.2	-0.1
24	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	-0.0	0.4	0.4	0.4	0.4	24	0.4	0.4	-0.0	0.2
25	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.5	0.9	0.3	0.3	0.5	0.5	0.3	0.3	1.0	0.6	0.6	0.5	1.0	25	1.0	1.0	0.2	0.4
26	0.5	0.6	3.2	0.7	0.5	0.6	0.5	0.5	0.4	0.4	11.6	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	AQI	-0.1	-0.1	-0.2	-0.1	26	11.6	3.2	-0.2	1.3
27	-0.1	-0.1	-0.0	-0.0	-0.0	-0.0	-0.1	-0.0	-0.0	0.0	0.5	1.0	0.5	0.1	-0.1	0.0	-0.0	0.1	0.0	0.0	0.1	0.1	-0.1	-0.1	27	1.0	0.5	-0.1	0.1
28	0.0	0.0	-0.0	-0.0	-0.0	0.0	0.0	-0.0	0.0	-0.0	-0.2	-0.0	-0.0	0.1	0.0	0.0	0.0	0.1	-0.0	0.5	0.5	0.2	0.1	0.1	28	0.5	0.5	-0.2	0.1
29	-0.0	0.0	0.1	0.2	0.2	3.9	0.4	0.4	3.4	16.7	13.5	9.4	1.0	1.1	3.0	0.4	0.8	0.4	0.4	0.4	0.4	0.3	0.4	0.2	29	16.7	13.5	-0.0	2.4
30	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.3	0.2	0.1	SPN	0.2	0.2	0.2	-0.0	30	0.3	0.3	-0.0	0.2

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
46.1	35.0	-0.4	0.9	3.5	97.4 %
November 2 23:00	November 3 00:00	November 18 18:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for October 2019

Select a New Site, Different Parameters, or Change Report Options

Select a date:

October 2019 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

October 2019						Sulfur Dioxide MDL (POC 1 R) measured in parts per billion														Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.4	6.6	5.2	5.1	2.0	0.6	0.4	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.7	1.0	0.5	0.1	0.3	0.1	-0.0	-0.0	1	6.6	5.2	0.0	1.0
2	0.2	0.1	6.1	0.5	0.3	0.2	0.6	1.2	0.5	0.4	10.1	2.0	0.6	0.7	0.4	0.4	0.2	0.1	0.2	-0.0	1.6	0.4	0.2	0.1	2	10.1	6.1	-0.0	1.1
3	0.1	0.3	0.0	0.4	0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	0.1	0.1	-0.0	0.1	-0.0	0.0	0.7	0.0	-0.2	-0.1	-0.1	0.1	3	0.7	0.4	-0.2	0.0
4	0.3	0.0	-0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.5	1.8	5.1	1.6	1.0	0.1	2.4	1.0	0.3	0.0	-0.1	-0.1	-0.1	-0.0	4	5.1	2.4	-0.1	0.6
5	-0.0	0.1	5.9	31.8	16.1	7.4	2.3	0.9	0.8	0.6	0.1	0.1	0.1	-0.0	0.1	1.2	0.2	0.0	-0.1	SPN	-0.0	0.3	-0.0	-0.1	5	31.8	16.1	-0.1	2.9
6	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	0.5	0.7	0.1	-0.1	0.4	0.9	-0.2	0.2	1.3	1.0	-0.0	-0.2	-0.1	NEG	-0.2	-0.2	-0.2	6	1.3	1.0	-0.2	0.1
7	-0.3	-0.3	-0.3	-0.4	-0.3	-0.3	NEG	-0.3	-0.2	0.2	1.2	0.8	2.2	2.6	7.1	5.2	9.3	-0.0	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	7	9.3	7.1	-0.4	1.1
8	-0.2	-0.2	-0.1	0.2	2.2	0.3	0.0	4.9	27.0	32.9	20.0	29.6	26.9	PMA	PMA	CAL	CAL	CAL	0.7	0.7	0.8	0.4	0.4	0.3	8	32.9	29.6	-0.2	7.7
9	0.4	0.4	0.5	6.0	2.8	1.1	9.9	12.8	3.7	1.9	0.7	0.8	0.6	0.5	0.5	0.6	0.5	0.4	0.5	0.4	3.3	7.3	1.1	0.3	9	12.8	9.9	0.3	2.4
10	0.3	0.3	0.4	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	10	0.4	0.3	0.1	0.2
11	0.0	0.1	0.1	-0.0	0.0	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.4	0.2	0.2	0.1	1.3	1.2	11	1.3	1.2	0.0	0.2
12	5.1	2.1	0.3	0.2	0.2	0.2	0.2	0.4	0.3	0.4	0.8	0.6	0.4	0.3	0.7	1.6	0.9	0.9	1.6	SPN	0.6	0.5	0.4	1.5	12	5.1	2.1	0.2	0.9
13	2.3	1.0	0.6	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.2	0.2	13	2.3	1.0	0.2	0.4
14	0.6	0.4	0.3	0.5	0.3	0.3	0.2	0.3	0.4	0.4	0.2	0.2	0.2	1.2	0.5	0.2	0.4	3.4	2.9	3.2	1.7	3.9	0.2	0.3	14	3.9	3.4	0.2	0.9
15	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	-0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.9	-0.1	0.1	-0.0	-0.1	15	0.9	0.3	-0.1	0.1
16	-0.1	0.1	-0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.2	0.1	0.1	5.6	0.8	2.1	0.1	0.8	9.0	0.8	0.1	0.2	10.9	12.0	0.5	16	12.0	10.9	-0.1	1.8
17	0.6	0.4	0.1	0.2	0.5	0.5	0.5	0.4	0.2	0.3	0.4	0.3	0.6	0.5	3.7	13.1	12.8	0.6	0.5	0.4	0.6	0.5	0.4	0.3	17	13.1	12.8	0.1	1.6
18	0.3	0.3	0.3	3.2	37.7	67.3	49.1	33.1	3.4	2.2	1.5	1.0	0.9	11.3	5.6	0.6	0.3	0.4	0.4	0.3	0.3	0.2	0.3	0.3	18	67.3	49.1	0.2	9.2
19	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.2	0.4	0.4	0.2	0.2	0.2	0.1	4.3	1.7	7.7	1.0	0.2	CAL	CAL	0.3	0.3	0.3	19	7.7	4.3	0.1	0.9
20	0.2	0.2	0.3	0.5	0.4	1.5	23.5	14.8	0.7	0.4	0.2	0.3	0.3	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.0	0.2	0.2	0.1	20	23.5	14.8	0.0	1.9
21	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	PMA	1.4	0.6	0.1	0.2	0.2	0.2	0.0	0.2	0.0	0.1	0.2	0.1	21	1.4	0.6	0.0	0.2
22	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	3.4	6.6	11.4	1.1	7.7	9.4	11.2	0.1	0.3	0.1	0.3	0.3	0.1	22	11.4	11.2	0.1	2.2
23	2.2	11.4	1.0	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.3	1.7	0.6	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.0	0.2	0.2	0.1	23	11.4	2.2	0.0	0.9
24	0.1	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	0.3	0.1	0.1	24	0.9	0.3	-0.1	0.1
25	0.0	0.1	0.0	0.0	0.1	0.0	-0.0	0.0	0.0	-0.0	-0.0	-0.0	0.0	0.1	-0.1	0.1	-0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1	25	0.2	0.2	-0.1	0.1
26	0.2	0.2	0.3	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.4	0.4	2.0	16.0	6.8	6.3	0.5	0.4	0.3	SPN	0.4	0.5	9.0	0.9	26	16.0	9.0	0.1	2.0
27	0.6	0.5	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.4	0.2	0.8	1.4	1.6	1.3	3.9	27	3.9	1.6	0.1	0.6
28	0.8	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.1	2.7	3.7	1.4	0.8	0.3	3.3	0.4	0.3	0.2	0.2	28	3.7	3.3	0.1	0.7
29	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	QAS	QAS	QAS	1.1	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	29	1.1	0.5	0.1	0.3
30	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.0	-0.0	0.1	0.0	0.1	0.0	30	0.2	0.2	0.0	0.1

31	0.1	0.0	-0.0	0.1	0.0	0.0	-0.0	-0.1	0.0	-0.0	-0.0	0.1	1.0	0.8	0.5	3.6	0.4	0.4	0.6	0.1	0.2	4.7	**16.4**	0.9	**31**	16.4	4.7	-0.1	1.2
Day	**00:00**	**01:00**	**02:00**	**03:00**	**04:00**	**05:00**	**06:00**	**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**Day**	**Max**	**SH**	**Min**	**Avg**

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
67.3	49.1	-0.4	1.4	4.9	97.8 %
October 18 05:00	October 18 06:00	October 7 03:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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CAMS 1077 Monthly Summary for September 2019

Select a New Site, Different Parameters, or Change Report Options

Select a date:

September 2019 Generate Report

Amarillo Xcel El Rancho C1077 - EPA Site: 48_375_1077

September 2019	Sulfur Dioxide MDL (POC 1 R) measured in parts per billion																			Central Standard Time						Statistic			
Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg
1	0.2	0.2	**26.9**	4.9	0.5	0.2	0.0	0.0	0.5	0.2	10.2	0.4	0.5	0.5	0.1	0.1	-0.0	-0.1	-0.1	-0.0	0.0	-0.0	-0.1	-0.3	1	26.9	10.2	-0.3	1.9
2	0.0	-0.2	-0.2	**13.7**	3.4	0.4	0.2	0.4	0.6	0.2	0.4	4.6	3.0	0.2	0.0	0.1	-0.0	-0.0	-0.1	-0.1	0.0	-0.0	-0.0	-0.1	2	13.7	4.6	-0.2	1.1
3	-0.2	-0.2	-0.0	45.6	**60.5**	2.1	0.7	0.3	0.2	0.0	0.1	11.7	3.9	0.1	0.1	0.1	0.1	0.1	0.0	0.0	-0.1	-0.1	-0.0	0.1	3	60.5	45.6	-0.2	5.2
4	-0.2	-0.3	-0.2	-0.1	-0.2	-0.2	-0.2	-0.1	0.1	1.1	0.2	**5.7**	1.4	-0.0	0.0	1.4	-0.3	0.6	-0.1	-0.1	-0.3	-0.1	-0.0	-0.1	4	5.7	1.4	-0.3	0.3
5	-0.2	26.8	4.5	**50.5**	3.5	0.1	0.1	0.3	0.2	-0.0	0.1	7.3	1.9	14.5	1.0	3.6	0.6	0.1	0.0	0.1	0.0	-0.1	-0.1	-0.2	5	50.5	26.8	-0.2	4.8
6	2.9	**8.4**	0.5	0.4	3.9	0.8	0.6	0.5	0.4	0.2	0.2	2.6	1.7	0.6	0.2	0.2	0.1	0.1	-0.0	-0.0	0.1	-0.1	-0.0	-0.0	6	8.4	3.9	-0.1	1.0
7	-0.0	-0.1	-0.3	0.1	0.2	-0.0	-0.0	3.2	1.1	0.5	2.4	3.2	7.2	8.9	8.8	**12.8**	7.0	1.2	0.2	SPN	0.6	0.5	0.4	0.4	7	12.8	8.9	-0.3	2.5
8	0.3	0.4	0.4	0.3	0.3	2.5	1.0	0.4	0.6	0.7	1.1	6.8	21.7	1.8	9.7	0.8	0.6	0.4	1.4	0.4	0.3	**39.8**	20.8	1.1	8	39.8	21.7	0.3	4.7
9	0.4	7.0	2.1	0.6	0.3	0.2	0.2	0.2	0.4	0.6	19.7	22.9	25.6	**27.0**	23.3	16.4	3.1	1.1	0.7	0.7	0.6	0.6	0.6	0.4	9	27.0	25.6	0.2	6.4
10	0.6	0.5	7.7	11.0	1.6	0.9	0.7	0.7	0.9	4.3	14.2	PMA	15.3	**20.1**	3.0	1.1	0.5	0.4	0.2	0.1	0.4	0.4	0.3	0.3	10	20.1	15.3	0.1	3.7
11	4.4	2.1	0.5	2.2	5.2	19.0	2.4	1.1	11.0	10.4	13.4	12.3	**20.1**	3.6	3.7	7.5	2.9	0.9	0.5	0.5	0.7	0.5	0.5	0.5	11	20.1	19.0	0.5	5.2
12	0.5	1.4	16.0	**20.2**	1.8	1.1	1.8	2.6	1.3	0.8	0.6	0.4	0.4	0.4	1.3	0.6	0.3	0.4	0.6	0.5	0.3	0.4	0.1	0.3	12	20.2	16.0	0.1	2.3
13	0.3	0.3	0.1	0.2	0.1	0.1	0.0	0.1	0.4	0.4	0.1	1.7	3.5	11.2	**13.8**	11.9	1.8	0.4	0.4	0.3	0.1	0.3	0.3	0.2	13	13.8	11.9	0.0	2.0
14	0.1	0.1	0.1	0.2	0.1	0.2	1.5	12.6	**58.2**	38.4	12.9	7.4	4.2	27.4	41.8	35.6	40.5	17.2	2.1	SPN	0.7	0.9	0.6	0.3	14	58.2	41.8	0.1	13.[illegible]
15	0.5	0.4	0.4	0.2	-0.1	0.2	0.1	3.1	**104.4**	13.9	1.0	4.3	3.9	15.1	21.9	16.3	15.4	0.7	0.3	0.2	0.2	0.2	0.3	0.1	15	104.4	21.9	-0.1	8.5
16	0.2	0.2	0.1	0.0	0.0	0.2	0.2	**42.1**	2.1	1.2	18.3	20.4	29.7	5.6	0.7	1.5	1.3	12.4	0.5	0.3	0.3	0.2	0.2	0.3	16	42.1	29.7	0.0	5.8
17	0.2	0.1	0.3	0.1	0.2	0.2	0.2	0.2	0.6	35.0	**49.8**	36.5	17.2	21.8	11.7	9.2	3.9	0.7	0.4	0.3	0.2	0.4	0.2	0.3	17	49.8	36.5	0.1	7.9
18	0.2	0.1	0.2	1.5	0.9	6.1	0.8	4.8	12.2	1.3	1.3	1.1	**13.5**	1.6	2.4	0.8	2.6	1.5	0.4	0.6	0.8	0.7	0.4	0.2	18	13.5	12.2	0.1	2.3
19	0.1	**0.3**	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.1	0.2	0.2	0.1	0.3	0.3	0.1	0.1	0.2	0.3	0.2	0.1	0.1	19	0.3	0.3	0.1	0.2
20	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.4	0.4	0.4	0.3	**6.4**	20	6.4	0.4	0.1	0.5
21	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	9.6	13.6	**22.0**	14.1	5.6	11.0	12.0	6.6	2.4	0.9	CAL	CAL	0.4	0.2	2.2	21	22.0	14.1	0.1	4.6
22	0.5	**4.6**	2.0	0.7	0.4	0.3	0.3	0.1	0.0	0.3	0.3	0.1	-0.0	0.1	0.1	0.1	0.1	-0.0	0.6	0.9	0.2	-0.1	-0.0	-0.0	22	4.6	2.0	-0.1	0.5
23	-0.0	-0.0	-0.0	-0.0	-0.1	0.0	-0.0	-0.0	0.1	0.2	0.2	0.6	**3.1**	3.1	0.7	0.3	0.2	0.2	0.1	0.2	0.6	0.2	-0.0	-0.1	23	3.1	3.1	-0.1	0.4
24	-0.0	-0.1	0.0	1.0	10.5	2.5	4.4	10.9	4.3	1.1	0.6	0.5	3.1	PMA	8.5	12.3	5.3	1.4	0.5	1.7	2.4	31.0	**37.9**	2.9	24	37.9	31.0	-0.1	6.2
25	6.7	2.1	1.1	1.2	0.7	0.3	0.3	0.3	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.3	0.2	0.1	6.0	**51.0**	36.8	25	51.0	36.8	0.0	4.5
26	2.6	1.7	1.9	1.0	0.6	0.3	0.7	0.6	0.6	0.3	0.2	-0.0	2.6	13.8	12.7	7.3	4.8	2.4	0.7	2.4	0.7	0.5	7.2	**53.8**	26	53.8	13.8	-0.0	5.0
27	**38.6**	3.3	1.5	1.5	0.8	0.3	0.2	0.2	0.3	0.1	0.1	0.0	-0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.2	4.5	2.4	0.7	10.6	27	38.6	10.6	0.0	2.8
28	3.1	0.2	0.2	16.2	41.2	1.5	0.4	0.1	0.3	0.2	4.5	0.7	19.6	4.3	14.3	8.3	**41.4**	13.9	1.1	SPN	0.7	0.3	0.1	0.1	28	41.4	41.2	0.1	7.5
29	0.1	0.1	-0.2	0.1	0.1	-0.0	0.0	0.0	0.4	2.1	0.7	**5.9**	1.2	1.5	1.4	0.2	0.2	0.1	0.0	0.1	0.4	0.0	0.0	0.0	29	5.9	2.1	-0.2	0.6
30	-0.0	5.6	25.6	**51.6**	16.1	0.9	0.5	3.3	23.3	28.2	32.4	31.9	40.6	24.9	33.3	13.3	2.1	0.9	0.4	0.4	0.5	0.5	0.2	0.2	30	51.6	40.6	-0.0	14.[illegible]

Day	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Day	Max	SH	Min	Avg

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
104.4	60.5	-0.3	4.2	9.9	99.0 %
September 15 08:00	September 3 04:00	September 1 23:00	-- -- -- --	-- -- -- --	-- -- -- --

x.xx	Indicates the data has been validated.
Maximum daily values are **bold** within the table.	
R - Data from this instrument meets EPA quality assurance criteria for regulatory purposes.	

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TCEQ ambient monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in local standard time unless otherwise indicated.

Following EPA reporting guidelines, negative values may be displayed in our hourly criteria air quality data, down to the negative of the EPA listed Method Detection Limit (MDL) for the particular instrument that made the measurements. The reported concentrations can be negative due to zero drift in the electronic instrument output, data logger channel, or calibration adjustments to the data. Prior to 1/1/2013, slightly negative values were automatically set to zero.

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Exhibit 5

ENVIRONMENTAL STUDIES

Quantifying methane emissions from the largest oil-producing basin in the United States from space

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Using new satellite observations and atmospheric inverse modeling, we report methane emissions from the Permian Basin, which is among the world's most prolific oil-producing regions and accounts for >30% of total U.S. oil production. Based on satellite measurements from May 2018 to March 2019, Permian methane emissions from oil and natural gas production are estimated to be 2.7 ± 0.5 Tg a^{-1}, representing the largest methane flux ever reported from a U.S. oil/gas-producing region and are more than two times higher than bottom-up inventory-based estimates. This magnitude of emissions is 3.7% of the gross gas extracted in the Permian, i.e., ~60% higher than the national average leakage rate. The high methane leakage rate is likely contributed by extensive venting and flaring, resulting from insufficient infrastructure to process and transport natural gas. This work demonstrates a high-resolution satellite data–based atmospheric inversion framework, providing a robust top-down analytical tool for quantifying and evaluating subregional methane emissions.

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INTRODUCTION

Methane is a potent greenhouse gas with a relatively short average atmospheric residence time of about a decade and is also a precursor of tropospheric ozone (*1*). The emission-based radiative forcing for methane (including effects on tropospheric ozone and stratospheric water vapor) is 0.97 W m^{-2} since preindustrial times, which is about 60% of that for CO_2 (*2*). Roughly a third of the contemporary anthropogenic methane emissions come from the fossil fuel energy sector worldwide (oil, natural gas, and coal) (~100 to 180 Tg a^{-1}) (*3*, *4*, *5*). Curbing anthropogenic methane emissions, including those from the oil/gas sector, is considered an effective strategy to slow the rate of near-term climate warming (*1*). However, the rapid increase in oil and natural gas (O/G) production in the United States since around 2005, driven primarily by hydraulic fracturing and horizontal drilling, has led to major concerns about increasing methane emissions and adverse climate impacts (*6*). By upscaling data collected from field measurements in some of the largest O/G production basins in the United States, Alvarez *et al.* (*7*) estimated 13 Tg annual methane emissions from the national O/G supply chain for 2015, which is 60% higher than the official estimates by the U.S. Environmental Protection Agency (EPA) (*8*). The largest discrepancy was found in the O/G production segment where the estimate by Alvarez *et al.* (*7*) (7.6 Tg a^{-1}) was more than two times that by EPA, which relies on inventory-based estimates (3.5 Tg a^{-1}) (*8*).

While field measurements provide in-depth information about a particular site or area, it is often challenging to expand the measurement capacity to observe a diverse set of targets distributed globally over longer periods of time. Additional challenges exist for areas that are difficult to access for technical or proprietary reasons. On the other hand, global satellite observations of column atmospheric methane offer a unique vantage point to identify emission hot spots and quantify regional emissions (*9*). Using data from SCanning Imaging Absorption spectroMeter for Atmospheric CHartographY (SCIAMACHY) satellite observations averaged between 2003 and 2009, Kort *et al.* (*10*) found large anomalous methane levels from the Four Corners region in the United States, with total methane emissions associated with natural gas, coal, and coalbed sources estimated as 0.59 ± 0.08 Tg a^{-1}. While the SCIAMACHY data were fairly limited in spatial resolution (30 km × 60 km) and measurement precision [30 parts per billion in volume or (ppbv)] (*9*), it was the first time that satellite observations were used to quantify a dense O/G-related methane emission hot spot. This finding also led to several dedicated airborne studies to better understand methane sources in the region (*11*, *12*), which reported methane fluxes comparable to the satellite-based estimate (*10*).

Here, we demonstrate and exploit the capability of a recent spaceborne sensor, the Tropospheric Monitoring Instrument (TROPOMI), to map atmospheric methane enhancements in the United States and quantify emissions from the Permian Basin (Fig. 1), which has become one of the world's most prolific oil-producing regions in recent years due to advances in drilling technologies. Located in New Mexico and Texas in a region of ~400 km × 400 km, Permian is currently the largest oil-producing basin in the United States. In 2018, the Permian Basin produced 5.5 × 10^5 m^3 (or 3.5 million barrels) of crude oil and 3.2 × 10^8 m^3 (or 11 billion $feet^3$) of natural gas every day (~30 and ~10% of the U.S. national totals, respectively), which was 4 and 2.5 times their corresponding levels in 2007 (around the time of SCIAMACHY observations) (Fig. 2) (*13*). While the surging production in the Permian Basin and its importance in the U.S. oil boom during the last decade have been widely covered in mass

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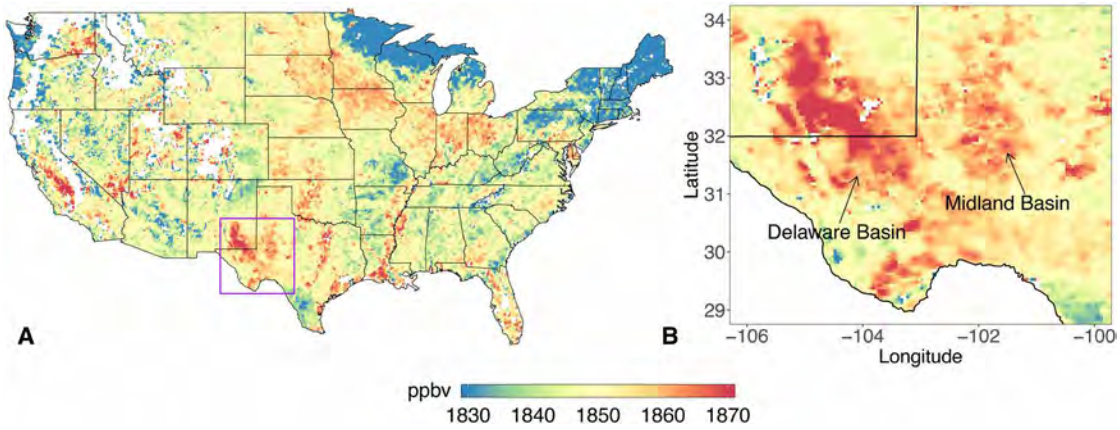

Fig. 1. Satellite observations of the Permian methane anomaly. TROPOMI satellite data derived elevation-corrected column methane mixing ratio for (**A**) the conterminous United States and (**B**) the Permian Basin containing the Delaware and Midland sub-basins. White shading represents missing data. Purple boundary in (A) indicates the study domain encompassing the Permian Basin. Methane averages are computed from monthly means of TROPOMI measurements during May 2018 and March 2019.

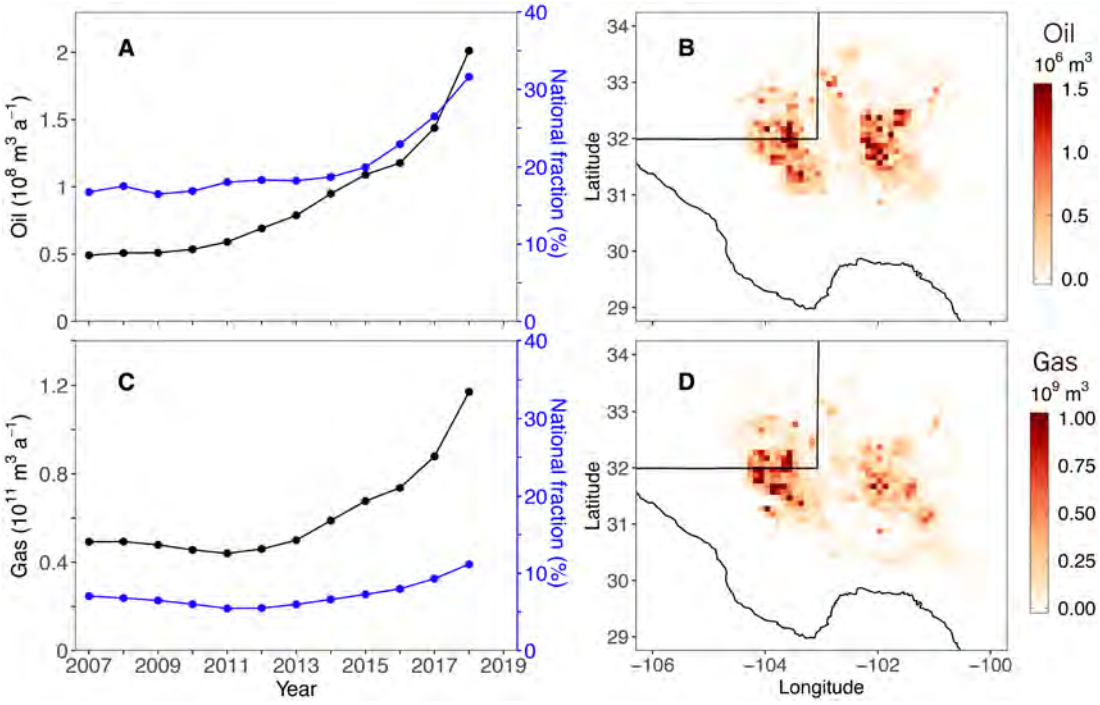

Fig. 2. Oil and gas production in the Permian Basin. (**A** and **C**) Time series of annual O/G production in black and the corresponding fractions of total U.S. production in blue [data from the Drilling Productivity Report by EIA (*13*)]. (**B** and **D**) Spatial distribution of oil and gas production for 2018 [data from Enverus Drillinginfo (*50*)]. Oil production includes both crude and condensate production. Gas production represents gross (before processing) gas production.

media (*14*), the scale of associated methane emissions from this critical O/G basin is unknown, despite reports of increased flaring and venting activity (*15*).

Using 11 months of recent data acquired by TROPOMI during 2018–2019, we focus on the distinct methane concentration anomaly over the Permian Basin and quantify the associated methane emissions with a state-of-the-art atmospheric inverse modeling framework. TROPOMI was launched in October 2017 onboard the European Space Agency's Sentinel-5P satellite and provides column atmospheric methane measurements with higher spatial resolution (7 km × 7 km at nadir) and precision (0.6%) than was previously available (*16*), providing near-daily global coverage with its large 2600-km-wide swath (*17*). Our integrated satellite-based approach provides new insights into the dynamic landscape of O/G-related methane emissions in the United States and should pave the way forward toward routine quantification, monitoring, and evaluation of methane emissions from source regions distributed globally.

RESULTS

Satellite observations of the Permian methane anomaly

Figure 1A shows a map of column-averaged dry-air methane mixing ratio over the conterminous United States, retrieved from TROPOMI measurements, with correction for the topography effect (denoted

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as XCH_4^t; see Materials and Methods). The data are averaged from May 2018 to March 2019. Substantial enhancements of XCH_4^t relative to the surrounding background, up to ~30 ppbv, are found over the Permian Basin, indicating strong methane emissions. Other notable enhancements are observed in California's central valley, coastal Southeast, and the Mississippi River Valley, likely associated with anthropogenic (agriculture, dairy) and natural (wetland) sources. The elevated methane levels in central California were also seen earlier in the SCIAMACHY analysis (*10*).

The methane enhancements over the Permian Basin show a characteristic two-branch pattern, which aligns with the two major O/G production sub-basins, the Delaware basin to the west and the Midland basin to the east (Fig. 1B). The enhancement over the Delaware basin, where extensive new exploitation has taken place during the last 5 years (*18*) (fig. S1), is larger than that over the Midland basin (Fig. 1B). Intensive O/G production activity in these two sub-basins is also captured by satellite observations of radiant heat from gas flaring [Fig. 3A; nighttime observations by the Visible Infrared Imaging Radiometer Suite (VIIRS)] a nd NO_2 tropospheric column densities (Fig. 3B; daytime observations by TROPOMI). Flaring is a common practice in O/G operations to burn off unwanted or excess gas, and NO_2 is a gaseous pollutant released during gas flaring and other combustion activities in O/G fields (*19*, *20*). On the basis of measurements by the VIIRS instrument onboard the Suomi National Polar-orbiting Partnership satellite, we estimate an average flaring rate of 5.9 ± 1.2 billion $m^3\ a^{-1}$ during the period of this study, about 4.6% of the gross gas production (see text S1). A fourfold increase in flaring intensity since 2012, observed by the VIIRS instrument, is indicative of the rapid growth in O/G production across the Permian Basin (fig. S1).

