

# Gila River Indian Community 2020 AMBIENT AIR MONITORING NETWORK REVIEW AND 2021 PLAN

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*St Johns Air Monitoring Site – May 11, 2021*



**Gila River Indian Community  
Department of Environmental Quality**

# Air Quality Air Monitoring Program

## June 2021

### Table of Contents

<b>Definition of Terms .....</b>	<b>1</b>
<b>Abstract.....</b>	<b>4</b>
<b>1 Introduction.....</b>	<b>5</b>
<b>2 Air Monitoring Network Design.....</b>	<b>7</b>
2.1 Monitoring Objectives .....	7
2.2 Spatial Scales .....	7
<b>3 Gila River Indian Community Ambient Air Monitoring Network.....</b>	<b>9</b>
3.1 General.....	9
3.2 Ozone Monitoring Network.....	11
3.2.1 Background.....	11
3.2.2 2020 Monitoring Results Summary .....	12
3.3 PM10 Particulate Monitoring Network.....	13
3.3.1 Background.....	13
3.3.2 2020 PM <sub>10</sub> Monitoring Results Summary.....	14
3.4 Meteorological Network .....	15
3.5 Changes to the Network in 2020.....	15
3.6 Proposed Network Changes and Improvements .....	15
<b>4 Compliance Discussion .....</b>	<b>16</b>
4.1 Minimum Monitoring Requirements .....	16
4.2 Data Submission Requirements .....	18
4.3 Air Quality Data.....	18
4.4 Audits.....	18
<b>5 Public Notice.....</b>	<b>20</b>
5.1 Public Meeting.....	20

### Figures

Figure 3-1: Map of Ambient Air Monitoring Stations on Gila River Indian Community .....	9
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### Tables

Table 2-1. Relationship Among Monitoring Site Types And Scales Of Representativeness.....	8
Table 3-1. GRIC Ambient Air Monitoring Sites for 2020.....	10

Table 3-2. Ambient Air Quality Parameters Monitored at Each Station.....	10
Table 3-3. National Ambient Air Quality Standards Monitored for Pollutants by GRIC .....	11
Table 3-4. Site Types for Each Monitoring Station.....	11
Table 3-5. 2020 8-Hour Average Ozone Summary .....	13
Table 3-6. Three-Year Average of 4 <sup>th</sup> Highest 8-Hour Ozone through 2020.....	13
Table 3-7. 2020 24-Hour Average PM <sub>10</sub> Summary .....	15
Table 4-1. Ozone Monitoring Requirements for SLAMS (Number of Stations per MSA) .....	16
Table 4-2. PM <sub>10</sub> Monitoring Requirements for SLAMS (Number of Stations per MSA) .....	16
Table 4-3. Minimum Monitoring Requirements <sup>1</sup> for GRIC Ozone Monitors, 2018-2020.....	17
Table 4-4. Minimum Monitoring Requirements <sup>1</sup> for GRIC PM <sub>10</sub> Monitors, 2018-2020.....	17
Table 4-5. Sources of Ambient Air Quality Data .....	18
Table 4-6. Performance Audit Dates for GRIC Ozone Monitors .....	19
Table 4-7. Semi-Annual Flow Rate Audit Dates for GRIC Continuous TEOM PM <sub>10</sub> Monitor .	19
Table D. Summary of Comments and Questions Received from GRIC members and visitors ..	46

## Appendices

- A. 2020 Air Monitoring Data by Site
- B. EPA-Required Site Metadata
- C. EPA Letter of Approval for GRIC’s 2019 Air Monitoring Network Review and 2020 Plan; includes approval of 2021 seasonal ozone monitoring.
- D. Public Notice and Comment Information

## DEFINITION OF TERMS

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<b>AMNR:</b>	Air Quality Monitoring Network Review.
<b>AMNRP:</b>	Air Quality Monitoring Network Review and Plan.
<b>AQMP:</b>	Air Quality Management Plan. The AQMP is a collection of tribal regulations and plans to achieve healthy air quality under the Clean Air Act. For GRIC, the AQMP is synonymous with the Tribal Implementation Plan (TIP).
<b>AQP:</b>	Air Quality Program within the Gila River Indian Community's Department of Environmental Quality.
<b>AQS:</b>	Environmental Protection Agency's Air Quality System
<b>Attainment:</b>	This refers to the NAAQS used to comply with the federal Clean Air Act. After several years of no violations of the NAAQS, the EPA can classify the area as in attainment for that pollutant.
<b>CFR:</b>	Code of Federal Regulations.
<b>Community:</b>	Gila River Indian Community
<b>Continuous monitoring:</b>	A method of monitoring air pollutants that is continually measuring the quantity of the pollutant, either gaseous or particulate. Continuous monitors can be used to obtain real-time or short-term averages of pollutants.
<b>Criteria Pollutants:</b>	Six pollutants (Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone, Particulates, and Sulfur Dioxide) that have NAAQS established by the US EPA.
<b>DEQ:</b>	Gila River Indian Community's Department of Environmental Quality
<b>Design Value:</b>	A design value is a statistic that describes the air quality status of a given area relative to the level of the NAAQS. For a concentration-based standard, the air quality design value is simply the standard-related test statistic. The design value of a pollutant monitoring network is the highest sample value in the network used to compare to the NAAQS; e.g. the 8-hour ozone design value for the network is the monitor with the highest 3-year average of the 4 <sup>th</sup> highest concentrations each year.
<b>EPA:</b>	U. S. Environmental Protection Agency.
<b>Exceptional Events:</b>	An uncontrollable event caused by natural sources of pollution or an event that is not expected to recur at a given location. The AQP makes the determination of which events to classify as exceptional and those events are then flagged in the AQS. If the EPA concurs with the AQP's determination, the measured pollution event will not be used in

determination of compliance with the NAAQS.

