

Texas ISD Project for the Reduction of Mold, Virus, Bacteria Using Advanced ActivePure Technology®

Performed by HiTech, LLC
November 2, 2017 to March 20, 2018

Report Date: January 17, 2019

Abstract

In a school environment, viruses, mold, bacteria and many other biological pathogens thrive, causing issues such as student and teacher absenteeism, unnecessary costs, blemish on the school's image, and associated health-related liabilities. An advanced technology has proven to greatly reduce these factors in public institutions. This paper demonstrates how the ActivePure Technology® system was able to convert potentially dangerous, less than satisfactory air into a safe and clean environment in Texas Independent School District's (ISD) Document and Electronics Storage Room. The paper provides a summary of Texas ISD's issues, an introduction to the ActivePure Technology®, and the results of the study. This paper concludes with a data analysis of the air quality readings before and after the ActivePure installation. This study demonstrates that use of ActivePure can totally turn around a less than satisfactory air quality into a safe and breathable environment free of bacteria, virus and mold.

Texas ISD Background for Test Project

The Texas Independent School District serves over 80,000 students and employs 5,541 teachers among its 130 campuses. Throughout the massive student population, TISD graduation rate is at a record high of 90.7% (TISD, 2018). According to Niche.com, TISD was awarded a C+ for its Health & Safety (Niche.com, 2018).

The Parking Garage was selected as the initial project test site. The parking Garage was selected there is a problem with the papers stored within the facility and second, it represented an area that the experts felt it was nearly impossible to treat. This was condition of the parking garage where the CIMR 414 testing was completed, as described in the attachment to this paper.

Continuous Infectious Microbial Reduction (ActivePure Technology®) Introduction

The ActivePure is an infection control technology that continuously destroys microbes such as viruses, bacteria, mold and other fungi in the air and on any surface. The key to its effectiveness is the safe and effective utilization of an ActivePure Technology® hydrogen peroxide gas from oxygen and water vapor. A few of its many benefits are decreased costs in businesses, quick ROIs, increased indoor quality for employees and customers, and dramatic reduction of viruses and bacteria leading to healthier conditions. The product used is made of hospital grade stainless steel and is UL and CE listed for safety. The system can cover areas measuring from 3,000 to 16,000 square feet and comes with a three-year warranty on equipment.

Texas ISD Project

The purpose of the ActivePure testing that was performed in partnership with Texas ISD to demonstrate the abilities and benefits of the ActivePure technology and application. The testing area selected for the project was inside a parking garage used to store student records in filing cabinets along with computers and other electronics. The area was in very poor condition due to water leaks, mold and constant moisture. The area was considered so unhealthy it could not be entered without a mask. TISD only allowed entry of 15-20 minutes per person per day.

One ActivePure unit was leased to TISD for three months to treat the 6,000 square foot space. The progress of the air quality was monitored by AirAdvice air quality monitors to assess monthly data and MY Solutions, an independent Air Testing Quality company. Within 30 days of the testing, the air quality was improved by 75%. At the end of the three-month lease, air quality was fully restored to a healthy environment.

Conclusion

Texas ISD was deeply satisfied with the performance of the ActivePure unit. The ActivePure Technology® proved to be successful beyond expectations despite the excessive amount of moisture vapour, water leaks continued. No repairs were made to the facility to alleviate the adverse conditions during the test period. Consequently, Texas ISD created a new policy stating the technology would be used for future water damage for TISD buildings.

ActivePure Technology®, when installed with ISD buildings, will provide a safe and healthy environment for all TISD stakeholders, from students to faculty and staff.

Air Quality Data Analysis

Passive Mycometer Air Value (MAV/m³) measures as the following: A

(Good Air Quality) = Suggested <50

B (Marginal Air Quality) = Suggested >50 <300 C

(Poor Air Quality) = Suggested >300

The testing was initiated on November 2, 2017. Samples were taken from three locations: desk in file room, file room-return, and the garage as a baseline. Shown in Table 1 are the results from the initial sampling of these areas:

Mycometer[®] -Air											
Quantification of mould in air in Mechanically Ventilated Buildings by Passive Sampling											
Table 1: Initial air quality readings											
Project Name		201711021330				Measured Standard Value		536			
Location		Austin ISD - File Storage				Instrument is calibrated		Instrument Standard Value			536
Collected by		Moritz Yohe, Jr				Ambient temperature for analysis (between 64.4 - 86 F)		67.1			
Analysis date		November 6, 2017				Reaction time(min:sec)		37:54			
Sample ID/No.	Sample Location	Assay Batch #	Sample Date mm/dd/yy	Flow Rate (LPM)	Sample Time (Mins)	Sample Volume (m3)	Blank Value (BV)	Sample Analysis (AV)	Mycometer Air Value (MAV/m3)	Result Category	
A500Y0	File Room - Desk		11/02/17	15.0	20	0.30	478	619	470	C	
A50P2J	File Room - Return		11/02/17	15.0	20	0.30	480	571	303	C	
A508W3	Garage		11/02/17	15.0	20	0.30	480	584	347	C	

Air quality result categories were all C's- Poor Air Quality.

The three samples that were acquired all measured with air value grades of C's, all having an air value above 300. This type of air quality can raise health concerns like the "sick building syndrome", which can cause health issues such as headaches, nausea, itchy skin, etc. These symptoms are usually caused by high carbon dioxide levels. High carbon dioxide levels are usually caused by having poor ventilation, which was the case in the storage room. Another contributor to the poor air quality in the storage unit was the high level of particles, which is usually caused by excessive particulate sources and poor heating and cooling systems. One more contributor that was found was the relative humidity (RH) of the room. Factors such as standing water and leaky pipes/faucets are the causes of high RH levels. All of these factors were discovered by AirAdvice between November 4, 2017 and November 13, 2017. Below are the exact readings and explanations for the three contributors described above, labelled Figures 1, 2, and 3:

Figure 1:



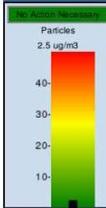
Monitor: 32986
Report ID: 279804
11/04/17 01:56 PM

AirAdvice for Your Home

This report displays our findings about the air quality in your home, and offers recommendations to help you make informed decisions about your family's health, comfort and safety. If you have additional questions, please visit www.airadviceforhomes.com.

HEALTH

Particles



Health Concerns Particles are generally a cause for concern when daily average levels are above 10 ug/m³. Particles are known to trigger asthma and allergy symptoms. At levels above 35 ug/m³, they can harm normally healthy adults by causing emphysema and diminished lung capacity. Children, the elderly, pregnant women and individuals with preexisting lung conditions are more susceptible.^a

What We Found In Your Home Particle levels were below 10 ug/m³.

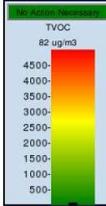
Potential Causes Particles can build up to unhealthy levels due to three primary causes:

- Activities in the home
- Presence of excessive particulate sources
- Heating and cooling system issues

Recommended Actions

- Inspect duct work, seal and clean as necessary
- Install UV light or photocatalytic oxidizer (PCO) in the A/C cooling coil to prevent biological growth
- Use range exhaust fan when cooking

Chemicals



Health Concerns Chemical pollutants are generally a cause for concern when average levels are above 500 ug/m³ (micrograms per cubic meter of air). Chemical pollutants are known to trigger asthma and allergy symptoms. At moderate levels, eyes and nasal passages can be irritated. Some people can experience nausea and headaches. At very high levels, they can even affect normally healthy adults by overworking the liver and kidneys. Children, the elderly, and pregnant women are more susceptible.^b

What We Found In Your Home Chemical pollutant levels were below 500 ug/m³.

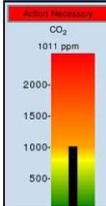
Potential Causes Levels can build up in your home's air due to usage of chemical products and heating/cooling system issues:

- Sources: Off-gassing from building materials, carpeting, furniture and other synthetic materials, fuel fumes, scented products and air fresheners, personal care products, household products such as paint, glue, and plastic
- Possible heating & cooling issues: Lack of fresh air introduced into home (either inadequate mechanical ventilation or none present), no chemical pollutant removal equipment

Recommended Actions

- Minimize use of VOC sources such as air fresheners, open cleaning fluids, or candles
- Use range exhaust fan when cooking

Carbon Dioxide



Health Concerns Carbon dioxide (CO₂) levels above 750 ppm (parts per million) are a cause for concern. At higher levels, CO₂ inside a home can contribute to what the EPA terms "sick building syndrome," which leads to fatigue, headache, breathing difficulties, nausea, strained eyes and itchy skin. CO₂ poisoning, however, is very rare. The U.S. EPA recommends a maximum concentration of CO₂ of 1000 ppm (0.1%) for continuous exposure.^c

What We Found In Your Home Carbon dioxide levels were above 1000 ppm.

Potential Causes Elevated carbon dioxide levels can occur in the home due to source causes, home heating & cooling system issues, or both:

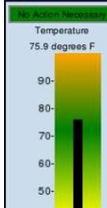
- Sources: "Tight" (well weatherized and energy-efficient) home construction without adequate ventilation, common human & household activity (breathing, and burning candles, gas, wood, or other combustion)
- Possible heating & cooling issues: Lack of supplied fresh air (no ventilation), malfunctioning ventilation, ventilation shut off by occupant, HVAC equipment needs repair or service

Recommended Actions

- Install an energy efficient ventilation device, such as a heat or energy recovery ventilator (HRV or EVR)
- Use range exhaust fan when cooking

COMFORT

Temperature



Comfort Concerns Comfortable temperatures fall within the range of 68 and 75 degrees F. In addition, temperatures are most comfortable when steady, with fluctuations less than 1-1/2 degrees. Ideally, temperature should be constant between all areas of the home. People experience a chilling or 'goose bump' sensation when temperatures are uneven and when air blows quickly across the surface of the skin.^a

What We Found In Your Home The temperature level was inside the normal range.

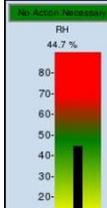
Potential Causes Fluctuating and/or low and high temperatures can occur due to structural causes and/or home heating & cooling system issues:

- Structural causes: Poor insulation, inadequate weatherization (for example, poorly sealed windows and doors create drafts)
- Possible heating and cooling issues: Thermostat poorly located (in an area where air supply falsely influences readings), uneven heating or cooling from room to room due to imbalanced ductwork or inadequate or poorly sized equipment

Recommended Actions

- Upgrade to programmable thermostat for improved accuracy and energy savings

Relative Humidity



Comfort and Health According to the ALA the relative humidity should be near 50%, when possible. When air is too dry, people typically feel colder, and respiratory passages can become irritated and prone to infection. Conversely, air that is too moist defeats perspiration, the body's natural cooling mechanism. High moisture also can lead to condensation within walls and on windows, which can cause mold.^b

What We Found In Your Home The relative humidity levels were inside the normal range.