Methane emission quantification

We quantify the methane emission rate from the Permian Basin and its spatial distribution with atmospheric inverse modeling, which optimizes spatially resolved methane emission rates by drawing information from TROPOMI observations and the prior emission estimate following the Bayesian rule. The inversion seeks to optimize monthly methane emission rates resolved at 0.25° × 0.3125° horizontal resolution in a study domain containing the Permian Basin and the surrounding region (29°–34°N, 100°–106°W). The solution to the optimization is found analytically with closed-form characterization of the error statistics (*3*). An atmospheric transport model (a nested version of GEOS-Chem over North America with a 0.25° × 0.3125° horizontal resolution) (*21*) is used as the forward model to relate atmospheric methane columns with ground-level emissions in the study domain and the contributions from outside the domain. The optimization by the inversion significantly reduces the observation-model mismatch with decreased root mean square error (prior, 23 ppbv; posterior, 14 ppbv) and increased correlation (*R*; prior, 0.30; posterior, 0.62) (fig. S2). See Materials and Methods for more details about the configurations of the inverse modeling including error accounting and prior information.

When aggregating monthly spatially resolved posterior emissions to the basin-level annual average, we find a methane emission flux of 2.9 ± 0.5 Tg a^{-1} from the Permian Basin (30°–34°N, 101°–105°W) (Fig. 4A; see Materials and Methods for the uncertainty analysis). This estimate is more than a factor of 2 larger than the bottom-up estimate based on an extrapolation of EPA greenhouse gas inventory data (EI_{BU}, 1.2 Tg a^{-1}; see Materials and Methods) (Fig. 4A), suggesting that current methane emissions in the Permian are under-represented in national bottom-up emission inventories (*22*). Our inversion result is in close agreement with a basin-level estimate based on extrapolation of limited ground-based site-level measurements in the Permian (EI_{ME}, 2.8 Tg a^{-1}) (Fig. 4A). It should be noted that these site-level measurements were primarily conducted in the New Mexico portion of the Permian Basin and covered only a

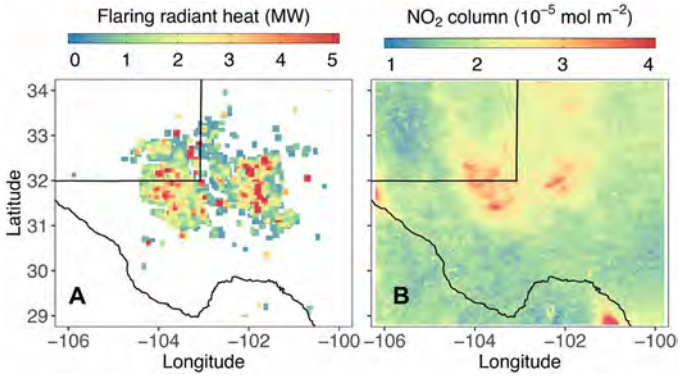

Fig. 3. Satellite observations of gas flaring radiant heat and NO_2 tropospheric column density over the Permian Basin. (**A**) Gas flaring radiant heat is the annual average of 2018 measured by the VIIRS satellite instrument, and (**B**) NO_2 tropospheric column density is the 3-month average (June, July, and August of 2018) measured by the TROPOMI instrument, indicating colocated hot spots over the Delaware and Midland sub-basins.

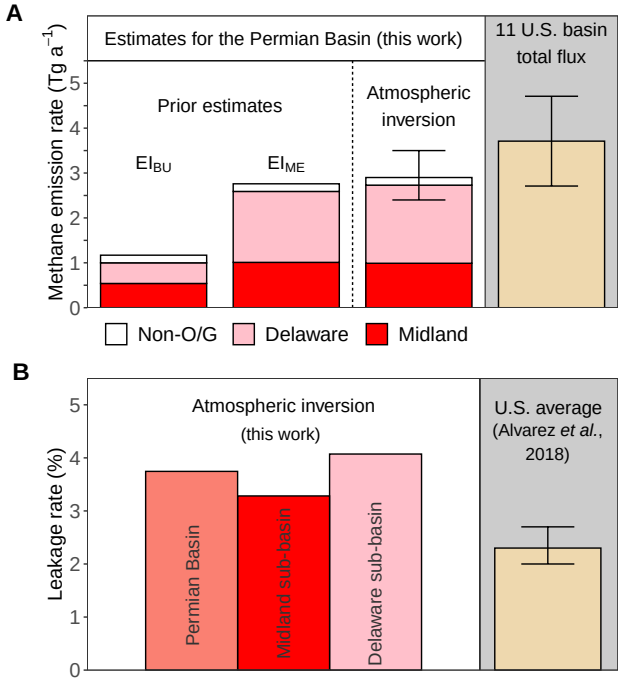

Fig. 4. Methane emission quantification for the Permian Basin. (**A**) Annual methane emissions from the Permian Basin from two prior emission inventories (EI_{BU} and EI_{ME}), and TROPOMI satellite data–based atmospheric inversion and a mass balance method. The breakdown for Delaware, Midland, and non-O/G sources is shown in pink, red, and white for EI_{BU}, EI_{ME}, and atmospheric inversion, respectively. The estimate for the Permian Basin is compared with total emissions from 11 U.S. basins reported in literature (*7*, *24*, *25*) (table S1). (**B**) Leakage rates for the Permian Basin and two sub-basins, in comparison with the average leakage reported for the entire United States (*7*).

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small fraction of production sites (see Materials and Methods and text S2). As a comparison, we also apply a fast mass balance method following Buchwitz *et al.* (*23*) to estimate basin-level emissions, which yields an annual mean emission rate of 3.2 ± 2.0 Tg a^{-1} for the Permian Basin. This result is consistent with that derived from a full atmospheric inversion. Despite the large uncertainty of the mass balance method, this data-driven approach provides an independent estimate of emissions derived primarily using TROPOMI data (see text S3 for more discussion).

Removing the non-O/G sources (0.2 Tg a^{-1}) from the total flux obtained via the inversion (2.9 Tg a^{-1}), we estimate the methane emissions related to O/G activity to be 2.7 Tg a^{-1} in the Permian Basin. Put in the context of national emissions, this value is approximately one quarter of total emissions from all U.S. oil and gas production areas in 2015 (10.9 Tg a^{-1}, including emissions from production, gathering, and processing, which largely occur in the production areas) (*7*). Our estimated emission rate for the Permian is significantly higher than those reported in the literature for other major U.S. O/G-producing basins. Table S1 summarizes methane emission estimates for 11 U.S. basins (*7*, *24*, *25*) from previous aircraft-based studies [i.e., Haynesville (*24*, *26*), Barnett (*24*, *27*), Northeast Pennsylvania (*26*, *28*), Southwest Pennsylvania (*25*), San Juan (*12*), Fayetteville (*26*, *29*), Bakken (*24*, *30*), Uinta (*31*), Weld (*32*), West Arkoma (*26*), Eagle Ford (*24*), and the Denver Basin (*24*)]. Our estimate for the Permian (2.7 Tg a^{-1}) is about a factor of 4 higher than the largest methane emissions from these previously reported O/G basins [i.e., Eagle Ford, 0.73 Tg a^{-1} (*24*)] and is even comparable to the 11-basin sum (3.7 Tg a^{-1}) (Fig. 4A and table S1). This comparison with recent literature indicates that the Permian Basin is likely the largest observed methane-emitting O/G basin in the United States and a substantial contributor to national O/G-related emissions.

Distribution of methane emissions

High-resolution observations from TROPOMI enable us to resolve methane emissions at an unprecedented spatial and temporal resolution, relative to the previous generation of satellite instruments such as the Greenhouse gases Observing SATellite (GOSAT) and SCIAMACHY (*9*). Figure 5 presents the spatial distribution of methane emissions in the Permian Basin at about a quarter-degree resolution derived from our atmospheric inversion. Compared to the prior inventory EI_{BU}, our inversion finds larger methane emissions near the center of the Delaware and Midland sub-basins. Sensitivity inversions further show that this spatial pattern is robust against prior emissions of varied magnitudes and distributions (fig. S3), demonstrating that it is primarily informed by satellite observations.

The spatial distribution of methane emissions derived from inversion is closely correlated with that of gross gas production (R = 0.78), but to a lesser degree with that of oil production (R = 0.53) and that of the well number density (R = 0.31) (fig. S4). Similarly, when we sum up the O/G-related emissions for two sub-basins, the ratio of methane emissions between Delaware and Midland (1.7/1.0 Tg a^{-1} = 1.7) is closest to the ratio of gas production (1.4), compared to that of oil production (1.0) and well number density (0.7). Because unconventional wells tend to have much higher production per well than conventional wells (*33*), the dependence of methane emissions on gross gas production rather than the well number density suggests that unconventional wells and infrastructure associated with these wells (e.g., gathering stations), which have been developed recently, are likely the major methane emitters in the Permian Basin.

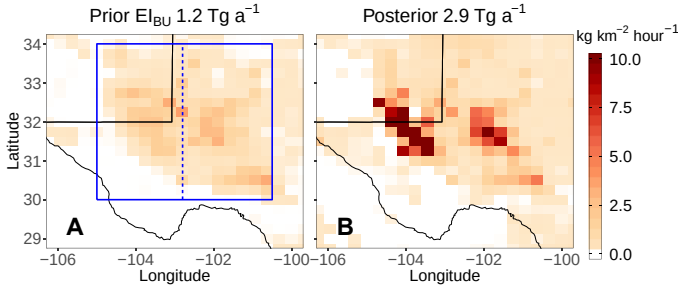

Fig. 5. Spatial distribution of methane emission rates in the Permian Basin. (**A**) Bottom-up emission inventory EI_{BU} extrapolated from EPA greenhouse gas inventory data (prior). (**B**) TROPOMI observation–derived emissions using Bayesian atmospheric inverse modeling (posterior). The prior and posterior basin-total emissions, indicated on top of the figure, are computed over the area enclosed by the solid blue boundary, with contributions from two sub-basins, the Delaware (left of the dashed line) and Midland (right of the dashed line).

In addition to the spatial distribution, our monthly inversion also provides information about the temporal variation of methane emissions during the 11 months of observation (fig. S5). Although the inversion's ability to resolve the spatial distribution of emissions varies from month to month because of uneven monthly sampling of TROPOMI (fig. S5), our inversion ensemble (table S2 and fig. S5) generally results in consistent monthly basin-level emission estimates (see also uncertainty analysis in Materials and Methods). We speculate that high emissions in December 2018 may be related to a very low in-basin gas price toward the end of 2018, resulting from insufficient gas gathering and transmission capacity in the Permian Basin (*33*,*34*). That said, we do not find an apparent increasing trend in methane emissions, although natural gas production from the Permian Basin increased steadily by ~20% during the overlapping 11-month period (fig. S6). Further investigation is required to delineate factors controlling the temporal variations of O/G-related methane emissions.

DISCUSSION

Using an inverse analysis of TROPOMI satellite observations, we estimate a total methane flux of 2.9 ± 0.5 Tg a^{-1} in the Permian Basin, with 2.7 Tg a^{-1} coming from O/G-related activity. Methane losses of this magnitude represent a waste of an important resource; for instance, this is enough natural gas to supply 7 million households in the state of Texas (*35*). Moreover, the 2.7 Tg a^{-1} methane emitted in Permian results in the same radiative forcing as ~260 Tg a^{-1} CO_2 over a 20-year time horizon (86 Tg CO_2 a^{-1} over a 100-year time horizon) (global warming potential of 96 for 20 years and 32 for 100 years) (*7*, *36*), about the same as annual CO_2 emissions from the entire U.S. residential sector (290 Tg CO_2 a^{-1} in 2017) (*22*).

Our estimate (2.7 Tg a^{-1}) equates to a production-normalized (73 Tg CH_4 a^{-1}, derived from 127 m^3 a^{-1} natural gas production during the study period using 80% methane content by volume) emission rate (or methane leakage rate) of 3.7 ± 0.7%, which is ~60% higher than the national average of 2.3 ± 0.3% (*7*) (Fig. 4B). The leakage rate is even higher for the rapidly developing Delaware sub-basin (4.1%). Comparable high leakage rates have also been reported in other oil production–focused basins such as the Bakken (*24*) (table S1), but these basins produce much lower natural gas than the Permian Basin does. Previous studies summarized in table

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S1 show an inverse relationship between the basin-level leakage rate and gas production (*24*); however, the Permian Basin is an outlier with high oil production, high gas production, and a high leakage rate.

Overall, the high leakage rate in the Permian Basin appears to be associated with insufficient infrastructure for natural gas gathering, processing, and transportation (*34*, *37*), leading to extensive venting and flaring (Fig. 3), which contributes to high methane emissions. The greater profitability of oil production contributes to a lack of investment in natural gas takeaway capacity, which, in turn, has resulted in excessive supply of associated gas and a very low in-basin gas price in the Permian (*34*). In addition, with the rescinding of U.S. federal requirements on gas capture and fugitive emissions in 2018, current regulations on O/G methane emissions in the Permian Basin are less stringent at both federal and state levels (see text S4). All these factors may increase the incentive for operators to vent and flare their product. On the other hand, the higher-than-average leakage rate in the Permian Basin implies an opportunity to reduce methane emissions in this rapidly growing oil and gas–producing region, through better design, effective management, regulation, and infrastructure development.

MATERIALS AND METHODS

TROPOMI methane observations

We use daily column-averaged dry air column methane mixing ratio (XCH_4) data retrieved from TROPOMI measurements (*38*) between May 2018 and March 2019. TROPOMI, onboard the polar-orbiting Sentinel-5 Precursor satellite, is a push-broom imaging spectrometer that provides near-daily global coverage with a swath width of 2600 km and a nadir ground pixel size of 7 km × 7 km at approximately 13:30 local overpass time (*17*). The retrieval algorithm accounts for the "full physics" of the light path by simultaneously inferring methane concentrations and physical scattering properties, using the oxygen A-band in the near infrared (NIR) and the methane absorption band in the short-wave infrared (SWIR) (*39*). Only high-quality XCH_4 measurements retrieved under cloud-free conditions are used in this study (as indicated by the retrieval quality assurance flags in TROPOMI data product). These measurements are filtered for solar zenith angle (<70°), low viewing zenith angle (<60°), smooth topography (1 SD of surface elevation <80 m within 5-km radius), and low aerosol load (aerosol optical thickness <0.3 in NIR) (*40*).

The TROPOMI XCH_4 product is further corrected for any known retrieval biases (*40*). The errors in the TROPOMI XCH_4 measurements have been assessed against GOSAT XCH_4 data (*38*) and were found to correlate with surface albedo. A global bias correction linearly dependent on surface albedo was then derived and applied to the TROPOMI data (*40*). This bias-corrected TROPOMI XCH_4 product is used in this study. Negligible correlation of errors with other retrieved parameters (e.g., aerosol optical thickness) was found in the assessment. Validation with independent ground-based measurements from the Total Column Carbon Observing Network shows that the bias-corrected TROPOMI XCH_4 has a bias of −4.3 ± 7.4 ppbv, improved upon the uncorrected XCH_4 product (−12 ± 11.5 ppbv) (*40*). In addition, we also examine the correlation between bias-corrected XCH_4 and other retrieved parameters for the subset of TROPOMI data over the domain of this study. We find no correlation with albedo ($R^2 = 0.00$) and a negligible correlation with aerosol optical thickness ($R^2 = 0.07$), supporting the idea that the XCH_4 enhancement over the Permian Basin (Fig. 1B) is robust.

Figure S7A shows the average XCH_4 over the conterminous United States and the Permian Basin between May 2018 and March 2019 before the topographical correction. We derive the elevation-corrected methane column (XCH_4^t) shown in Fig. 1 by applying a third-order polynomial correction fitted over the U.S. domain following Kort *et al.* (*10*). The mass balance method uses the elevation-corrected data (XCH_4^t) for emission quantification, while the inversion method uses XCH_4 (bias-corrected) directly obtained from the data product, because the topography effect is taken care of by the atmospheric transport model.

Atmospheric inverse modeling

We perform an inverse analysis of TROPOMI observations to derive optimized estimation of monthly methane emissions at 0.25° × 0.3125° horizontal resolution in the Permian Basin. Quantification of emissions at this combination of relatively high spatial and temporal resolution, not achievable with previous generations of satellite observations such as from GOSAT or SCIAMACHY, is enabled by higher-resolution TROPOMI satellite observations (*41*). Figure S7B shows that the Permian Basin is well sampled by TROPOMI during the study period, likely because of frequent cloud-free conditions in the region. A total of ~200,000 TROPOMI XCH_4 retrievals within the study domain (29°–34°N, 100°–106°W) between May 2018 and March 2019 are used for the inversion.

Let $\boldsymbol{x}$ be the state vector that we seek to optimize through inversion, including a gridded ensemble of methane emissions and an additional element representing the regional model bias in XCH_4. The regional model bias term (a monthly scalar uniform over the inversion domain) is necessary to account for spatially uniform biases caused by imperfect lateral boundary condition and emission errors outside the study domain. The inversion solves for an optimal estimate of $\boldsymbol{x}$ by minimizing the following cost function

$$J(\boldsymbol{x}) = (\boldsymbol{x} - \boldsymbol{x}_A)^T \mathbf{S}_A^{-1} (\boldsymbol{x} - \boldsymbol{x}_A) + (\boldsymbol{y} - \mathbf{K}\boldsymbol{x})^T \mathbf{S}_O^{-1} (\boldsymbol{y} - \mathbf{K}\boldsymbol{x}) \quad (1)$$

where TROPOMI XCH_4 observations are assembled in $\boldsymbol{y}$, $\boldsymbol{x}_A$ is the prior estimate of $\boldsymbol{x}$, $\mathbf{S}_A$ is the prior error covariance matrix, $\mathbf{S}_O$ is the observational error covariance matrix, and $\mathbf{K}$ is the Jacobian matrix describing the sensitivity of XCH_4 to emissions and the regional model bias ($\partial\boldsymbol{y}/\partial\boldsymbol{x}$).

Minimization of Eq. 1 at $\nabla_{\boldsymbol{x}} J(\boldsymbol{x}) = 0$ yields the posterior estimation ($\hat{\boldsymbol{x}}$), the posterior error covariance matrix ($\hat{\mathbf{S}}$), and the averaging kernel matrix ($\mathbf{A}$) (*42*)

$$\hat{\boldsymbol{x}} = \boldsymbol{x}_A + \mathbf{S}_A \mathbf{K}^T (\mathbf{K}\mathbf{S}_A\mathbf{K}^T + \mathbf{S}_O)^{-1} (\boldsymbol{y} - \mathbf{K}\boldsymbol{x}_A) \quad (2)$$

$$\hat{\mathbf{S}} = (\mathbf{K}^T \mathbf{S}_O^{-1} \mathbf{K} + \mathbf{S}_A^{-1})^{-1} \quad (3)$$

$$\mathbf{A} = \mathbf{I}_n - \hat{\mathbf{S}}\mathbf{S}_A^{-1} \quad (4)$$

Here, $\mathbf{I}_n$ is an identity matrix where n is the dimension of the state vector $\boldsymbol{x}$. The trace of $\mathbf{A}$, often called as the degrees of freedom for signal (DOFS), quantifies the number of pieces of information constraining the n-dimensional state vector.

To solve for Eqs. 2 to 4, the prior estimate ($\boldsymbol{x}_A$) for gridded methane emissions is required. Using different sources of information, we create two gridded emission inventories for the study region: one based on bottom-up information (EI_{BU}) and the other based on extrapolation

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of ground-based site-level measurements (EI_{ME}) (see below for descriptions of the inventories). Both emission inventories are time invariant. We use EI_{BU} as the prior estimate in the base inversion, while we use EI_{ME} in a sensitivity inversion to evaluate the impact of the prior estimate (PI_EI_{ME}; see table S2). We perform further evaluations using prior emissions constructed by disaggregating the total O/G-related emission flux from EI_{BU} with varied spatial proxies (i.e., well count, PI_EI_{well}, natural gas production, PI_EI_{gas}, and oil production, PI_EI_{oil}) (table S2 and fig. S3).

The difference between the EI_{BU} and EI_{ME} (Fig. 5A and fig. S3A) measures the uncertainty of our prior knowledge, and we thus specify prior errors ($\mathbf{S}_A$) for emissions as the absolute difference between EI_{BU} and EI_{ME}. We also specify the prior error for the regional model XCH_4 bias as 10 ppbv. To test the sensitivity to prior errors, we perturb $\mathbf{S}_A$ in two sensitivity inversions by doubling (PE × 2) or halving (PE × 0.5) prior errors (table S2). $\mathbf{S}_O$ is constructed with the residual error method (*43*), which results in an error averaged at ~11 ppbv. Both $\mathbf{S}_O$ and $\mathbf{S}_A$ are taken to be diagonal matrices. We also perform a sensitivity inversion to test the impact of error correlations with off-diagonal terms specified following Cusworth *et al.* (*44*) (OE_Cor; see table S2).

A nested version of the GEOS-Chem chemical transport model (12.1.0) is used as the forward model in the inversion to link XCH_4 to surface emissions. To account for the vertical sensitivity of the satellite instrument, we compute simulated XCH_4 by applying TROPOMI averaging kernels to simulated methane vertical profiles. We construct the Jacobian matrix $\mathbf{K}$, column by column, with simulations perturbing each state vector element independently. The simulations are performed over North America and adjacent oceans driven by GEOS-FP–assimilated meteorological data from the NASA Global Modeling and Assimilation Office on a 0.25° × 0.3125° horizontal grid and 47 vertical layers (~30 layers in the troposphere) (*21*). The boundary conditions for the nested-grid simulation are from a 4° × 5° global simulation from May 2018 to March 2019 driven by GEOS-FP meteorological fields. Note that methane emissions and sinks used in this simulation are optimized with previous-year (2010–2017) GOSAT satellite data following Maasakkers *et al.* (*3*). Such generated boundary conditions may be biased (i.e., unable to capture the growth of global methane concentrations; see fig. S9), and we account for it by introducing a monthly regional model bias term in the inversion. The retrieved regional model biases may vary with the extent of the inversion domain. To test this sensitivity, we also perform an inversion with a larger spatial domain (27°–36°N, 98°–108°W) (Bg_Large; see table S2).

Inversion uncertainty

The posterior error covariance matrix ($\hat{\mathbf{S}}$, Eq. 2) and averaging kernel matrix ($\mathbf{A}$, Eq. 3) evaluate the uncertainty of an inversion solution given inversion parameters (e.g., $\mathbf{S}_A$, $\mathbf{S}_O$, forward model). Figure S5 shows monthly posterior errors for basin-level emissions (derived from $\hat{\mathbf{S}}$) and corresponding DOFS (trace of $\mathbf{A}$) from our base inversion. Overall, the posterior errors for basin-level emissions are <5% of the estimated emission flux, and the DOFS are between 5 and 30 for the monthly inversion, indicating that the TROPOMI data are able to constrain basin-level methane emissions and partially resolve the spatial distribution on a monthly basis. The monthly variations in the posterior error and DOFS are mainly driven by uneven data coverage from TROPOMI sampling. For example, poor data coverage in November 2018 results in a large posterior error and a small DOFS (fig. S5).

We also perform an ensemble of sensitivity inversions by perturbing the configurations and parameters in the base inversion (table S2), aiming to characterize the uncertainties resulting from assumptions made in the inversion not captured by the analytical posterior error. Our results show that all these sensitivity inversions lead to consistent basin-level emission estimates. Annual mean fluxes from sensitivity inversions are within 0.5 Tg a^{-1} of that from our base inversion (table S2), with general agreement in monthly variations as well (fig. S5). Because the uncertainty resulting from sensitivity inversions are significantly larger than that deduced from posterior error covariance matrix (fig. S5), we report the uncertainty of our basin-level emission estimate (0.5 Tg a^{-1}) as half of the range from the inversion ensemble (2.4 to 3.4 Tg a^{-1}).

Furthermore, to assess the uncertainty due to model transport, we compare hourly GEOS-FP 10-m wind speed against measurements at the Midland Airport (MAF) in the Permian Basin during the period of May 2018 and March 2019. Airport wind measurements are not assimilated in the GEOS-FP reanalysis (*45*), so these observations are independent. We find that the GEOS-FP 10-m wind speed compares well with the airport measurements in both daytime and nighttime (fig. S8), with mean biases of less than 6% in the mean wind speed. We conclude that errors in the model wind fields are unlikely to be a major source of error in the inversion.

We introduced a regional model bias term in monthly inversions to correct for regional background biases in simulated methane concentrations, which result mainly from imperfect boundary conditions. To check our estimate for this regional bias term, we sample the model simulation to compare with independent observations, i.e., surface measurements at the Mauna Loa Observatory (MLO; a Pacific free tropospheric site upwind of the North American continent) (*46*), tower measurements at Moody, Texas (WKT) (*47*), and aircraft measurements offshore Corpus Christi, Texas (TGC) (*48*). The latter two sites are geographically much closer to the Permian Basin (~400 km from WKT and ~700 km from TGC) than MLO, but can be affected by local emissions that are not optimized in our inversion. Our results show that the model simulation, when corrected with monthly regional model biases (derived from monthly inversions over the Permian Basin), is able to capture the observed monthly variation in methane concentrations, notably the sharp increase from August to October 2018 in MLO and WKT observations (fig. S9), supporting that it is necessary to optimize the regional model bias in the inversion. Better agreement is observed at MLO and TGC compared to WKT (fig. S9), likely because WKT is located closer to local sources that are not fully optimized in the inversion. Overall, most of the differences between the prior simulation and TROPOMI observations can be explained by the regional model biases, except for the mismatch in the vicinity of the Permian Basin (fig. S2). We further perform a sensitivity inversion with a varied spatial domain (Bg_Large). Compared to the base inversion, Bg_Large results in a lower regional methane background (by 3 ppbv on average) and a higher methane emission flux (3.4 Tg a^{-1}) (table S2 and fig. S5), reflecting the error correlation between regional methane biases and methane emissions.

In addition, we note that the inversion cannot fully explain the methane enhancement extending outside the Delaware Basin in the northwest direction (near 33°N, 105°W), although the inversion overall substantially improves the agreement between observations

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and model simulations (fig. S2). While our investigations do not attribute an obvious source of emissions causing the northwestern enhancement (whether oil/gas or other sources), the basin-level O/G emission estimates presented here are robust if this enhancement is caused by non-O/G sources, but are conservative if it is caused by O/G sources.

Emission inventory based on bottom-up information

We create a bottom-up methane emission estimate (EI_{BU}) for the study domain starting from the gridded version of the EPA anthropogenic greenhouse gas emission inventory for 2012 (*49*). Maasakkers *et al.* (*49*) developed a procedure to spatially and temporally allocate the national sectorial methane emissions reported in the U.S. Inventory of Greenhouse Gas Emissions and Sinks (GHGI) by U.S. EPA on a $0.1° \times 0.1°$ grid, using various databases at the state, county, local, and point-source level. The emission inventory includes methane emissions from agriculture, coal mining, natural gas systems, petroleum (oil) systems, waste, and other minor anthropogenic sources.

To reflect the intensifying exploitation activity in recent years in the Permian Basin, we then make an extrapolation of the methane emissions from the oil and gas production sector, using 2018 Enverus Drillinginfo data on well count, well completion, and production (*50*). To account for the changes in the national average emission factors, we further scale the subsectorial production emissions using the ratio between the latest GHGI (*22*) and a previous GHGI that Maasakkers *et al.* (*49*) was based on (*51*) for 2013 emissions. The updates result in total methane emissions of 1.2 Tg a^{-1} in the Permian Basin (blue box in Fig. 5A), with 1.0 Tg a^{-1} coming from O/G-related emissions and the remainder mainly from agriculture. We use this updated gridded emission inventory (EI_{BU}) as the prior emission estimate for the inversion. The resulting emissions inventory dataset (EI_{BU} inventory) is publicly available for our study region encompassing the entire Permian Basin (https://doi.org/10.7910/DVN/NWQGHU).

Emission inventory based on site-level emission measurements

An alternative prior estimation of methane emissions is obtained by extrapolating ground-based methane emission measurements from a limited sample of oil and gas production sites in the Permian Basin (primarily in the New Mexico portion of the basin) during July and August 2018 (*52*). The measurements found a wide range of site-level emission rates, which appear to be associated with the complexity of infrastructure, and were classified into emission rates for simple (with only wellheads and/or pump jacks) versus complex sites (also with storage tanks and/or compressors). Extrapolating these site-level emission rates to the entire Permian gave a basin-level methane emission rate of 2.3 Tg a^{-1} from O/G production. Additional emissions from compressor stations and processing plants are estimated to be 0.22 and 0.14 Tg a^{-1}, respectively, using activity data from Enverus Drillinginfo's midstream infrastructure dataset, facility-level emission factors from literature (*53*, *54*), and blowdown event emission factors from GHGI (*22*). We then disaggregate the basin-level O/G-related emissions to a $0.1° \times 0.1°$ grid by the spatial distribution of gas production (Fig. 2D). To complete the inventory, non-O/G anthropogenic methane emissions (0.2 Tg a^{-1}) are taken from EI_{BU}. This emission inventory (EI_{ME}), based primarily on extrapolation of limited site-level measurements, provides an alternative prior estimate for the inversion and is used to test the sensitivity of the results to the choice of prior information (fig. S3). See text S2 for detailed information regarding the site-level measurements and the extrapolation procedure. The resulting emissions inventory dataset (EI_{ME} inventory) is publicly available for our study region encompassing the entire Permian Basin (https://doi.org/10.7910/DVN/NWQGHU).