<b>FEM:</b>	Federal Equivalency Method. An official method, i.e. equipment and procedure, of monitoring air pollution that has been determined to produce results similar to the Federal Reference Method (FRM).
<b>Filter-based Monitor:</b>	A method of monitoring particulate pollution that involves exposing a pre- weighed filter to a specific flow volume of air to capture the particulates in the air. The filters are then post-weighed to determine the weight of particulates per volume, e.g. $\mu\text{g}/\text{m}^3$ . Filter-based monitors used by GRIC are all FRM monitors.
<b>FRM:</b>	Federal Reference Method. An official method (i.e. equipment and procedure) of monitoring air pollution that has been tested and determined to produce results that accurately measure air pollution with acceptable precision. These methods are the baseline that all other methods (i.e., FEMs) refer to.
<b>GRIC:</b>	Gila River Indian Community
<b><math>\mu\text{g}/\text{m}^3</math>:</b>	Microgram per cubic meter.
<b>MSA:</b>	Metropolitan Statistical Area. A geographical area designated by the federal government based on the concept of a core area with a large population nucleus, plus adjacent communities having a high degree of economic and social integration with that core. It is unclear in Appendix D 40 CFR 58 how MSAs apply to sovereign tribes. Although the areas within the Community are <i>geographically</i> part of the Phoenix-Mesa-Scottsdale MSA, for purposes of the administration of Section 107 of the Clean Air Act (42 U.S.C. § 7407), except where a specific designation has been otherwise made by the Administrator, the air quality control region for the Community is all land within the exterior boundaries of the Community. Therefore, for the purposes of this document, the MSA principle does not apply to the GRIC Air Monitoring Network.
<b>NAAQS:</b>	National Ambient Air Quality Standards. A health and welfare-based standard that is set by the US EPA to qualify allowable levels of criteria pollutants.
<b><math>\text{NO}_2</math>:</b>	Nitrogen dioxide.
<b><math>\text{NO}_x</math>:</b>	Nitrogen oxides. Sum of nitric oxide (NO), $\text{NO}_2$ , and other nitrogen-containing compounds.
<b>PM:</b>	Particulate matter. Material suspended in the air in the form of minute solid particles or liquid droplets.
<b><math>\text{PM}_{10}</math>:</b>	Particulate matter of 10 microns in diameter or smaller.
<b>PMA:</b>	Phoenix Metropolitan Area.
<b>NPAP-TTP:</b>	National Performance Audit Program – Through the Probe

<b>POC:</b>	Parameter Occurrence Code is an identification number distinguishing multiple instruments that may measure the same pollutant.
<b>PPM:</b>	Parts per million.
<b>Primary Standard:</b>	One portion of the NAAQS. These standards are designed to protect the public health.
<b>Secondary Standard:</b>	One portion of the NAAQS. These standards are designed to protect the environment.
<b>SIP:</b>	State Implementation Plan. SIPs are a collection of state and local regulations and plans to achieve healthy air quality under the Clean Air Act.
<b>SLAMS:</b>	State and Local Air Monitoring Station. The SLAMS consist of a network of approximately 5,000 monitoring stations nationwide whose size and distribution is largely determined by the needs of State, and local air pollution control agencies to meet their respective SIP requirements. The GRIC monitors operated by the AQP are not part of the SLAMS network, but the AQP operates the monitors in accordance with the requirements for SLAMS.
<b>TAR:</b>	Tribal Authority Rule.
<b>TEOM:</b>	Tapered Element Oscillating Microbalance. A continuous particulate measuring instrument used by the AQP to measure PM10.
<b>TIP:</b>	Tribal Implementation Plan. The TIP is a collection of tribal regulations and plans to achieve healthy air quality under the Clean Air Act. For GRIC, the TIP is incorporated into and synonymous with the Air Quality Management Plan (AQMP).
<b>VOC:</b>	Volatile organic compounds. VOCs are chemical compounds that can easily vaporize and enter the atmosphere. There are many natural and artificial sources of VOCs; solvents and gasoline make up some of the largest artificial sources. VOCs will react with NO <sub>x</sub> in the presence of sunlight to create ground-level ozone pollution.



## ABSTRACT

In 2020, Gila River Indian Community (GRIC) Department of Environmental Quality (DEQ) Air Quality Program (AQP) successfully continued to operate an air quality surveillance system that monitored for regulated ambient air pollutants as per 40 CFR Parts 50 and 58. This Annual Monitoring Network Review and Plan (AMNRP) documents how the system performed during 2020. The air monitoring data produced are intended for regulatory compliance determinations regarding regulated ambient air pollutants.

In addition, this document describes the changes that are planned to occur within the next 18 months. The AQP informs personnel at the Environmental Protection Agency's Region 9 (EPA R9) office of any significant data collection interruptions immediately.

During 2020, there were no significant changes to the GRIC air monitoring network; however, some notable accomplishments are as follows:

- GRIC successfully completed and certified 2020 air monitoring data with 97-100% data completeness reporting to EPA's AQS data repository.
- GRIC received approval for a seasonal ozone waiver from EPA for 2021 calendar year. GRIC will monitor ozone from April 1<sup>st</sup> through October 31<sup>st</sup> in 2021.
- Upgrade of the AirVision data management system to current firmware versions including an establishment of separate server with the OpenNode2 server configuration upgrade.
- GRIC DEQ AQP successfully completed the 5-Year GRIC Air Monitoring Network Assessment, 2015-2020 and submitted to USEPA Region 9 Air Quality Analysis Office. There were no recommended modifications to air monitoring network.

In 2021, there are no significant changes planned for the air monitoring network. Some notable activities that have occurred or are planned in 2021 are as follows:

- A revision to the GRIC Air Monitoring Quality Assurance Project Plan (QAPP) will be submitted for re-approval. A majority of changes to the QAPP are equipment and software application upgrades to new and current technology.
- USEPA Region 9, Air Quality Analysis Office conducted a Technical Systems Audit (TSA) on the GRIC Air Monitoring Network on March 23-25, 2021. GRIC will work closely with the auditors and Region 9 Air Quality Analysis Office management staff to discuss next steps for the audit findings and corrective actions.

The GRIC air monitoring network and tools operated in 2020 meets the necessary requirements as mandated by Federal regulations. Except where otherwise noted, each monitor meets the requirements of 40 CFR 58 Appendices A, B, C, D, and E, where applicable. This Annual Network Plan documents the details of the regulatory ambient air quality monitors.

# 1 INTRODUCTION

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The Code of Federal Regulations (CFR) Title 40 Part 58.10 (40 CFR 58.10) requires an annual monitoring network plan to summarize the air quality surveillance system consisting of State and Local Air Monitoring Stations (SLAMS) and Special Purpose Monitors (SPM) operated under state and local authorities. The annual monitoring network plan must identify the purpose of each monitor and provide evidence that both the siting and the operation of each monitor meet the requirements in 40 CFR Part 58 Appendices A, C, D, and E below:

- Appendix A Quality Assurance Requirements for Monitors used in Evaluations of National Ambient Air Quality Standards
- Appendix C Ambient Air Quality Monitoring Methodology
- Appendix D Network Design Criteria for Ambient Air Quality Monitoring
- Appendix E Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring

This AMNRP meets the federal regulatory requirements set forth in 40 CFR 58.10 and Appendices A, C, D, and E.