Potential Causes Fluctuating and/or low and high relative humidity can occur due to structural causes and/or home heating & cooling system issues:

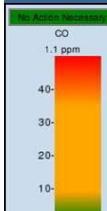
- Structural causes: Standing water in basement or other areas, leaky pipes/faucets, inadequate ventilation in winter (causes moisture build-up inside), and home is under "negative pressure" (pulls dry or moist air in from outside)
- Possible heating & cooling system issues: no or inadequate humidification or ventilation, improperly sized cooling system (prevents dehumidification), HVAC equipment needs repair (condensate drain or coil malfunctioning)

Recommended Actions

- Operate bathroom fans during and after bathing. Install ASHRAE-compliant bathroom fan switch
- Use range exhaust fan when cooking

SAFETY

Carbon Monoxide



Safety Concerns Carbon monoxide replaces oxygen in the blood, and is a cause for concern when average levels are 6 ppm or higher. When levels are above 25 ppm, immediate action should be taken. Carbon monoxide is a colorless, odorless, poisonous gas produced by combustion. When people are exposed to relatively low levels, it can cause headaches and nausea. At relatively high levels it can cause memory problems and ultimately death.^c

What We Found In Your Home Carbon monoxide levels were below 6 ppm.

Potential Causes Elevated carbon monoxide can occur due to source causes, home heating & cooling system issues, or both:

- Sources: Fireplaces, cooking, combustion appliances (water heater, gas dryer, stove), vehicles running in attached garage
- Possible heating & cooling system issues: Cracked heat exchanger on furnace, leaking chimney or vent, inadequate exhausting of a combustion appliance (water heater, gas dryer, stove)

Recommended Actions

- Install or check CO alarm(s) per local code

a. Source: American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).
b. Source: American Society of Heating, Refrigeration and Air Conditioning Engineers; Health Canada; Washington Department of Health.
c. Source: US Environmental Protection Agency; World Health Organization (WHO); Indoor Air Quality Association (IAQA).



Monitor: 32987
Report ID: 279805
11/13/17 08:30 AM

AirAdvice for Your Home

This report displays our findings about the air quality in your home, and offers recommendations to help you make informed decisions about your family's health, comfort and safety. If you have additional questions, please visit www.airadviceforhomes.com.

HEALTH

Particles

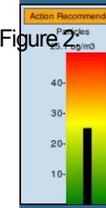


Figure 2

Health Concerns Particles are generally a cause for concern when daily average levels are above 10 ug/m³. Particles are known to trigger asthma and allergy symptoms. At levels above 35 ug/m³, they can harm normally healthy adults by causing emphysema and diminished lung capacity. Children, the elderly, pregnant women and individuals with preexisting lung conditions are more susceptible.^a

What We Found In Your Home Particle levels were between 11-35 ug/m³.

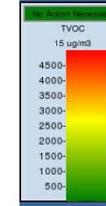
Potential Causes Particles can build up to unhealthy levels due to three primary causes:

- Activities in the home
- Presence of excessive particulate sources
- Heating and cooling system issues

Recommended Actions

- Replace filters or upgrade filtration system.
- Upgrade thermostat to operate HVAC system fan on a schedule to more completely filter airborne particles
- Inspect duct work, seal and clean as necessary
- Install UV light or photocatalytic oxidizer (PCO) in the A/C cooling coil to prevent biological growth
- Use range exhaust fan when cooking

Chemicals



Health Concerns Chemical pollutants are generally a cause for concern when average levels are above 500 ug/m³ (micrograms per cubic meter of air). Chemical pollutants are known to trigger asthma and allergy symptoms. At moderate levels, eyes and nasal passages can be irritated. Some people can experience nausea and headaches. At very high levels, they can even affect normally healthy adults by overworking the liver and kidneys. Children, the elderly, and pregnant women are more susceptible.^b

What We Found In Your Home Chemical pollutant levels were below 500 ug/m³.

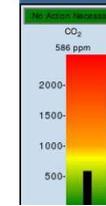
Potential Causes Levels can build up in your home's air due to usage of chemical products and heating/cooling system issues:

- Sources: Off-gassing from building materials, carpeting, furniture and other synthetic materials, fuel fumes, scented products and air fresheners, personal care products, household products such as paint, glue, and plastic
- Possible heating & cooling issues: Lack of fresh air introduced into home (either inadequate mechanical ventilation or none present), no chemical pollutant removal equipment

Recommended Actions

- Minimize use of VOC sources such as air fresheners, open cleaning fluids, or candles
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Carbon Dioxide



Health Concerns Carbon dioxide (CO₂) levels above 750 ppm (parts per million) are a cause for concern. At higher levels, CO₂ inside a home can contribute to what the EPA terms "sick building syndrome," which leads to fatigue, headache, breathing difficulties, nausea, strained eyes and itchy skin. CO₂ poisoning, however, is very rare. The U.S. EPA recommends a maximum concentration of CO₂ of 1000 ppm (0.1%) for continuous exposure.^c

What We Found In Your Home Carbon dioxide levels were below 750 ppm.

Potential Causes Elevated carbon dioxide levels can occur in the home due to source causes, home heating & cooling system issues, or both:

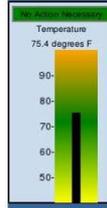
- Sources: "Tight" (well weatherized and energy-efficient) home construction without adequate ventilation, common human & household activity (breathing, and burning candles, gas, wood, or other combustion)
- Possible heating & cooling issues: Lack of supplied fresh air (no ventilation), malfunctioning ventilation, ventilation shut off by occupant, HVAC equipment needs repair or service

Recommended Actions

- Use range exhaust fan when cooking

COMFORT

Temperature



Comfort Concerns Comfortable temperatures fall within the range of 68 and 75 degrees F. In addition, temperatures are most comfortable when steady, with fluctuations less than 1-1/2 degrees. Ideally, temperature should be constant between all areas of the home. People experience a chilling or 'goose bump' sensation when temperatures are uneven and when air blows quickly across the surface of the skin.^a

What We Found In Your Home The temperature level was inside the normal range.

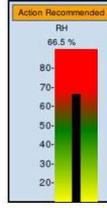
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- Structural causes: Poor insulation, inadequate weatherization (for example, poorly sealed windows and doors create drafts)
- Possible heating and cooling issues: Thermostat poorly located (in an area where air supply falsely influences readings), uneven heating or cooling from room to room due to imbalanced ductwork or inadequate or poorly sized equipment

Recommended Actions

- Upgrade to programmable thermostat for improved accuracy and energy savings

Relative Humidity



Comfort and Health According to the ALA the relative humidity should be near 50%, when possible. When air is too dry, people typically feel colder, and respiratory passages can become irritated and prone to infection. Conversely, air that is too moist defeats perspiration, the body's natural cooling mechanism. High moisture also can lead to condensation within walls and on windows, which can cause mold.^b

What We Found In Your Home The relative humidity levels were outside the normal range.

Potential Causes Fluctuating and/or low and high relative humidity can occur due to structural causes and/or home heating & cooling system issues:

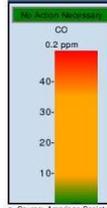
- Structural causes: Standing water in basement or other areas, leaky pipes/faucets, inadequate ventilation in winter (causes moisture build-up inside), and home is under "negative pressure" (pulls dry or moist air in from outside)
- Possible heating & cooling system issues: no or inadequate humidification or ventilation, improperly sized cooling system (prevents dehumidification), HVAC equipment needs repair (condensate drain or coil malfunctioning)

Recommended Actions

- Install a dehumidification system
- Inspect ductwork, seal and clean as necessary
- Install UV light or photocatalytic oxidizer (PCO) in the A/C cooling coil to prevent biological growth
- Operate bathroom fans during and after bathing. Install ASHRAE-compliant bathroom fan switch
- Use range exhaust fan when cooking

SAFETY

Carbon Monoxide



Safety Concerns Carbon monoxide replaces oxygen in the blood, and is a cause for concern when average levels are 6 ppm or higher. When levels are above 25 ppm, immediate action should be taken. Carbon monoxide is a colorless, odorless, poisonous gas produced by combustion. When people are exposed to relatively low levels, it can cause headaches and nausea. At relatively high levels it can cause memory problems and ultimately death.^c

What We Found In Your Home Carbon monoxide levels were below 6 ppm.

Potential Causes Elevated carbon monoxide can occur due to source causes, home heating & cooling system issues, or both:

- Sources: Fireplaces, cooking, combustion appliances (water heater, gas dryer, stove), vehicles running in attached garage
- Possible heating & cooling system issues: Cracked heat exchanger on furnace, leaking chimney or vent, inadequate exhausting of a combustion appliance (water heater, gas dryer, stove)

Recommended Actions

- Install or check CO alarm(s) per local code

a. Source: American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).
b. Source: American Society of Heating, Refrigeration and Air Conditioning Engineers; Health Canada; Washington Department of Health.
c. Source: US Environmental Protection Agency; World Health Organization (WHO); Indoor Air Quality Association (IAQA).

air advice
Healthy air starts here.[™]

Monitor: 32987
Report ID: 279808
11/13/17 09:30 AM

This report displays our findings about the air quality in your home, and offers recommendations to help you make informed decisions about your family's health, comfort and safety. If you have additional questions, please visit www.airadviceforhomes.com.

AirAdvice for Your Home

HEALTH

Particles

Action Recommended
25.1 ug/m³

Health Concerns Particles are generally a cause for concern when daily average levels are above 10 ug/m³. Particles are known to trigger asthma and allergy symptoms. At levels above 25 ug/m³, they can harm normally healthy adults by causing emphysema and diminished lung capacity. Children, the elderly, pregnant women and individuals with preexisting lung conditions are more susceptible.³

What We Found In Your Home Particle levels were between 11-35 ug/m³.

Potential Causes Particles can build up to unhealthy levels due to three primary causes:

- Activities in the home
- Presence of excessive particulate sources
- Heating and cooling system issues

Recommended Actions

- Replace filters or upgrade filtration system.
- Upgrade thermostat to operate HVAC system fan on a schedule to more completely filter airborne particles
- Inspect duct work, seal and clean as necessary
- Install UV light or photocatalytic oxidizer (PCO) in the A/C cooling coil to prevent biological growth
- Use range exhaust fan when cooking

Chemicals

Action Recommended
15 ug/m³

Health Concerns Chemical pollutants are generally a cause for concern when average levels are above 500 ug/m³ (micrograms per cubic meter of air). Chemical pollutants are known to trigger asthma and allergy symptoms. At very high levels, they can even affect normally healthy adults by overworking the liver and kidneys. Children, the elderly, and pregnant women are more susceptible.⁶

What We Found In Your Home Chemical pollutant levels were below 500 ug/m³.

Potential Causes Levels can build up in your home's air due to usage of chemical products and heating/cooling system issues:

- Sources: Off-gassing from building materials, carpeting, furniture and other synthetic materials, fuel fumes, scented products and air fresheners, personal care products, household products such as paint, glue, and plastics
- Possible heating & cooling issues: Lack of fresh air introduced into home (either inadequate mechanical ventilation or none present), no chemical pollutant removal equipment

Recommended Actions

- Minimize use of VOC sources such as air fresheners, open cleaning fluids, or candles
- Use range exhaust fan when cooking

Carbon Dioxide

Action Recommended
586 ppm

Health Concerns Carbon dioxide (CO₂) levels above 750 ppm (parts per million) are a cause for concern. At higher levels, CO₂ inside a home can contribute to what the EPA terms "sick building syndrome," which leads to fatigue, headache, breathing difficulties, nausea, strained eyes and itchy skin. CO₂ poisoning, however, is very rare. The U.S. EPA recommends a maximum concentration of CO₂ of 1000 ppm (0.1%) for continuous exposure.⁷

What We Found In Your Home Carbon dioxide levels were below 750 ppm.