SUPPLEMENTARY MATERIALS

Supplementary material for this article is available at http://advances.sciencemag.org/cgi/content/full/6/17/eaaz5120/DC1

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Supplementary Materials for

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Supplementary Text

Text S1: Methods for estimating gas flaring volume

We use the nighttime fire and flare data observed by the Visible Infrared Imaging Radiometer Suite (VIIRS) instrument onboard the Suomi National Polar-Orbiting Partnership satellite to support our analysis (https://eogdata.mines.edu/download_viirs_fire.html; data access: August 1, 2019). The product Nightfire V2.1 (CLASS) is available for the period from 2012 to 2017, while the product Nightfire V3.1 (GRAVITE) is available for the period starting 2018. We select the data with retrieved flame temperature between 1400–2500 K within the study domain. Combustion in this temperature range is usually associated with gas flaring. The spatial distribution of the flaring radiant heat in Permian is presented in Figure 3 and the evolution of the flaring radiant heat is presented in fig. S1.

We also estimate the gas flaring volume in Permian between May 2018 and March 2019 following an empirical relationship with the radiant heat proposed by Elvidge et al. (*55*):

$$V = 0.0274\ RH'$$

where V is the gas flaring rate in 10^9 m^3 a^{-1} and RH' is the modified radiant heat in MW to account for the observed nonlinear relationship between flared gas volume and radiant heat (*55*). RH' for individual flares are computed as $\sigma T^4 S^\alpha$ where σ is the Stefan–Boltzmann constant (5.67×10^{-8} W m^{-2} K^{-4}), T and S are the temperature and the source area of the flare, respectively, retrieved from VIIRS observations, and $\alpha = 0.7$ is the empirical calibration exponent determined by Elvidge et al. (*55*). The average and the standard deviation of the flaring rate during the study period is computed with daily basin-level flaring rates aggregated from individual detected flares. We estimate a flaring rate of 5.9±1.2 billion m^3 a^{-1} during May 2018 and March 2019. In comparison, the operator self-reported venting and flaring in the Permian Basin is 4.5 billion m^3 a^{-1} for 2018, according to the New Mexico Oil Conservation Division (www.emnrd.state.nm.us/OCD/statistics.html) and the Texas Railroad Commission (www.rrc.state.tx.us/oil-gas/research-and-statistics/production-data/). Previous assessments show that operator self-reported flaring data are consistently lower than satellite-based observations (*15*).

We can further compute the mass of methane contained in the flared gas (M) as

$$M = m_{\mathrm{CH_4}}\gamma\frac{V}{\upsilon}$$

where υ is 0.0224 m^3 mol^{-1} under STP conditions, m_{CH4} is 16 g mol^{-1}, and γ is the fraction of methane in natural gas (~ 80% for the Permian Basin according to EPA Oil and Gas Emissions Estimation Tool Version 1.5). Methane emissions from gas flaring can then be computed as $(1-\epsilon)M$, and methane converted to CO_2 during flaring as ϵM, where ϵ is the flaring combustion efficiency. We thus estimate that 3.4±0.8 methane Tg a^{-1} is sent to flaring. Assuming a flaring efficiency between 95%-98%, this indicates direct methane emissions of 0.07-0.17 Tg a^{-1} from gas flaring, less than 6% of the total methane emission estimate based on TROPOMI data. 3.2-3.3 Tg a^{-1} methane is converted to CO_2 during flaring.

As a form of background information, there are 154,540 active wells with 6,555 new wells (< 1 year old) in the Permian Basin during the study period (May 2018 – March 2019), according to Enverus Drillinginfo (*50*). Here, active wells are defined as wells that either reported their

oil/gas production for at least six months during the study period or reported non-zero oil/gas production at the end of the study period (March 2019). While information regarding permits in the New Mexico portion of the Permian Basin is unavailable, we estimate a total of 3,364 venting and flaring permits are effective for the Texas portion of the basin during the study period, based on the data from the Texas Railroad Commission.

Text S2: Site-level emission measurements and extrapolation to the Permian Basin

We provide here details of recent ground-based measurements and their extrapolation that were used to construct an alternative measurement-based bottom-up inventory for the Permian Basin, as an input to the atmospheric inversion modeling. The methodology and results were made publicly available in April 2019 via Environmental Defense Fund's New Mexico oil and gas pollution study (*52*). The resulting emission inventory dataset (EI_{ME} inventory) is publicly available for our study region encompassing the entire Permian Basin (DOI: https://doi.org/10.7910/DVN/NWQGHU).

Here, we provide a summary of the measurements, methodology and results. Ground-based site-level methane emission measurements at 93 oil and gas production sites in the Permian Basin were performed in July and August 2018 with a stationary downwind plume measurement technique (OTM-33A) (*52*), in which methane concentration measurements were taken downwind of target sites at 0.5 Hz using a Picarro cavity-ring down spectrometer (Model G2204). OTM-33A is a well-established emission rate quantification method that utilizes stationary downwind measurements coupled with Gaussian plume dispersion modeling to estimate site-level methane leak rates. Previous controlled release tests indicated a 95% confidence interval of +/-56% on mean site-level emissions quantified using the OTM-33A methodology (with a -10% bias) (*56*).

The sampling was carried out predominantly in the New Mexico portion of the Permian Basin, following a stratified random sampling approach to account for the wide diversity of well age within the oil producing fields. Final site selection at a particular field was determined by local meteorology on the day of measurements as well as access to public roads downwind of target sites. A FLIR optical gas-imaging camera is used to identify major emission sources such as storage tanks and to facilitate positioning of the vehicle within the plume.

In this study, sites were recorded as below the detection limit (BDL) if no clear plume was detected downwind. The BDL was estimated at 0.04 kg/h based on previous work (*56*). In total, 52 sites were reported to have BDL emissions while 41 sites had emissions that were above the detection limit. The detectability of emissions from a site are found to be closely associated with the complexity of infrastructure. Emissions were below the detection limit (0.04 kg/h/site) for over 90% of "simple" sites (with only wellheads and/or pump jacks), but were detectable for most (78%) "complex" sites (also with storage tanks and/or compressors). We determine the site-level emission factor for "simple" sites to be 0.04 kg/h/site and that for "complex" sites to be 5.2 kg/h/site. For the latter, a lower bound estimate following the procedure described in Zavala-Araiza et al. (*57*) (5.2–79 kg CH_4/h/site) is used here for a conservatively low estimate.

To extrapolate to basin-level emissions based on the above measurements, we need to estimate the number of "simple" vs. "complex" sites in Permian. We used satellite imagery data from Google Maps to perform manual classification ("simple", "complex", or "unknown") of 25,000 well sites in the New Mexico portion of the Delaware Basin. Human classification of well site images was achieved via a crowdsourcing marketplace—Amazon Mechanical Turk (https://www.mturk.com/). Depending on the observed equipment on site, each image representing a well site location was manually classified by five workers as either a "simple" site, a "complex" site, or a site of "unknown" configuration. A site's final classification was

determined based on at least a 60% agreement among the workers. On average, 33% of the sites were classified as “complex” sites and 58% were classified as “simple” sites, with the remainder (8.6%) being sites of “unknown” configuration. We assume this distribution for the New Mexico portion of the Delaware Basin applies to the whole Permian Basin and count the “unknown” category as “simple”. We therefore estimate that the numbers for “simple” and “complex” sites are 97,000 and 48,600, respectively. Combining site classifications with corresponding site-level emission factors leads to an estimate of 2.3 Tg a^{-1} for methane emissions from O/G production in the Permian Basin.

Text S3 Mass balance method for emission quantification

As an independent comparison of our inverse modeling results, we apply the mass balance method of Buchwitz et al. (*23*) to derive the average methane emission rate over the Permian Basin (30-34 °N, 101-105 °W). This data-driven approach does not require prior emissions and atmospheric transport model, and therefore is a fast algorithm, compared to atmospheric inversion. With large amount of high resolution observations delivered by satellite instruments such as TROPOMI, the method has potential as a quick screening and assessment tool for quantifying regional annual methane emissions.

Here, we apply the method to the elevation corrected methane column $\mathrm{XCH_4^t}$ data from May 2018 – March 2019 regridded to 0.2° × 0.2° (Figure 1). The emission rate (Q, Tg yr^{-1}) is computed by applying a conversion factor (CF) to the $\mathrm{XCH_4^t}$ enhancement ($\Delta\mathrm{XCH_4^t}$, ppbv, computed as mean $\mathrm{XCH_4^t}$ in the source region minus mean $\mathrm{XCH_4^t}$ in the surrounding background) as follows (*23*):

$$Q = \Delta\mathrm{XCH_4^t} \times CF$$

$$CF = L \times V \times M_{exp} \times M \times C$$

where L is the effective length of the source area (computed as square root of the source area, 375 km) through which wind of effective speed V (17 km hr^{-1}) ventilates the air parcel carrying emitted methane, M_{exp} is the ratio of average surface pressure in the region (898.32 hPa for Permian) and standard surface pressure of 1013.25 hPa, M is a constant to convert mole fraction to mass change per area (5.345 kg CH_4 km^{-2} ppb^{-1}) in standard atmospheric conditions, and C is a dimensionless factor chosen to be 2.0, derived by Buchwitz et al. (*23*), based on the concentration difference of the air parcel before and after entering the source area. The surrounding background is defined as a rectangular box centered at the Permian Basin. We vary the width and length of the surrounding background from 8 to 24 degrees at a 2-degree interval. Wind speed V is taken from the average horizontal boundary layer winds over the source region from ECMWF ERA5 data at 20:00 UTC, which is close to TROPOMI overpass time over Permian basin. Using the mass balance method, we estimate an annual average methane emission rate of 3.2 Tg a^{-1} from the Permian Basin.

The uncertainty of the method (σ_{tot}) is computed as $\sqrt{\sigma^2_{\Delta\mathrm{XCH_4^t}} + \sigma^2_{\mathrm{CF}}}$ to account for contributions from both $\Delta\mathrm{XCH_4^t}$ and CF. The uncertainty due to $\Delta\mathrm{XCH_4^t}$ ($\sigma_{\Delta\mathrm{XCH_4^t}}$), dominated by the variations in the background $\mathrm{XCH_4^t}$, is estimated by varying the size of surrounding background region. The uncertainty due to CF (σ_{CF}), primarily contributed by the uncertainty in wind speed, is computed using the empirical equation derived in Buchwitz et al. (*23*) We find σ_{tot} to be 2.0 Tg a^{-1} ($\sigma_{\Delta\mathrm{XCH_4^t}}$ = 0.5 Tg a^{-1} and σ_{CF} = 1.9 Tg a^{-1}) in this work.

Text S4 Current status of regulation in the Permian Basin

Oil and gas production on federal lands occur only on the New Mexico portion of the Permian Basin. These lands accounted for 9.6% (398 Bcf) and 8.9% (18 Bcf) of total Permian gas production (https://www.enverus.com/) and gas flaring (https://eogdata.mines.edu/download_global_flare.html), respectively. With the rescinding of the gas capture and fugitive emissions requirements in the BLM's 2016 Methane Waste Prevention Rule, Permian Basin operators with assets on both federal and state lands are now required to meet the state standards only. Both New Mexico and Texas do not have associated gas capture targets and both states permit associated gas flaring in the Permian Basin. Additionally, both states currently do not directly regulate oil and gas methane emissions.

In 2016, the Bureau of Land Management's Methane Waste Prevention Rule (https://www.regulations.gov/document?D=BLM-2016-0001-9126) imposed limits on associated gas venting, flaring and fugitive leaks from new and existing sites operated on federal lands. The BLM's 2018 revision (https://www.govinfo.gov/content/pkg/FR-2018-09-28/pdf/2018-20689.pdf) of the 2016 rule rescinded these requirements, arguing that these rules were unnecessary because the EPA had analogous requirements for fugitive leaks, and venting and flaring are regulated under state requirements. However, the EPA fugitive emissions requirements are less stringent—they focus only on new or modified facilities commissioned in September 2015 and later and do not address gas waste from other existing sites. Furthermore, the EPA recently proposed to revise these requirements (https://www.federalregister.gov/documents/2018/10/15/2018-20961/oil-and-natural-gas-sector-emission-standards-for-new-reconstructed-and-modified-sources), loosening the leak detection and repair frequency and allowing more time to perform repairs of detected leaks. Thus, the vast majority of Permian operations (i.e. existing sites) on both federal and state lands are now required to meet the state standards only.

Both New Mexico and Texas do not have associated gas capture requirements analogous to the requirements in the 2016 BLM rule, and both states currently permit associated gas flaring in the Permian Basin. The Texas Railroad Commission's Statewide Rule 32 (https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=32) grants administrative flaring permits that can be renewed for 180 days. Operators can apply for extension to flare beyond the first 180 days and provide additional information on progress made "toward establishing the necessary infrastructure to produce gas rather than flare it." These extensions are routinely granted, primarily because "the operator is waiting for pipeline construction scheduled to be completed by a specified date." Similarly, The New Mexico Administrative Code 19.15.18.12A (http://164.64.110.134/parts/title19/19.015.0018.html) permits venting and flaring of casing-head gas in unlimited quantities within the first 60 days following completion. Exceptions may be granted beyond the first 60 days when venting/flaring appears "reasonably necessary to protect correlative rights, prevent waste or prevent undue hardships on the applicant."

Supplementary figures

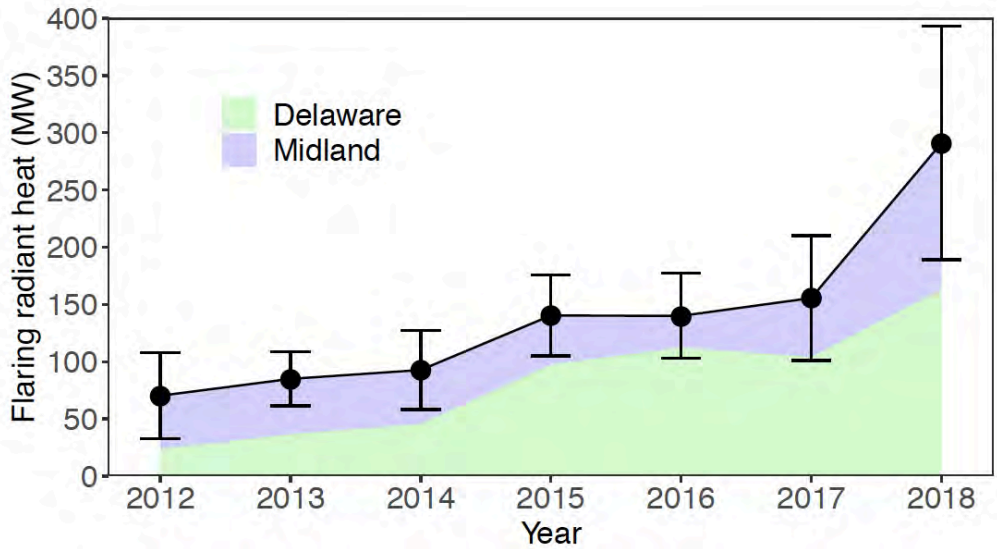

Fig. S1 Annual mean gas flaring radiant heat over the Permian Basin observed by VIIRS from 2012 to 2018. Error bars represent the standard deviation of monthly variations. The blue shading represents the Midland Basin and the green shading the Delaware Basin.

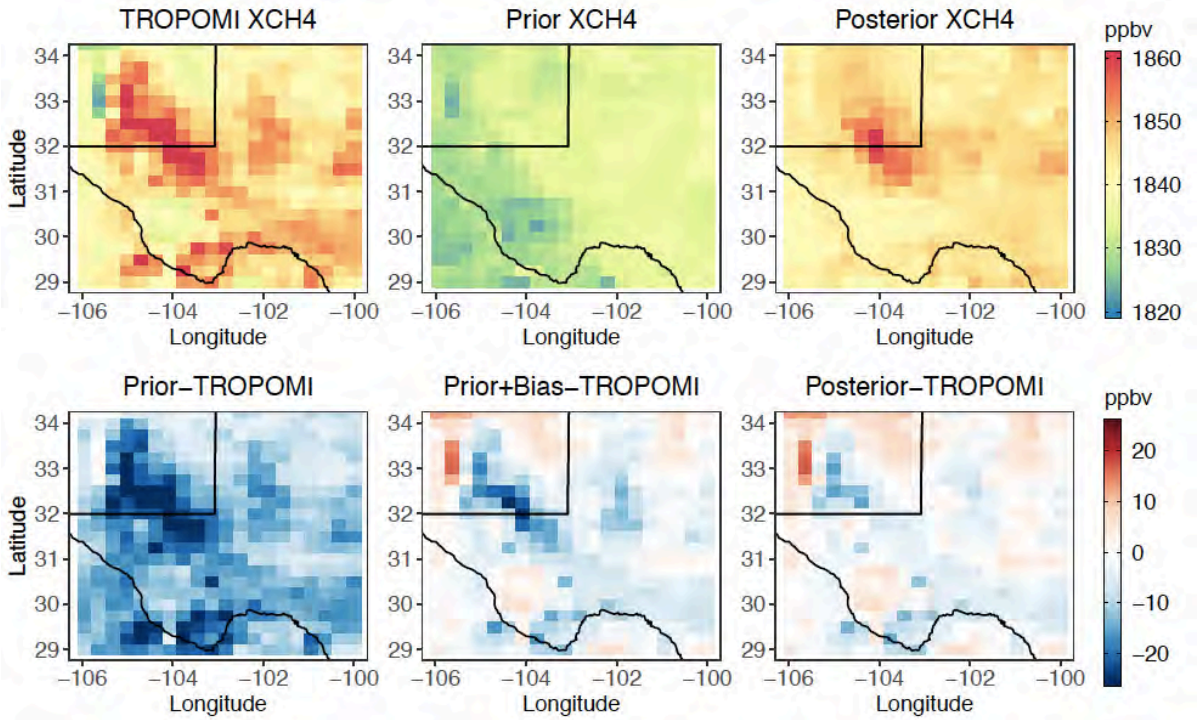

Fig. S2 Observed and simulated XCH_4 over the Permian Basin. The top panels show TROPOMI observations, GEOS-Chem prior simulation, and GEOS-Chem posterior simulation respectively. The bottom panels show the difference between simulations (prior simulation, prior simulation with regional biases corrected, and posterior simulation) and observations. Data are averaged from May 2018 to March 2019.

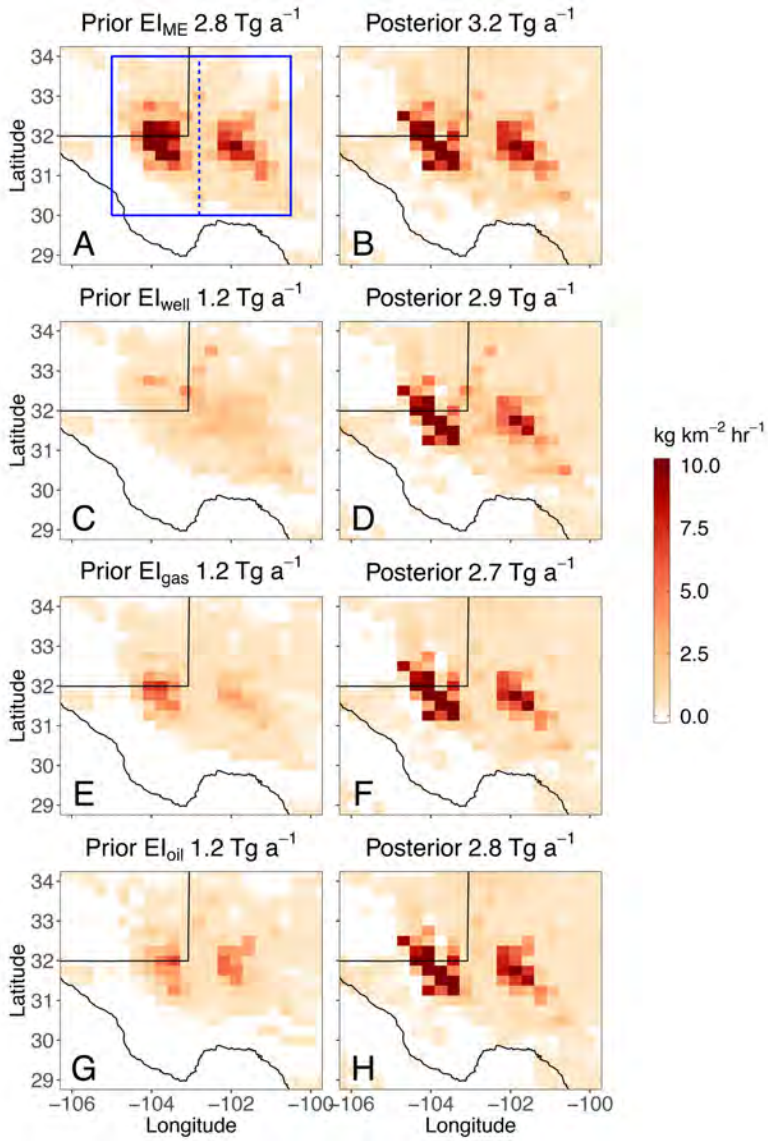

Fig. S3 Spatial distribution of methane emission rates in the Permian Basin in alternative prior emission inventories (A, C, E, G) and the corresponding posterior estimates (B, D, F, H). A, B are for EI_{ME}, C, D for EI_{well}, E, F for EI_{gas}, and G, H for EI_{oil}. The solid blue box encloses the Permian Basin with the two sub-basins to the left (the Delaware) and the right (the Midland) of the dashed line.

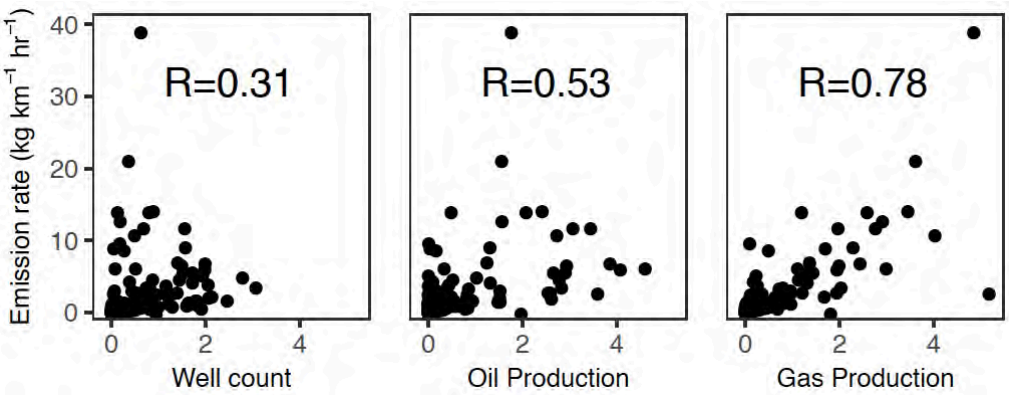

Fig. S4 Spatial correlation between the posterior methane emission rates and O/G production activities for each grid cell. Data for well count, oil production, and gas production are normalized and expressed in %.

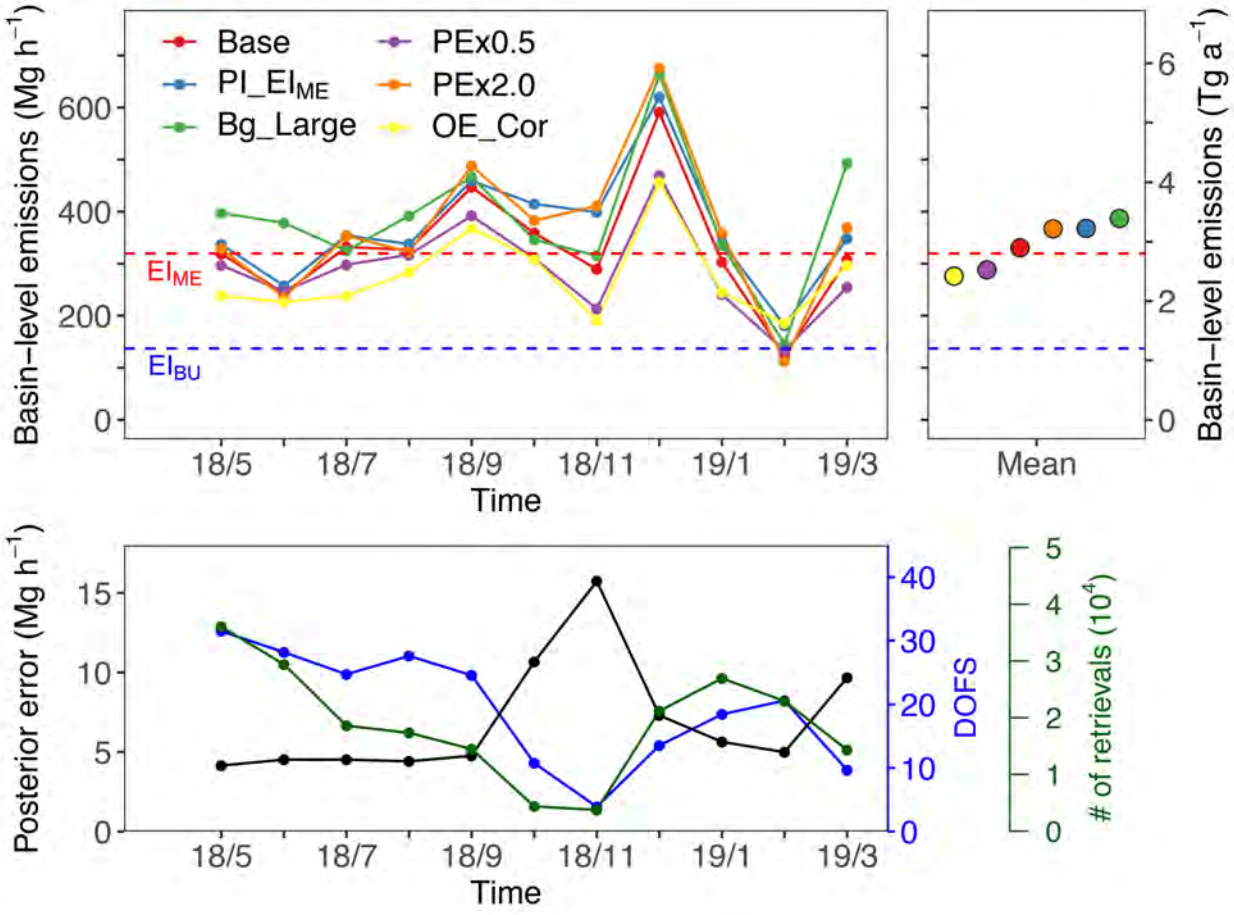

Fig. S5 Monthly methane emission rates estimated by the base and sensitivity inversions (top) and analytical posterior error (bottom). The top panel shows the monthly and mean basin-level methane emission estimates by the base and sensitivity inversions (table S2). Blue and red dashed lines indicate basin-level emissions estimated by EI_{BU} and EI_{ME}, respectively. The bottom panel shows monthly count of successful retrievals used in the base inversion (green), analytical posterior errors for the basin-level methane emissions (black), and corresponding degrees-of-freedom for signals (DOFS) (blue).

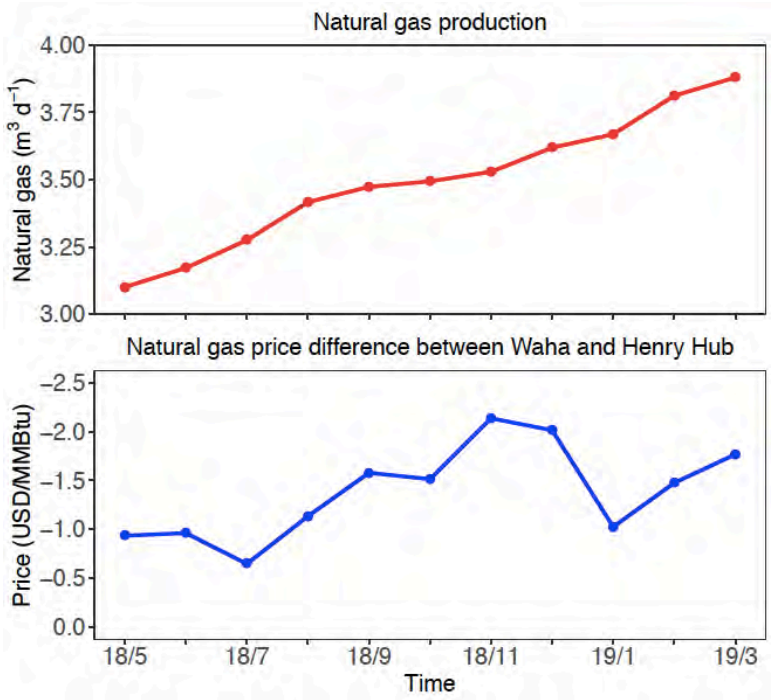

Fig. S6 Monthly natural gas production and price in the Permian Basin. Top: natural gas production in the Permian Basin. Bottom: monthly mean natural gas spot price between Waha (in the Permian Basin) and Henry Hub (benchmark of the North America natural gas market). Note that the price differences (Waha – Henry Hub) are negative, meaning that natural gas is traded below the Henry Hub benchmark within the Permian Basin.