The Gila River Indian Community (GRIC or Community) Department of Environmental Quality (DEQ) Air Quality Program (AQP) operates air quality monitors that record ambient concentrations of two criteria pollutants - particulate matter less than or equal to 10 microns (PM<sub>10</sub>) and ozone (O<sub>3</sub>). Criteria pollutants are those that the United States Environmental Protection Agency (EPA) has defined as a potential risk to health, and correspondingly defined a National Ambient Air Quality Standard (NAAQS). The NAAQS are intended to protect public health and welfare by setting limits on the allowable level of each pollutant in the ambient air. The other criteria pollutants with established NAAQS that are not monitored by the AQP are particulate matter less than or equal to 2.5 microns (PM<sub>2.5</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), and lead (Pb). GRIC does not monitor for these pollutants because they have been found, through discrete sampling and emission inventory, to be at background ambient air quality concentrations. Additionally, GRIC does not have major stationary pollution sources that emit these particular criteria pollutants that may affect the NAAQS within GRIC jurisdictions.

The GRIC air quality monitors are Tribal Monitors and are most closely related to SLAMS monitors. The United States Environmental Protection Agency (EPA) works closely with GRIC to adhere to the requirements for SLAMS networks with appropriate flexibility as stated in the Tribal Authority Rule (TAR).

The purpose of this document is to fulfill the requirements of 40 CFR 58.10, and has been prepared in accordance with *Annual Monitoring Network Plan* checklists and guidance documents provided by EPA. Therefore, this document contains the following sections:

- **Air Monitoring Network Design** – Describes the design requirements for an air monitoring network in accordance with Appendix D of 40 CFR 58.
- **GRIC Air Monitoring Network** – Describes the air monitoring network for the Community including monitor types, background information, summary of 2020 monitoring results,



changes to the monitoring network in 2020, and proposed changes to the monitoring network.

- **Compliance Discussion** – Includes a discussion of compliance with 40 CFR 58, including a table of requirements for Network Review, minimum monitoring requirements, precision and accuracy certifications, data submittals, and audits.
- **Public Notice** – Includes information on public notices and community outreach for review and presentation of this document.
- **Appendices** – Contains the detailed monitoring site information and photographs, and a copy of the presentation that was prepared for the public outreach.

## 2 AIR MONITORING NETWORK DESIGN

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### 2.1 Monitoring Objectives

Appendix D of 40 CFR 58 states that monitoring networks must be designed to meet three basic monitoring objectives:

1. Provide air pollution data to the general public in a timely manner;
2. Support compliance with ambient air quality standards and emissions strategy development; and
3. Support air pollution research studies.

Furthermore, Appendix D states that in order to support air quality management work indicated in the three basic objectives above, monitoring networks must be designed with a variety of the following types of monitoring sites:

- Highest Concentration – Sites to determine the highest concentration expected to occur in the area covered by the network;
- Population Exposure – Sites to determine representative concentrations in areas of high population density;
- Source Impacts – Sites to determine the impact on ambient pollution levels of significant sources or source categories;
- Background Concentrations – Sites to determine general background concentration levels;
- Regional Transport – Sites to determine the extent of regional pollutant transport among populated areas, and in support of secondary standards; and
- Welfare Impacts – Sites to determine the welfare-related impacts in more rural and remote areas (such as visibility impairment and effects on vegetation).

### 2.2 Spatial Scales

The goal in designing a monitoring network is to establish monitoring stations that will provide data to meet the above monitoring objectives. The physical siting of the air monitoring station must achieve a spatial scale of representativeness that is consistent with the monitoring site type, air pollutant to be measured, and the monitoring objective. The spatial scale results from the physical location of the site with respect to the pollutant sources and categories by estimating the size of the area surrounding the monitoring site that experiences uniform pollutant concentrations. The categories of spatial scale are:

- Micro Scale - Defines the concentrations in air volumes associated with area dimensions ranging from several meters up to about 100 meters.
- Middle Scale – Defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometer.
- Neighborhood Scale – Defines concentrations within some extended area of the city that has

relatively uniform land use with dimensions in the 0.5 to 4.0 kilometers range. The neighborhood and urban scales listed below have the potential to overlap in applications that concern secondarily formed or homogeneously distributed air pollutants.

- **Urban Scale** – Defines concentrations within an area of city-like dimensions, on the order of 4 to 50 kilometers. Within a city, the geographic placement of sources may result in there being no single site that can be said to represent air quality on an urban scale.
- **Regional Scale** – Defines usually a rural area of reasonably homogeneous geography without large sources, and extends from tens to hundreds of kilometers.

The appropriate spatial scale for each of the monitoring site types is shown in Table 2-1.

**Table 2-1. Relationship Among Monitoring Site Types And Scales Of Representativeness.**

Monitoring Objective	Appropriate Spatial Scale				
	Micro	Middle	Neighborhood	Urban	Regional
Highest concentration	X	X	X	X	
Population Exposure			X	X	
Source Impacts	X	X	X		
Background Concentrations			X	X	X
Regional Transport				X	X
Welfare Impacts				X	X

### 3 GILA RIVER INDIAN COMMUNITY AMBIENT AIR MONITORING NETWORK

#### 3.1 General

There are currently three permanent ambient air monitoring stations within the Community – Sacaton, Casa Blanca, and St. Johns (see Figure 3-1). All three monitoring stations are Tribal Monitors, but follow the requirements of SLAMS networks with appropriate flexibility as stated in the TAR.