Potential Causes Elevated carbon dioxide levels can occur in the home due to source causes, home heating & cooling system issues, or both:

- Sources: "Tight" (well weatherized and energy-efficient) home construction without adequate ventilation, common human & household activity (breathing, and burning candles, gas, wood, or other combustion)
- Possible heating & cooling issues: Lack of supplied fresh air (no ventilation), malfunctioning ventilation, ventilation shut off by occupant, HVAC equipment needs repair or service

Recommended Actions

- Use range exhaust fan when cooking

COMFORT

Temperature

Action Recommended
Temperature
75.4 degrees F

Comfort Concerns Comfortable temperatures fall within the range of 68 and 75 degrees F. In addition temperatures are most comfortable when steady, with fluctuations less than 1-1.2 degrees. Ideally, temperature should be consistent between all areas of the home. People experience a chilling or goose bump sensation when temperatures are uneven and when air blows quickly across the surface of the skin.²

What We Found In Your Home The temperature level was inside the normal range.

Potential Causes Fluctuating and/or low and high temperatures can occur due to structural causes and/or home heating & cooling system issues:

- Structural causes: Poor insulation, inadequate weatherization (for example, poorly sealed windows and doors create drafts)
- Possible heating and cooling issues: Thermostat poorly located (in an area where air supply falsely influences readings), uneven heating or cooling from room to room due to imbalanced ductwork or inadequate or poorly sized equipment

Recommended Actions

- Upgrade to programmable thermostat for improved accuracy and energy savings

Relative Humidity

Action Recommended
RH
66.5 %

Comfort and Health According to the ALA the relative humidity should be near 50% when possible. When air is too dry, people typically feel colder, and respiratory passages can become irritated and prone to infection. Conversely, air that is too moist defeats perspiration, the body's natural cooling mechanism. High moisture also can lead to condensation within walls and on windows, which can cause mold.⁸

What We Found In Your Home The relative humidity levels were outside the normal range.

Potential Causes Fluctuating and/or low and high relative humidity can occur due to structural causes and/or home heating & cooling system issues:

- Structural causes: Standing water in basement or other areas, leaky pipes/faucets, inadequate ventilation in winter (causes moisture build-up inside), and home is under "negative pressure" (pulls dry or moist air in from outside)
- Possible heating & cooling system issues: no or inadequate humidification or ventilation, improperly sized cooling system (prevents dehumidification), HVAC equipment needs repair (condensate drain or coil malfunctioning)

Recommended Actions

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- Inspect ductwork, seal and clean as necessary
- Install UV light or photocatalytic oxidizer (PCO) in the A/C cooling coil to prevent biological growth
- Operate bathroom fans during and after bathing. Install ASHRAE-compliant bathroom fan switch
- Use range exhaust fan when cooking

SAFETY

Carbon Monoxide

Action Recommended
CO
0.2 ppm

Safety Concerns Carbon monoxide replaces oxygen in the blood, and is a cause for concern when average levels are 8 ppm or higher. When levels are above 25 ppm, immediate action should be taken. Carbon monoxide is a colorless, odorless, poisonous gas produced by combustion. When people are exposed to relatively low levels, it can cause headaches and nausea. At relatively high levels it can cause memory problems and ultimately death.⁹

What We Found In Your Home Carbon monoxide levels were below 6 ppm.

Potential Causes Elevated carbon monoxide can occur due to source causes, home heating & cooling system issues, or both:

- Sources: Fireplaces, cooking, combustion appliances (water heater, gas dryer, stove), vehicles running in attached garage
- Possible heating & cooling system issues: Cracked heat exchanger on furnace, leaking chimney or vent, inadequate exhausting of a combustion appliance (water heater, gas dryer, stove)

Recommended Actions

- Install or check CO alarm(s) per local code

a. Source: American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).
b. Source: American Society of Heating, Refrigeration and Air Conditioning Engineers; Health Canada; Washington Department of Health.
c. Source: US Environmental Protection Agency; World Health Organization (WHO); Indoor Air Quality Association (IAQA).

Thirty days after retrieving the initial air quality samples and installation of the ActivePure unit, air quality data was analyzed again. The results are shown in Table 2 below:

Table 2:

Mycometer® -Air

Quantification of mould in air in Mechanically Ventilated Buildings by Passive Sampling

Project Name	201711021330	Measured Standard Value	536
Location	Austin ISD - File Storage	Instrument Standard Value	536
Collected by	Maritz Yohe, Jr	Ambient temperature for analysis (between 64.4 - 86 F)	75.0
Analysis date	December 7, 2017	Reaction time(min:sec)	28:17

Instrument is calibrated

Sample ID/No.	Sample Location	Assay Batch #	Sample Date mm/dd/yy	Flow Rate (LPM)	Sample Time (Mins)	Sample Volume (m3)	Blank Value (BV)	Sample Analysis (AV)	Mycometer Air Value (MAV/m3)	Result Category
A50QTP	File Room - Desk		12/07/17	15.0	20	0.30	103	92	BDL	A
A50QVZ	File Room - Return		12/07/17	15.0	20	0.30	103	94	BDL	A
A50OUO	Garage		12/07/17	15.0	20	0.30	103	97	BDL	A

In just thirty days, air quality was measured as "Below Detectable Limits (BDL)", which resulted in a Result Category of an "A" for all three testing areas. Air quality was fully restored and was deemed safe to breathe again. Tables 3 and 4 below are air quality samples taken on December 18, 2017 and March 19, 2018, respectively, to ensure the continuous benefits of the ActivePure Technology®:

Mycometer® -Air

Quantification of mould in air in Mechanically Ventilated Buildings by Passive Sampling

Project Name	201711021330		Measured Standard Value	536
Location	Austin ISD - File Storage	Instrument is calibrated	Instrument Standard Value	536
Collected by	Moritz Yohe, Jr		Ambient temperature for analysis (between 64.4 - 86 F)	74.5
Analysis date	December 19, 2017		Reaction time(min:sec)	28:48

Sample ID/No.	Sample Location	Assay Batch #	Sample Date <small>mm/dd/yy</small>	Flow Rate <small>(LPM)</small>	Sample Time <small>(Mins)</small>	Sample Volume <small>(m3)</small>	Blank Value (BV)	Sample Analysis (AV)	Mycometer Air Value (MAV/m3)	Result Category
A50OVS	File Room - Desk		12/18/17	15.0	20	0.30	107	114	24	A
A50OVW	File Room - Return		12/18/17	15.0	20	0.30	107	111	12	A
A50OTM	Garage		12/18/17	15.0	20	0.30	107	109	7	A

Mycometer® -Air

Quantification of mould in air in Mechanically Ventilated Buildings by Passive Sampling

Project Name	201803191030		Measured Standard Value	536
Location	Austin ISD - File Storage	Instrument is calibrated	Instrument Standard Value	536
Collected by	Moritz Yohe, Jr		Ambient temperature for analysis (between 64.4 - 86 F)	74.9
Analysis date	March 19, 2018		Reaction time(min:sec)	28:23

Sample ID/No.	Sample Location	Assay Batch #	Sample Date <small>mm/dd/yy</small>	Flow Rate <small>(LPM)</small>	Sample Time <small>(Mins)</small>	Sample Volume <small>(m3)</small>	Blank Value (BV)	Sample Analysis (AV)	Mycometer Air Value (MAV/m3)	Result Category
A50OVS	File Room - Desk		03/18/18	15.0	20	0.30	85	80	BDL	A
A50OVW	File Room - Return		03/18/18	15.0	20	0.30	85	81	BDL	A
A50OTM	Garage		03/18/18	15.0	20	0.30	85	81	BDL	A

Again, the air value for all three areas remained with results of an "A". This validates ActivePure units continued to maintain clean and safe air despite introduction of outside air, moisture, and other sources of contamination.

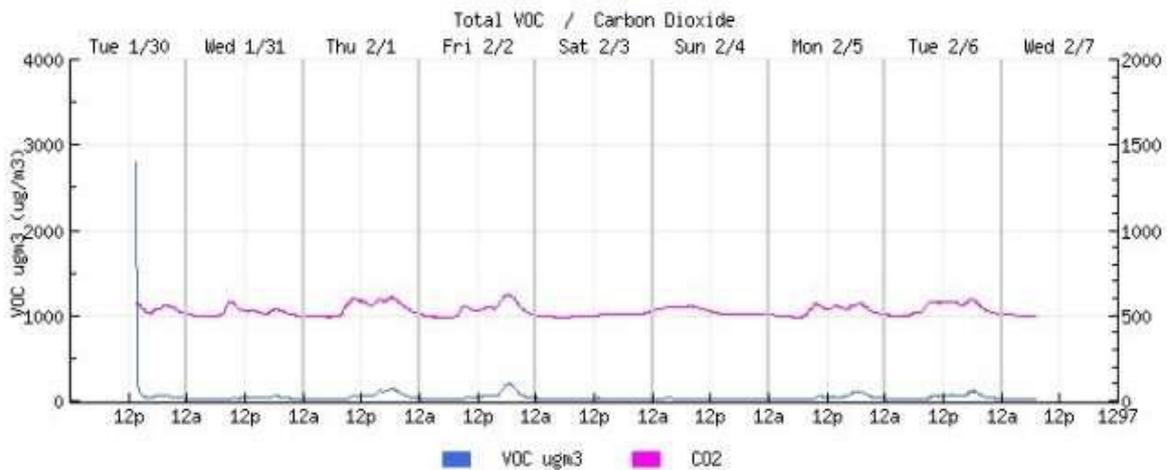
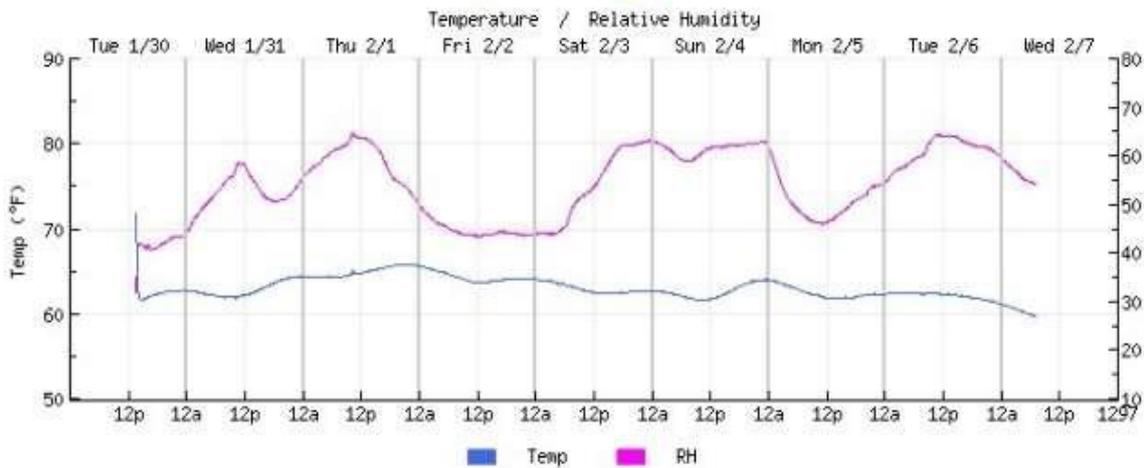
Conclusion

The ActivePure Technology proved to be successful beyond the client's expectations despite the excessive amount of moisture vapour in the test area. Texas ISD has faced issues such as student and teacher absenteeism from health-related sources. ActivePure technology will help reduce absence and provide a safe and healthy environment for any TISD stakeholder from students to faculty and staff.