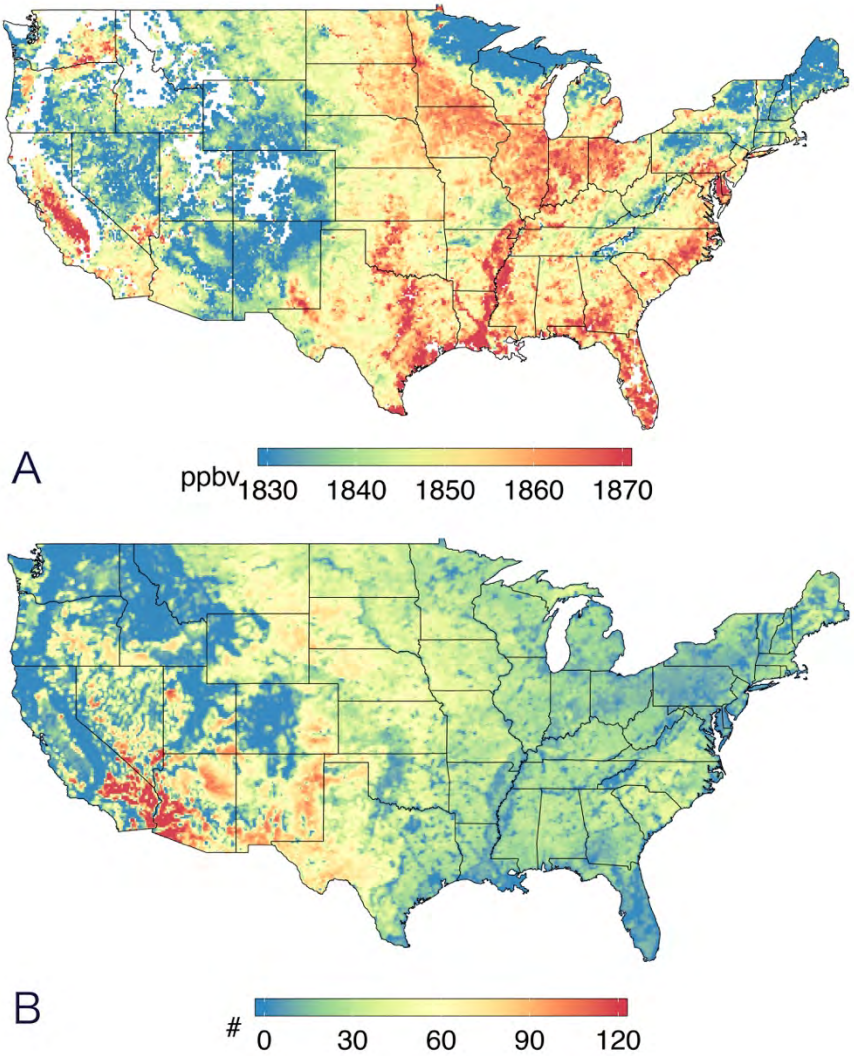

Fig. S7 TROPOMI XCH4 observations over the conterminous U.S. (A) Average column methane mixing ratio (XCH_4) over the conterminous U.S. during the study period. The 11-month average is derived from monthly mean XCH_4 from TROPOMI. (B) Number of days with successful retrievals on the 0.2°×0.2° grid from May 2018 to March 2019.

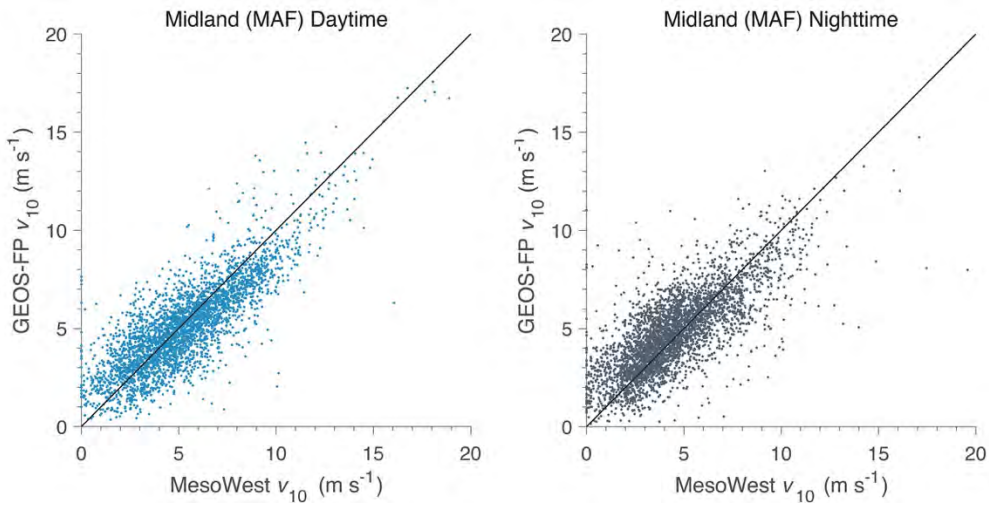

Fig. S8 Evaluation of GEOS-FP wind speed in daytime (left) and nighttime (right). Data are from May 2018 to March 2019. Surface measurements at the Midland Airport (MAF) in the Permian Basin are obtained from MesoWest (mesowest.utah.edu).

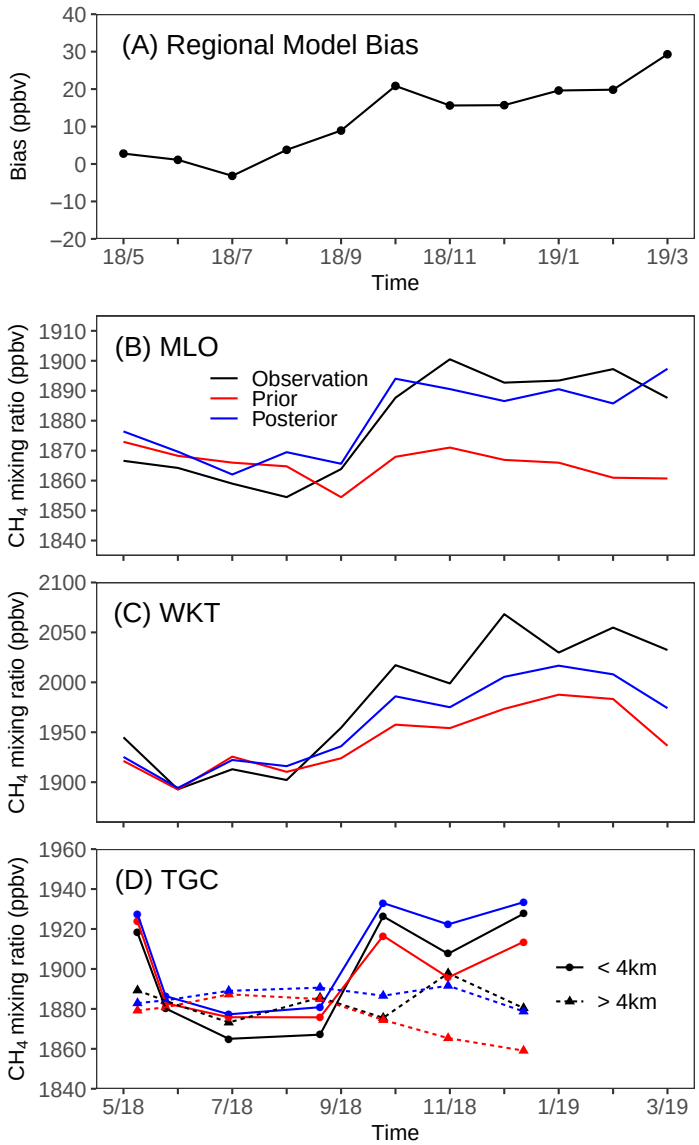

Fig. S9 Regional model biases inferred from the TROPOMI inversion and evaluation with independent observations. (A) monthly regional model biases for the simulated methane column (XCH_4) from the base inversion. (B-D) Evaluation with surface measurements at MLO (B), tower measurements at WKT (C), and aircraft vertical profile measurements ~ 250–8000 m at TGC (D). The bias corrected model results (blue) are computed as the sum of original model results (red) and model biases inferred from the inversion (regional model biases derived from our inversion times a factor of 1.25 to convert the column bias to the free tropospheric bias). We show monthly averages for MLO and WKT, and flight averages above and below 4 km altitude for TGC. This comparison suggests that the regional model bias term introduced in the inversion is effective for correcting background biases resulting mainly from imperfect boundary conditions.

Supplementary tables

Table S1. Estimates of O/G-related methane emissions reported in previous aircraft-based studies for 11 U.S. O/G producing basins. [a]

	Ref.	Date Sampled (Month/year)	NG production (10^9 m^3 a^{-1})	CH_4 fraction in NG (%)	O/G-related emissions (Tg a^{-1})	Production normalized emission rate (%)
Haynesville	(*26*)	6/2013	80	86	0.63	1.3
Barnett	(*27*)	3 & 10/2013	61	89	0.53	1.4
NE PA	(*28*)	5/2015	60	95	0.16	0.4
NE PA	(*26*)	7/2013	N/A	95	0.11	0.3
San Juan	(*12*)	4/2015	29	83	0.50	3.0
Fayetteville	(*29*)	10/2015	26	97	0.24	1.4
Fayetteville	(*26*)	7/2013	N/A	97	0.31	1.9
Bakken	(*30*)	5/2014	20	47	0.24	3.7
Uinta	(*31*)	2/2012	12	89	0.48	6.6
Denver Basin	(*32*)	5/2012	10	79	0.17	3.1
West Arkoma	(*26*)	7/2013	4	96	0.23	9.1
Bakken	(*24*)	4/2015	13	47	0.25	5.4
Barnett	(*24*)	4/2015	44	87	0.40	1.5
Denver Basin	(*24*)	3/2015	14	77	0.16	2.1
Eagle Ford [b]	(*24*)	4/2015	56	N/A	0.73	2.5
west			32	77	0.36	2.0
east			24	68	0.37	3.2
Haynesville	(*24*)	4/2015	54	90	0.37	1.0
SW PA	(*25*)	8 & 9/2015	29	88	0.19	1.1
11-basin sum [c]			322	N/A	3.71	1.9
Permian	This study	5/2018-3/2019	128	80	2.7	3.7

[a] Data are taken from a summary by Alvarez et al. (*7*) except for those from Peischl et al. (*24*) and Ren et al. (*25*).

[b] Emissions from Eagle Ford are reported separately as west and east sub-basins (*24*), based on which we compute the data for the entire basin.

[c] 11-basin sum is computed with latest measurements if multiple studies exist for a specific basin. Therefore, shaded rows are excluded in calculating the 11-basin sum.

Table S2. Total basin-level methane emission estimates from an ensemble of sensitivity inversions perturbing a variety of inversion parameters.

	Inversion	Basin methane emissions (Tg a^{-1})
	Base inversion [a]	2.9
	Sensitivity inversions perturbing prior emissions [b]	
PI_EI_{ME}	EI_{ME} as prior emissions	3.2
PI_EI_{oil}	EI_{oil} as prior emissions	2.7
PI_EI_{gas}	EI_{gas} as prior emissions	2.7
PI_EI_{well}	EI_{well} as prior emissions	2.9
	Sensitivity inversions perturbing the size of spatial domain	
Bg_Large	27°–36°N, 98°–108° W	3.4
	Sensitivity inversions perturbing error covariance specifications	
PE×2	Double prior error	3.2
PE×0.5	Halve prior error	2.5
OE_Cor	Specify observational error correlations [c]	2.4

[a] Base inversion is performed over a domain in 29°–34°N, 100°–106° W and uses EI_{BU} as prior information. Both $\mathbf{S}_O$ and $\mathbf{S}_A$ are taken to be diagonal. Prior errors are specified as the absolute difference between EI_{BU} and EI_{ME}. Observational errors are specified following the residual error method (*43*).

[b] Spatial distributions of these prior emission inventories and corresponding posterior estimates are shown in fig. S3.

[c] $\mathbf{S}_O$ is specified following Cusworth et al. (*44*) by assuming 4 ppbv model errors with a spatial correlation length of 40 km and independent instrument errors.

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From:	Chris Hopmann
To:	MONOPS
Subject:	TCEQ The final 2020 Annual Monitoring Nextwork Plan and respnse to all comments.
Date:	Thursday, May 14, 2020 4:09:49 PM
Attachments:	TCEQ letter about neighbors consideration 10252020.pdf TACA 10 reasons to join TACA 05142020.pdf Vulcan Violations pgs 1-9 05142020.pdf TCEQ and EPA 05142020.docx

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Attn: Ms. Holly Landuyt.

Please find three attachments and my three page letter.

My Name is Chris Hopmann.

Please let me know if you have any questions.

Thank you and have a great weekend.

Respectfully,

Chris

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

(https://www.tceq.texas.gov)

Crusher permits stir interest but protect people and the environment

Oct. 25, 2017 -Many members of the public express concern about the potential impacts from rock and concrete crushing plants. The good news is that standard permits for both permanent and temporary rock and concrete crushers, which break down large pieces of concrete and rocks to provide material for pavement and other construction needs, protect public health and the environment when operated correctly.

Many members of the public express concern about the potential impacts from rock and concrete crushing plants.

The good news is that standard permits for both permanent and temporary rock and concrete crushers, which break down large pieces of concrete and rocks to provide material for pavement and other construction needs, protect public health and the environment when operated correctly.

These plants can operate under the standard air permit because, among other things, the output from them is lower. The requirements ensure protectiveness at the property line.

Proposed permits for these operations often draw heavy opposition from citizens who are concerned with the potential health impacts of the facility, traffic and noise in the area, and the effect the facility may have on nearby property values. Although the TCEQ does not regulate traffic, noise, or the effect on property values, the agency does have jurisdiction to develop a standard permit that protects public health.

A few facts about standard permits

Requirements of this standard permit include limiting operation to fewer than 2,640 hours in any 12-month period; placing equipment at least 200 feet from property lines and at least 440 yards from any residence, school, or place of worship; and limiting production to less than 200 tons of material per hour.

When the standard permit was developed, the TCEQ conducted an air quality protectiveness review, demonstrating that the requirements meet state and federal emission standards.

"These permits were developed very conservatively to protect both public health and the environment." says Beryl Thatcher, a manager in the TCEQ's Air Permits Division.

Notice requirements

An applicant is required to publish notice and post signs to notify the public of the proposed registration. At that time the public may submit comments to the TCEQ and/or request an informational meeting.

Any comments submitted during the comment period are considered and addressed by the agency.

If an application for the standard permit meets all of the applicable rules and requirements, the TCEQ is required to approve the request within 30 days after the close of the public comment period.

Other rules may apply

An air authorization from the TCEQ is not necessarily the final step an applicant may need for such a plant. Applicants must also comply with other applicable rules and regulations and an air authorization does not supersede local ordinances or zoning requirements.

If an applicant is not able to meet the requirements of the standard permit, they must apply for a case-by-case new source review air quality permit.

The TCEQ is here to help

As long as a facility operates according to the requirements of their permit, public health and the environment are protected. However, no facility can create a nuisance condition.

The TCEQ is always available to anyone who wishes to **file an environmental complaint (http://www.tceq.texas.gov/compliance/complaints/)** and all complaints are investigated.

Newsroom (https://www.tceq.texas.gov/news)

TCEQNews (https://www.tceq.texas.gov/news/tceqnews)

TCEQ Social Media (https://www.tceq.texas.gov/news/social-media)

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Texas Aggregates and Concrete Association Member Benefits

Top 10 Reasons to Join TACA

1. TACA members represent 70% of the aggregates, 100% of the cement, and 75% of the concrete produced in Texas today.
2. TACA has a political action committee (TACPAC) that raises hundreds of thousands of dollars annually and is the largest of its kind across the industry.
3. TACA has retained the services of a highly respected governmental advocacy group to serve our member's best interests at the state capitol.
4. TACA has strong relationships with the state and federal regulatory authorities, such as Texas Commission on Environmental Quality (TCEQ), the State Comptroller's Office, Texas Department of Transportation (TxDOT), Texas Department of Public Safety (DPS), Environmental Protection Agency (EPA), etc., to insulate our members from adverse rulings in the case of an audit or inspection.
5. TACA provides marketing & technical standards to support our members with one-to-one marketing and specification assistance.
6. TACA members receive email updates such as important changes in the industry by our federal, state, or local governments.
7. TACA members receive our highly acclaimed quarterly magazine, the *TACA Conveyor*, and have access to our "member's only section" on the TACA website.
8. TACA members enjoy the benefit of knowledge-based seminars that provides them the tools to be on the cutting edge of industry standards and practices.
9. TACA provides our members with a tangible network to assist with introductory or present customer needs.
10. TACA members are leaders in their communities and industry and are prideful that they belong to an association that emphasizes the highest of standards.

Vulcan

Date Reported	Violation Description	Citation	Violation Started	Comments/Notes	Source
2/25/2011	Edward Aquifer Authority violations related to Hazardous Substances, Registration, Storage and Planning, letter of non-compliance	EAA Rules Chapter 713.513	9/1/2010	Vulcan asks for an extension to comply with the EAA rules with a deadline of 3/15/2011	
Vulcan opens self Audit 5/16/2011 for Regulated Substance Storage Problems					
4/11/2012	Failure to notify TCEQ of construction for 2 asphalt cement tanks & obtain TCEQ approval for proposed modification to those planned construction activities	30 TAC 213.4(a)(1),(j)(6), and (k) and 213.5(f)(1)	3/1/1998	Must submit all planned construction activities and obtain approval before starting	Voluntary Disclosure for Audit 9/20/2011-3/12/2012-Westward
4/11/2012	Removal of 2 fuel tanks, 1 hot oil heater without first notifying, getting approval from the TCEQ	30 TAC 213.4(j)(6) and (k)	1/1/1997	Must submit all planned construction activities and obtain approval before starting	
4/11/2012	Above ground storage system not sized to capture 150% of storage capacity	30 TAC 213.4(k) and 213.5€(1)	1/1/2000		
4/11/2012	Failure to notify TCEQ & obtain approval for construction of a burner fuel tank & relocating hot oil heater tanks	30 TAC 213.4(a)(1)(j)(6), and (k) and 213.5(f)(1)	5/1/1998	Must submit all planned construction activities and obtain approval before starting	
4/11/2012	Actual volumes of 2 burner fuel tanks, 4 asphalt tanks, and 2 hot oil heater tanks are not consistent with the volumes specified for those tanks in above ground tank plan	30 TAC 213.4(k) and 213.5(1)	12/1/1993		
4/11/2012	Actual volumes of 5 hot oil tanks are not consistent with the volumes specified for those tanks in above ground tank plan	30 TAC 213.4(k)	1/1/1993		
4/11/2012	Failure to notify TCEQ, obtain approval for construction of 260 ft of piping	30 TAC 213.4(a)(1),(j)(6), and (k) and 213.5(f)(1)	8/1/1998	Must submit all planned construction activities and obtain approval before starting	
4/11/2012	Failure to Notify TCEQ before commencing construction of 3 antistrip tanks and filing a proposal for the modifications	30 TAC 213.4(a)(1),(j)(6), and (k) and 213.5(f)(1)	12/1/1993	Must submit all planned construction activities and obtain approval before starting	

5/25/2012	Mine Safety & Health Administration cites Vulcan with 86 point penalty $1,111.00	MSHA 56.3200	unknown	Hazardous Ground Conditions the affected area is ordered to be posted as "hazardous" and a barrier to prevent entry must be established until corrections have been made	
8/13/2013-10/1/2013 6 dust complaints to the TCEQ Investigation #1122644 Investigation begins on 8/20/2013-10/4/2013 "No Nuisance dust was found"					Violations found in Dust Complaint Investigation #1122644
8/20/2013	Failure to maintain a copy of permit on site.	5C THSC Ch 382.085(b)EIC C3Min(3)© and TAC 116.115(b)	unknown	How can employees follow permit rules if there is no copy on site?	
8/20/2013	Failure to fully implement established practices for dust abatement	EIC C281.25(a) and CTWC 26.121(4) MOD (3)(D)	unknown	This violation wasn't resolved until 12/29/14 (1 yr. and 4 months later). It is required that violations be resolved within 90 days.	
10/19/2013 Major Dust Dumping Event Results in 19 complaints to the TCEQ Investigation #1145699 begins on 10/21/2013 ends on 1/3/2014. Many residents reported being seriously sickened by the dust. Vulcan discloses these 5 violations on the same day the TCEQ investigators show up to do dust sampling to find the source					NO OPEN AUDIT=NO VOLUNTARY DISCLOSURE Should have resulted in 5 NOVs
10/23/2013	Hazardous Waste determinations were not performed for all solid wastes generated at the site and records of such determinations were not available	30 TAC 335.62 and 335.504, and/or 335.9(a)(1) and 335.513(a) and EAA Rules	1/1/2005	It is a big deal to not document Haz Mat on the EARZ.	
10/23/2013	Non-Hazardous waste classifications were not performed for all solid waster generated at the site, records "not available"	30 TAC 335.503, and/or 335.9(a)(1) and 335.513(a)	1/1/2005	Not keeping records or not doing determinations at all	
10/23/2013	Opacity Testing was not performed for certain equipment and/or records of such testing were not complete or available	Air Permit #8594 Special Condition #2	5/1/2007	Opacity testing is how a facility knows emissions exceedances or events. TCEQ got Alamo Cement's opacity records on 10/23 , no mention of Vulcan's Opacity records in report. This should have resulted	
10/23/2013	Hourly air permit production limitation was exceeded at times	Air Permit #8594 Special Condition #5	2/1/2012	Vulcan was producing over permit limits, ignoring permit.	

10/23/2013	Records of repairs and maintenance of emissions abatement systems not maintained or available	Air Permit #8594 Special Condition #9C	7/1/2011	failing to do repairs/maintenance is one of the main reasons for an "upset" illegal emissions event	
11/13/2013	Residents report to the TCEQ, Vulcan had done a construction project over the previous holiday weekend to fix a storm water drainage issue. The TCEQ was unaware of this (a violation) and should have resulted in a NOV. Residents even supplied photos of the construction project going on late in the night. The previous year Vulcan had committed this same violation 5 times.				
11/19/2013	TCEQ Receives NOA letter from Vulcan for this site. Westward Performs this Audit during this investigation				
11/21/2013	Dust test results are due to be disclosed to affected residents according to Carl Ortmann's promise of "within 30 days" on 10/21/2013				
12/3/2013	***MAJOR FIRE with multiple multiple huge explosions is reported by residents to SAFD Incident #131203-0387. The houses shook and power went out to area. Vulcan is required by permits to report this event to the TCEQ & EAA within 48 hours as required. Residents report that they were the one's that notified the TCEQ. This facility has multiple petroleum storage tanks onsite.***				No report to EAA or TCEQ
1/13/2014	***SAWS/Bexar County notifies TCEQ of plans to investigate storm water contamination allegations/complaints made by area residents. TCEQ should have opened the SW investigation within a few days, but instead they wait 3 wks for Vulcan to finish their audit. This SW investigation was opened <u>the day after</u> TCEQ rec'd Vulcan's audit violations disclosures for immunity. Audit Act says investigations commence as normal even in audit.***				
2/3/2014	SWP# site map does not accurately depict storm control devices present on facility	TPDES Permit TXR05N024: Part III Section A.#.(d)(5) and 30 TAC 305.125(1)	8/1/2011		Tommy Mathews/Westward Environmental performed this suspicious audit. Texas Audit Act=No Audit can be opened after an investigation is initiated, and no injury or risk of imminent substantial injury has taken place. = 23 NOVs.
2/3/2014	Log of Spills and Leaks not updated	TPDES Permit TXR05N024: Part III Section A.3.(e) and 30 TAC 305.125(1)	10/1/2013	not keeping records	
2/3/2014	Storm Water Plan 3 did not contain acknowledgement letter form TCEQ	TPDES Permit TXR05N024: Part III Section A.5.(a)(2) and 30 TAC 305.125(1)	8/1/2011	Failure to Notify TCEQ again	
2/3/2014	Copies of routine inspection reports for asphalt facilities were "not available"	TPDES Permit TXR05N024: Part III Section B 2(b) and 30 TAC 305.125(1)	10/1/2013	Pattern of not keeping records	

2/3/2014	copies of routine inspecting reports for the Quarry were "not available"	TPDES Permit TXR05N024: Part III Section B 2(b) and 30 TAC 305.125(1)	10/1/2013	Pattern of not keeping records	
2/3/2014	Routine Facility inspections are not being signed	TPDES Permit TXR05N024: Part III Section E.6.(c) and 30 TAC 305.125(1)	8/1/2011	Pattern of not inspecting the facility as required	
2/3/2014	Visual Monitoring not being performed for storm water	TPDES Permit TXR05N024: Part III Section B 3(a) and 30 TAC 305.125(1)	8/1/2011	Vulcan not even doing any monitoring for storm water on EARZ no less	
2/3/2014	Annual Comprehensive Site compliance Inspections do not document observations relating to the implementation of storm water control measures	TPDES Permit TXR05N024: Part III Section B 5 (b)(4) and 30 TAC 305.125(1) EAA Rules	8/1/2011	Must train personnel and do a comprehensive site inspection for pollutants entering into the drainage system and install control measures	
2/3/2014	Failure to conduct benchmark monitoring at outfall 002, parameters must include TSS, pH, and total iron and sample iron	TPDES Permit TXR05N024: Part V. Section E6 and 30 TAC 305.125(1) EAA Rules	8/1/2011	Vulcan had not even done monitoring for 2 years	
2/3/2014	Sediment discharge noted at Outfall 003 in Elm Waterhole Creek bottom	TPDES Permit TXR05N024: PartII. Section A.4.c and 30 TAC 305.125(1)	12/1/2013	Remove sediment from Elm Creek maintain rock berms along the ongrade and be vigilant in the best management practices and removal of accumulated sediment and the creek if necessary	
2/3/2014	Failure to obtain maintenance start, and shutdown (MSS) authorization for PBR #73098L001	30 TAC 101.22H and 106.263 (a)	1/7/2013	Since these events can increase emissions these activities are supposed to be reported and monitored	
2/3/2014	Failure to submit start of construction operation, completion of construction permit #20609	General Conditions 3 & 4 and 30 TAC 116.115(b)(2)	11/19/2013	Area residents reported this undisclosed construction on a holiday weekend/nighttime to the TCEQ on 11/19/2013 so this should have already resulted in a NOV	TCEQ inspector told affected residents on 10/21 "results in 30 days." Instead 28 days later Tommy Mathews of Westward performed an audit for Vulcan to get
2/3/2014	Failure to obtain maintenance start, and shutdown (MSS) authorization for PBR #84031	30 TAC 101.22H and 106.263 (a)	1/7/2013	Must start recording MSS emissions & activities	

2/3/2014	Failure to mark all equipment authorized by permit #20609 w/assigned TCEQ regulated entity # or permit #	Permit #20609 S.C. 9 and 30 TAC 116.115 (c)	8/28/2006		immunity. Audit Act prohibits this for obvious reasons. Since the TCEQ investigation was well underway and people were injured w/medical records this is highly suspicious.
2/3/2014	Failure to conduct initial determination of compliance stack sampling for Particulate Matter after start up activities	Permit # 20609, S.C. 11 30 TAC 116.115c	3/1/1991	How can Vulcan know they weren't to blame for dust if not even testing?	
2/3/2014	Plant roads are not completely paved as required to achieve control of dust emissions and to maintain compliance rules	30 TAC 116.115c	8/28/2006	Might be why they have had such a long history of dust track out problems. Why didn't TCEQ see this in those investigations?	
2/3/2014	Failure to submit start of construction, completion of construction notification permit 956	General Conditions 3 & 4 and 30 TAC 116.115(b)(2) and 30 TAC 116.115 (b)(2)	10/5/2005	This is the 8th time in 2 years that Vulcan purposely failed to get approval from the TCEQ for construction projects	
2/3/2014	Failure to obtain maintenance, start up, and shutdown (MMS) authorization for permit #956 and PBR #108420 and 107889	30 TAC 101.22H and 106.263(a)	1/7/2013	Has to do with emissions record keeping	
2/3/2014	Failure to submit start of construction-completion of construction of star of operation for permit #2626, 8594 and 971	General Condition 3 & 4 and 30 TAC 116.115(b)(2)	10/19/2006	9th time that Vulcan committed this same violation in a 2 yr period	
2/3/2014	Documentation of testing related to 40 CFR Part 60, A and ooo was not maintained onsite for Crusher #4	permit #2626 SC 2 and 30 TAC 116.115(b)(2)	10/19/2006	Must test crusher as required Method 9. This can be a cause for emissions events	
2/3/2014	Failure to obtain maintenance, start up and shutdown (MSS) authorizations for associated PBR #107907, 73991 and 96383	30 TAC 101.211 and 1067.263(a)	1/7/2013	Must begin keeping records	
2/3/2014	Failure to construct and maintain spray bars at some locations per permit #8594	Permit SC 6A and 30 TAC 116.115 c	1/7/2013	This if for controlling dust emissions	

2/4/2014 TCEQ Air Inspector finally signs off on this toxic dust investigation on the very same day as Vulcan turned in this list of violations for immunity. Audit Act says violation disclosures are <u>not</u> considered voluntary if disclosed after an investigation has commenced or if injury or risk of injury has occurred. TCEQ had received dust test results 1 & 2 months prior showing toxic contents but waited to close investigation until the very day they got Westward/Vulcan's audit disclosure. At the very least Vulcan should have gotten 23 NOVs for this. Also suspicious, TCEQ did not investigate & involve toxicology dept. with multiple injury complaints as required. TCEQ did not even order the proper test for toxic contents & Vulcan refused to provide residents with Westward's test results even though they previously said they would

Frustrated by TCEQ's lack of action, residents complain directly to SAWS about storm water & dust problems resulting in investigation #1151378. SAWS inspectors <u>accompanied</u> the TCEQ inspectors.