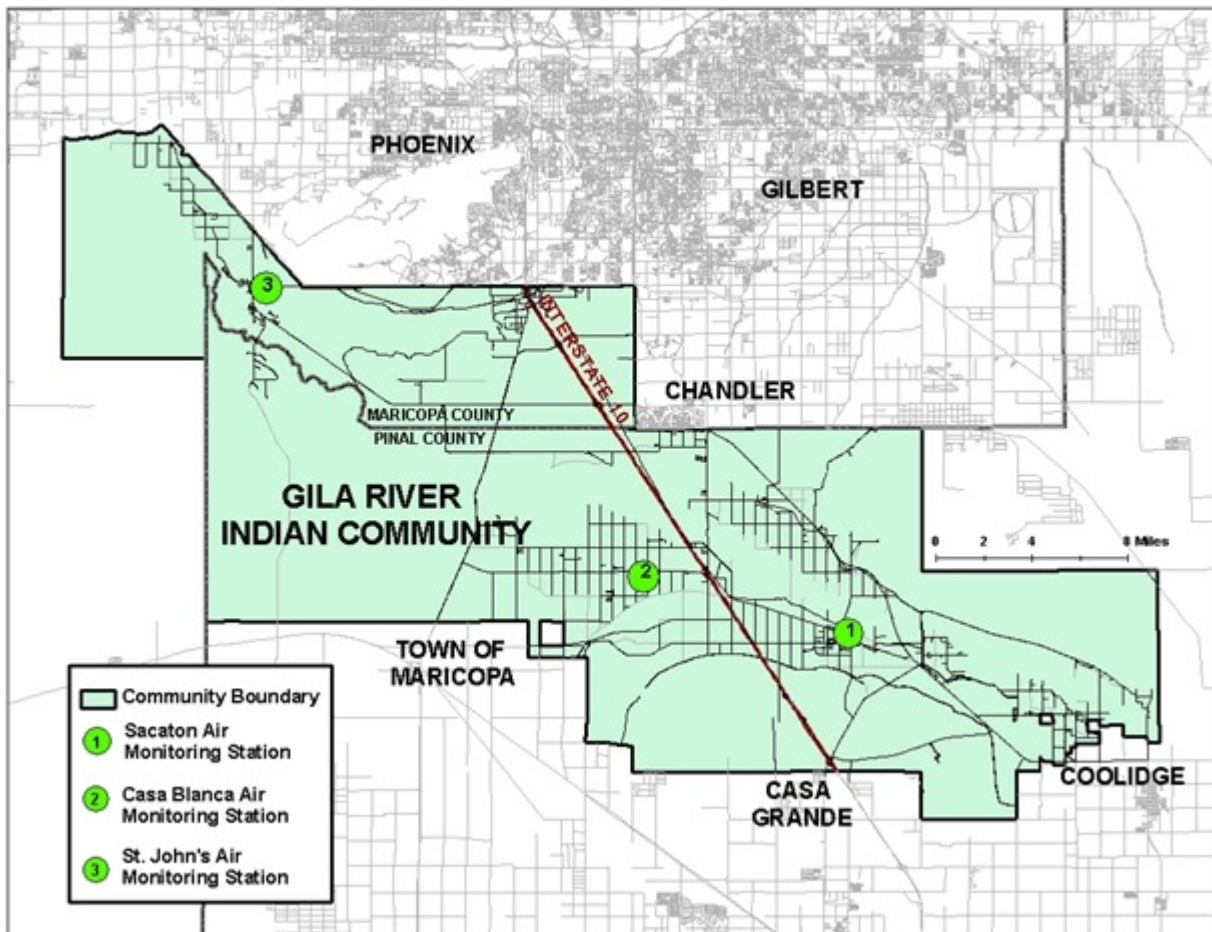


Figure 3-1: Map of Ambient Air Monitoring Stations on Gila River Indian Community

Table 3-1 lists the details regarding each monitoring site's GRIC abbreviation symbol and EPA's AQS identification number. Detailed site information is provided in Appendix A that includes photographs, site type, spatial scale, and population represented. In addition, Appendix B provides detailed monitoring technical specifications.

**Table 3-1. GRIC Ambient Air Monitoring Sites for 2020**

<b>Name</b>	<b>GRIC Abbreviation</b>	<b>AQS ID</b>
St. Johns	SJ	TT-614-7003 (Tribal Monitor)
Sacaton	Sac	TT-614-7001 (Tribal Monitor)
Casa Blanca	CB	TT-614-7004 (Tribal Monitor)

Table 3-2 lists these stations, the pollutants and meteorological parameters that are monitored at each location.

**Table 3-2. Ambient Air Quality Parameters Monitored at Each Station**

<b>Parameter</b>	<b>Monitoring Station</b>		
	<b>St. Johns</b>	<b>Casa Blanca</b>	<b>Sacaton</b>
Ozone	X		X
PM <sub>10</sub> (TEOM)	X	X	X
Wind Speed	X	X	X
Wind Direction	X	X	X
Ambient Temperature	X	X	X
Ambient Barometric Pressure	X	X	X
Precipitation	X	X	X
Relative Humidity	X	X	X
Camera (Visibility)	X	X	X
Table Notes: PM <sub>10</sub> - Particulate Matter ≤ 10 microns TEOM - Tapered Elemental Oscillating Microbalance. Continuous measuring monitor (1 hr averages).			

Table 3-3 shows the NAAQS for pollutants that are currently monitored by GRIC, including ozone and PM<sub>10</sub>. Additional pollutants for which EPA has established NAAQS and that are not currently monitored by GRIC include sulfur dioxide, nitrogen dioxide, carbon monoxide, PM<sub>2.5</sub>, and lead. GRIC continues to not have significant concerns with these additional pollutants as described within the *Introduction* section of this document. EPA periodically reviews and revises these standards based on new public health and scientific information. These revisions often require changes to air monitoring networks and methodologies.

**Table 3-3. National Ambient Air Quality Standards Monitored for Pollutants by GRIC**

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Ozone	primary and secondary	8-hour	0.070 PPM *	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
PM <sub>10</sub>	primary and secondary	24-hour	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years

\* October 1, 2015, the EPA promulgated revised primary and secondary eight-hour ozone NAAQS from 0.075 to 0.070 PPM.

The site types represented by each GRIC air quality monitor are shown in Table 3-4.

**Table 3-4. Site Types for Each Monitoring Station**

Site Type	Ozone		Particulate Matter ≤10 Microns (PM <sub>10</sub> )		
	St. Johns	Sacaton	St. Johns	Casa Blanca	Sacaton
Highest Concentration	X			X	
Population Exposure	X	X	X	X	X
Source Impacts				X	
Background Concentrations	X	X	X	X	X
Regional Transport	X	X	X	X	X
Welfare Impacts					

Detailed site information for each of the monitoring locations is presented in Appendix A.

## 3.2 Ozone Monitoring Network

Beginning in 2002, the Community started monitoring for ozone at two locations - one in Sacaton (District 3) and one in St Johns (District 6); both monitors operated on seasonal schedule from April through October.

The GRIC ozone monitoring network operated a year round schedule from January 1, 2016 through December 31, 2018. Both ozone monitors were reported as operational in AQS from January 1<sup>st</sup> to December 31<sup>st</sup>.