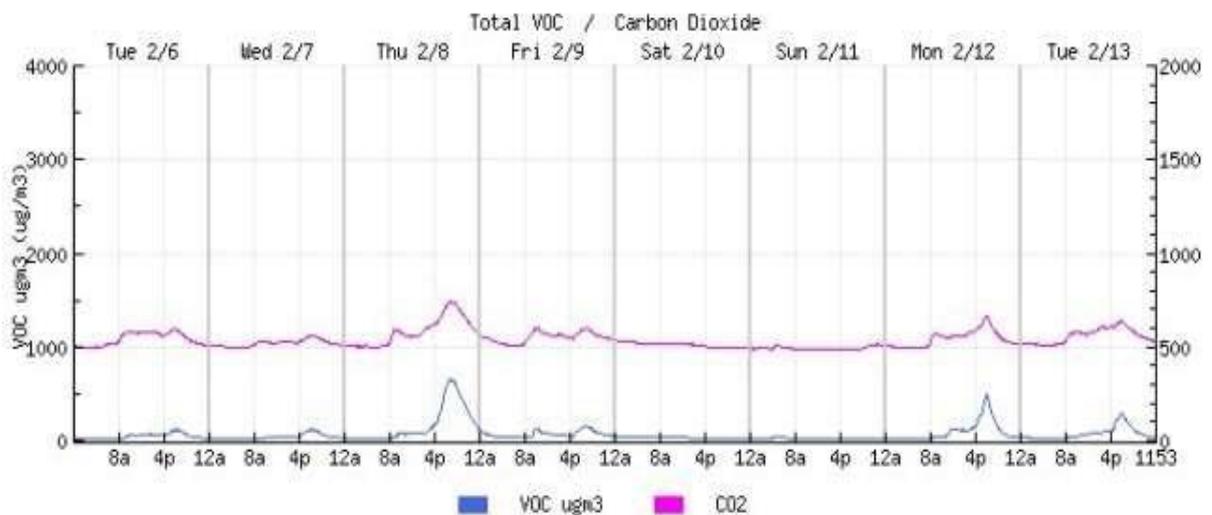
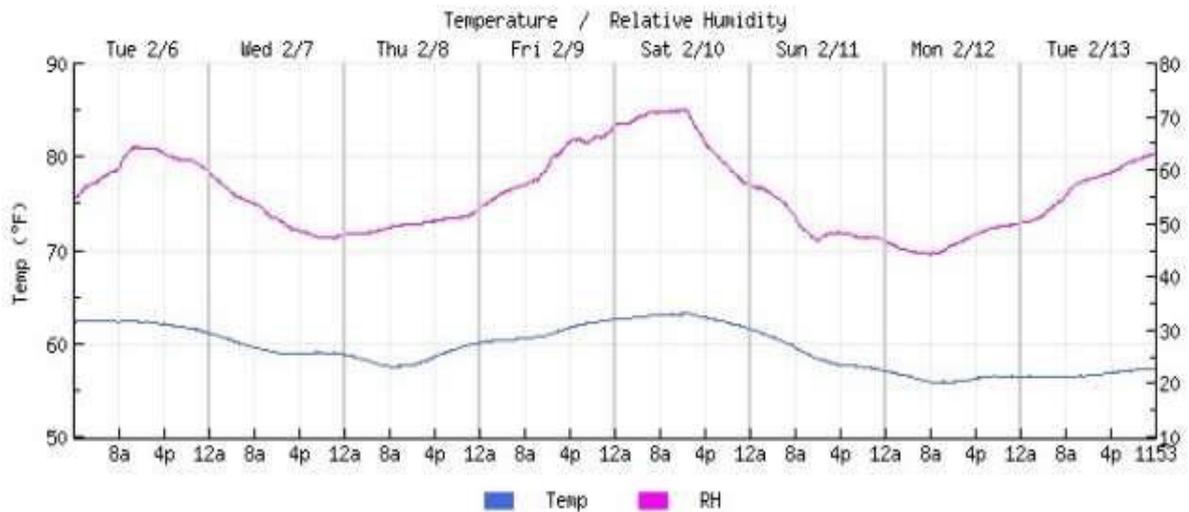
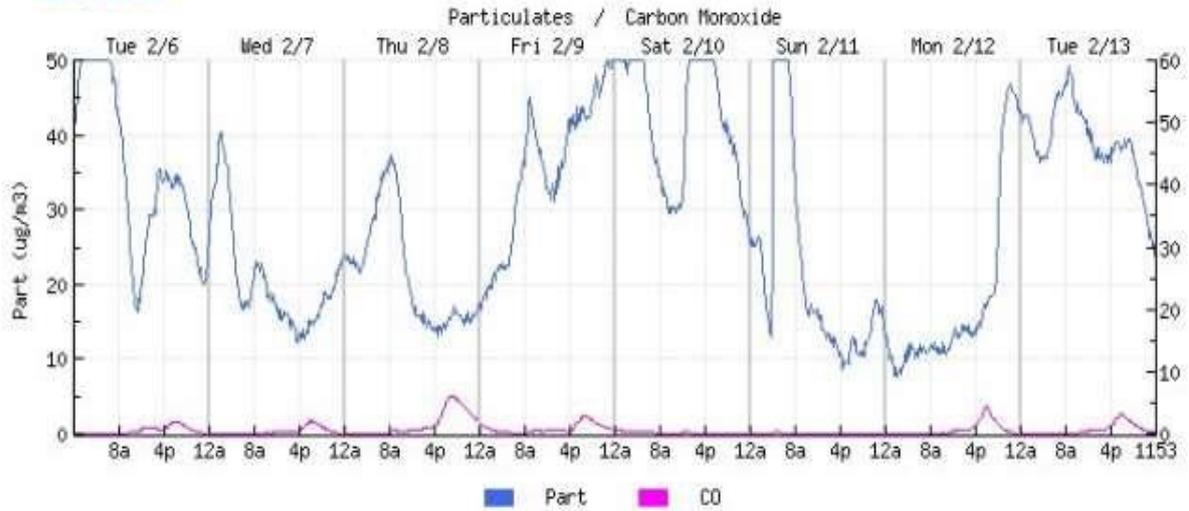


Appendix A

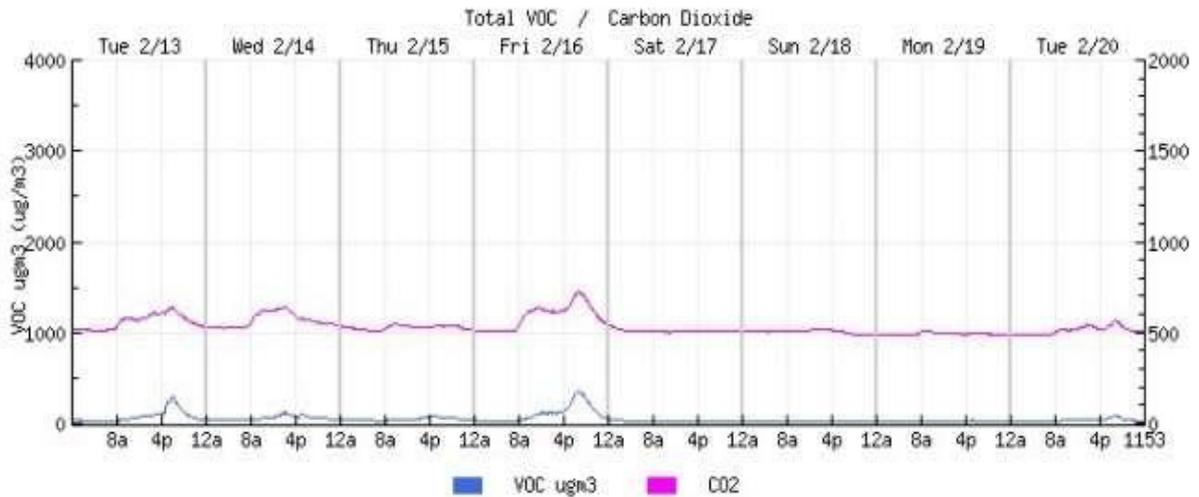
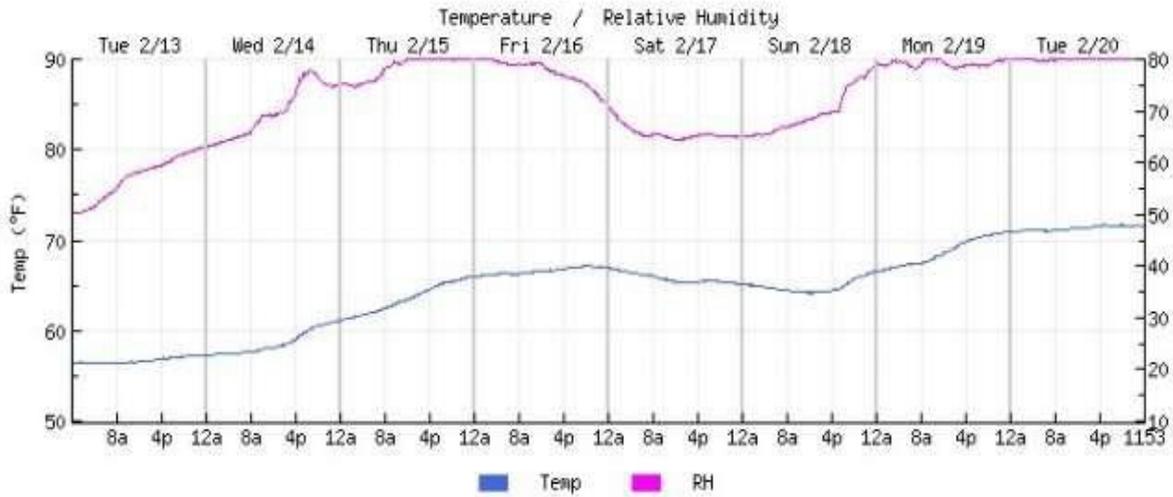
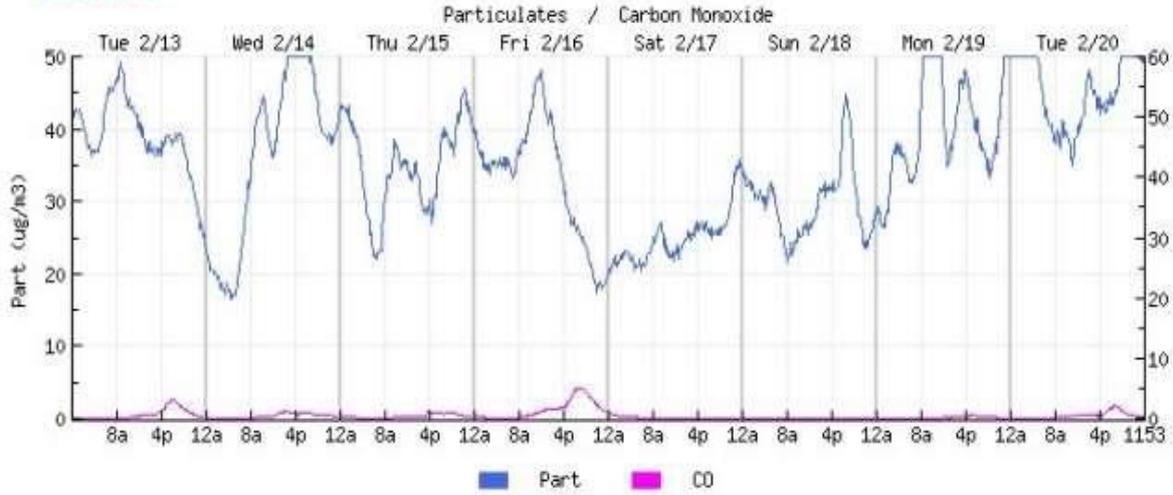
AirAdvice Graph Readings between January 30, 2017 to March 20, 2017.