2/4/14-2/5/14	Failure to implement adequate erosion and sediment control BMPs adjacent to outfall 005 along Elm Waterhole Creek	30 TAC 281.25(a)(4) MSGP Part IIIA.4(a)(1-10) and EAA Rules	unknown	Rill erosion caused illegal discharge into the Elm Waterhole Creek. No mitigations. It was visually obvious they were failing	This was a record breaking storm water investigation for Region - 13 with 12 violations found Residents say TCEQ SW Inv told them this
2/4/14-2/5/14	Failure to maintain BMP's at outfalls 004 & 005	30 TAC 281.25(a)(4) MSGP IIIA.4(d)(3) and EAA Rules	unknown	Rock berms failing causing sediment to wash down into creek. Controls are required to be inspected on a regular basis	
2/4/14-2/5/14	Failure to develop additional BMPs after noting TSS exceedances at outfalls 001, 002, & 005 on 5/24/13	30 TAC 281.25(a)(4) MSGP IIIA.4 c. and EAA Rules	unknown	Vulcan knew for at least 8 months that their berms had failed & creek was heavily contaminated but took NO immediate action to investigate or fix it as ***required*** by TCEQ and EAA permits.	
2/4/14-2/5/14	Failure to conduct the required 90 day exceedance investigation following the known exceedances on 5/24/13 These TSS contamination exceedance were "Notable" at **13,600 mg/L at outfall 005 Federal limit is 45. Oil & grease exceedances were 400% the previous year at 60.3 mg/L, Federal limits is 15**	30 TAC 281.25(a)(4) MSGP IV.A.3. and EAA Rules	unknown	Ph levels outfall 002 were found over 8.2 =high alkalinity in storm water. Known for 2 consecutive yrs. Vulcan pollution prevention team made no BMPs or investigations. Vulcan offered no explanation to TCEQ.	
2/4/14-2/5/14	Failure to update the Storm Water Plan BMP maintenance log after the 2013 site evaluation	30 TAC 281.25(a)(4) MSGP IIIB. 5. c. and EAA Rules	unknown	There were inaccuracies on and conflicting statements with reality according to investigation	
2/4/14-2/5/14	Failure to properly conduct routine inspections of the areas subject to Sector J of the MSGP	30 TAC 281.25(a)(4) MSGP III. B.2 (c)(5) and EAA Rules	unknown	Vulcan stated that they would be installing corrective berms at least 2 yrs. prior but never did	

2/4/14-2/5/14	Failure to conduct semi-annual benchmark monitoring for all of 2012	30 TAC 281.25(s)(4) IV B1(a) and EAA Rules	1/25/2012	There were 10 qualifying storm events that should have resulted in monitoring and inspections	
2/4/14-2/5/14	Failure to sample metals identified in the inventory of exposed materials	30 TAC 281.25(a)(4) III C.1(d)(3) and EAA Rules	unknown	exposed hazardous metal testing is required to be done once per year	
Additional violations (Areas of concern-warnings) also found in this investigation but no NOVs were given for these violations					
2/4/14-2/5/14	Must properly prepare annual comprehensive site evaluation as required by permit	TPDES MSGP III A.3(d)(1-16)	unknown	No required details/discussion on the past evaluation	
2/4/14-2/5/14	Update the site map as required for changes that have been made	TPDES GP III A.(5)(h)	unknown	No updates to map for changes made	
2/4/14-2/5/14	Must conduct quarterly visual monitoring as required by permit	TPDES MSGP III.B.3 A(7)(c)	unknown	Numerous qualifying storm events were not monitored as required 2012-13	
2/4/14-2/5/14	Allowing unauthorized waste water run off from pressure washing driveway	TPDES GP, III A.(4)(c)	unknown	waste water from pressure washing driveway is not allowed to be discharged	
3/5/13-6/13	*Vulcan's lawyers have multiple meetings with the TCEQ trying to argue that they already disclosed these violations on 2/4/2014 so they should be immune. TCEQ report says they disagree but later it is noted that 2 of these violations were dropped somehow. Since Westward's audit was not considered voluntary Vulcan should have received 8 NOVs*				
8/24/2014 an Investiation for another dust dumping event this time North and East of Vulcan 1604 in the Wortham Oaks Subdivision. TCEQ claims no nuissence conditions were confirmed but they perform sample tests which indicates they did find nuissence conditions they dont take samples if not. Somehow these samples were not good. I have requested this report.					
12/16/2014	Edwards Aquifer Authority sends Vulcan a violation letter stating non-compliance with Regulated Substance Storage rules again	EAA 713.503	unknown	EAA sent similar violations letter regarding Regulated Substance issues in 2010 & 2011	

12/16/2014	Edwards Aquifer Authority sends Vulcan a violation letter stating non-compliance with Regulated Substance Storage rules	EAA 713.505c	unknown	EAA inspection found leaking petroleum drum and drum was not stored in an enclosure per EAA requirements. Vulcan claims they were not leaking	
12/16/2014	Edwards Aquifer Authority sends Vulcan a violation letter stating non-compliance with Regulated Substance Storage rules	EAA 713.509 a. 1.	unknown	Spill Prevention & Response Plan does not contain location of recharge features	
12/16/2014	Edwards Aquifer Authority sends Vulcan a violation letter stating non-compliance with Regulated Substance Storage rules	EAA 713.513	unknown	Spill Prevention & Response Plan does not contain all storage areas for regulated substances	
12/16/2014	Edwards Aquifer Authority sends letter to Vulcan for non-compliance with various regulated substances stored at the facility that were not stored in acceptable containers	EAA 713.505	unknown	Drums at the Asphalt plant were not stored in proper containers	
12/16/2014	Edwards Aquifer Authority finds multiple violations in inspection	EAA 713.509 a. 5.	unknown	Regulated substances were stored outside of an enclosure and the plan showed total RS at 2,989 gallons but EAA found 4,235.14 gallons.	
12/16/2014	Edwards Aquifer Authority finds multiple violations in inspection	EAA 713.513 e.	unknown	Spill Containment Supplies were not stored in the spill kit as required	
12/16/2014	Edwards Aquifer Authority sends letter to Vulcan for non-compliance for Spill Containment Supplies	EAA 713.513 e.	unknown	Required to update the Spill Prevention & Response Plan with required supplies stored properly in the correct locations on site. Vulcan asks on 4/17/15 for 45 more days to comply	
1/5/2015	Bexar County cites Vulcan 1604 with a Notice of Violation for an Expired On-Site Sewer Permit	Onsite Sewage Permit	unknown	Inspection is required for renewal	
Mine Safety & Health Administration Violations=22 since 2011					
5/8/2015	TCEQ Receives notification from area residents that MSHA has cited Vulcan for MORE berm degradation & their industrial waste water has been spilling downhill towards homes. This can be seen on Google Earth.	MSHA 56.3200	unknown	Wastewater tail pond was not contained and at capacity, with liquid eroding downstream & down hill very close to residential neighborhood on West side of Vulcan	EAA has no record of this. Vulcan must report all medium/major spills

4/15/2016	EAA sends violation letter to Vulcan for exceeding withdrawals of water during critical period	709.37, 711.134, 711.224 & 711.228	for 2015	EAA fines Vulcan for exceeding annual authorized groundwater withdrawal amount.	
Vulcan 1604 Operation wins TACA's Public "Appearance" Award for Outstanding Achievement in improving the public image of the industry & demonstrating a commitment to plant appearance and protecting the environment.					
Vulcan 1604 Should have a total of 30-40 Notice of Violations Orders for 5 yrs.			But TCEQ only gave them only 7		
	Clearly there is no incentive for Vulcan to follow permit requirements if the TCEQ allows them to open audits in the middle of an investigation and then incorrectly grants them immunity for those violations. Improper immunity in violation of the audit act has occurred at this location 3 times in most recent compliance period of 5 yrs showing a pattern.			Vulcan commits **same violation** of failing to notify TCEQ of construction plans and get approval 9X in 2 yrs	Pattern of Disregard

To: Texas Commission on Environmental Quality May 13, 2020
Attn: Ms. Holly Landuyt
MC-165
Austin, Texas 78711-3087
Email: monops@tceq.texas.gov

To: EPA
Attn:
A
A

From: Chris Hopmann email: chrishop@gvtc.com
30323 FM 3009
New Braunfels, TX 78132

Ref: 2020 Annual Monitoring Network Plan and a response to all comments.
Coordination of TCEQ and EPA efforts to effectively make meaningful and factual (science based) accurate rules and regulations regarding the Aggregate Industry including but not limited to the following: Rock Quarries, Concrete manufacturing or processing, concrete batch plants, asphalt production, sand and gravel mining etc. **Specific reference to Air Quality Permit NO. 147392L001**

Dear gentlemen,

After more than two and a half years of trying to get the attention of your respective agencies and staff I am sincerely disappointed with many of the actions and lack of actions and the lack of honesty and integrity that should be in place and practiced during all your communications and public meetings. This comment is specifically directed to TCEQ and I will give you examples below of some of examples that are restricting effective communications.

1) Public Meeting held by TCEQ regarding "Air Permits" for aggregate businesses or operations that seem to meet some meaningless standards or requirements which are approved without TCEQ doing as much as a comprehensive in depth study of the applicants operational compliance history of violations and any resulting fines and or penalties. This seems to be insignificant to TCEQ and is basically laughed off. This is nothing more than a meaningless formality or hand slap with no real ramifications for violations of regulatory compliance enforcement which is the responsibility of TCEQ in this matter.

2) Questionable integrity by TCEQ and some of their Applicants as to the honesty and factualness of comments made at these public meetings that are considered and viewed by the masses to be unrealistic and a joke. If an applicant states that they are in good standing with TCEQ and when TCEQ doesn't object, one would reasonably think this should be able to be confirmed, correct? However during the Vulcan Materials Public Meeting held in New Braunfels, TX, which TCEQ hosted regarding the proposed Rock Quarry by FM 3009 and HWY 46W, New Braunfels, TX this statement was made during the meeting by Vulcan. Yet if the records people have access to (which is a legal requirement) the Vulcan Operation which they use to support their statement of "following the rules and regulations of federal and the State laws are in question."

   Regarding the above referenced permit "Air permit" issued to Vulcan Materials for the above referenced site operation has received more violations than all of the other Aggregate operations in Bexar County

Combined during for the same period. How is this in *compliance with all rules and regulations and being in, good standing with TCEQ compliance and following all rules and regulations? How can this be true?*
The "Air Permit" doesn't even require "Impact Studies" for environmental effects, traffic issues, safety health and welfare issues, air quality concerns and property devaluation and loss of intended use.

3) TCEQ letter dated Oct. 25, 2017. **Please see attachment**. Please read this page in its entirety. To most everyone that has read this document, it is just another example of how TCEQ lacks effective guidance, management, direction and expertise as to using, state of the art engineering and science based data.

This has to be one of the most poorly written rules and regulation guidance commentary that I have ever seen. It shows no respect for others period. These type comments are why people have such a negative and well-justified poor evaluation of TCEQ overall. This lacks maturity, respect for the environment, respect for the surrounding property owners and their intended property use.

4) TACA – Ten Reasons to become a member of TACA (Texas Aggregate Concrete Association) **Please see attachment**. Please read it in its entirety. This is simply unbelievable! It appears that TACA has gotten very favorable treatment form the State of Texas and many of its agencies which I believe is questionable possibly illegal, unethical and surely unprofessional as it appears to say they are above the laws of Texas.

5) Government was founded by the people for the people and no special interests, correct? The constitution clearly states this. The laws are to protect "we the people." I have seen nothing in the above that indicates this is the intent in any manner. What I do see is a dictatorial approach to govern or dictate which is not in accordance to the constitution. I don't think TCEQ has been granted or appointed to be the Law of the Land or they would have been appointed as kings or dictators. This appears to be abuse of power!

6) Vulcan materials again in the Hondo/Castroville area strong armed their way into getting a railroad to their facility to ship their products out mostly by rail. This was enabled thru the use of "public domain." The issue here is there is no one else using the rail line. So it was not for the "public domain or use by the public" but for private use. Is this legal?

7) For well over two and one half years residents in central Texas have been joining forces to help address this exploitation that is well known to be harmful to areas and the residents in multiple ways for many, many years. If this is allowed it will be *destroying the very reasons people moved here to begin with and destroy our quality of life, our air quality and wellbeing.*

8) Is it possible that TCEQ and the EPA are now working against the will of the people, and for the benefit of businesses? They were commissioned or hired to protect the residents and the environment accordingly and are not doing this effectively. Is this a conflict of interest?

9) Residents of Texas pay taxes to Texas as citizens or residents of Texas to uphold the laws of the land and for the state to protect the people. This is clearly in question today.

10) Sad facts;
1) The governor of Texas Gregg Abbott, the Lt. Governor Dan Patrick and the Attorney General of Texas Ken Paxton have all been sent multiple letters from many residents on this overall subject for two and one Half years.

2) When tax payers pay taxes to our elected officials to represent us. That is what they should do. That is what we should be able to expect as we have paid them for these services.

Therefore if they do not represent the people and instead represent business interests first that is not representing the will of the people. This could be viewed as supporting businesses over that of "we the people" which may be a conflict of interest if it is detrimental to the Texas environment or the residents of Texas health, safety and welfare.

11) Note: we have the TCEQ - Texas Commission on Environmental Quality which is the (Texas EPA basically) and the EPA - Environmental Protection Agency to protect state wide environment regulations and any detrimental effect to we the people. That's basically it right? If they do not effectively do that what protection do we have?

These two agencies are two of the largest agencies in the United States. Note they both have Environmental in their names. Yet when we look for scientific data regarding emissions from aggregate operations we have very little actual data and they generate significant emissions. This is unacceptable!

Consider why we don't have "state of the art air monitors: at all aggregate related operations. It's real simple, we don't require or even promote the idea to have them. Why? They are surely needed! Is it the lobbyists and their donations to candidates, is it TACA which likes to use the cop-out expression and the self-serving excuse that monitors are too costly. The aggregate industry is very profitable just look at the P&L statements! Yes aggregate businesses are extremely profitable! Yet they are being allowed by TCEQ and the EPA and the Legislature to do whatever they want, when they want, how they want if they want. What do they do to promote a healthy overall environment? What do they do to promote and insure that they are being good land and business stewards?

The requirement for air monitors as required by engineering practices for aggregate related businesses should be required NOW! It should have been required many years ago as well! The unknown amounts of harmful emissions should not be ignored one more day. This should be done thru a third party and the reports sound be certified. TCEQ, EPA and the general public should all get the certified data at the same time and no more manipulating data or inspections by any operators.

The total costs of the Air Monitoring and related services are to be paid in full by the respective operations or aggregate businesses. This is just a cost of doing GOOD, ACCOUNTABLE and ethical and professional business. The cost of this "Air Monitoring" is nothing compared to their overall costs.

12) In closing, I would simply ask that you look at the big picture as to what is happening in this example and ask why! Think about the total amount of harm being done daily to the environment and people's lives and their health, quality of life and people's wellbeing. Yet who benefits greatly and why?

I thank you for considering my comments about this huge subject and my obvious real concerns. If you would like to discuss this subject please let me know. I am in high hopes of a much better tomorrow for the overall environment of which people must live in. Let's make sure it as good as possible for future generations and everyone's health and welfare.

Respectfully,

Chris M. Hopmann **Note: Please see all attachments!**

From: Frances Lovett <wflovett@gmail.com>
Sent: Saturday, May 9, 2020 9:51 AM
To: MONOPS
Subject: Annual Monitoring Network Plan

To TCEQ:
Re: Aggregate Industry Monitoring

Thank you for allowing public input into the issue of monitors for aggregate operations. I live in Kerr County where we have several quarries/gravel mining operations, hot mix asphalt plants, and concrete batch plants. A cluster of these facilities adjoins our local schools, penetrates residential areas, is less than a five miles from summer camps and a Veterans Administration hospital which houses long-term care residents.

The current monitoring situation poses multiple health risks for local citizens and does nothing to support the industry's repeated assertions of being "good neighbors". I believe both residents' concerns and industries' good faith could be accomplished with targeted monitoring.

Problems with current practice:

- We have no dependable monitoring—reasons given include expense, not necessary, self monitoring by owners is adequate
- Models do not reflect industry operations or statements to our community—data are compiled on boilerplate twenty-four-hour operation applications, yet they operate on an eight to twelve hour cycle. Thus PM exposure is much more concentrated than reflected in the models.
- Models included in applications do not consider the cumulative effect of adding contaminants to air already laden with particulates from adjoining operations, and heavy truck traffic.
- Without monitoring we have no way to identify or separate the good neighbors from some operator's reckless practices. The result is no accountability and worsening air quality.
- Today the only oversight of migrant dust is local citizen's calls to TCEQ. We are limited in our expertise, time and resources.

Proposed solutions for best practices:

- Air quality monitors on all industry site perimeters to target contaminants and particulates specific to that operation.
- Air quality monitors placed within a mile radius of prevailing winds.
- Monitor placement should become a part of the air permit application process.
- Twenty-four-hour, 365 days per year monitoring should be paid for by the applicant.
- Monitors would best be read and controlled by TCEQ, thus documentation is available to assure minimum health standards are being met and each aggregate operation is adhering to their emissions permit.

Data collection and evaluation is an integral part of health care. Our community's overwhelming concern is the long-term effects of airborne contaminants on our health. Example: The risk posed to a child during development i.e., kindergarten through twelfth grade while attending schools located within concentrated emission areas. Scientifically placed monitors could allay health care worries, simplify

TCEQ oversight, eliminate much litigation targeting aggregate operators, and move Texas toward minimum safety standards already in place in neighboring states.

Respectfully,
Frances Lovett, R.N.
6749 Highway 27
Comfort, TX 78013
Kerr County

From: Ray
To: MONOPS
Subject: suggestion on air quality monitoring plan
Date: Sunday, April 26, 2020 12:25:22 PM

Please put a monitor in the third ward of houston, we have many days of poor air quality in this part of town.

charles

From:	Adrian Shelley
To:	MONOPS
Cc:	Stephanie Thomas
Subject:	Public Citizen comments on 2020 Annual
Date:	Thursday, May 14, 2020 4:55:28 PM
Attachments:	2020-05-14 PCTX Commentas on TCEQ 2020 Annual Monitoring Network Plan.pdf

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Dear Sir or Madam,

Please find attached comments from Public Citizen on the 2020 Annual Monitoring Network Plan. Please contact me by email or cell phone if you have difficulty receiving our comments or wish to discuss the issues we raise further.

Respectfully,

Adrian Shelley | Director, Texas Office
Public Citizen | Protecting Health, Safety and Democracy
o: 512.477.1155 | **c:** 713.702.8063 | ashelley@citizen.org
309 East 11th Street, Suite 2, Austin, TX, 78701
http://www.citizen.org/texas

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Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087
Via email to monops@tceq.texas.gov.

May 14, 2020

Re: 2020 Annual Monitoring Network Plan

Public Citizen appreciates the opportunity to provide these comments on the 2020 Annual Monitoring Network Plan. We have also signed onto an extensive set of collaborative comments written by Sierra Club, Environmental Defense Fund, Environmental Integrity Project, Texas Environmental Justice Advocacy Services and others.

We would welcome the opportunity to discuss our recommendations further. Please contact Adrian Shelley at ashelley@citizen.org, 512-477-1155.

PM2.5 monitoring should be added to the Houston Westhollow monitoring station.

We agree with the TCEQ's recommendation to place a PM2.5 FEM continuous monitor at the existing Houston Westhollow station. Recently released research by scientists at Harvard University and the Environmental Defense Fund shows that neighborhoods in West Houston may be experiencing the highest PM2.5 concentrations. This research further found that:

- Exposure to fine particle air pollution in 2015 was responsible for 5,213 premature deaths and over $49 billion in associated economic damages.
- More than 75% of the health burden was borne by communities exposed to PM2.5 levels below the current standard.
- Meeting the current standard alone would have prevented 91 deaths of the more than 5,000 premature deaths due to fine particle pollution.

See http://blogs.edf.org/health/2020/05/11/pm-standards-houston-analysis/.

The existing PM2.5 monitors in Houston are located on the east side of town. This makes sense given that historical data suggested the east side would have the highest PM2.5 levels—with the Clinton, Aldine, and Baytown monitors historically showing the highest PM2.5 levels. *See, e.g.,* "Houston-Galveston-Brazoria (HGB) PM2.5 Advance Path Forward" H-GAC Regional Air Quality Planning Advisory Committee (2014). Given the new analysis from EDF, there is reason to support additional monitoring outside of what has traditionally been thought to be the area at most risk of high PM2.5 concentrations.

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Sampling frequency should not be reduced at the Clinton and Houston Aldine monitors.

The TCEQ has recommended to decrease "the Clinton and Houston Aldine collocated QC PM2.5 FRM monitor's sampling frequency to 1-in-12 days, by December 31, 2020, as allowed by federal requirements." AMNP at p. 22.

As explained above, the Clinton and Houston Aldine monitors have historically shown the highest PM2.5 levels in the Houston-Galveston-Brazoria region. *See, e.g.,* "Houston-Galveston-Brazoria (HGB) PM2.5 Advance Path Forward" H-GAC Regional Air Quality Planning Advisory Committee (2014). Furthermore, when TCEQ modeled attainment of the 12 $\mu g/m^3$ standard some years ago, it was only by excluding certain exceptional events form the data from these monitors. This means that, in practice, communities near these monitors are being exposed to PM2.5 levels above the NAAQS. Although the monitored values at these monitoring stations may have decreased in recent years, we think it would be contrary to public health to decrease monitoring frequency at stations that have historically not recorded monitor values in attainment of the NAAQSS.

PM2.5 monitoring is needed near sites of aggregate production operations, concrete crushers, and concrete batch plants.

In recent years, concern has been raised in rural and urban communities across Texas about exposure to particulate matter pollution from aggregate production operations, concrete and rock crushers, and concrete batch plants. To our knowledge, there are no stationary PM monitors in the state that are sited with the intention of capturing PM concentrations from these facilities. We recommend the placement of one or more PM monitors near sites of high concentration of these facilities, including urban concentrations of concrete batch plants in Houston and Dallas, and concentrations of aggregate production operations in Central Texas. We recommend collaborating in this effort with the Texas House Interim Study Committee on Aggregate Production Operations.

Sulfur Dioxide monitoring is needed near NRG's WA Parish Plant in Fort Bend County.

The WA Parish Electric Generation Station was the second largest source of sulfur dioxide pollution in Texas in 2018 according to the TCEQ's Point Source Emissions Inventory. The closest SO_2 monitor is Houston Croquet, which is more than fourteen miles away. An SO_2 monitor should be placed downwind of WA Parish in order to determine whether it is causing a condition of SO_2 nonattainment.

The Annual Monitoring Network Plan indicates that TCEQ has satisfied federal requirements for the SO_2 monitoring network. However, there is an additional SO_2 monitor in operation on the campus of the University of Houston at Sugar Land. We recommend TCEQ review the data from this monitor, especially in the upcoming winter when SO2 levels typically peak. TCEQ should

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use this data to evaluate whether a regulatory SO_2 monitor is needed in the area to determine whether a NAAQS violation is not occurring.

Additional monitors are needed in the Permian Basin

Finally, we want to second comments from Sierra Club et. al. regarding the need for additional monitors in the Permian Basin. The Permian Basin is one of the most intensely developed oil fields on the planet. Massive emission of H_2S, SO_2, methane, and other pollutants are common. Additional monitoring is needed in the region, particularly for SO_2.

Conclusion

Again, we appreciate the opportunity to provide these comments. If you wish to discuss the issues raised, please contact Adrian Shelley at ashelley@citizen.org, 713-702-8063.

Respectfully,

Adrian Shelley

Director, Public Citizen's Texas Office

From: Michele Sobeck <sobeck.michele2@gmail.com>
Sent: Friday, May 8, 2020 3:45 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

With the current pandemic threatening the quality of our health; please do not allow further contaminates to pollute our air.
There are not enough monitors to ensure that the 3009 Vulcan Quarry will not destroy our air quality. Just say no! Thank you, Michele Sobeck

Harris County
Pollution Control

Harris County Pollution Control Services
Dr. Latrice Babin, Director

1953-2020

May 13, 2020

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Re: 2020 Texas Commission on Environmental Quality Annual Monitoring Network Plan

Dear Ms. Landuyt:

Thank you for the opportunity to submit comments regarding the 2020 Texas Commission on Environmental Quality (TCEQ) Annual Monitoring Network Plan (AMNP). Harris County Pollution Control Services Department (PCS) is the local regulatory enforcement authority for air, water, and solid waste issues in Harris County, Texas. We understand that TCEQ has solicited comments regarding the above plan.

PCS understands that TCEQ proposes decommissioning one of the five sulfur dioxide (SO_2) monitors in Harris County, specifically, the Baytown Garth SO_2 monitor, by December 31, 2020. The AMNP states that the Baytown Garth SO_2 monitor data trends are among the lowest in the area with a 2018 design value of 6 ppb, eight percent of the National Ambient Air Quality Standard (NAAQS). Decommissioning this monitor would reduce the number of SO_2 monitors in Harris County to four which is just above the federal minimum for the area of three.

Rather than decommission the Baytown Garth SO_2 monitor which would reduce the total number of SO_2 monitors in our area, PCS believes that it would be beneficial and proactive to demonstrate the area's continued SO_2 NAAQS compliance by relocating this monitor near one of the area's largest emitters.

According to TCEQ's Point Source Emissions Inventory, Exxon Mobil Baytown Refinery (Exxon) and Rohm and Haas Texas Incorporated's Deer Park Plant (Rohm and Haas) are consistently the top two SO_2 emitters in Harris County, producing over 1,000 tons per year of SO_2 each. The Baytown Garth SO_2 monitor is currently located five miles to the north-northeast of Exxon.

PCS recommends relocating this monitor to either a location closer to Exxon or a location near Rohm and Haas. PCS proposes two current TCEQ air monitoring sites for this purpose:

- CAMS 148 at 7210 ½ Bayway Drive, located one mile northwest of Exxon, or
- CAMS 1036 at the Corner of First & Elsbeth Streets, located 2.5 miles to the north of Rohm and Haas

Thank you for the opportunity to provide these comments regarding the 2020 Annual Monitoring Network Plan. Should you have any questions, please contact Matt Van Vleck at 713-274-6412 or via email at matt.vanvleck@pcs.hctx.net .

Sincerely,

Dr. Latrice Babin
Director

MVV/LBB/slw

cc: Aaron Dunn – Harris County Judge's Office
Kristen Lee – Harris County Precinct 2
Sarah Utley – Harris County Attorney's Office
Nicole Bealle – TCEQ Region 12

From: VanVleck, Matt (PCS)
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan - Harris County Comments
Date: Wednesday, May 13, 2020 9:25:43 AM
Attachments: image001.png
image002.png
image003.png
image004.png
2020 AMNP Harris County Comment.pdf

Please see the attached comment regarding the 2020 Annual Monitoring Network Plan.

Thank you,

Matt Van Vleck

Air Supervisor | Technical Services
Harris County Pollution Control

Email: matt.vanvleck@pcs.hctx.net
Direct: (713) 274-6412 | **Main:** (713) 920-2831
Address: 101 South Richey Suite H Pasadena, TX 77506

From: Joel & Yolie Cunningham <joelc@gvtc.com>
Sent: Friday, May 8, 2020 11:18 AM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Not happy with TCEQ. It is so not people nor environment friendly
and I am very certain air quality standards in Texas suffer
from lack of action.

I am not in favor of any more quarry or industrialized
businesses near residential or farming areas and should have never
been permitted in the state in the first place.

Violations of standards consequences are not heavy enough, and TCEQ
has not ever pulled ability to operate permits in the
entire time I have lived in Texas.

They have no teeth and no abilities to enforce.
Until the accidents happen then its too late.
Its all about lawyers, guns and money.

Pathetic really,

Joel & Yolie Cunningham
joelc@gvtc.com

To: TCEQ, Commissioners and Commission members, monops@tceq.texas.gov
Re: Comments on, 2020 Air Monitoring Network Plan/Aggregate Industry Monitoring.
May 10,2020

My goal is to Achieve long term uniformity for air sampling near APO sites that satisfies Air Quality Standards, test protocols and protection requirements promised by the TCEQ & EPA.

In reviewing the 2020 Air Monitoring Network Plan document I see several deficiencies that I believe need to be addressed. First the number of air monitors that are to be decommissioned or shut down for short periods is not acceptable for an accurate air program, 24/7/365 days is required for accurate data collection. In addition, several monitors are only active every few days or hours and therefore distorts any average pollutant data. Most monitoring sites do not monitor PM2.5 or PM10 materials within a reasonable distance when considering particulates arising from source-point facilities for the added background concentrations and non-source point materials that presently are not collected or modeled at all. Therefore, the cumulative impact from additional Industry operations are not properly accounted for or included in the modeling required for permits for new sources or expansion of existing mining operations.

Plotting the GeoTam maps, with TCEQ's 2020-AMNP document list of monitors, for example, in San Antonio the focus is on Ozone, not on particulate materials. The new TCEQ monitor located in New Braunfels is setup for PM2.5 and PM10 on a continuous bases, however when overlaid with current and long term wind rose data the monitors are not going to captures the materials generated from the nearby open pit aggregate mines or manufacturing facilities. Even wake calculation data is most likely not captured or accounted for correctly.

These deficiencies become important when new current studies are showing results to prove the connection between PM materials and health related deaths and other health issues. New technology now allows satellites to measure air quality, (atmospheric density) and can identify chemical elements like lead, mercury, crystalline silica, and more. As a result, hot spots, (Increasing polluted regions), are found and requires agencies charged with the health and welfare of the public to implement the best practices to not only meet Air Quality Standards, but also control and enforce laws/rules that make all violators responsible for their actions. This is the only way that we will solve the problems and achieve equity for all stake holders.

The following are summary points that require the above action considerations if Texas is to be a place where people will want to live, work, and raise families.

- Additional scientific advisory resources and solid data is needed (consider 3rd party source)
- Air monitoring requirements including SMCRA-like regulations for APOs
- Air particulate emissions actively collected on site and surrounding properties for quantifying and measuring cumulative impact on Air Quality, 24/7/365 protocol.
- Assess air pollutant effect of large increases in truck traffic
- Update permit Requirements to include air monitoring regulations with enforcement

- Develop with stakeholder cooperation, a sustainable air monitoring program to provide accurate data for pre-mine, mining, mine closure and post-mining operations
- Support Mining Best Practices for air monitoring programs
- Develop educational plans for better understanding of Air Quality concerns for the public

Thank you for the opportunity to share my observations and concerns with you. I hope that we can work together to solve these especially important issues and concerns for a better Texas.