GRIC requested and received EPA-approval for a waiver to monitor ozone only on seasonal schedule (April – October) beginning April 1, 2019; GRIC continues to request annually and receive approval for a waiver which currently continues through 2021 calendar year.

### 3.2.1 Background

The following subsections provide background information on the two ozone monitoring locations. Additional detailed information for each monitor is provided in Appendix B.



### **3.2.1.1 Sacaton**

Operated by the AQP since 2002, this site provides background and regional transport ozone monitoring on an urban scale. This site is located near the central GRIC government and business district of Sacaton, which includes four schools and a community hospital. It also provides a measurement of representative area ozone concentration for the community of Sacaton and surrounding areas. The monitor generally measures background levels of ozone during prevailing West or East winds. However, under the right wind conditions, the monitor can also detect ozone and ozone precursor transport from the Phoenix Metropolitan Area (PMA), north of the Community, in the form of elevated ozone readings. Measured concentrations at this site are often similar to those recorded at Pinal County's Casa Grande monitor (approximately 9 miles south of Sacaton).

### **3.2.1.2 St. Johns**

Initially operated by the AQP at Vee Quiva Casino (AQS Site ID 7002) in 2002 and then relocated 2 miles south to Gila Crossing Community School Administrative Campus (AQS ID TT-614-7003) in September 2004. This site is located in District 6 on the southwest side of the South Mountain Range near the City of Phoenix and provides background and regional transport ozone monitoring on an urban scale. Ozone concentrations at this site exhibit strong diurnal fluctuations caused by oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOC) from nearby neighboring jurisdictions in the City of Phoenix. The monitor generally measures background levels of ozone during prevailing West or East winds. However, under the right wind conditions, the monitor can also detect ozone and ozone precursor transport from the PMA, north and east of the monitor location, in the form of elevated ozone readings.

## **3.2.2 2020 Monitoring Results Summary**

The 1-hour average ozone standard was revoked by the EPA on June 15, 2005, and has been replaced by the 8-hour average standard for compliance purposes. On March 12, 2008, the EPA lowered the eight-hour ozone NAAQS from 0.080 to 0.075 ppm.

Then again on October 1, 2015, the EPA lowered the eight-hour ozone NAAQS from 0.075 to 0.070 ppm. Compliance with the standard is determined by averaging the 4<sup>th</sup> highest of the daily maximum eight-hour average over a three-year period. This three-year average must be less than or equal to 0.070 ppm.

In 2020, there were five days where the daily maximum 8-hour ozone average exceeded the NAAQS (0.070 PPM standard) within the GRIC ozone network. The Sacaton site had four exceedance days on 8/19/2020, 8/24/2020, 8/25/2020, and 8/26/2020; and five exceedance days from the St Johns site on 5/7/2020, 8/19/2020, 8/24/2020, 8/25/2020, and 8/26/2020. The 2020 fourth highest values for both sites were exceeding the NAAQS in 2020. Table 3-5 presents the four highest 8-hour average ozone readings for each monitor during the 2020 monitoring season (April – October).

The probable cause of exceedances were due to a regional air quality events of smoke from wildfires in Arizona (Gin, Griffin, and Salt fires), California, and Colorado. Preliminary analysis via

National Oceanic and Atmospheric Administration (NOAA) satellite maps indicates that a regional wildfire smoke plumes were over Maricopa County including parts of Pinal County area during this time period. Wildfire smoke provides ozone precursors which eventually contributes to ozone formation when the presence of sunlight and temperatures, resulting in higher ozone concentrations.

**Table 3-5. 2020 8-Hour Average Ozone Summary**

Site	Max (PPM) Date	2nd High (PPM) Date	3rd High (PPM) Date	4th High (PPM) Date	Number of Days >0.070
St Johns	0.081* 8/25/2020	0.078* 8/24/2020	0.075* 8/19/2020	0.072 5/7/2020	5
Sacaton	0.078* 8/19/2020	0.074* 8/25/2020	0.072* 8/24/2020	0.071* 8/26/2020	4

\* Data has been flagged as due to an exceptional event (wildfires in CA, CO, and AZ)

Through the end of the 2020 ozone monitoring season, GRIC continues to attain the 8-hour average NAAQS for ozone (the 8-hour average NAAQS for ozone is violated when the three-year average of the fourth highest values for each year is greater than 0.070 PPM); the EPA defines these as the Design Values. The fourth highest 8-hour average ozone reading for each of the past three years and the 3-year average is shown in Table 3-6. The statistical design values for both GRIC ozone sites, Sacaton and St Johns sites, are at 0.068 PPM.

**Table 3-6. Three-Year Average of 4<sup>th</sup> Highest 8-Hour Ozone through 2020**

Site	2018 4 <sup>th</sup> High (PPM)	2019 4 <sup>th</sup> High (PPM)	2020 4 <sup>th</sup> High (PPM)	3-Year Average of 4 <sup>th</sup> High (PPM)
St Johns	0.066	0.066	0.072*	0.068*
Sacaton	0.068	0.066	0.071*	0.068*

\* Includes data flagged as exceptional events

### 3.3 PM<sub>10</sub> Particulate Monitoring Network

Beginning in 2002, the Community started monitoring for PM<sub>10</sub> at one location (Casa Blanca) using a Federal Reference Method (FRM), filter-based, monitor operating on a 1-in-3 day schedule. In 2013, the Community began continuous monitoring methods for PM<sub>10</sub> at all three monitoring stations (St. Johns, Casa Blanca, and Sacaton) using Federal Equivalent Method (FEM) Tapered Element Oscillating Microbalance (TEOM) monitors that provide hourly PM<sub>10</sub> averages. In 2020, all three TEOM FEM monitors were reported as operational in AQS. There are no collocation requirements for EPA-approved PM<sub>10</sub> FEM continuous monitors.

#### 3.3.1 Background

The following subsections provide background information on the three PM<sub>10</sub> monitoring locations. Additional detailed information for each monitor is provided in Appendix B.

### 3.3.1.1 Casa Blanca

This site has been operated by the AQP since 2002. This monitoring site is a neighborhood scale and representative of particulate concentrations in District 5, Casa Blanca. The site consists of one TEOM monitor. Since there are no collocation requirements for EPA-approved PM<sub>10</sub> FEM monitors, the two collocated FRM samplers (two identical monitors that sample separately) were discontinued on December 31, 2014.