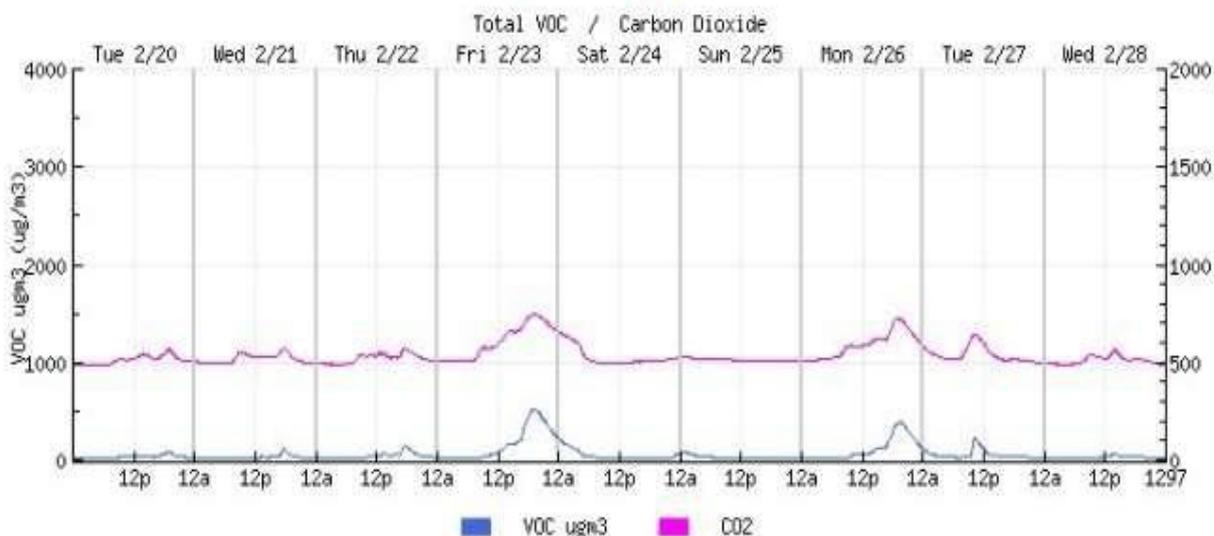
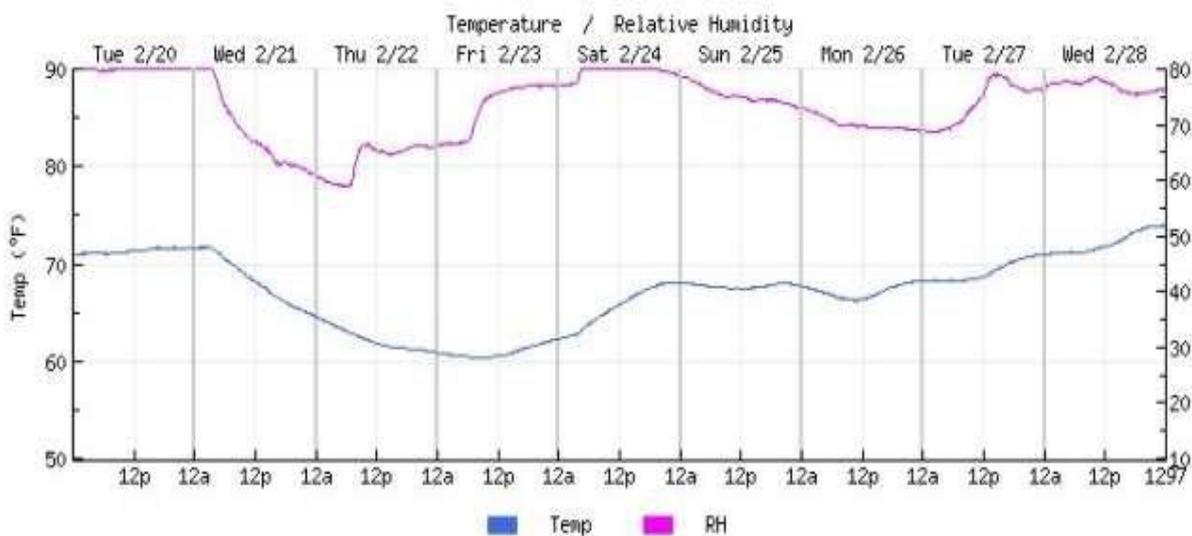
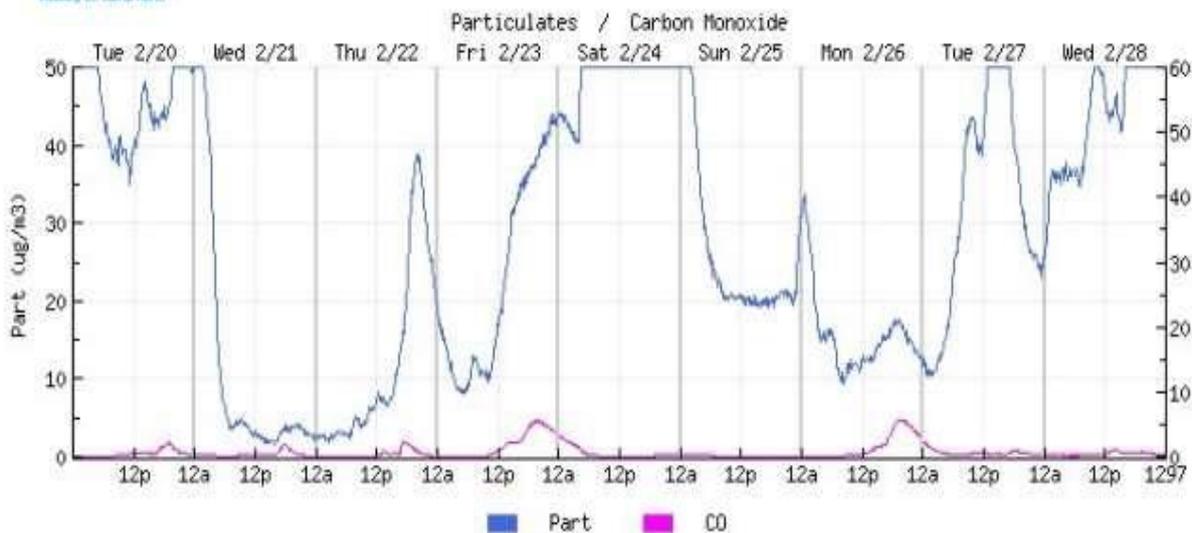
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Monitor: 32987

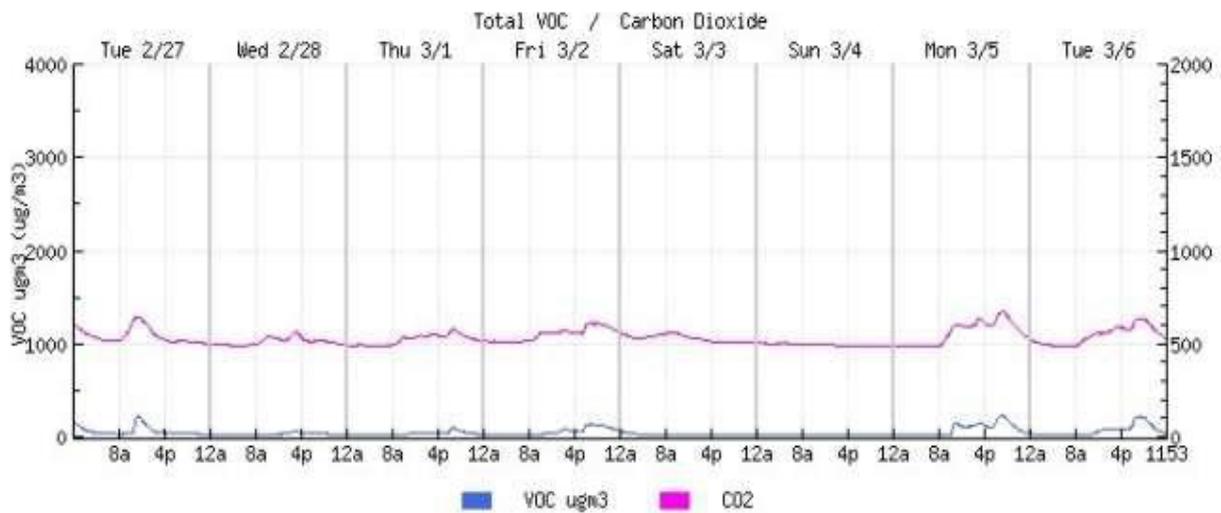
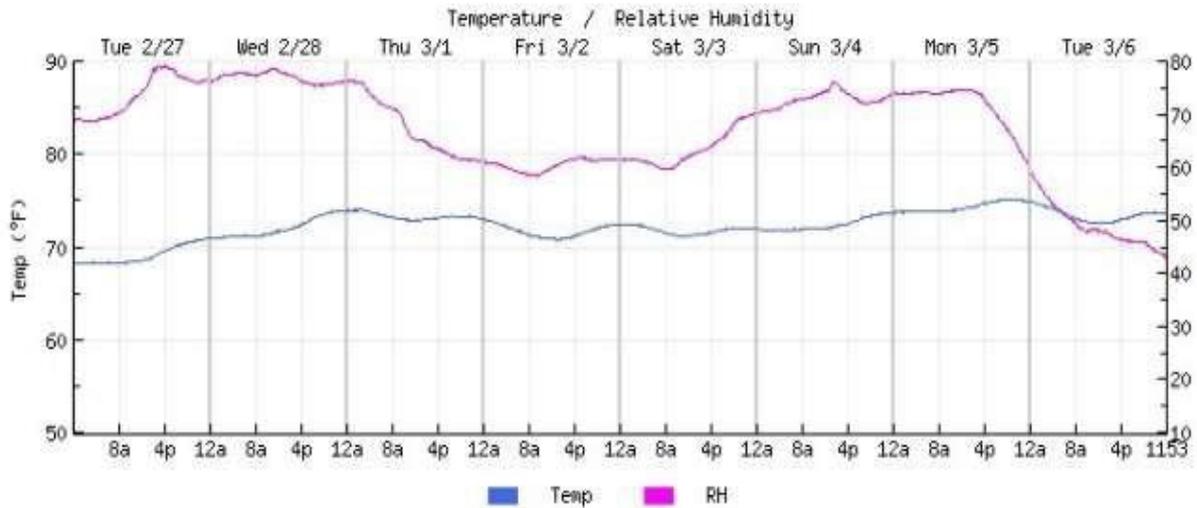
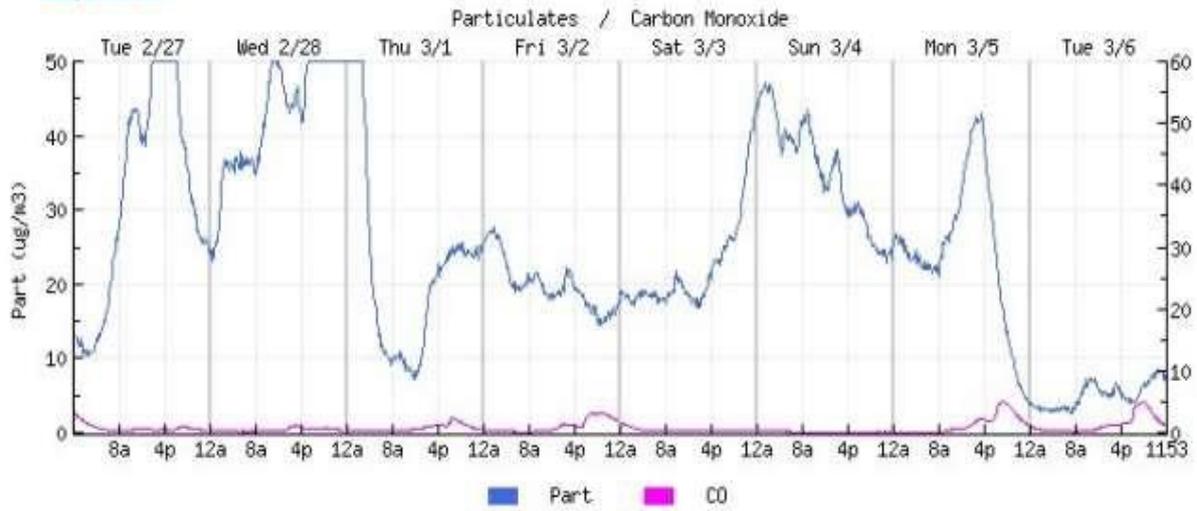