Best Regards,
Don Everingham
601 Pfeiffer Road
Bulverde, Texas 78163
dlttexas@gvtc.com

From:	Mark
To:	MONOPS
Cc:	Don Everingham (dlttexas@gvtc.com)
Subject:	comments on the draft Texas Commission on Environmental Quality (TCEQ) 2020 Annual Monitoring Network Plan.
Date:	Tuesday, May 5, 2020 9:05:33 AM

TCEQ, Good morning. I hope all in your offices and families are doing good in the current environment with the virus concerns all around us.

This note is to comment on your 2020 Annual Monitoring Network Plan. Our bottom line is straight-forward: We urge TCEQ to install monitors around Aggregate Production Operations (APOs) to measure air quality in the surrounding areas. The APOs are operating lots of seismic monitors on properties near their operations, but we get "radio silence" when inquiring why air monitors are not installed similarly and in the prevailing wind paths around the APOs. Yes, we are aware of the two new monitors TCEQ recently installed in Comal County, but are disappointed that TCEQ apparently ignored technical input on locations to best measure the impacts of the APOs on particulates in the air.

We realize that "The TCEQ also operates a robust network of state-initiative monitors that support a variety of purposes including potential health effects evaluation, however these monitors are outside the scope of this document and are not included" . Never the less, our comments focus on the need for air particulate monitors near the APOs and more realistic particulate dispersion modeling.

Our specific input follows:

1. The TCEQ should present to the public their APO data, wind, atmospheric and other data used to site particulate monitors
2. Seismic monitors are required on properties near APOs, but air monitors are not. Why not?
3. The TCEQ should add additional monitors around the APOs; use data from numerous sources such as measurements by local groups, EPA satellite data, etc. to spot the monitors in areas showing high levels of particulates
4. Monitoring currently falls short including the lack of collection of harmful PM materials that require collection for chemical analysis such as respirable crystalline silica (RCS), a known carcinogenic, and in some locations lead and mercury known to affect mental health.
5. Include particulate sample gathering and analysis capability in the monitors. The new monitors should measure PM2.5, PM10 and the composition of materials in the particulates.
6. APO particulate dispersion modeling should be calibrated ("history-matched") to include actual particulate data from the new up wind and downwind monitors before running the APO applicant's particulate dispersion model predictions.
7. Air modeling is done by engineering consultants for the APO requesting an operating permit, using data for point sources in the APO permit applicant facilities (e.g., the crusher, loading hoppers).
8. Non-point source emissions such as APO mining operations, trucking and mine road dust are ignored in this modeling

Current TCEQ particulate dispersion modeling is deficient in that it totally ignores the APO mining operations. This deficiency needs to be addressed, both on the modeling side and on the air monitoring for particulate concentrations side.

We appreciate your consideration of our input.

Mark Friesenhahn
Comal Pecan Farm
231 High Creek Road
New Braunfels, TX 78132
281-660-5445
mark@comalpecanfarm.com

From:	Milann and Pru
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Wednesday, May 13, 2020 5:48:10 PM
Attachments:	image003.png 2020 TCEQ-AMNP Public Comment by Milann Guckian.pdf

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Dear TCEQ Commissioners and staff,

Attached are my Public Comments for the 2020 TCEQ-AMNP.

Respectfully submitted,

Milann Guckian

30954 FM 3009
New Braunfels, Tx 78132
Home #: (830) 885-2723
Cell #: (361) 947-7101

May 12, 2020

To: Texas Commission on Environmental Quality
TCEQ Commissioners
P.O. Box 13087
Attn: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Re: 2020 TCEQ Air Monitoring Network Plan

Dear Commissioners,

Increasingly, scientific data and medical research are showing a direct link between Particulate Matter (PM) pollution and the adverse effects it has on public health. Particulate Matter originates both naturally and anthropogenically. Natural sources include fungal spores, plant debris, microorganisms, pollens, and viruses. Anthropogenic sources include agricultural, waste disposal, vehicle exhaust and industry.

Airborne Particulate Matter, specifically PM2.5/PM10 are microscopic and inhalable. Their adverse health effects are well-documented. Health risks are due to both short-term and long-term exposure. Short-term exposure can result in coughing, shortness of breath, tightness in the chest and eye irritation. Long-term exposure can result in respiratory disease (COPD, lung cancer, emphysema, etc.), autoimmune disease, reproductive issues, and cardiovascular disease. Epidemiological studies have documented a significant association between PM exposure and premature death.

The reason for the lesson is that TCEQ is submitting its Air Monitoring Network Plan for 2020 to the EPA and this plan is significantly deficient in protecting the health, safety, and welfare of Texans. TCEQ operates or oversees a vast network of air monitors in their air program but the air monitoring is only as good as the data it collects. Most air monitors in Texas are monitoring for ozone so are ill-equipped for gathering the needed data for particulates. What PM stations are in operation fail to capture the actual particulates needed to determine components like respirable crystalline silica. The monitoring equipment is not always located correctly to provide upwind, downwind data simultaneously which can affect the mathematical data for modeling the amount of a given pollutant. Also, a large number of TCEQ air monitors are run sporadically meaning they don't run 24/7/365. Many only run a few hours a day/a couple of days a week. Moreover, TCEQ has recommended decommissioning or shutting down numerous monitors and that can only weaken an already inadequate air program. In addition, TCEQ does not utilize the newer air monitoring technologies that are now available (NASA satellite technology, TSI 8400, BAM 1020 or purple air monitors).

The world is in the midst of a pandemic. According to researchers at the Harvard T.H. Chan School of Public Health (COVID-19 PM2.5), Novel Coronavirus COVID-19 is a virus (natural source) that has a deadly association to populations with a long-term average exposure to fine particulate matter (PM2.5). It is imperative that Texas uses all available equipment and technologies to monitor airborne particulate materials.

My biggest concern and the reason for submitting public comment is because the Aggregate Production Operation (APO) industry (anthropogenic source) is growing unregulated and unabated throughout Texas. My home is in Comal County and currently there are eleven open-pit quarries, nine hot mix asphalt plants, seven concrete batch plants, and two cement plants that also reside here. APOs own over seven percent (over 25,000 acres) of all the land in Comal county. It is crucial for TCEQ to understand that their current Air Monitoring program, not only in Comal County but across Texas, is insufficient to meet the needs of our citizenry. The technologies mentioned above are producing trends that show a significant increase in the amount of airborne

particulates in regions where APOs operate. A large number of those regions are in residential areas near schools, churches, homes, and hospitals. TCEQ needs to take note of these trends, then regulate and enforce accordingly.

We appreciate that TCEQ installed a new PM 2.5/PM10 monitor in New Braunfels this past year, but they put it in a poor location. The unit was set-up to monitor continuously, but because TCEQ did not take current and long-term wind direction/data into account it will not accurately capture particulate material from nearby APOs. This is only one example and these kind of deficiencies in their air program are important because it can lead to serious health issues and health related deaths.

A sidebar on APOs – we consider TCEQ a permitting agency not an agency that follows their mission of protecting the public's health and the natural resources of Texas. They grant air permits to the APO industry with impunity. Air modeling data for the permits are provided by the applicants. Only point source emissions (crusher, hoppers, associated equipment to crusher) data is used in the modeling. Data from non-point source emissions (blasting, haul roads, haul trucks, maintenance equipment, stockpiles) and other area APOs are not included in the modeling. TCEQ does not care that the front door to our home is three hundred and fifty (350') feet from a newly permitted APOs mining site, the Vulcan Construction Materials facility in Comal County. If more stringent guidelines and regulations had been in place, my home and my family would not be in harm's way.

With regard to APOs, air permitting and air monitoring in Texas, the following are proposed improvements, points and solutions to be considered by TCEQ:

- More monitors needed for Particulate Matter
- Monitors should include particulate sample gathering and analysis capabilities. They should monitor PM2.5, PM10 and the composition of materials in the particulate
- Monitor location and weather data should be considered
- Incorporate latest air monitoring technologies
- Present to the public the APO data - wind, atmospheric and any other data that was used to site particulate monitors
- Require Air monitoring program for APOs to include SMCRA or similar regulations (Mining Best Practices)
- APO particulate dispersion modeling should be calibrated to include actual particulate data (historical data) from upwind/downwind monitors
- Non-point sources need to be included in air modeling for air permit applications
- Airborne particulate matter emissions need to be collected continuously on APO site and on surrounding properties in order to quantify and measure cumulative impact on air quality in the area.

TCEQ does not consider the effects of APO mining operations when determining air quality in Texas. To maintain Texas' health and viability, TCEQ must implement a program that includes all APO activity as part of the permitting process. TCEQ must also actively and continuously monitor airborne particulate matter throughout Texas using the latest technologies to determine hot spots and deter the long-term effect of airborne contaminants on our health.

Thank you for your time and consideration,

Milann Guckian
30954 FM 3009
New Braunfels, Tx 78132

COVID-19 PM2.5

A national study on long-term exposure to air pollution and COVID-19 mortality in the United States

Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross-sectional study (Updated April 24, 2020)

Notice: In the revision on **April 24, 2020**, we have updated our analysis using data up to April 22, and importantly in which we have adjusted for additional confounding factors that also reflect the timing of the epidemic's spread, the timing of the social distancing policies and the population age distribution. Consequently, we have revised our finding as that an increase of 1 $\mu g/m^3$ in $PM_{2.5}$ is associated with an 8% increase in the COVID-19 death rate (95% confidence interval [CI]: 2%, 15%).

Xiao Wu MS, Rachel C. Nethery PhD, M. Benjamin Sabath MA, Danielle Braun PhD, Francesca Dominici PhD
All authors are part of the Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, MA, 02115, USA

Lead authors: Xiao Wu and Rachel C. Nethery
Corresponding and senior author: Francesca Dominici, PhD

Background: United States government scientists estimate that COVID-19 may kill tens of thousands of Americans. Many of the pre-existing conditions that increase the risk of death in those with COVID-19 are the same diseases that are affected by long-term exposure to air pollution. We investigated whether long-term average exposure to fine particulate matter ($PM_{2.5}$) is associated with an increased risk of COVID-19 death in the United States.

Design: A nationwide, cross-sectional study using county-level data.

Data sources: COVID-19 death counts were collected for more than 3,000 counties in the United States (representing 98% of the population) up to April 22, 2020 from Johns Hopkins University, Center for Systems Science and Engineering Coronavirus Resource Center.

Methods: We fit negative binomial mixed models using county-level COVID-19 deaths as the outcome and county-level long-term average of $PM_{2.5}$ as the exposure. In the main analysis, we adjusted by 20 potential confounding factors including population size, age distribution, population density, time since the beginning of the outbreak, time since state's issuance of stay-at-home order, hospital beds, number of individuals tested, weather, and socioeconomic and behavioral variables such as obesity and smoking. We included a random intercept by state to account for potential correlation in counties within the same state. We conducted more than 68 additional sensitivity analyses.

Results: We found that an increase of only 1 $\mu g/m^3$ in $PM_{2.5}$ is associated with an 8% increase in the COVID-19 death rate (95% confidence interval [CI]: 2%, 15%). The results were statistically significant and robust to secondary and sensitivity analyses.

Conclusions: A small increase in long-term exposure to $PM_{2.5}$ leads to a large increase in the COVID-19 death rate. Despite inherent limitations of the ecological study design, our results underscore the importance of continuing to enforce existing air pollution regulations to protect human health both

during and after the COVID-19 crisis. The data and code are publicly available so our analyses can be updated routinely.

Data and Code:

Our data and code is available on github here. (Updated April 5, 2020)

Manuscript and Supplemental Material

- Manuscript
- MedRxiv: https://www.medrxiv.org/content/10.1101/2020.04.05.20054502v2
- By using the contents on this website and the Github repo, you agree to cite:

Exposure to air pollution and COVID-19 mortality in the United States. Xiao Wu, Rachel C. Nethery, Benjamin M. Sabath, Danielle Braun, Francesca Dominici. medRxiv 2020.04.05.20054502; doi: https://doi.org/10.1101/2020.04.05.20054502

Acknowledgments

We appreciate the work of Aaron Van Donkelaar, Randall Martin, and his team for providing us with access to their estimates of PM2.5 exposure. Their data (V4.NA.02.MAPLE) can be found on Randall Martin's website here: https://sites.wustl.edu/acag/datasets/surface-pm2-5/

The data was produced as part of the following paper:
van Donkelaar, A., R. V. Martin, C. Li, R. T. Burnett, Regional Estimates of Chemical Composition of Fine Particulate Matter using a Combined Geoscience-Statistical Method with Information from Satellites, Models, and Monitors, Environ. Sci. Technol., doi: 10.1021/acs.est.8b06392, 2019.
We would like to thank Lena Goodwin and Stacey Tobin for editorial assistance in the preparation of this manuscript.

From: Grace Murphy
To: MONOPS
Subject: TCEQ 2020 Annual Monitoring Network Plan- personal comments
Date: Wednesday, May 13, 2020 8:49:37 PM

TCEQ

Does TCEQ, representing Texas and its people, comply with The Clean Air Act?
Questions you might ask or ponder:
Why does TCEQ focus mainly on measuring ozone and not particulate materials? The particulate materials that are being monitored are not capturing the actual particulates to determine the components, specifically respirable crystalline silica (RCS), a known carcinogenic, and in some locations lead and mercury known to affect mental health.
Why are just seismic monitors required on properties near APOs, but not air monitors?
TCEQ should add additional monitors around APOs; collect data from numerous sources: such as local groups, EPA satellites, etc. to spot the monitors in areas showing high levels of particulates. Include particulate sample gathering and analysis capability in the monitors. New monitors should measure PM2.5, PM10 and the composition of materials in the particulates.
APO particulate dispersion modeling should be calibrated ("history matched") to include actual particulate data from the new upwind and downwind monitors before running the APO applicant's particulate dispersion model predictions. Also core dirt samples should not be considered proprietary information, it must be validated through a third party. If air sample data is above standard levels there should be a plan in place to get levels in line with EPA regulations, not ignore higher than acceptable levels. Intelligent air monitors, along with satellite imaging would be policing air quality and in turn future quarries would be granted or denied based on data.
Does Texas have a comprehensive plan for the state with the people's health in mind? I'm sure that is what the EPA had in mind for the Clean Air Act. TCEQ employees should be working for the people of the state of Texas. There should be no ties to the aggregate industry, TCEQ should be held to a higher independent standard and not be beholden to anyone. This is the air we all breath and since there are no boundaries the entire country is in this together to uphold the law. Clean air must be planned for in advance.

Grace Murphy
311 Lookout Rdg
New Braunfels, TX
78132
310-291-2631

Sent from my iPad

From:	J.L. Posey
To:	MONOPS
Subject:	public comment on Texas Commission on Environmental Quality 2020 Annual Monitoring Network Plan
Date:	Thursday, May 14, 2020 3:19:44 PM

The TCEQ's plan falls woefully short in executing its duty to safeguard the public against airborne particulates. Granting permits to APOs willy-nilly in the absence of proper monitoring is grossly negligent, but without a significantly stronger plan that will be the ultimate result. Air quality monitors currently in use are seldom set up to monitor particulate materials of the sizes most detrimental to human health, nor are they capturing these materials for analysis of especially harmful components such as crystalline silica. Moreover, the existing air quality monitors are not sufficient in quantity, by far. The TCEQ needs to employ the newest technology to safeguard the health of Texans, and all data needs to be interpreted by impartial laboratories, not companies hired by the APOs. All air quality data should be made public, along with details of the methodology used.

Thank you,
J.L. Posey
120 Deveraux
Canyon Lake, Texas
78133

From:	Telenet
To:	MONOPS
Cc:	H-Oscar Decker
Subject:	Vulcan: Attn: Holly Landuyt MC-165
Date:	Thursday, May 14, 2020 10:42:00 AM

Subject: Vulcan: Attn: Holly Landuyt MC-165

To: Holly Landuyt,

I have several concerns about the Vulcan open pit quarry that is proposed to be built in Comal County.

My wife and I moved to Canyon Lake 5.5 years ago to be near my grandson and his parents who also live in Canyon Lake.
At the time of our move from Austin, one of the enhancements we considered in Comal county was the quality of the water from both
the Guadalupe and Comal rivers. The natural beauty of the Texas Hill Country was another huge level of appeal for us. So far we have
not been disappointed in those areas.

Here are my concerns:

Safety:
Our home is located off FM 306 in Canyon Lake. The traffic flow is steadily increasing with each passing day. Since we've lived
here, there have been 2 major traffic accidents on 306 that I'm aware of just about 3 miles from our gate. In one, a young female teen burned to death
when the vehicle she was riding in was struck by another vehicle, and she was unable to get out of the burning car. In another, a man in his 90's, his
daughter and her 11 year old son all burned to death when their car was struck on 306 and they were unable to get out of their burning car. Rescue
workers heard their cries for help before they were all incinerated. I understand the proposed Vulcan facility will add many, many more heavy vehicles
to our already burdened roads. I see loaded dump trucks carrying various forms of aggregate up & down the side roads (such as Purgatory road) all
the time. The side roads are narrow, just 2 lanes, and are in areas where there are hills, curves and go through residential areas. Many of these
trucks have no tarps covering their loads, so particulate from these vehicles flies from behind and off the sides of these vehicles. In addition, the
trucks are heavy when empty and weigh even more when fully loaded. I've had damage to my windshields in the past from vehicles ahead of me or
going past me in the opposite direction. My wife's car has a windshield that is damaged at this time. I traded my BMW recently; its windshield
was damaged in two places after I had the windshield replaced due to prior particulate damage. I can't imagine the financial cost that is levied
on Comal county by these heavy loads on asphalt, bridges and supporting roadway infrastructure. I have a sneaky suspicion the taxpayers of Comal
county foot the bill. From a safety and financial standpoint, I don't think we need more heavy trucks that the Vulcan project portends for all of us.

Another concern I have relates to Air Quality. I understand our county has a high incidence of childhood asthma. So, in my humble opinion, this
serious health concern will only get worse with the diesel exhaust pollution, the particulate flying off the trucks, and wind blown particulate
generated by the Vulcan open pit itself. If I had known this Vulcan project was being dropped on Comal county, I would not have moved my
family here.

One more concern involves Water Quality. I have already mentioned that the pristine nature of the Guadalupe and Comal Rivers drew us here
from the muddy Lake Travis area in western Travis county. I understand the Vulcan open pit sits atop the Edwards Aquifer. I also understand
that the Vulcan project will be using explosives to blast their way down to the pay dirt they covet. How can the State of Texas even consider this
type of ecological damage spread across 1500 acres of pristine Texas Hill Country? What is the purpose of signs I see that read that I am
entering the Edwards Aquifer Recharge Zone? Are the signs intended to warn the populace to be careful and take care of our natural gifts?
Or are the signs intended to alert wheeler dealers that the Zone is up for grabs to the highest bidder?

I hope Texas will do the right thing and deny Vulcan the permits to destroy our beautiful Hill Country. This type of destructive project will
not attract families and supporting infrastructure to our county; Vulcan will drive them away.

Thank you for the opportunity to express my concerns. Had I known the Vulcan project had its sights on Comal county, I would have
moved elsewhere.

Oscar Decker
512.663.1228

May 8th 2020

Texas Commission on Environmental Quality

PO Box 13087, MC-165

Austin, TX 78711-3097

Attn: Holly Landuyt

Subject: Final Annual Air Quality Monitoring System 2020 Plan

Dear Holly,

I am a strong supporter of adding additional air quality monitoring in the Comal County area. This area is not being represented well by our County Commissioners who have to be pulled and dragged to side with the county residents on numerous air quality permit applications over the last several years.

With over twelve (12); quarries, asphalt plants, and various other dusting producing industrial companies permitted in Comal County we do not have enough air quality monitors. During previous air quality permit applications in Comal County the TCEQ does not take into account neighboring Bexar County or nearby quarry operations as a whole for a new air quality permit.

If the Out of State and Foreign Companies operating in Comal County want to take our natural resources and the State of Texas is granting permits to do so, then the TCEQ needs to install more air quality monitoring.

Thank you for installing two monitors in Comal County last year according to press reports. However, with Vulcan Materials having been granted an air quality permit north of the IH35 quarry row at St Hwy 46 and FM 3009. We need new air quality monitors at ST Hwy 46 and FM 3009 surrounding this new quarry on four side since this new quarry is positioned outside of quarry row (IH 35 escarpment) in Comal County.

Some key indices I would like to see:

1. The TCEQ should present to the public their APO data, wind, atmospheric and other data used to site particulate monitors

2. Seismic monitors are required on properties near APOs, but air monitors are not. Why not?

From: Ed Harris <travelingman@gvtc.com>
Sent: Saturday, May 9, 2020 11:31 AM
To: MONOPS
Subject: Final Annual EPA Air Quality Plan - Comments
Attachments: TCEQ Air Quality Plan May 8th 2020 Denise.pdf

To whom it may concern;

Attach please find my comments.

Best regards,

Denise Harris

3. The TCEQ should add additional monitors around the APOs; use data from numerous sources such as measurements by local groups, EPA satellite data, etc. to spot the monitors in areas showing high levels of particulates

4. Monitoring currently falls short including the lack of collection of harmful PM materials that require collection for chemical analysis such as respirable crystalline silica (RCS), a known carcinogenic, and in some locations lead and mercury known to affect mental health.

5. Include particulate sample gathering and analysis capability in the monitors. The new monitors should measure PM2.5, PM10 and the composition of materials in the particulates.

6. APO particulate dispersion modeling should be calibrated ("history-matched") to include actual particulate data from the new upwind and downwind monitors before running the APO applicant's particulate dispersion model predictions.

Best Regards

Denise Harris

1670 S Cranes Mill Rd

New Braunfels, Texas 78132

From: Ed Harris <travelingman@gvtc.com>
Sent: Saturday, May 9, 2020 11:22 AM
To: MONOPS
Subject: Final EPA Annual Air Quality Plan Comments
Attachments: TCEQ Air Quality Annual EPA Plan May 8th 2020.pdf

To whom it may concern;

Attached please find my comments.

Best regards,

Ed Harris |

May 8th 2020

Texas Commission on Environmental Quality

PO Box 13087, MC-165

Austin, TX 78711-3097

Attn: Holly Landuyt

Subject: Final Annual Air Quality Monitoring System 2020 Plan

Dear Holly,

I am a strong supporter of adding additional air quality monitoring in the Comal County area. This area is not being represented well by our County Commissioners who have to be pulled and dragged to side with the county residents on numerous air quality permit applications over the last several years.

With over twelve (12); quarries, asphalt plants, and various other dusting producing industrial companies permitted in Comal County we do not have enough air quality monitors. During previous air quality permit applications in Comal County the TCEQ does not take into account neighboring Bexar County or nearby quarry operations as a whole for a new air quality permit.

If the Out of State and Foreign Companies operating in Comal County want to take our natural resources and the State of Texas is granting permits to do so, then the TCEQ needs to install more air quality monitoring.

Thank you for installing two monitors in Comal County last year according to press reports. However, with Vulcan Materials having been granted an air quality permit north of the IH35 quarry row at St Hwy 46 and FM 3009. We need new air quality monitors at ST Hwy 46 and FM 3009 surrounding this new quarry on four side since this new quarry is positioned outside of quarry row (IH 35 escarpment) in Comal County.

Ed Harris

1670 S Cranes Mill Rd

New Braunfels, Texas 78132

From: Billie McAnally <billiemc101@gmail.com>
Sent: Tuesday, May 12, 2020 10:21 AM
To: MONOPS
Subject: Public Commentary on Texas Commission on Environmental Quality 2020 Annual Monitoring Network Plan

Commissioners:

As a 92 year-old Comal county constituent residing within two miles of the proposed Vulcan Quarry at 3009 and Hwy 46, I am deeply concerned with the lack of air quality testing and restrictions being studied and proposed at this time. I moved to the beautiful hill country from Dallas to enjoy fresher air and gorgeous scenery. The last thing I want at my age is to breathe silica-filled air in my final years of life.

Facts:

- TCEQ has a state-wide program for air monitoring; it focuses on ozone, not particulates.
- Most of the monitors are setup for ozone monitoring and are not monitoring particulate materials.
- Particulate monitoring stations are not capturing the actual particulates to determine the components, including respirable crystalline silica (RCS).
- TCEQ monitoring of particulates is insufficient and deficient in gathering data to understand the components in the airborne particulates.
- Monitoring equipment is not located correctly to provide upwind, downwind data at the same time which can affect the mathematical data for modelling the amount of a given pollutant.
- TCEQ is not using newer air monitoring technology (e. g., NASA satellite technology, TSI 8400 series monitors, BAM model 1020 monitor, purple air) that is showing a trend of significantly increased particulate material in the air in regions where APOs operate.
- Air modeling is done by engineering consultants for the APO requesting an operating permit, using data for point sources in the APO permit applicant facilities (e.g., the crusher, loading hoppers).
- Non-point source emissions such as APO mining operations and mine road dust are ignored in this modeling.
- Model data from approved permits for APOs operating within 6 miles are included in the model, per TCEQ rules.
- Since the models prepared for permit applications show that particulates “do not leave the APO facility”, particulate levels from nearby APOs is considered “insignificant” in the permit applicant’s model and ignored.
- Background particulate levels from distant locations are used for the models; this generally does not represent actual background particulate levels near the APO’s operation.
- The APO applicant’s modeling therefore does not fully consider the cumulative effects of the other APO operations in the area.
- The models are not calibrated with actual historical data, nor do they consider the components in the particulate concentrations being modeled.

My requests:

The TCEQ should present to the public their APO data, wind, atmospheric and other data used to site particulate monitors. Seismic monitors are required on properties near APOs, but air monitors are not. Why not? The TCEQ should add additional monitors around the APOs; use data from numerous sources such as measurements by local groups, EPA satellite data, etc. to spot the monitors in areas showing high levels of particulates. Monitoring currently falls short including the lack of collection of harmful PM materials that require collection for chemical analysis such as respirable crystalline silica (RCS), a known carcinogenic, and in

some locations lead and mercury known to affect mental health. TCEQ should include particulate sample gathering and analysis capability in the monitors. The new monitors should measure PM2.5, PM10 and the composition of materials in the particulates. APO particulate dispersion modeling should be calibrated ("history-matched") to include actual particulate data from the new upwind and downwind monitors before running the APO applicant's particulate dispersion model predictions.

Respectfully,

Billie McAnally
492 Chinkapin Trl
New Braunfels, TX 78132

From: Holly Landuyt
Sent: Tuesday, May 19, 2020 8:03 AM
To: Sayona Shayegani
Subject: FW: Public Commentary on Texas Commission on Environmental Quality 2020 Annual Monitoring Network Plan

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From: MONOPS <MONOPS@tceq.texas.gov>
Sent: Tuesday, May 12, 2020 10:20 AM
To: Holly Landuyt <Holly.Landuyt@tceq.texas.gov>
Cc: Darrel Solanik <Darrel.Solanik@tceq.texas.gov>
Subject: FW: Public Commentary on Texas Commission on Environmental Quality 2020 Annual Monitoring Network Plan

---

From: Ginger M <ginmo@yahoo.com>
Sent: Tuesday, May 12, 2020 10:05 AM
To: MONOPS <MONOPS@tceq.texas.gov>
Subject: Public Commentary on Texas Commission on Environmental Quality 2020 Annual Monitoring Network Plan

Commissioners:

As a Comal county constituent residing within two miles of the proposed Vulcan Quarry at 3009 and Hwy 46, I am deeply concerned with the lack of air quality testing and restrictions being studied and proposed at this time.

Facts:

- TCEQ has a state-wide program for air monitoring; it focuses on ozone, not particulates.
- Most of the monitors are setup for ozone monitoring and are not monitoring particulate materials.
- Particulate monitoring stations are not capturing the actual particulates to determine the components, including respirable crystalline silica (RCS).
- TCEQ monitoring of particulates is insufficient and deficient in gathering data to understand the components in the airborne particulates.
- Monitoring equipment is not located correctly to provide upwind, downwind data at the same time which can affect the mathematical data for modelling the amount of a given pollutant.
- TCEQ is not using newer air monitoring technology (e. g., NASA satellite technology, TSI 8400 series monitors, BAM model 1020 monitor, purple air) that is showing a trend of significantly increased particulate material in the air in regions where APOs operate.
- Air modeling is done by engineering consultants for the APO requesting an operating permit, using data for point sources in the APO permit applicant facilities (e.g., the crusher, loading hoppers).
- Non-point source emissions such as APO mining operations and mine road dust are ignored in this modeling.

- Model data from approved permits for APOs operating within 6 miles are included in the model, per TCEQ rules.
- Since the models prepared for permit applications show that particulates “do not leave the APO facility”, particulate levels from nearby APOs is considered “insignificant” in the permit applicant’s model and ignored.
- Background particulate levels from distant locations are used for the models; this generally does not represent actual background particulate levels near the APO’s operation.
- The APO applicant’s modeling therefore does not fully consider the cumulative effects of the other APO operations in the area.
- The models are not calibrated with actual historical data, nor do they consider the components in the particulate concentrations being modeled.

My requests:

The TCEQ should present to the public their APO data, wind, atmospheric and other data used to site particulate monitors. Seismic monitors are required on properties near APOs, but air monitors are not. Why not? The TCEQ should add additional monitors around the APOs; use data from numerous sources such as measurements by local groups, EPA satellite data, etc. to spot the monitors in areas showing high levels of particulates. Monitoring currently falls short including the lack of collection of harmful PM materials that require collection for chemical analysis such as respirable crystalline silica (RCS), a known carcinogenic, and in some locations lead and mercury known to affect mental health. TCEQ should include particulate sample gathering and analysis capability in the monitors. The new monitors should measure PM2.5, PM10 and the composition of materials in the particulates. APO particulate dispersion modeling should be calibrated (“history-matched”) to include actual particulate data from the new upwind and downwind monitors before running the APO applicant’s particulate dispersion model predictions.