This monitoring site was originally placed in one of the three most populated areas of the Community to measure source impacts from agricultural areas. Although located in a neighborhood of agricultural operations, it can be representative of other areas beyond the local jurisdictions. This monitoring station is located approximately 4 to 5 miles northeast of other PM<sub>10</sub> sources (e.g., agricultural areas and dairy operations) that are outside of the Community's boundaries and control, and may be influenced by PM<sub>10</sub> generated from those sources.

### 3.3.1.2 Sacaton and St. Johns

The Sacaton and St. Johns sites started reporting PM<sub>10</sub> data to the AQS database beginning January 1, 2013. Both sites are currently set up to monitor PM<sub>10</sub> concentrations using continuous TEOM monitors. These two sites have been approved for monitoring and reporting as established within the GRIC Quality Assurance Project Plan (QAPP).

## 3.3.2 2020 PM<sub>10</sub> Monitoring Results Summary

The 24-hour Primary standard for PM<sub>10</sub> is 150 µg/m<sup>3</sup> (155 µg/m<sup>3</sup> with mathematical rounding). The interpretation of the standard, Appendix K to Part 50, includes rounding to the nearest 10 µg/m<sup>3</sup> (*i.e.*, values ending in 5 or greater are to be rounded up). This standard is violated when the expected number of exceedances at a monitor is more than one per year on average over three years. A formula, as detailed in 40 CFR 50, is used to determine the expected number of exceedances. The formula takes into account the number of days sampling occurred and the number of valid samples collected. A 3-year average of these estimated days is then used to determine compliance.

In 2020, there were 2 exceedances of the 24-hour primary standard (NAAQS) for PM<sub>10</sub>, all GRIC PM<sub>10</sub> monitors exceeded the standard on 8/16/2020 and only the Casa Blanca exceeded on 11/7/2020. GRIC has flagged all of these exceedances as *exceptional events* (see Definitions of Terms). In accordance with the EPA's exceptional events policy, once approved, these data are not used in determining compliance with the NAAQS. Table 3-7 presents the summary of the 24-hour average PM<sub>10</sub> readings for each monitor in 2020.

Exceedances of the 24-hour PM<sub>10</sub> NAAQS at the GRIC monitors also occurred in 2018 and 2019 which also included some flagged data due to Exceptional Events by GRIC. As of the date of this report, the EPA has not issued an official concurrence with GRIC's 2018 and 2019 data. Therefore, a determination of compliance with the 24-hour PM<sub>10</sub> NAAQS cannot be made at this time.

**Table 3-7. 2020 24-Hour Average PM<sub>10</sub> Summary**

Site Name (Monitor Type)	24-hr Average Max (µg/m <sup>3</sup> )	24-hr Average 2nd High (µg/m <sup>3</sup> )	Number of 24-hr NAAQS Exceedances	Estimated Exceedances (Including Exceptional Events requested)	Annual Average (µg/m <sup>3</sup> )	No. of Exceptional Events	No. of valid days / days possible
St Johns (TEOM)	195* 8/16/2020	141 8/17/2020	1*	1*	27.8†	1*	358 / 366
Sacaton (TEOM)	200* 8/16/2020	138 11/7/2020	1*	1*	31.7†	1*	366 / 366
Casa Blanca (TEOM-POC3)	221* 8/16/2020	166* 11/7/2020	2*	2*	43.5†	2*	366 / 366
* Data has been flagged by GRIC as an Exceptional Event; RJ flag for high winds. †The annual average values include exceptional events data that has not been concurred by EPA.							

### 3.4 Meteorological Network

GRIC DEQ collects meteorological data at all three air monitoring sites to support the analysis of ambient air quality data and to provide support for exceptional event reporting.

### 3.5 Changes to the Network in 2020

The following changes were made to the monitoring network in 2020:

- No changes to air monitoring network design and instrument siting.

### 3.6 Proposed Network Changes and Improvements

There are no planned changes to siting of the GRIC Air Monitoring Network in 2021. The GRIC Air Monitoring Network is planning or has made the following changes to the air monitoring network in 2021:

- GRIC DEQ AQP is currently assessing data acquisition system upgrade from ESC 8832 data loggers to ESC 8872 system.
- The GRIC ozone monitors will continue on a seasonal schedule; ozone season starts on April 1, 2021 through October 31, 2021. GRIC DEQ will continue to request for seasonal ozone monitoring for 2022 calendar year; a formal request with data analysis will be submitted to EPA in September 2021.

## 4 COMPLIANCE DISCUSSION

In accordance with 40 CFR 58.10(a)(1), the following sections provide information on compliance with the requirements of Appendices A, C, D, and E of 40 CFR 58. A cross-reference of the requirements of Appendices A, C, D, and E of 40 CFR 58 and the section(s) of this report that address those requirements is included in tables provided in Appendix B of this document for all three GRIC air monitoring sites.

### 4.1 Minimum Monitoring Requirements

Tables D-2 and D-4 in Appendix D of 40 CFR Part 58 define minimum monitoring requirements for ozone and PM<sub>10</sub>, respectively. Tables D-2 and D-4 are reproduced as Tables 4-1 and 4-2, respectively, below. The minimum monitoring requirements are based on the population of the Metropolitan Statistical Area (MSA) and the design value for each NAAQS. MSA must contain an urbanized area of 50,000 or more populations.

**Table 4-1. Ozone Monitoring Requirements for SLAMS (Number of Stations per MSA)**

MSA Population	Most recent 3-year design value ≥85% NAAQS	Most recent 3-year design value <85% NAAQS
>10 million	4	2
4-10 million	3	1
350,000-<4 million	2	1
50,000-<350,000	1	0

**Table 4-2. PM<sub>10</sub> Monitoring Requirements for SLAMS (Number of Stations per MSA)**

MSA Population	High concentration Exceeds NAAQS by 20% or more (>180 µg/m <sup>3</sup> )	Medium concentration >80% of NAAQS (>120 µg/m <sup>3</sup> )	Low concentration < 80% of NAAQS (<120 µg/m <sup>3</sup> )
>1,000,000	6-10	4-8	2-4
500,000-1,000,000	4-8	2-4	1-2
250,000-500,000	3-4	1-2	0-1
100,000-250,000	1-2	0-1	0

It is unclear in Appendix D 40 CFR 58 how MSAs and the minimum monitoring requirements in Tables D-2 and D-4 (Tables 4-1 and 4-2) apply to sovereign tribes. Although the areas within the Community are *geographically* part of the Phoenix-Mesa-Scottsdale MSA, for purposes of the administration of Section 107 of the Clean Air Act (42 U.S.C. § 7407), except where a specific designation has been otherwise made by the Administrator, the air quality control region for the Community is all land within the exterior boundaries of the Community. Therefore, for the purposes of this document, the AQP is using the data in Tables D-2 and D-4 as reference only.