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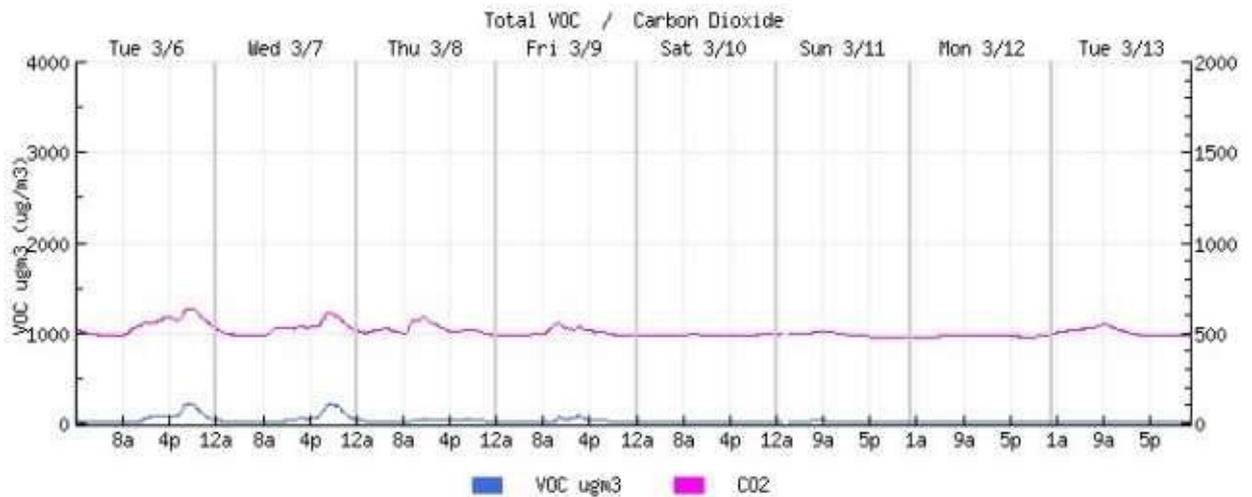
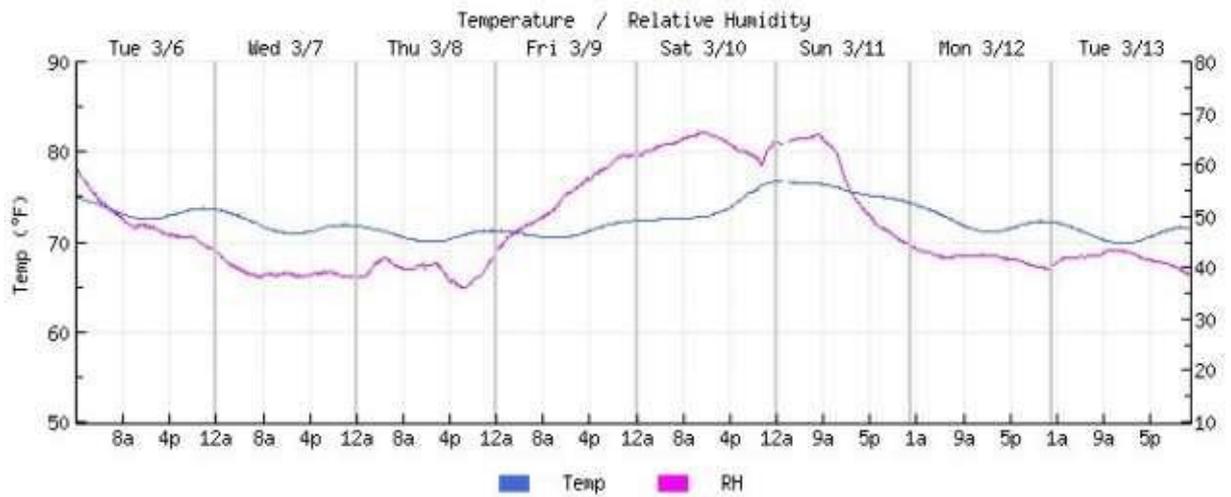
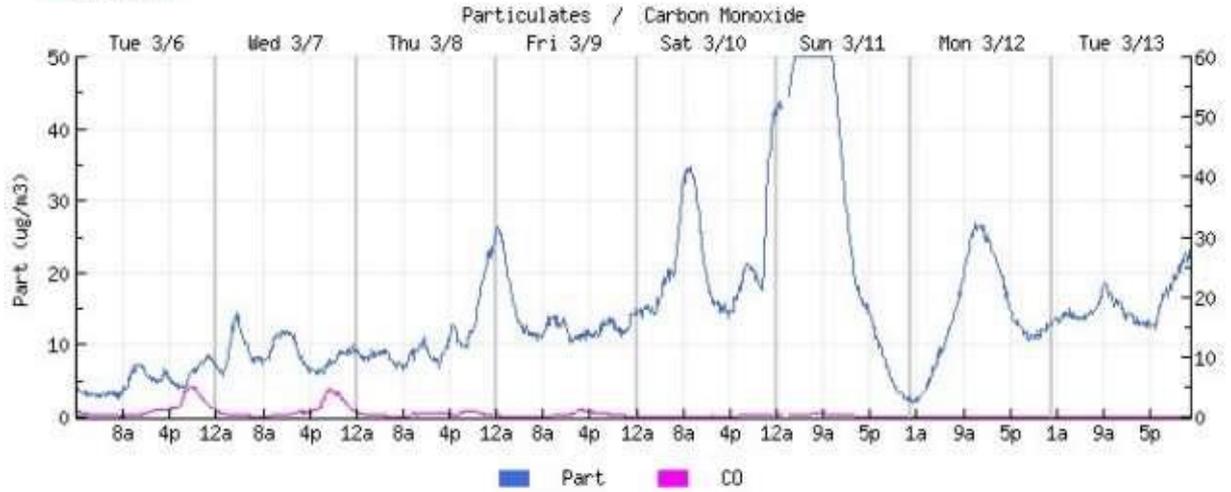