Respectfully,

Ginger Morgan
492 Chinkapin Trl
New Braunfels, TX 78132

From:	Jack Olivier
To:	MONOPS
Subject:	2020 TCEQ Air Monitoring Network Plan - Public Comments
Date:	Thursday, May 14, 2020 1:58:53 PM
Attachments:	2020 TCEQ-AMNP public comments by Jack Olivier.pdf

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Please find attached my public comments. For your convenience, I also show them below.

May 14, 2020

To: Texas Commission on Environmental Quality
TCEQ Commissioners P.O. Box 13087
Attn: Holly Landuyt, MC-165 Austin, Texas 78711-3087

Re: 2020 TCEQ Air Monitoring Network Plan – Public Comments
Dear Commissioners,

The TCEQ's mission to protect both the state's public health and natural resources is becoming increasingly challenging. Certain areas of the state have recently been developing at record rates, at the same time scientific evidence is indicating that the levels of permissible airborne particulate matter (PM) in the 10 to 2.5 micrometer range should be revised downward. This is happening in Comal County where Aggregate Production Operations (APOs) are adding significant amounts of PM. Comal County currently contains 11 open-pit limestone quarries, 9 asphalt plants, 7 concrete batch plants, and 2 cement plants.

The TCEQ grants new air permits for APOs based upon computer-generated air models. These models are only as good as the air data being used. Computer models used for permitting existing quarries need to be ground-truthed to determine their validity. From the high levels of limestone dust I observe regularly coming from numerous open-pit quarries near New Braunfels, there does not appear to be a sufficient number of background monitors in the area to address the PM problem. APOs should be required at their expense to continuously measure the air quality at their sites, to provide that data to the TCEQ, and to make it available to the general public. The TCEQ is encouraged to take full advantage of the air data that is already being collected by NASA satellites, and equipment such as purple air monitors to determine problem areas where more Network Plan monitors are needed.

Accurate background data on particulate matter is critical to preserving human health. Our lungs do not differentiate between the PM coming from a rock crusher and that coming from all other sources associated with a quarry site, or neighboring sites.

Thank you for the opportunity to provide comments,

Jack Olivier
1509 Cabernet
New Braunfels, TX 78132

May 14, 2020

To: Texas Commission on Environmental Quality

TCEQ Commissioners P.O. Box 13087

Attn: Holly Landuyt, MC-165 Austin, Texas 78711-3087

Re: 2020 TCEQ Air Monitoring Network Plan – Public Comments

Dear Commissioners,

The TCEQ's mission to protect both the state's public health and natural resources is becoming increasingly challenging. Certain areas of the state have recently been developing at record rates, at the same time scientific evidence is indicating that the levels of permissible airborne particulate matter (PM) in the 10 to 2.5 micrometer range should be revised downward. This is happening in Comal County where Aggregate Production Operations (APOs) are adding significant amounts of PM. Comal County currently contains 11 open-pit limestone quarries, 9 asphalt plants, 7 concrete batch plants, and 2 cement plants.

The TCEQ grants new air permits for APOs based upon computer-generated air models. These models are only as good as the air data being used. Computer models used for permitting existing quarries need to be ground-truthed to determine their validity. From the high levels of limestone dust I observe regularly coming from numerous open-pit quarries near New Braunfels, there does not appear to be a sufficient number of background monitors in the area to address the PM problem. APOs should be required at their expense to continuously measure the air quality at their sites, to provide that data to the TCEQ, and to make it available to the general public. The TCEQ is encouraged to take full advantage of the air data that is already being collected by NASA satellites, and equipment such as purple air monitors to determine problem areas where more Network Plan monitors are needed.

Accurate background data on particulate matter is critical to preserving human health. Our lungs do not differentiate between the PM coming from a rock crusher and that coming from all other sources associated with a quarry site, or neighboring sites.

Thank you for the opportunity to provide comments,

Jack Olivier

1509 Cabernet

New Braunfels, TX 78132

From:	Kira Olson
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 14, 2020 1:08:23 PM
Attachments:	Air Monitor Plan 2020 Public Comment.pdf

Dear TCEQ Commissioners and staff,

Attached are my Public Comments for the 2020 TCEQ-Annual Monitoring Network Plan

Respectfully submitted,

Kira Olson

245 Saur Rd.

Bulverde, TX 78163

210-889-4657

May 14, 2020

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Re: 2020 TCEQ Air Monitoring Network Plan

Dear Commissioners,

My name is Kira Olson. I live in the Texas Hill Country of Comal County, adjacent to a proposed 1500-acre open-pit limestone quarry. Comal County currently has eleven open-pit quarries, nine hot mix asphalt plants, seven concrete batch plants, and two cement plants. Aggregate Production Operations (APO's) own over seven percent (over 25,000 acres) of all the land in Comal County. It is crucial for TCEQ to understand that the 2020 Annual Monitoring Network Plan is insufficient to protect human health, not only in Comal County but across Texas.

1. EPA has delegated monitoring and compliance of the Clean Air Act to TX
2. TX has charged the TCEQ with responsibility for monitoring and compliance of the Clean Air Act
3. TCEQ has a state-wide program for air monitoring; it focuses on ozone
4. Most of the monitors are setup for ozone monitoring and are not monitoring particulate materials
5. Particulate monitoring stations are not capturing the actual particulates to determine the components, including respirable crystalline silica (RCS)
6. TCEQ monitoring of particulates is insufficient and deficient in gathering data to understand the components in the airborne particulates
7. Monitoring equipment is not located correctly to provide upwind, downwind data at the same time which can affect the mathematical data for modelling the amount of a given pollutant.
8. TCEQ is not using newer air monitoring technology (e. g., NASA satellite technology, TSI 8400 series monitors, BAM model 1020 monitor, purple air) that is showing a trend of significantly increased particulate material in the air in regions where APOs operate
9. Air modeling is done by engineering consultants for the APO requesting an operating permit, using data for point sources in the APO permit applicant facilities (e.g., the crusher, loading hoppers).
10. Non-point source emissions such as APO mining operations and mine road dust are ignored in this modeling
11. Model data from approved permits for APOs operating within 6 miles are included in the model, per TCEQ rules.
12. Since the models prepared for permit applications show that particulates "do not leave the APO facility", particulate levels from nearby APOs is considered "insignificant" in the permit applicant's model and ignored
13. Background particulate levels from distant locations are used for the models; this generally does not represent actual background particulate levels near the APO's operation

14. The APO applicant's modeling therefore does not fully consider the cumulative effects of the other APO operations in the area
15. The models are not calibrated with actual historical data, nor do they consider the components in the particulates concentrations being modeled.

Key Message to TCEQ
1. The TCEQ should present to the public their APO data, wind, atmospheric and other data used to site particulate monitors
2. Seismic monitors are required on properties near APOs, but air monitors are not. Why not?
3. The TCEQ should add additional monitors around the APOs; use data from numerous sources such as measurements by local groups, EPA satellite data, etc. to spot the monitors in areas showing high levels of particulates
4. Monitoring currently falls short including the lack of collection of harmful PM materials that require collection for chemical analysis such as respirable crystalline silica (RCS), a known carcinogenic, and in some locations lead and mercury known to affect mental health.
5. Include particulate sample gathering and analysis capability in the monitors. The new monitors should measure PM2.5, PM10 and the composition of materials in the particulates.
6. APO particulate dispersion modeling should be calibrated ("history-matched") to include actual particulate data from the new upwind and downwind monitors before running the APO applicant's particulate dispersion model predictions.

I ask that a plan be designed and enforced that encompasses the above and ensures "meaningful public participation in the decision-making process". Air quality is paramount for the health and safety of the citizens of Texas.

Thank you,

Kira Olson
245 Saur Rd.
Bulverde, TX 78163
kirafallspring@gmail.com

From: John Sullivan <sullynole@gmail.com>
Sent: Thursday, May 7, 2020 11:18 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

To Whom It May Concern:

I live and work in the Schertz/New Braunfels area along the Comal/Gudalupe border and I am very concerned about the air quality in my area. I have never seen so much dust fall on my cars even when I do not move them for weeks. Each time it rains a layer of dust is left behind from the rain drops. Driving on I-35 in the mornings I sometimes see the layer of pollution as I drive into New Braunfels along the escarpment. Many people in this area have asthma and sinus conditions. The air quality monitoring is very limited in our area, especially in Comal County where there are so many quarries, mines, and associated industry. The heavy constant truck traffic just adds to that pollution. I would like to see more air quality monitoring sites in this industry-intense area to be sure we are able to stay healthy with all of the industry in our backyards and our front yards. Our long-term sustainability depends on this information to determine how much is too much and whether further regulations are needed. Our region's economic prosperity depends on it.

Regards,
John Sullivan

From: Cheryl Abramson
To: MONOPS
Subject: Re: 2020 Annual Monitoring Network Plan
Date: Thursday, May 7, 2020 10:49:42 AM

Dear Texas Commission on Environmental Quality,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly -- in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for:

* Over 5,000 premature deaths, and
* Nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs these data, and the state needs to implement mitigation efforts to reduce air pollution and its harmful health impacts.

Sincerely,
Cheryl Abramson
24506 Forest Canopy Dr
Katy, TX 77493

From:	Liz Adams
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 14, 2020 10:05:46 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

My sister and her family live in MIssouri City, Texas, and they have suffered health effects from elevated levels of PM2.5 including congestive heart failure, diabetes, and asthma. I don't want them to become another statistic. Please install a regulatory PM2.5 monitor to help understand the levels of PM2.5 and find ways to reduce their exposure to air pollution.

Sincerely,

Liz Adams
103 Larkspur Ln
Cary, NC 27513
919-678-1513

From: Muizz Akhtar
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 1:14:51 AM

To whom it may concern,

I am writing today strongly in favor of TCEQ installing a new PM 2.5 monitor in West Houston.

While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you for your consideration,

Muizz Akhtar

From: Clay Albers
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 8:01:20 PM

Hello,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Regards,
Clay Albers

From: Michael Albrecht
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Friday, May 8, 2020 4:16:41 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Michael Albrecht
3710 Kennelwood Rd
Austin, TX 78703

From: literally yourmom <seialfred11@gmail.com>
Sent: Monday, May 11, 2020 2:58 PM
To: MONOPS <MONOPS@tceq.texas.gov>
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Regards,
Sara Alfred
Houstonian since 1981

From:	Anderson, Nick - MYR
To:	MONOPS
Cc:	Kelly, Bill - MYR; Hopkins, Loren - HHD
Subject:	TCEQ 2020 Annual Monitoring Network Plan - attention: Holly Landuyt
Date:	Thursday, May 14, 2020 4:23:43 PM
Attachments:	5.14.2020 TCEQ on PM2.5 SIGNED.pdf

To whom it may concern,

Please accept this letter from Mayor Sylvester Turner regarding the TCEQ 2020 Annual Monitoring Network Plan.

Thank you

CITY OF HOUSTON

Sylvester Turner
Mayor

P.O. Box 1562
Houston, Texas 77251-1562

Telephone – Dial 311
www.houstontx.gov

May 14, 2020

Toby Baker
Director, Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Dear Director Baker,

Exposure to fine particulate matter (PM2.5) has been strongly associated with adverse health effects. These microscopic airborne particles emanating from power plants, cars and trucks and industrial facilities, can lodge in lungs and enter the bloodstream. The recent analysis by the Harvard School of Public Health and Environmental Defense Fund (EDF) reveals that exposure to particle pollution in the Houston area in 2015 alone contributed to more than 5,000 premature deaths and nearly $50 billion in economic damages.

As you are aware, the EDF, using satellite data from the Harvard analysis, identified a large toxic plume of particulate matter in west Houston that was previously unseen. It went undetected for years because the Texas Commission on Environmental Quality (TCEQ) has not monitored particulate matter in west Houston. It is likely that more monitors, spread spatially to cover west Houston, would have shown soot levels above federal limits.

Scientists believe the soot in west Houston comes from industrial and marine sources along the Houston Ship Channel, as well as diesel vehicles and construction equipment. These fine soot particles cause heart attacks, strokes and lung cancer. Exposure to these particles is the largest environmental risk for early death in the United States.

Federal rules require TCEQ to install monitors in areas with the highest levels of soot – and areas of greatest population exposure. The areas indicating high levels of PM2.5 in west Houston are areas with higher population density. TCEQ has failed to meet this obligation in west Houston. It is clear that the region needs more monitors to meet federal rules. I strongly encourage TCEQ to install a PM2.5 monitor in west Houston.

Sincerely,

Sylvester Turner
Mayor

Council Members: Amy Peck Jerry Davis Abbie Kamin Carolyn Evans-Shabazz Dave Martin Tiffany D. Thomas Greg Travis Karla Cisneros
Robert Gallegos Edward Pollard Martha Castex-Tatum Mike Knox David W. Robinson Michael Kubosh Letitia Plummer Sallie Alcorn
Controller: Chris Brown

From: Neil Aquino
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 10:18:44 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Neil Aquino
Houston, Texas 77007

From: Sophie Asakura <sophie.asakura@me.com>
Sent: Thursday, May 7, 2020 2:29 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Rizwana Ashraf
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Friday, May 8, 2020 3:27:11 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Rizwana Ashraf
5734 White Clover Dr
Richmond, TX 77469

From:	Claude Bitner
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Tuesday, May 12, 2020 10:32:22 AM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Claude Bitner
5200 Palmetto St.
Bellaire, TX 77401

From:	Frank Blake
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 7, 2020 11:02:26 AM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Frank Blake
1010 Peden St
Houston, TX 77006

From: Carol Brejot
To: MONOPS
Subject: Healthier Houston
Date: Thursday, May 14, 2020 10:06:58 AM

Dear TCEQ:

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you.

Carol Brejot

carol@carolbrejotpr.com
713-503-3885

From: Jared Burns <mecchlife@hotmail.com>
Sent: Monday, May 11, 2020 11:46 AM
To: MONOPS
Subject: Houston parents encourage air monitoring

Dear Texas Commission on Environmental Quality

As a parent, I am writing today strongly in favor of installing a new particulate matter monitor in west Houston. This is our chance to take a crucial step toward protecting our air, especially in west Houston, where particulate pollution concentration is the highest. As a community, we have a right to know what's in the air our families breathe so we can use the best information available to protect ourselves.

Toxic air pollution is life-threatening. According to a new analysis from Environmental Defense Fund, in 2015 alone, particulate pollution contributed to the premature death of over 5000 Houstonians.

Please finalize the implementation of a particulate matter monitor in west Houston and take steps to make monitoring even more widespread across the city. Our families are counting on you to protect the air we all breathe.

Sincerely,
Jared Burns
16202 Buccaneer Ln
Houston, TX 77062

From: Jessie Casteel <stoneguard@sprynet.com>
Sent: Tuesday, May 12, 2020 4:16 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Cindy Chapman <cpchapman@yahoo.com>
Sent: Tuesday, May 12, 2020 3:02 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan- PM 2.5 Air Monitoring

I am writing today strongly in FAVOR of installing a new PM 2.5 monitor in west Houston. I live in southwest Houston and it is astonishing to me how widespread PM 2.5 air pollution is on the west and southwest side of Houston, far from the industrial east side of Harris County. Additionally, I FAVOR installing more monitors in the Houston area.

According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Best regards,
Cindy Chapman

From: Colleen
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 7:55:43 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thanks,
Colleen

From: michael.conklin@evolvehouston.org
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 6:22:03 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Molly Cook
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 4:12:29 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Molly Cook, RN, MSN/MPH, CEN
Zip code: 77019
(713) 502-4932
Sent from my iPhone

From: Emily Covey
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 10:50:08 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Emily Covey
713.382.7832

From: James Dancy <dancyrb@juno.com>
Sent: Thursday, May 7, 2020 10:58 AM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
James Dancy
8038 Weeping Willow Pl
Missouri City, TX 77459

From: Keith Daniels <kdan281.wrld@gmail.com>
Sent: Tuesday, May 12, 2020 12:15 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sincerely,
Keith Daniels
kdan281.wrld@gmail.com

From:	James Dean
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Wednesday, May 13, 2020 6:46:39 PM

To Whom it May Concern:

Houston air quality is toxic, and it's dangerous to all Houstonians. We need more monitoring to understand the extent of the problem so that we can start taking action and making policy to address the pollution in and around the city. I am strongly in favor of a new PM2.5 monitor in west Houston. Please install this monitor, and continue to grow the network of air pollution monitors in the city so we can start to address this problem!

Thank you,

James Dean
Houston, TX

From:	ROBER & CAROL DEJEAN
To:	MONOPS
Subject:	Air Monitors
Date:	Thursday, May 14, 2020 8:36:25 PM

Greetings,

As a residents that has a sandpit, rock crushed concrete plant and concrete ready mix facilities right in our neighborhood, less that 2000 ft, I joined the Air Alliance Organization to petition and demand that you supply them with more air monitoring machines to monitor these environmental hazard sites that you allow to poison our water and air on a 24/7 basis.These business are self police monitoring themselves, while you continue to give them permits and permission to compromise children, the elderly, those with underlined conditions.

Sincerely angry,

Carol Dejean, Executive Board Member
DyerForest Heights Civic Club, Houston, TX
Contact # (832) 901-8720

From: Sara DeMers
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 7, 2020 1:57:11 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

iPhone. iTypos. iApologize.

From: Nicholas De Santos
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Friday, May 8, 2020 7:35:44 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Nicholas De Santos
13123 Mills Bend St
Houston, TX 77070

From: Abigail Duarte
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 12:34:23 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sent from my iPhone

From:	Kevin Dyer
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Wednesday, May 13, 2020 11:59:02 AM

Hello,

I strongly support the installation of a new PM 2.5 monitoring system in west Houston.

It is flatly irresponsible to not be monitoring air quality at a higher level given the emissions levels in our city.

Further, COVID-19 outcomes are negatively correlated with air pollution; this is exactly the time to be investing in monitoring of this type.

Thank you,
Kevin Dyer

From: Julie Ebersole <julie7ebersole@gmail.com>
Sent: Thursday, May 7, 2020 8:17 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Julie Ebersole
Houston, TX 77006

From: Allie Eggert
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 10:09:13 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Neal Ehardt
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 1:17:07 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you,
Neal Ehardt
77019

From: Jennifer Ettelson Besmehn
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 6:42:16 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you for doing what needs to be done to protect all our communities and our health. I'm sure that we can find a way to both care for our environment and public health and promote a healthy economy.

Best,

Jennifer Ettelson

From: Meryl Ettelson <merylettelson@gmail.com>
Sent: Tuesday, May 12, 2020 10:04 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Meryl Ettelson
Sent from my iPad

From: Tom E <tom.eysenbach@rrd.com>
Sent: Monday, May 11, 2020 9:49 AM
To: MONOPS
Subject: Re: 2020 Annual Monitoring Network Plan

Dear Texas Commission on Environmental Quality,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly -- in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for:

* Over 5,000 premature deaths, and
* Nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs these data, and the state needs to implement mitigation efforts to reduce air pollution and its harmful health impacts.

Sincerely,
Tom E
1645 W. N. Tollway
Houston, TX 77043

From: S. Rab
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 10:35:11 AM

We need the west Houston air monitor! I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston! While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, you have to do even more!

All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

-Mara F.

From:	Elizabeth Ferrio
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 7, 2020 11:57:48 AM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Elizabeth Ferrio
23519 Whispering Willow Dr
Spring, TX 77373

From: Lizbeth Figueroa
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 4:20:24 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Best,

Liz

From: Travis Fischer
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 10:59:01 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Catherine Fraser
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 9:40:12 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Best,
Catherine Fraser

From:	Denise Fredette
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 7, 2020 8:14:19 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Denise Fredette
4514 Briarbend Dr
Houston, TX 77035

From:	Christopher Gallego
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Wednesday, May 13, 2020 12:06:45 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sincerely,
Christopher G

From: Christopher George <christopher_p_george@yahoo.com>
Sent: Tuesday, May 12, 2020 2:48 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

To Whom It May Concern,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you,
Chris George

From: Frederick Glazier <fredglazier@gmail.com>
Sent: Thursday, May 7, 2020 2:05 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Frederick Glazier
15050 Copper Grove Blvd Apt 604
Houston, TX 77095

From: Martha Gorak
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 7, 2020 12:58:46 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Martha Gorak
22502 Downdale Cir
Katy, TX 77450

From: Christian Greaser
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 9:34:02 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Brigid Hall
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 4:29:10 PM

Dear TCEQ Monitoring,

All Texans deserve to breath clean air. As the TCEQ, you play an important role in safeguarding the health and well being of the people who call Texas home. I urge you to take action to protect our health.

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Brigid Hall
Austin, TX 78721

From: Gayle Halpin <gdhalpin@gmail.com>
Sent: Monday, May 11, 2020 9:26 AM
To: MONOPS
Subject: Re: 2020 Annual Monitoring Network Plan

Dear Texas Commission on Environmental Quality,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly -- in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for:

* Over 5,000 premature deaths, and
* Nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs these data, and the state needs to implement mitigation efforts to reduce air pollution and its harmful health impacts.

Sincerely,
Gayle Halpin

Houston, TX 77025

From: Beverly Handy
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 7:58:39 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

BEVERLY C HANDY

From:	Dexter Handy
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 14, 2020 7:53:31 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Dexter R. Handy, Lt Col USAF Retired
Chair, Citizens' Transportation Coalition
Chair, Greater Houston Coalition for Complete Streets
Chair Rice Military Civic Club Transportation Committee

From: Farber, Harold J. <hjfarber@texaschildrens.org>
Sent: Tuesday, May 12, 2020 4:24 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts. A healthy economy requires a healthy population. This is an investment that will pay off.

Harold J. Farber, MD, MSPH
Professor of Pediatrics, Pulmonary Section
Baylor College of Medicine and Texas Children's Hospital
hjfarber@texaschildrens.org

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From: Laurel Hays <hou.petsurgeon@comcast.net>
Sent: Saturday, May 9, 2020 7:46 AM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts. Data suggests people exposed to chronic air pollution are more likely to become sick and/or die from COVID-19, as one example. We must do more to reduce air pollution and racial/neighborhood disparities.

Sincerely, Laurel Hays (77008)
Sent from my iPad

From: Jo Henley <jabyars@gmail.com>
Sent: Thursday, May 7, 2020 12:33 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Jo Henley
3814 Linklea Dr
Houston, TX 77025

From: Marisa Hilliard <marisa.hilliard@gmail.com>
Sent: Thursday, May 7, 2020 1:03 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I live and vote in Houston, and I have asthma. Air quality matters a lot to me and my family.

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you
Marisa Hilliard PhD

From: Cruz
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 7, 2020 4:34:24 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Cruz R, Hinojosa, Jr.
President
Environmental Community Advocates of Galena Park

From: Cynthia Hitchcock <cynditango@gmail.com>
Sent: Thursday, May 7, 2020 4:41 PM
To: MONOPS
Subject: Re: 2020 Annual Monitoring Network Plan

Dear Texas Commission on Environmental Quality,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costs us dearly. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for:

* Over 5,000 premature deaths, and
* Nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs these data, and the state needs to implement mitigation efforts to reduce air pollution and its harmful health impacts.

As a native Texas, it saddens me to know my Texas air is not the quality it should be. We can fix this NOW.

Sincerely,
Cynthia Hitchcock
3011 Colonial Dr
Sugar Land, TX 77479

From: Horn, Tyler
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 9:36:53 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

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From: German Ibanez
To: MONOPS
Subject: More Air Quality monitoring
Date: Wednesday, May 13, 2020 7:27:48 AM

TCEQ

I am very concern as citizen of the City of Houston. I want more air quality throughout the city. Due to the virus, we have seen how much better the air quality has been because stay in home measure the Harris County has imposed. We need to measure the effects to the areas in town that most are affected and try to maintain the levels when our County opens up business operations.

Exposure to PM2.5 is the largest environmental risk for early death in the U.S. These invisible airborne particles can lodge in our lungs, enter our bloodstream and cause heart attacks, strokes, and lung cancer. When a pregnant woman is exposed, it can harm her infant's growth and development. **In Houston, particle pollution contributed to more than 5,000 early deaths and nearly $50 billion in economic damages in 2015 alone.**

Regards

German Ibanez
germanibanez@hotmail.com
cell 713 412 7378

From: Connie Jennings
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 5:00:10 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Emily Johnson
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 9:50:52 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Vincent Jones <vince3j@hotmail.com>
Sent: Thursday, May 7, 2020 6:36 PM
To: MONOPS
Subject: Re: 2020 Annual Monitoring Network Plan

Dear Texas Commission on Environmental Quality,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly -- in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for:

* Over 5,000 premature deaths, and
* Nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs these data, and the state needs to implement mitigation efforts to reduce air pollution and its harmful health impacts.

Sincerely,
Vincent Jones

Houston, TX 77043

From: Sarah Jordan
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Tuesday, May 12, 2020 12:16:30 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sincerely,
Sarah Jordan Stout

Sent from my iPhone

From: jorge rosas <vhprosas@gmail.com>
Sent: Thursday, May 7, 2020 12:33 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
jorge rosas
5773 Woodway Dr # 103
Houston, TX 77057

From: James Kelleher
To: MONOPS
Subject: Re: 2020 Annual Monitoring Network Plan
Date: Thursday, May 7, 2020 3:09:30 PM

Dear Texas Commission on Environmental Quality,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly -- in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for:

* Over 5,000 premature deaths, and
* Nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs these data, and the state needs to implement mitigation efforts to reduce air pollution and its harmful health impacts.

Sincerely,
James Kelleher

Houston, TX 77056

From: Nancy Kern
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 8:50:12 AM

I love Houston. My family has lived here for 4 generations. I've watched the air quality decline and my lungs challenged by polluted air.

I am writing today strongly in favor of installing a new PM 2.5 monitor in inner city Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Nancy

Emotional Freedom, Flower Essences, Akashic Records — Guided by Soul
www.Nancykern.com
713-562-1317

From: Simone Kern
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 7:27:49 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sent from my iPhone

From: Laila Khalili
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 2:14:05 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Respectfully,
Laila Khalili

Sent from my iPhone

From: DENAE KING <dking005@comcast.net>
Sent: Monday, May 11, 2020 4:07 PM
To: MONOPS
Subject: More Local Air Monitoring Request

Greetings,

I am writing to encourage TCEQ to please consider placing a new monitor in the west side of Harris County. This is an area of the county that lacks air monitoring. Therefore, placing a monitor in this area will provide the air quality data needed to make informed decisions on how best to keep all Houstonians safe.

Denae King, PhD

From:	Fred Klein
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 14, 2020 5:18:32 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of th

Get BlueMail for Android

From: Lisa LeBlanc <1619austin@gmail.com>
Sent: Thursday, May 7, 2020 10:36 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Lisa LeBlanc
6 Windermere Ln
Houston, TX 77063

From: David Leftwich
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 9:37:36 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sent from my iPhone

From: Ann Lents
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Tuesday, May 12, 2020 1:45:18 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston.

I have seen how many children in this area have asthma and other lung issues, and the area is burdened with a huge freeway and industry especially north of I10. We need to have data to scientifically assess what the air impacts in the area actually are.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you for your work.

Best regards,

Ann Lents

From: Nik Liebster
To: MONOPS
Subject: Air Pollution
Date: Thursday, May 14, 2020 4:20:29 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From:	Nicholas Lockhart
To:	MONOPS
Cc:	stories@onebreathhou.org
Subject:	Support for increased Fine Particulate Matter Monitoring - 2020 Annual Monitoring Network Plan
Date:	Thursday, May 14, 2020 10:05:49 AM

To whom it may concern;

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. As a Houstonian, family member, and concerned citizen, I think it is critical to understand the environmental conditions in our community so that we can make informed decisions about how or what to address. Furthermore, as an employee for a local major chemical corporation, I understand the value in monitoring to ensure the community-business partnership is being effectively managed through data based decision making. Our corporate partners in the area have a strong desire to ensure a high quality of life for their employees, their friends, and their communities - but effective management of environmental considerations is not possible without good data.

While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts. I know i speak for my corporation and employees when I say business and community interests are aligned - we all have a desire for a healthy, happy Houston. We ALL need TCEQ to continue to do its part in providing high quality data with sufficient geographical granularity to allow effective actions to be taken. We thank you for your efforts so far and strongly encourage this work to expand!

Sincerely,
Nicholas Lockhart

email:NLockha@gmail.com
cell: (319) 899-6127

From: Betsy Longoria <longoria.betsy@gmail.com>
Sent: Tuesday, May 12, 2020 1:03 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

I am a registered and active voter, and watch with great interest as you make efforts to protect Texans.

Respectfully,
Nancy E. Longoria

From: Sarah Lozano
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 5:13:39 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sent from my iPhone

From: Yoseph Maguire
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 2:47:15 PM

You will hopefully receive a few of these emails with a similar content format. That is because Houston has failed it's most vulnerable residents time and time again. We have witnessed the necessary community rallying that needs to happen to save lives as we battle against COVID19. And yet as hypocrites when data demonstrates the ways our pollutants create disparities in who is more likely to die from COVID19, when data demonstrates that clusters of cancer have statistical linkages to the poor air quality and chemicals emitted in and around Houston, we sit silently and ignore, because business must go on. No longer. No longer should business dictate the life span of a mother and child because their profit margins mean cutting a few corners and forgoing necessary air filtration mechanisms. It is a disgrace, and it needs decisive action today. Literally today.