The design value is a calculated value based upon the highest recorded concentration at a site in the attainment or nonattainment area. The process for computing the design value for each criteria pollutant is described in the appendices of 40 CFR Part 50. For the purpose of this document, the

design values listed are the highest calculated concentrations recorded in the Community.

The minimum monitoring requirements of 40 CFR 58 Appendix D for the ozone and PM<sub>10</sub> monitors within the Community are presented in Tables 4-3 and 4-4, respectively. The GRIC Air Quality Management Plan (AQMP) does not require a minimum number of monitors for the Community.

**Table 4-3. Minimum Monitoring Requirements<sup>1</sup> for GRIC Ozone Monitors, 2018-2020**

MSA	Monitor Site: County	Population <sup>2</sup> (GRIC Census)	8-hour Design Value for 2018- 2020 (ppm)	Site (AQS ID)	Minimum Monitors Required	Number of Active Monitors	Monitors Needed
NA <sup>1</sup>	St. Johns: Maricopa	13,214	0.068	St. Johns (TT-614-7003)	0 <sup>A</sup>	2	0
	Sacaton: Pinal		0.068	Sacaton (TT-614-7001)			

Table Notes:

1. It is unclear in Appendix D 40 CFR 58 how MSAs apply to Tribal agencies. Although the areas within the Community are *geographically* part of the Phoenix-Mesa-Scottsdale MSA, for purposes of the administration of Section 107 of the Clean Air Act (42 U.S.C. § 7407), the air quality control region for the Community is all land within the exterior boundaries of the Community. Therefore, for the purposes of this document, the MSA is not applicable to GRIC.
2. Number of members who reside within GRIC, 5/13/2021 (GRIC Enrollment/Census Department).
- A. A 3-year design value greater than 0.0595 would require one monitor for a population between 50,000 and 350,000 (smallest population group in Table 4-2). Since the GRIC population is below the lowest population range in Table 4-2 and Tribal requirements are unclear, the minimum monitoring requirements was assumed to be zero. For comparison, the population of the Phoenix-Mesa-Scottsdale MSA in 2017 estimate was 4,737,270 residents (Census Bureau), which would require a minimum of 3 monitors.

**Table 4-4. Minimum Monitoring Requirements<sup>1</sup> for GRIC PM<sub>10</sub> Monitors, 2018-2020**

MSA	Monitor Site: County	Population <sup>2</sup> (GRIC Census 2019)	GRIC Max Concentration (µg/m <sup>3</sup> )	Site (AQS ID)	Minimum Monitors Required	Number of Active Monitors	Monitors Needed
NA <sup>1</sup>	St. Johns: Maricopa	13,286	471 <sup>A</sup>  152 <sup>B</sup>	St Johns (TT-614-7003 POC1)	0 <sup>C</sup>	3	0
	Sacaton: Pinal			Sacaton (TT-614-7001 POC1)			
	Casa Blanca: Pinal			Casa Blanca (TT-614-7004 POC3)			

Table Notes:

1. It is unclear in Appendix D 40 CFR 58 how MSAs apply to Tribal agencies. Although the areas within the Community are *geographically* part of the Phoenix-Mesa-Scottsdale MSA, for purposes of the administration of Section 107 of the Clean Air Act (42 U.S.C. § 7407), the air quality control region for the Community is all land within the exterior boundaries of the Community. Therefore, for the purposes of this document, the MSA is not applicable to GRIC.
2. Number of members who reside within GRIC, 12/31/2019.
- A. Max concentration includes data flagged as exceptional events. Casa Blanca site, 4/12/2018.
- B. Max concentration excludes data flagged as exceptional events. Sacaton site, 9/30/2018.
- C. A maximum concentration greater than 180 µg/m<sup>3</sup> would require 1-2 monitors for a population between 100,000 and 250,000 (smallest population group in Table 4-2). A maximum concentration between 120 and 180 µg/m<sup>3</sup> would require 0-1 monitors for a population between 100,000 and 250,000. Since the GRIC population is below the lowest population range in Table 4-2 and Tribal requirements are unclear, the minimum monitoring requirements was assumed to be zero. For comparison, the estimated population of the Phoenix-Mesa-Scottsdale MSA in 2017 was 4,737,270 (Census Bureau), which would require a minimum of 6-10 monitors for maximum concentrations >180 µg/m<sup>3</sup> and 4-8 monitors for maximum concentrations between 120 and 180 µg/m<sup>3</sup>.

Based on the information contained in Tables 4-3 and 4-4, the GRIC monitoring network meets the



minimum monitoring requirements for all criteria pollutants measured (i.e., ozone and PM<sub>10</sub>) as established in 40 CFR 58 Appendix D, Tables D-2 and D-4.

## 4.2 Data Submission Requirements

Federal regulations (Appendix A of 40 CFR 58 and 40 CFR 58.15) require air monitoring organizations to submit precision and accuracy data for the data reported to the federal database. The air monitoring precision and accuracy data for the GRIC monitors are submitted to the EPA AQS database on a quarterly basis and are up to date as of the publication of this report.

Federal regulations (40 CFR 58.15) also require the air monitoring organization to annually submit a letter certifying that data has been submitted for that year to the EPA AQS database and that the data accurately represents the air quality in the Community. The AQP certified and submitted the 2020 air monitoring data for the Community to EPA Region 9, Air Quality Analysis Office on April 21, 2021 via Email.

## 4.3 Air Quality Data

All of the GRIC ambient air monitoring stations are registered with the EPA and regularly report NAAQS criteria pollutant data to the EPA's AQS database. The data generated at these stations are public information and are available in various formats from the respective agencies. Table 4-5 below lists some popular sources for air quality data.