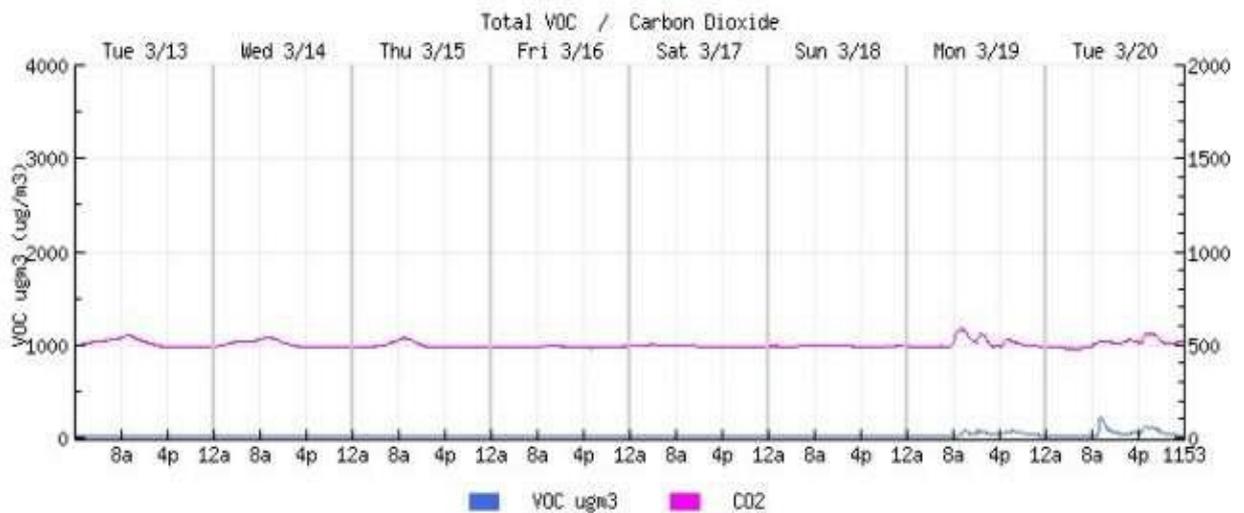
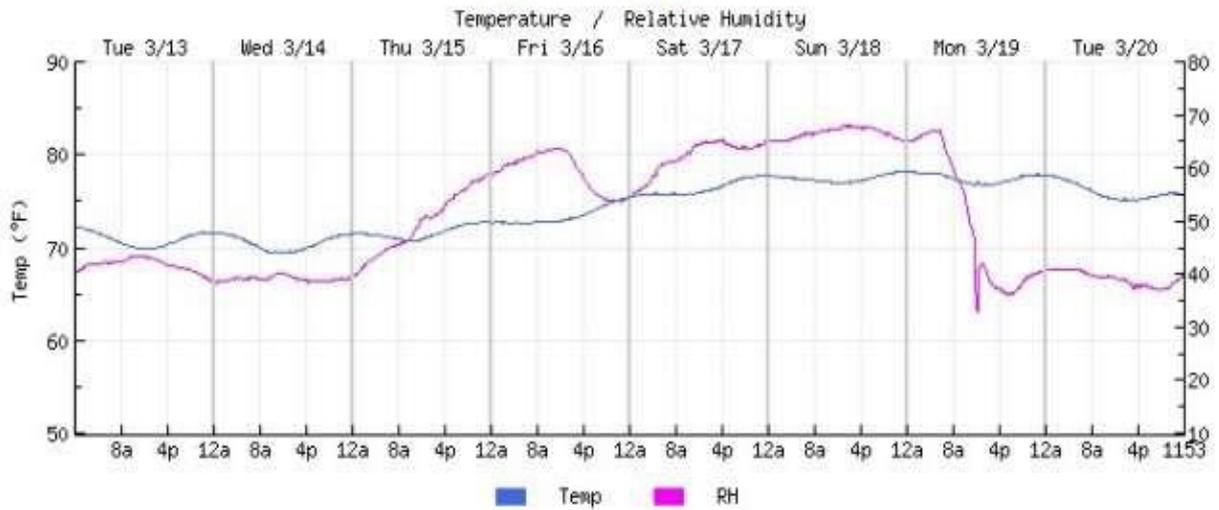
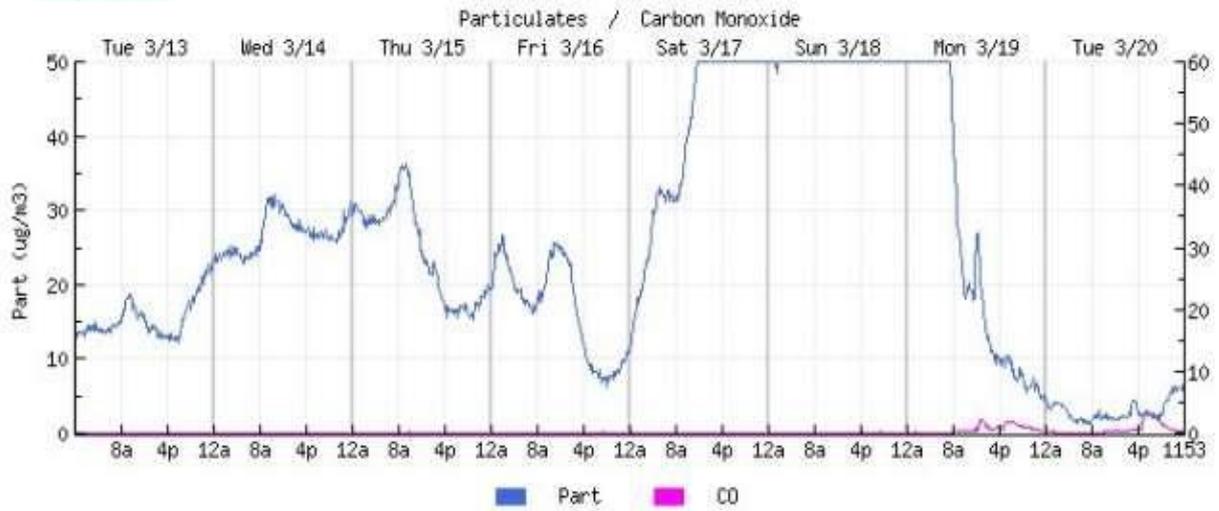
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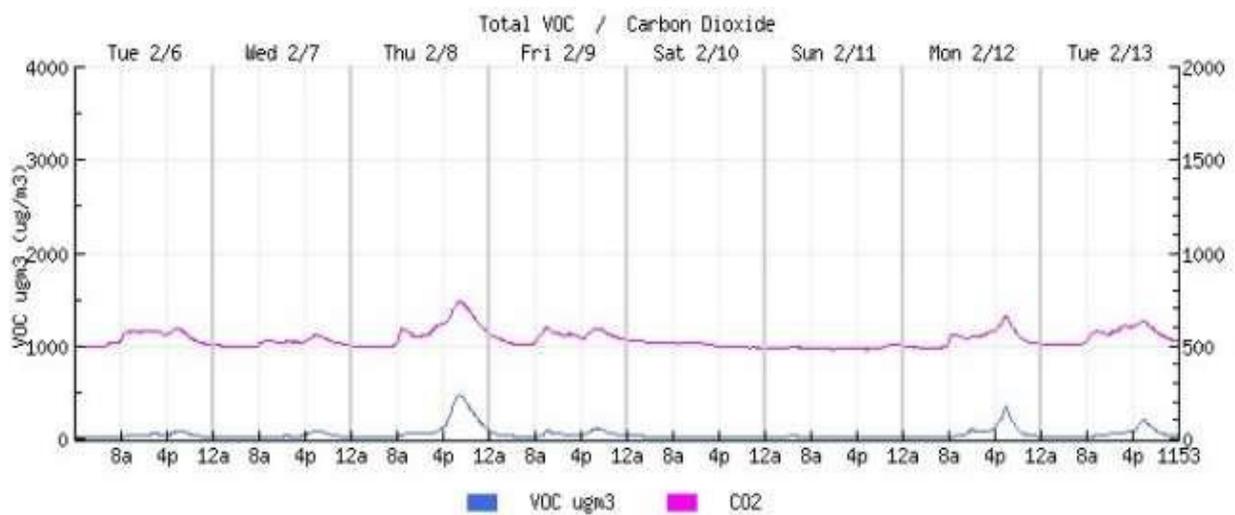
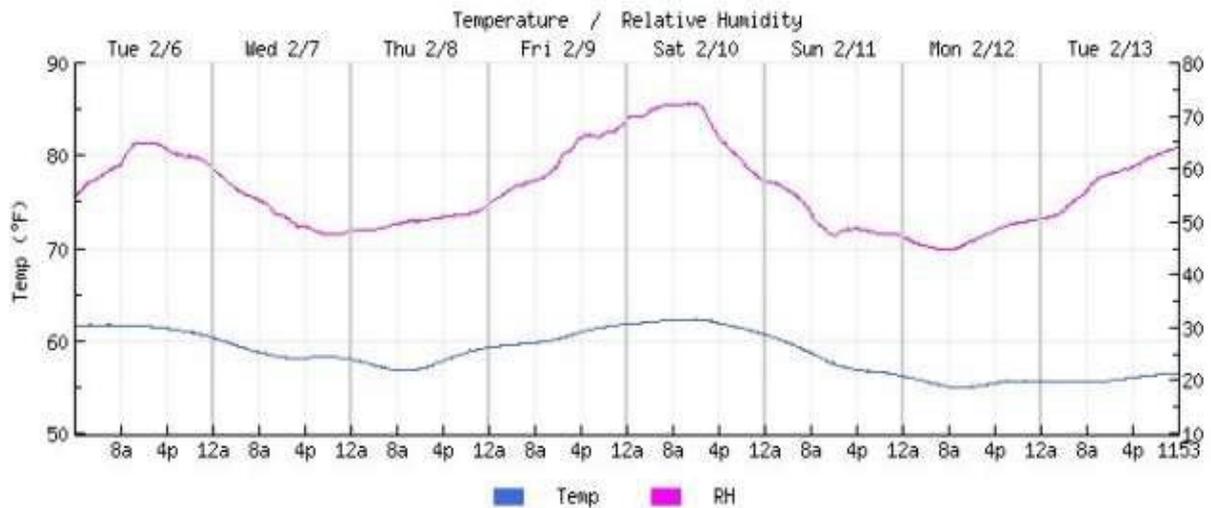
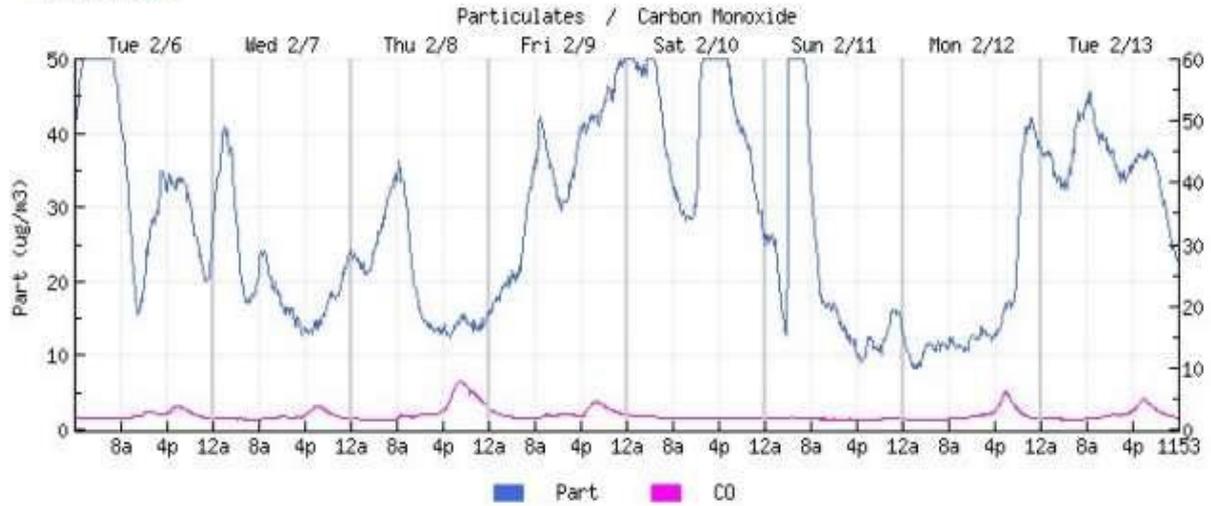
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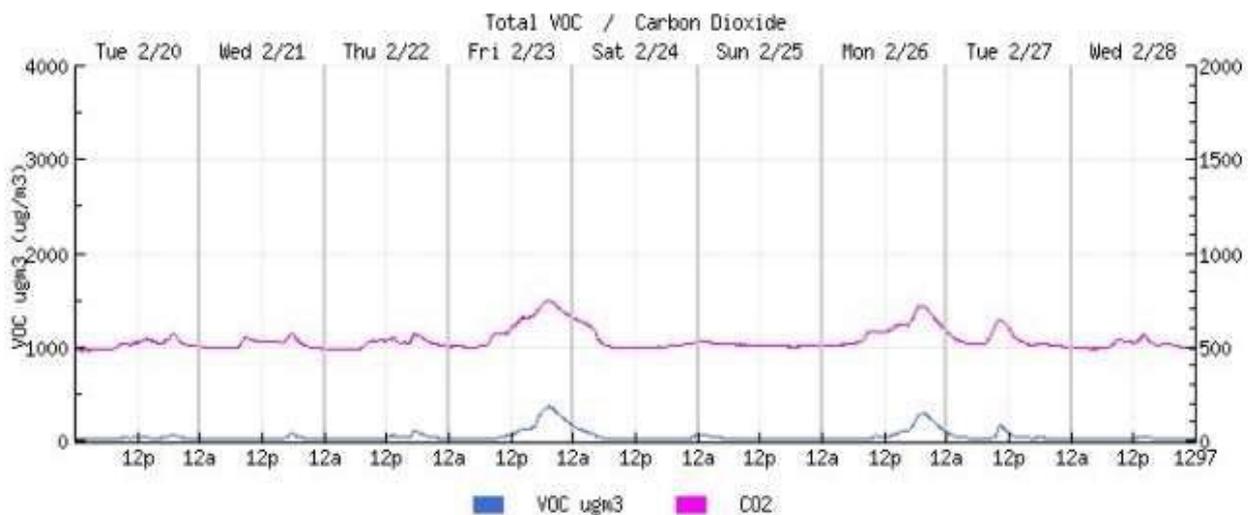