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank You,

Yoseph

From: Virginia Manuel <v.manuel.msw@gmail.com>
Sent: Thursday, May 7, 2020 11:44 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Virginia Manuel
4734 Shetland Ln
Houston, TX 77027

From: L Marshall <laurinne@live.com>
Sent: Friday, May 8, 2020 1:32 AM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
L Marshall
241 Palm Aire Dr
Friendswood, TX 77546

From: Anna Mayer
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 6, 2020 6:24:04 PM

Greetings.

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Let's improve the air in Houston so we can keep all of the talented people employed here in the city.

Thank you.
Anna Mayer
University of Houston
--
www.annamayer.info

From:	Mary McCall
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Wednesday, May 13, 2020 12:44:59 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Alex McDonald
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Tuesday, May 12, 2020 2:01:23 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you,

Alex

From:	William McGuinness
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Wednesday, May 13, 2020 3:32:00 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you,
William McGuinness

From: Eileen Mellon
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 9:03:32 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Eileen Mellon

Sent from my iPhone

From: Gillian Mellor
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 3:24:47 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Gillian

From: Nadine Mott
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 9:43:34 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Now more than ever, thank you for putting people and their health first.

Nadine Mott

From: Bridgette Murray
To: MONOPS
Subject: TCEQ 2020 Monitoring Plan
Date: Thursday, May 14, 2020 7:18:31 AM

We are submitting our comments in this matter.

Achieving Community Tasks Successfully (ACTS) is a grass roots non profit community based organization in Houston, Texas. Our community is serviced by the monitor located at Clinton Drive. We endorse the proposal to place a new monitor in the west Houston area to monitor fine particulate matter or PM2.5

Similar to our area, data suggests PM2.5 is too high in this area and more information should be made available to the residents in this area to know what they are breathing.

The scientific community has documented to date significant health risks to PM2.5

- Exposure to fine particulate matter is **the largest environmental risk** for early death in the U.S. EPA's scientists have estimated that it contributes to more than **45,000 early deaths** every year
- In Houston, particle pollution contributed to **more than 5,000 early deaths** and **nearly $50 billion in economic damages** in 2015 alone, according to a new analysis from the Harvard School of Public Health and Environmental Defense Fund

Adding **this new monitor is an important first step** to address particle pollution and improve our health; the city needs more monitoring, and we shouldn't shift resources, but introduce more new monitors like this one

We ask that you approve adding this new monitor in 2020

Bridgette Murray
Executive Director
Achieving Community Tasks Successfully dba ACTS
713 553-1907

From: Sarah Neuhaus
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Tuesday, May 12, 2020 1:17:31 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

--
Sarah Neuhaus
(713) 962-3938

From:	Christopher Newton
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 14, 2020 12:34:46 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Christopher Newton
617 Harold St.
Houston, TX 77006

From: Chris Oliver
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 9:42:18 AM

Hello,

I am writing today strongly, strongly in favor of installing a new PM 2.5 monitor in west Houston.

While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Best,
Chris Oliver

From: Ronald Parry
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Tuesday, May 12, 2020 2:06:45 PM

Dear TCEQ,

I am 77 years old, and I live on the West side of Houston. I was very disturbed to learn of the high levels of particulates (PM 2.5) where I live! PM 2.5 is well known to be a highly dangerous air pollutant, so living on the West side of Houston is probably shortening my life! I was also shocked to learn that there is no PM 2.5 monitor in West Houston. Did it never cross the mind of TCEQ officials that there might be a problem?? In any case, I am writing to tell you that I strongly support the installation of a PM 2.5 monitor in West Houston. Please install the PM 2.5 monitor as quickly as possible and, furthermore, please take the necessary steps to install additional community monitors as soon as it can be done. Citizens have a right to know about the toxic pollutants in the air they inhale every day, and both the city and the state need this information to effectively reduce air pollution and its harmful health impacts.

Sincerely,

Ronald Parry
Emeritus Professor of Chemistry
Rice University

From: Emily Patterson
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 12:23:59 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

****

Emily Patterson
Attorney at Law
1302 Rosalie St.
Houston, Texas 77004 USA
+1 832 727 6287
Skype emilyclairepatterson

This communication (including any attachments) is intended solely for the use of the addressee(s) and may contain information which is privileged, confidential, exempt from disclosure under applicable law or subject to copyright. If you are not an intended recipient, any use, disclosure, distribution, reproduction, review or copying is unauthorized and may be unlawful. If you have received this transmission in error, please notify the sender immediately. Thank you.

From: Grant Patterson
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 2:01:34 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From:	Jana Pellusch
To:	MONOPS
Cc:	Jana Pellusch
Subject:	Public comments on air monitoring plans for 2020
Date:	Tuesday, May 5, 2020 2:31:06 PM

It has come to my attention that there is a need in densely populated West Houston for a new air monitor to measure fine particulate matter. Why is this important?

- Exposure to fine particulate matter is **the largest environmental risk** for early death in the U.S. EPA's scientists have estimated that it contributes to more than **45,000 early deaths** every year
- In Houston, particle pollution contributed to **more than 5,000 early deaths** and **nearly $50 billion in economic damages** in 2015 alone, according to a new analysis from the Harvard School of Public Health and Environmental Defense Fund
- Adding **this new monitor is an important first step** to address particle pollution and improve our health; the city needs more monitoring, and we shouldn't shift resources, but introduce more new monitors like this one

Thank you for your attention to this matter.

Jana Pellusch
714 E Dartmouth Lane
Deer Park TX 77536

From: Pelzel, Madeleine
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 3:07:22 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you,
Madeleine Pelzel

Sent from Mail for Windows 10

mpelzel@Huitt-Zollars.com
www.huitt-zollars.com

NOTICE: This e-mail and any files transmitted with it are confidential and intended for the sole use of the individual or entity to which this e-mail is addressed. If you have received this email in error, please notify the sender and delete the e-mail from your system.

From: Maria Pena
To: MONOPS
Subject: Re: 2020 Annual Monitoring Network Plan
Date: Thursday, May 7, 2020 5:46:59 PM

Dear Texas Commission on Environmental Quality,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly -- in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for:

* Over 5,000 premature deaths, and
* Nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs these data, and the state needs to implement mitigation efforts to reduce air pollution and its harmful health impacts.

Sincerely,
Maria Pena
9715 Kinslowe Ct
Houston, TX 77064

From: Perez, Teodomiro
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 5:22:33 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in southeast Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: alese pickering
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 7, 2020 11:17:13 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Alese Pickering (she/her)
alesepickering.com

From: Fred Ponder
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 7, 2020 11:49:31 AM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Fred Ponder
3526 Creekbriar Dr
Houston, TX 77068

From: ESPERANZA Porrero <noquieroirlo@hotmail.com>
Sent: Monday, May 11, 2020 7:39 AM
To: MONOPS
Subject: Re: 2020 Annual Monitoring Network Plan

Dear Texas Commission on Environmental Quality,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly -- in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for:

* Over 5,000 premature deaths, and
* Nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs these data, and the state needs to implement mitigation efforts to reduce air pollution and its harmful health impacts.

Sincerely,
ESPERANZA Porrero
28011 US-90
Katy, TX 77493

From: Lara Purser
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 6:52:04 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sincerely,
Lara Purser

Sent from my iPhone

From: Mary Quinlan <ookah@hotmail.com>
Sent: Monday, May 11, 2020 12:12 PM
To: MONOPS
Subject: Houston parents encourage air monitoring

Dear Texas Commission on Environmental Quality

As a parent, I am writing today strongly in favor of installing a new particulate matter monitor in west Houston. This is our chance to take a crucial step toward protecting our air, especially in west Houston, where particulate pollution concentration is the highest. As a community, we have a right to know what's in the air our families breathe so we can use the best information available to protect ourselves.

Toxic air pollution is life-threatening. According to a new analysis from Environmental Defense Fund, in 2015 alone, particulate pollution contributed to the premature death of over 5000 Houstonians.

Please finalize the implementation of a particulate matter monitor in west Houston and take steps to make monitoring even more widespread across the city. Our families are counting on you to protect the air we all breathe.

Sincerely,
Mary Quinlan
2131 Canal Dr
Bay City, TX 77414

From: Lucy Randel
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 3:09:56 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. Gaps in the air monitoring network allow pollution to spread and impact public health, while depriving local residents and policy makers the information needed to evaluate mitigating steps. Air pollution travels far beyond its sources thereby requiring a network that covers the entire region.

I live in southwest Houston and remember how concerned people in the area were during the 2019 ITC fire. We observed plumes of smoke but no permanent monitors and little other data to inform us of what we were breathing. Plumes often spread west across the Houston region and a monitor in west Houston will be an important first step at filling the data gaps. It is long overdue and should be a budget priority.

Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sincerely,

Lucy Randel
5319 Rutherglenn Dr.
Houston, TX 77096

From: clayton.m.reed@gmail.com
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 9:52:11 AM

To Whom It May Concern:

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you in advance for taking these decisive actions.

Regards,
Clayton

From: Jennifer Reiss
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 12:04:27 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Regards,
Jennifer Reiss
Houston 77054

Sent from my iPhone

From:	Ashlyn Remmert
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Friday, May 8, 2020 1:47:33 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Ashlyn Remmert
29712 Sullivan Oaks Dr
Spring, TX 77386

From: John Riley <johnjriley08@gmail.com>
Sent: Tuesday, May 12, 2020 5:23 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sent from my iPhone

From: marla roberson
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 12:34:34 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Marla Roberson
Sent from my iPhone

From: Marcie Rosen
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 5:32:41 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Marcie Rosen
4340 Darsey St
Bellaire, TX 77401

From: Les Rosenblatt <lmrnev@juno.com>
Sent: Friday, May 8, 2020 7:25 AM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Les Rosenblatt
99 E Mistybreeze Circle
The Woodlands, TX 77381

From: Jessica Rossi
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 8:37:26 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Jenny Ruchhoeft <jruchhoeft@gmail.com>
Sent: Tuesday, May 12, 2020 12:24 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Jen Ruchhoeft

From:	Ryan Reed
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 7, 2020 11:00:11 AM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Ryan Reed
2016 Almeda Genoa Rd
Houston, TX 77047

From: Lauren Salomon <laurensalomon@sbcglobal.net>
Sent: Tuesday, May 12, 2020 10:27 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

This is personal for me. As a native Houstonian, I have suffered from asthma all my life. Improving our air quality is literally a matter of life and death for me.

Thank you for your consideration.

Sincerely,

Lauren Salomon

From: Kristen Schlemmer <kschlemmer@gmail.com>
Sent: Tuesday, May 12, 2020 1:14 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. This is a crucial first step toward addressing pollution and protecting the health of the people of Houston. Much more action is needed over the immediate and long-term.

All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages.

This report is extremely troubling to me as someone who was born and raised in Houston and returned to Houston nearly 10 years ago to raise a family of my own. I am personally very sensitive to air pollution and rely on accurate data to evaluate whether I can spend much time outside. As a mother, I depend on the availability of accurate air quality data to determine when it is safe - or not - to let my 1.5-year old daughter play outdoors. As a daughter myself, I am concerned about the effect this air pollution has on the health of my elderly parents.

I urge you to finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you,
Kristen Schlemmer
Houston, Texas 77007

From: msmary45@live.com
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 3:45:46 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston.
As a resident of Houston for all of my adult life, and a career social worker, I have seen the horrible health effects of air pollution on people in this area, and have studied enough about it to know that fine particulate pollution is a serious culprit.

While this one proposed new monitor in west Houston is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Mary E. Schultz (retired)
1111 Peddie St.
Houston, TX 77009

From: Robert Sgovio
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 5:35:55 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Kristin Shelley
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 9:19:26 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sincerely,
Kristin Kime Shelley

From: barbaralynnsilberg@msn.com
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 7:18:35 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Ray Smith
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 7, 2020 6:35:12 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Ray Smith
10307 Mills Pass Dr
Houston, TX 77070

From: Raymond Smith <raysmi1811@sbcglobal.net>
Sent: Thursday, May 7, 2020 8:26 PM
To: MONOPS
Subject: Re: 2020 Annual Monitoring Network Plan

Dear Texas Commission on Environmental Quality,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly -- in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for:

* Over 5,000 premature deaths, and
* Nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs these data, and the state needs to implement mitigation efforts to reduce air pollution and its harmful health impacts.

Sincerely,
Raymond Smith
10220 Mills Rd
Houston, TX 77070

From: Lisa Stone <lestone@aya.yale.edu>
Sent: Thursday, May 7, 2020 10:46 AM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Lisa Stone
8902 Birdwood Ct
Houston, TX 77096

From:	Kevin Strickland
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 14, 2020 9:25:04 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. I bike every day and it's distressing to know that air pollution is there but we don't know enough about it to take more effective steps to mitigate it.

People have a false sense of security that because we can't see it, it's not a threat. The way to address that problem is with science. Facts.

While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Sullivan, Danielle (Commissioner Pct 1) <Danielle.Sullivan@cp1.hctx.net>
Sent: Tuesday, May 12, 2020 2:09 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

To whom it may concern at the TCEQ,

My name is Danielle Sullivan and I am an Environmental Policy Advisor for Commissioner Rodney Ellis in Harris County. First of all, I would like to thank you for your investments in air monitors throughout the past year. The detection of poor air quality and follow-up action is vital to protecting the health of all Texans.

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you for the work that you do.

Danielle

Danielle Sullivan
Office Of Harris County Commissioner Rodney Ellis
Precinct One
Policy Advisor | Policy Department
El Rio Service Center, 7901 El Rio Street, Houston, TX 77054
Office: 346-286-1962 Email: Danielle.Sullivan@cp1.hctx.net

CONFIDENTIALITY NOTICE --This email is intended only for the person(s) named in the message header. Unless otherwise indicated, it contains information that is confidential, privileged and/or exempt from disclosure under applicable law. If you have received this message in error, please notify the sender of the error and delete the message. Thank you.

From: Sylvia Szucs <sylvia.szucs@gmail.com>
Sent: Thursday, May 7, 2020 12:03 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Sylvia Szucs
16346 Hickory Point Road
Houston, TX 77095

From: JoAnn Takasaki <jtakasaki@gmail.com>
Sent: Friday, May 8, 2020 6:15 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than **5,000 premature deaths, and nearly $50 billion in economic damages**.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

I appreciate your consideration. And thank you in advance for making the choice to take steps towards a healthier Houston.

Respectfully,
JoAnn Takasaki

JoAnn Takasaki
jtakasaki@gmail.com
+1 713-256-5611

From:	Matthew Taylor
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Thursday, May 14, 2020 3:23:07 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Matthew Taylor
1710 Overlook Dr
Grapevine, TX 76051

From: Anitha
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 10:02:06 AM

Hello,

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Thank you,

From: Brooke Tolle
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 4:51:33 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Lesly Van Dame <outlook_9C20AAE53D3ADE74@outlook.com>
Sent: Tuesday, May 12, 2020 1:34 PM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.
Sent from Mail for Windows 10

From: Irene Vazquez
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 10:12:08 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sincerely,
Irene Vázquez

From: Kristen Vogel
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 3:03:40 PM

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Kristen Vogel
2518 Corral Trail
Friendswood, TX 77546

From: Lisa Wartenberg <lisa.wartenberg@gmail.com>
Sent: Thursday, May 7, 2020 11:01 AM
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan

Dear TCEQ Monitoring,

I am strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.

All Houstonians face toxic air pollution, and it is costing us dearly. According to a new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its dangers.

Sincerely,
Lisa Wartenberg
Houston, TX 77003

From: Allyn West via ActionNetwork.org
To: MONOPS
Subject: Texas Commission on Environmental Quality, Houston needs more local air monitoring to protect our health
Date: Thursday, May 14, 2020 12:02:32 PM
Attachments: houston-needs-more-local-air-monitoring-to-protect-our-health_signatures_202005140500.pdf

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Texas Commission on Environmental Quality,

21 people have signed a petition on Action Network telling you to Houston needs more local air monitoring to protect our health.

Here is the petition they signed:

> SUBJECT: 2020 Annual Monitoring Network Plan
>
> I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.
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> Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

You can view each petition signer and the comments they left you in the attached PDF.

Thank you,

Allyn West

Action Network

Sent via Action Network, a free online toolset anyone can use to organize. Click here to sign up and get started building an email list and creating online actions today.

Action Network is an open platform that empowers individuals and groups to organize for progressive causes. We encourage responsible activism, and do not support using the platform to take unlawful or other improper action. We do not

control or endorse the conduct of users and make no representations of any kind about them.

You can unsubscribe or update your email address or change your name and address by changing your subscription preferences here.

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You can view each petition signer and the comments they left you below.

Thank you,

Allyn West

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1. Ashley Debose (*ZIP code: 77035)*

2. Annette Thorpe (*ZIP code: 77042)*

3. Anthony Reese (*ZIP code: 77545)*

4. Allyn West (*ZIP code: 77006)*

5. Christopher Valdez (*ZIP code: 77007)*

6. Elizabeth Manjarrez (*ZIP code: 77034)*

7. Evan ONeil (*ZIP code: 77009)*

8. Patricia Grace Tee Lewis (*ZIP code: 77007)*

9. James Ellison (*ZIP code: 77433)*
Our location in texas requires more monitoring. That can only be done with more monitors.

10. Kim Vargas (*ZIP code: 77076)*

11. Matthew Tresaugue (*ZIP code: 77002)*

12. Rhiannon Luck (*ZIP code: 77089)*

13. Riikka Pohjankoski (*ZIP code: 77007)*

14. Guadalupe Rosas (*ZIP code: 77011)*

15. Rebeca Salas (*ZIP code: 77087)*

16. Giselle Tejeda (*ZIP code: 77087)*

17. Anastasia Tristan (*ZIP code: 77023)*

18. yadira beltran (*ZIP code: 77459)*
We deserve for our environment to be protected and monitored.

From: Allyn West via ActionNetwork.org
To: MONOPS
Subject: Texas Commission on Environmental Quality, Houston needs more local air monitoring to protect our health
Date: Thursday, May 7, 2020 11:29:11 AM
Attachments: houston-needs-more-local-air-monitoring-to-protect-our-health_signatures_202005070427.pdf

---

Texas Commission on Environmental Quality,

6 people have signed a petition on Action Network telling you to Houston needs more local air monitoring to protect our health.

Here is the petition they signed:

> SUBJECT: 2020 Annual Monitoring Network Plan
>
> I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.
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You can view each petition signer and the comments they left you in the attached PDF.

Thank you,

Allyn West

Action Network

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Action Network is an open platform that empowers individuals and groups to organize for progressive causes. We encourage responsible activism, and do not support using the platform to take unlawful or other improper action. We do not

control or endorse the conduct of users and make no representations of any kind about them.

You can unsubscribe or update your email address or change your name and address by changing your subscription preferences here.

From: Allyn West via ActionNetwork.org <info@sg.actionnetwork.org>
Sent: Monday, May 11, 2020 2:03 PM
To: MONOPS
Subject: Texas Commission on Environmental Quality, Houston needs more local air monitoring to protect our health
Attachments: houston-needs-more-local-air-monitoring-to-protect-our-health_signatures_202005110703.pdf

Texas Commission on Environmental Quality,

15 people have signed a petition on Action Network telling you to Houston needs more local air monitoring to protect our health.

Here is the petition they signed:

> SUBJECT: 2020 Annual Monitoring Network Plan
>
> I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed.
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You can view each petition signer and the comments they left you in the attached PDF.

Thank you,

Allyn West

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You can unsubscribe or update your email address or change your name and address by changing your subscription preferences here.

From: Allyn West
To: MONOPS
Subject: 2020 Annual Monitoring Plan
Date: Thursday, May 14, 2020 2:38:38 PM

Hello,

I am writing to urge TCEQ to install a new PM 2.5 monitor in west Houston, as proposed in your annual monitoring plan.

I am excited about the prospect of having access to current data for our community here in Houston, so that we all can work together to make decisions about our health.

As you know, Houstonians live with too much air pollution, and it is costing lives and hurting our economy. A new analysis concluded that widespread exposure to PM 2.5 in 2015 here was responsible for more than 5,000 premature deaths and nearly $50 billion in economic damages.

It doesn't have to be this way! Please install the proposed PM 2.5 monitor. I trust that it will be the first of many new monitors and other resources added to our network, so we have the latest data to reduce the burden of pollution in this place I call home.

Many thanks,

Allyn West, Ph.D. (he/his)
Senior Communications Specialist
Environmental Defense Fund
@allynwest
C: 713-724-1810

Texas Commission on Environmental Quality,

6 people have signed a petition on Action Network telling you to Houston needs more local air monitoring to protect our health.

Here is the petition they signed:

> SUBJECT: 2020 Annual Monitoring Network Plan
>
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>
> Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

You can view each petition signer and the comments they left you below.

Thank you,

Allyn West

---

1. Allyn West (*ZIP code: 77006)*

2. Christopher Valdez (*ZIP code: 77007)*

3. Evan ONeil (*ZIP code: 77009)*

4. Patricia Grace Tee Lewis (*ZIP code: 77007)*

5. Matthew Tresaugue (*ZIP code: 77002)*

Texas Commission on Environmental Quality,

15 people have signed a petition on Action Network telling you to Houston needs more local air monitoring to protect our health.

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>
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You can view each petition signer and the comments they left you below.

Thank you,

Allyn West

---

1. Annette Thorpe (*ZIP code: 77042)*

2. Anthony Reese (*ZIP code: 77545)*

3. Allyn West (*ZIP code: 77006)*

4. Christopher Valdez (*ZIP code: 77007)*

5. Elizabeth Manjarrez (*ZIP code: 77034)*

6. Evan ONeil (*ZIP code: 77009)*

7. Patricia Grace Tee Lewis (*ZIP code: 77007)*

8. Kim Vargas (*ZIP code: 77076)*

9. Matthew Tresaugue (*ZIP code: 77002)*

10. Guadalupe Rosas (*ZIP code: 77011)*

11. Rebeca Salas (*ZIP code: 77087)*

12. Giselle Tejeda (*ZIP code: 77087)*

13. Anastasia Tristan (*ZIP code: 77023)*

From: Jim Whisenant
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 10:29:24 AM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.
Sent from Mail for Windows 10

Thank you,
Jim Whisenant
Houston, TX

From: Taylor Williams
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Thursday, May 14, 2020 3:32:03 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

From: Luke Wong
To: MONOPS
Subject: 2020 Annual Monitoring Network Plan
Date: Wednesday, May 13, 2020 2:56:01 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly — in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Sent from my iPhone

From:	Kristina Woods
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Wednesday, May 13, 2020 12:32:00 PM

I am writing today strongly in favor of installing a new PM 2.5 monitor in west Houston. While this is a crucial first step toward addressing pollution and protecting the health of the people of Houston, much more action is needed. All Houstonians face toxic air pollution, and it is costing us dearly %2 in more ways than one. According to new analysis from the Harvard School of Public Health and Environmental Defense Fund, widespread exposure to PM 2.5 air pollution in 2015 across Houston and surrounding neighborhoods was responsible for more than 5,000 premature deaths, and nearly $50 billion in economic damages. Please finalize the implementation of this PM 2.5 monitor and immediately take steps to install additional community monitors. Our city desperately needs this data and the state to act on it to reduce air pollution and its harmful health impacts.

Kristina Woods
77429

Sent from AT&T Yahoo Mail on Android

From:	Richard Keady
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Saturday, May 9, 2020 3:13:40 PM
Attachments:	COVID 19 PM2 .5 Connection to mortality rate.docx

---

TCEQ Commissioners:
I reside 2.3 miles from an approved, but not yet fully permitted aggregate production operation (Vulcan Materials LLC Comal Quarry) and remain concerned with the lack of sufficient air quality monitoring emanating from this operation so close to my home.
My understanding of the 2020 Annual Monitoring Network Plan is that it is insufficient to protect human health, particularly in respect of the Covid-19 pandemic and what researchers at the Harvard School of Public Health have reported that exposure to fine particulate matter (pm2.5) and its relationship to premature death arising from Covid-19. Enclosed is a copy of their most recent report in this regard. Other news reports have questioned the potential for the Covid-19 virus to attach to fine airborne particulates thereby enabling the spread of this often fatal disease to nearby human populations.

Specific comments about the TCEQ Air Monitoring Plan are:
1) Particulate monitoring stations are not capturing the actual particulates to determine the components, including respirable crystalline silica.
2) TCEQ monitoring of particulates is insufficient and deficient in gathering data to understand the components in the airborne particulates.
3) Monitoring equipment is not located correctly to provide upwind, downwind data at the same time which can affect the mathematical data for modelling the amount of a given pollutant.
4) TCEQ is not using newer air monitoring technology (e.g. NASA sattellite technology, TSI 8400 series monitors, BAM model 1020 monitor, purple air) that is showing a trend of significantly increased particulate material in the air in regions where APO's operate.
5) Air modeling is done by engineering consultants for the APO requesting an operating permit using data for point sources in the APO permit applicant facilities.
6) The APO applicant's modelling therefore does not fully consider the cumulative effects of the other APO operations in the area.

The following improvements should be considered by TCEQ in addressing the currently insufficient air monitoring program:
1) TCEQ should present to the public their APO data, wind, atmospheric and other data used to site particulate monitors.
2) TCEQ should add additional monitors around the APO's use data from numerous sources such as measurements by local groups, EPA satellite data to spot the monitors in areas showing high levels of particulates.
3) Include particulate sample gatherings and analysis capability in the monitors. All new monitors should measure PM2,5, PM10 and the composition of materials in the particulates.
4) APO particulate dispersion modelong should be calibrated to include actual particulate data from the new upwind and downwins monitors before running the APO applicant's particulate dispersion modelling predictions.

I trust the above is responsive to the commentary subject.

best regards:

Richard C. Keady
1244 Merlot
New Braunfels,TX 78132

--
Richard Keady
r.insurancewizard@gmail.com
Retired Risk Management Advisor

COVID-19 PM2.5

A national study on long-term exposure to air pollution and COVID-19 mortality in the United States

Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross-sectional study (Updated April 24, 2020)

Notice: In the revision on **April 24, 2020**, we have updated our analysis using data up to April 22, and importantly in which we have adjusted for additional confounding factors that also reflect the timing of the epidemic's spread, the timing of the social distancing policies and the population age distribution. Consequently, we have revised our finding as that an increase of 1 $\mu g/m^3$ in $PM_{2.5}$ is associated with an 8% increase in the COVID-19 death rate (95% confidence interval [CI]: 2%, 15%).

Xiao Wu MS, Rachel C. Nethery PhD, M. Benjamin Sabath MA, Danielle Braun PhD, Francesca Dominici PhD
All authors are part of the Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, MA, 02115, USA

Lead authors: Xiao Wu and Rachel C. Nethery
Corresponding and senior author: Francesca Dominici, PhD

Background: United States government scientists estimate that COVID-19 may kill tens of thousands of Americans. Many of the pre-existing conditions that increase the risk of death in those with COVID-19 are the same diseases that are affected by long-term exposure to air pollution. We investigated whether long-term average exposure to fine particulate matter ($PM_{2.5}$) is associated with an increased risk of COVID-19 death in the United States.

Design: A nationwide, cross-sectional study using county-level data.

Data sources: COVID-19 death counts were collected for more than 3,000 counties in the United States (representing 98% of the population) up to April 22, 2020 from Johns Hopkins University, Center for Systems Science and Engineering Coronavirus Resource Center.

Methods: We fit negative binomial mixed models using county-level COVID-19 deaths as the outcome and county-level long-term average of $PM_{2.5}$ as the exposure. In the main analysis, we adjusted by 20 potential confounding factors including population size, age distribution, population density, time since the beginning of the outbreak, time since state's issuance of stay-at-home order, hospital beds, number of individuals tested, weather, and socioeconomic and behavioral variables such as obesity and smoking. We included a random intercept by state to account for potential correlation in counties within the same state. We conducted more than 68 additional sensitivity analyses.

Results: We found that an increase of only 1 $\mu g/m^3$ in $PM_{2.5}$ is associated with an 8% increase in the COVID-19 death rate (95% confidence interval [CI]: 2%, 15%). The results were statistically significant and robust to secondary and sensitivity analyses.

Conclusions: A small increase in long-term exposure to $PM_{2.5}$ leads to a large increase in the COVID-19 death rate. Despite inherent limitations of the ecological study design, our results underscore the importance of continuing to enforce existing air pollution regulations to protect human health both

during and after the COVID-19 crisis. The data and code are publicly available so our analyses can be updated routinely.

Data and Code:

Our data and code is available on github here. (Updated April 5, 2020)

Manuscript and Supplemental Material

- Manuscript
- MedRxiv: https://www.medrxiv.org/content/10.1101/2020.04.05.20054502v2
- By using the contents on this website and the Github repo, you agree to cite:

Exposure to air pollution and COVID-19 mortality in the United States. Xiao Wu, Rachel C. Nethery, Benjamin M. Sabath, Danielle Braun, Francesca Dominici. medRxiv 2020.04.05.20054502; doi: https://doi.org/10.1101/2020.04.05.20054502

Acknowledgments

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The data was produced as part of the following paper:
van Donkelaar, A., R. V. Martin, C. Li, R. T. Burnett, Regional Estimates of Chemical Composition of Fine Particulate Matter using a Combined Geoscience-Statistical Method with Information from Satellites, Models, and Monitors, Environ. Sci. Technol., doi: 10.1021/acs.est.8b06392, 2019.
We would like to thank Lena Goodwin and Stacey Tobin for editorial assistance in the preparation of this manuscript.

From:	James Dean
To:	MONOPS
Subject:	2020 Annual Monitoring Network Plan
Date:	Wednesday, May 13, 2020 6:46:39 PM

To Whom it May Concern:

Houston air quality is toxic, and it's dangerous to all Houstonians. We need more monitoring to understand the extent of the problem so that we can start taking action and making policy to address the pollution in and around the city. I am strongly in favor of a new PM2.5 monitor in west Houston. Please install this monitor, and continue to grow the network of air pollution monitors in the city so we can start to address this problem!

Thank you,

James Dean
Houston, TX