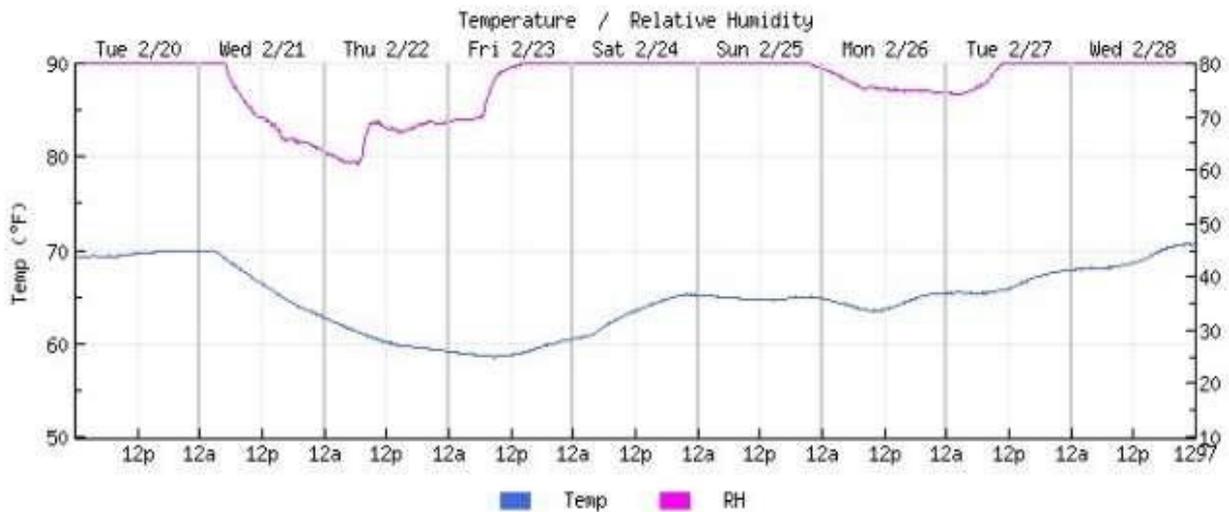
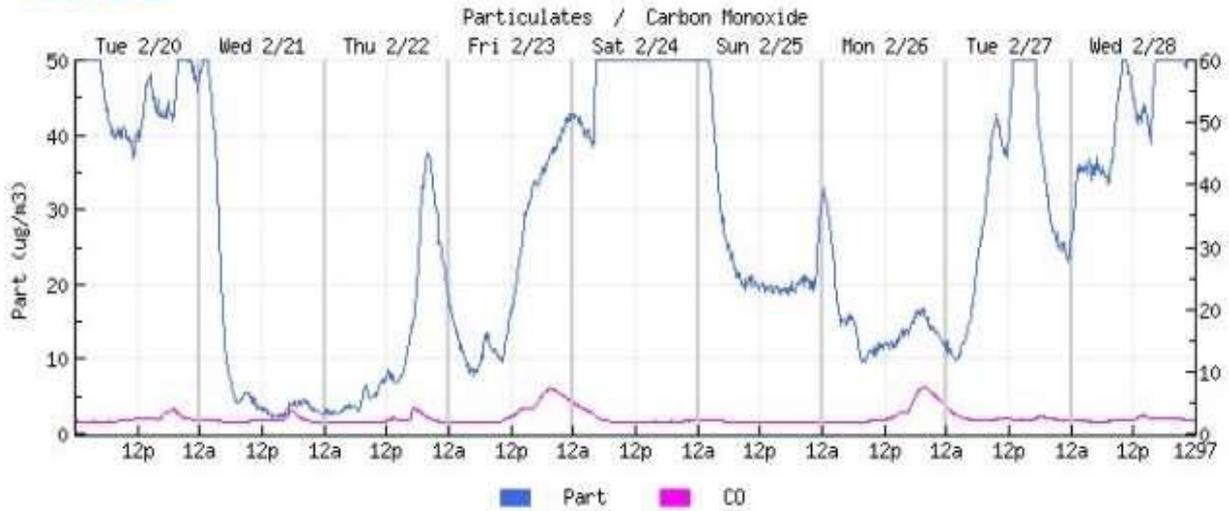
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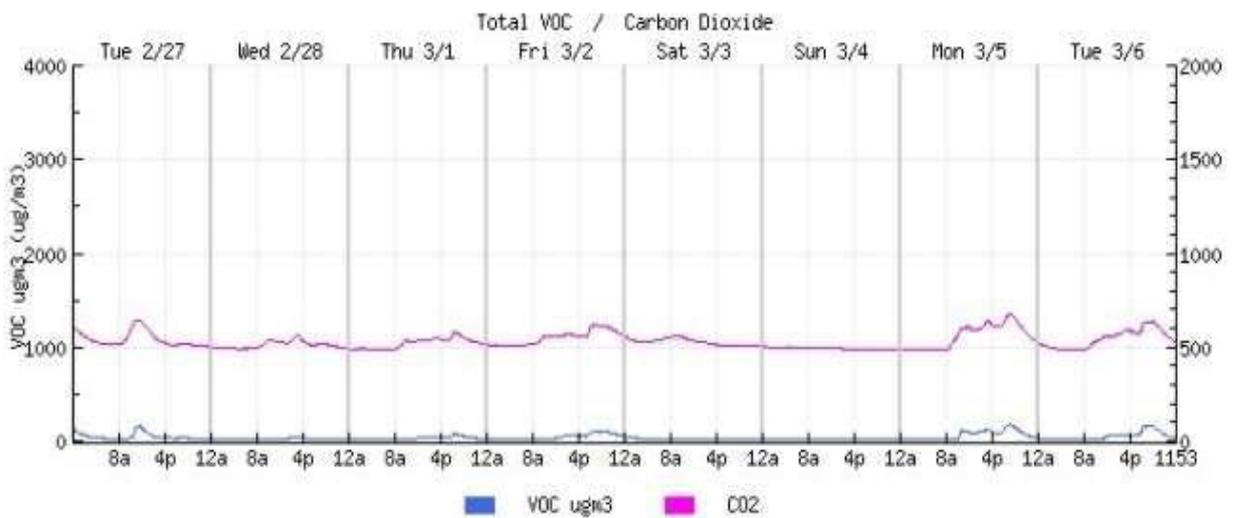
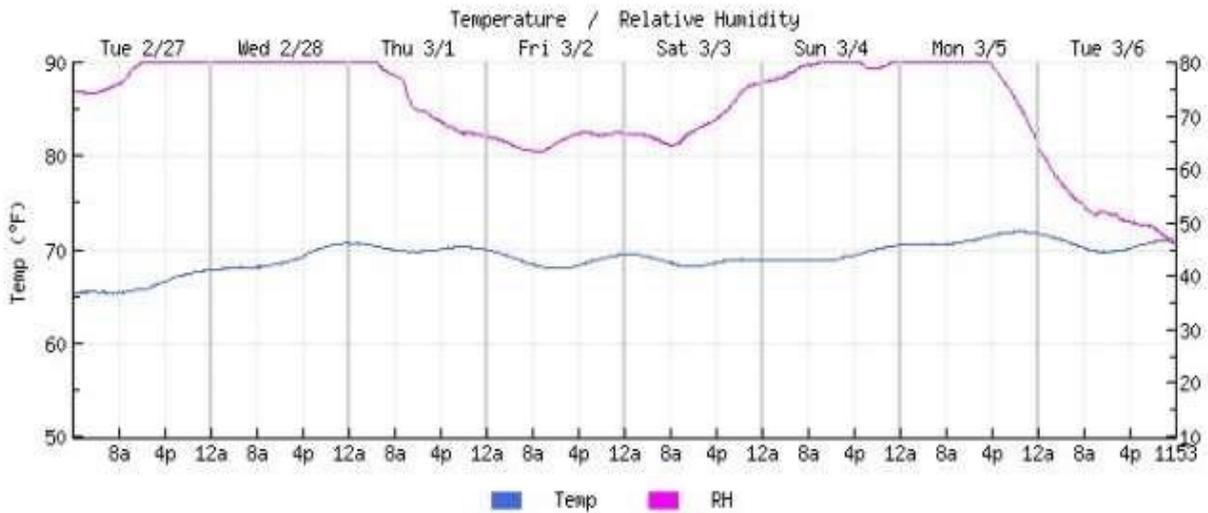
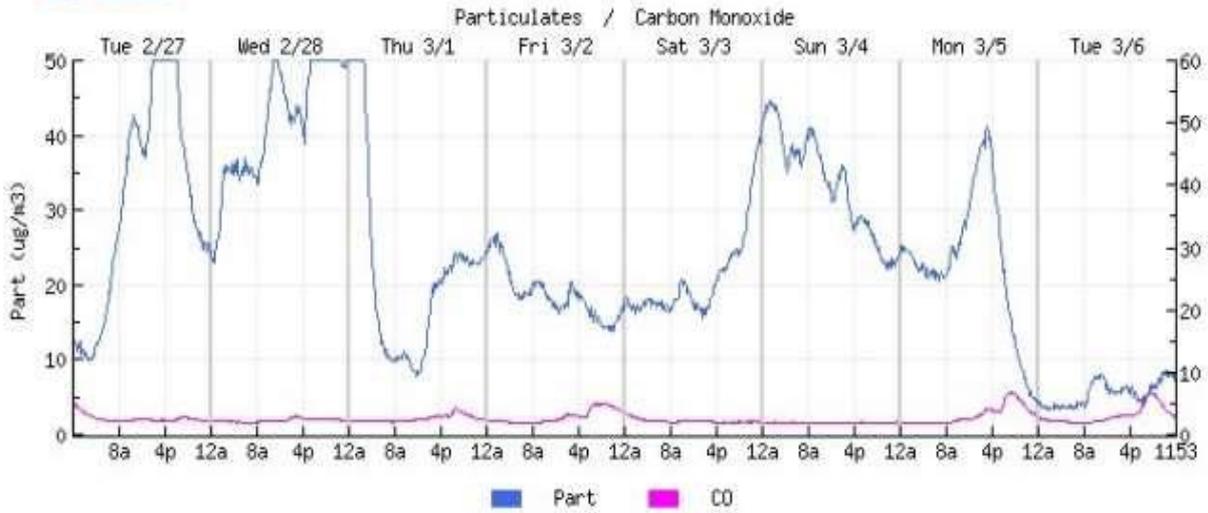
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