**Table 4-5. Sources of Ambient Air Quality Data**

Agency	Address For Data Requests	Email / Internet address	Data Available
GRIC DEQ AQP	P.O. Box 97 Sacaton, AZ 85147 Attn: GRIC DEQ Director	<a href="mailto:Willard.AntoneIII@gric.nsn.us">Willard.AntoneIII@gric.nsn.us</a>	GRIC Air Monitoring Data
United States Environmental Protection Agency	Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460	<a href="http://www.epa.gov">www.epa.gov</a> ; <a href="http://www.epa.gov/outdoor-air-quality-data">www.epa.gov/outdoor-air-quality-data</a> ; <a href="https://aq5.epa.gov/aq5web/document/s/data_mart_welcome.html">https://aq5.epa.gov/aq5web/document/s/data_mart_welcome.html</a>	National Air Monitoring Data, including GRIC data

## 4.4 Audits

The AQP performed audits of the monitoring equipment in 2020. The performance audit dates for the ozone monitors are shown in Table 4-6 and the semi-annual audits dates for the continuous TEOM PM<sub>10</sub> monitors are shown in Table 4-7. In addition, this information is included in Appendix B that provides detailed information of air monitoring specifications.

The GRIC network also participates in the National Performance Audit Program that is conducted by the EPA. In 2020 calendar year there were no NPAP conducted on the GRIC ozone monitoring network due to complications in public health work environment due to the Coronavirus Disease

2019 (COVID-19) outbreak.

**Table 4-6. Performance Audit Dates for GRIC Ozone Monitors**

Site	AQS ID	Parameter	2020 Audit Dates
Sacaton	TT-614-7001 (Tribal Monitor)	Ozone (44201)	4/23, 7/16, and 11/5
St Johns	TT-614-7003 (Tribal Monitor)	Ozone (44201)	4/22, 7/17, and 11/5

**Table 4-7. Semi-Annual Flow Rate Audit Dates for GRIC Continuous TEOM PM<sub>10</sub> Monitor**

Site	AQS ID	Parameter	2020 Audit Dates
Sacaton (TEOM)	TT-614-7001 (Tribal Monitor)	PM <sub>10</sub> (81102)	3/23, 7/16, and 11/12
St. Johns (TEOM)	TT-614-7003 (Tribal Monitor)	PM <sub>10</sub> (81102)	3/23, 7/17, and 11/5
Casa Blanca (TEOM)	TT-614-7004 POC3 (Tribal Monitor)	PM <sub>10</sub> (81102)	3/23, 7/16, and 11/12

## 5 PUBLIC NOTICE

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In accordance with 40 CFR 58.10, the annual monitoring network plan must be made available for public inspection (website, hardcopy posting in libraries and public offices, and/or newspaper listing) for at least 30 days prior to submission to EPA. If an opportunity for public comment had been provided, comments received must be included in the annual network plan submission.

The Gila River Indian Community DEQ made a draft copy of this Network Review available to the public on May 17, 2021. In an effort to notify the public of the Network Review, the AQP published information through the following outlets:

- Public Notice posted in the Gila River Indian Newspaper, a newspaper of general circulation in Gila River Indian Community.
- Public Notice posted on the GRIC DEQ website ([www.gricdeq.org/index.php/education--outreach/public-notices](http://www.gricdeq.org/index.php/education--outreach/public-notices)).
- Public Notice posted on [www.mygilariver.com](http://www.mygilariver.com) and the GRIC Government Intranet.

The following news release was advertised in the Gila River Indian Newspaper, VOL. xx, No. yy Edition (dated May xx, 2021):

### **PUBLIC NOTICE OF AMBIENT AIR MONITORING NETWORK REVIEW**

Pursuant to 40 Code of Federal Regulations (CFR) §58.10 Gila River Indian Community (GRIC) Department of Environmental Quality (DEQ) Air Quality Program (AQP) will make its annual monitoring network plan available for public inspection prior to submission to the United States Environmental Protection Agency. The Annual Ambient Monitoring Network Review and Data Summary present changes to and data collected from the air quality monitoring network during calendar year 2020. This document will also be available for review at the GRIC DEQ office located at 168 Skill Center Dr., Sacaton, AZ 85147, and on the AQP website at <http://www.gricdeq.org> under Public Notices.

Public comments may be submitted in writing to GRIC DEQ Air Quality, P.O. Box 97, Sacaton, Arizona, 85147. Additional information is available from GRIC DEQ Air Quality, 168 Skill Center Dr., Sacaton, AZ 85147, the AQP website (<http://www.gricdeq.org> under Air), or by calling 520-562-2234.

A copy of the public announcement and handouts were posted on various Community websites and comments and questions received are included in Appendix D.

### **5.1 Public Meeting**

The AQP provided a copy of this document to the Community at accessible District meetings and via DEQ website due to complexities of the public health concerns during the coronavirus pandemic. The comments and questions received are included in Appendix D-4.

# Appendix A

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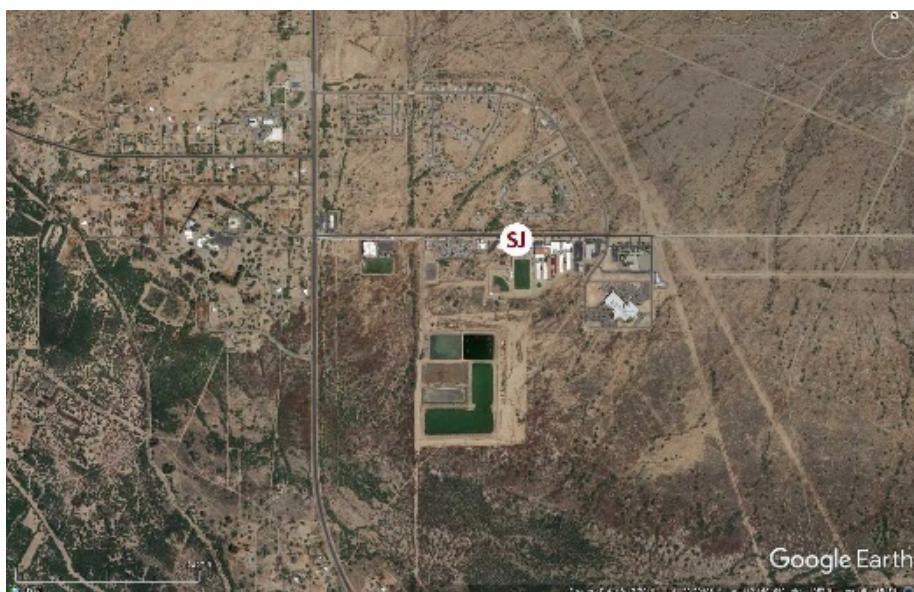
## 2020 AIR MONITORING DATA BY SITE

(Site information includes: photographs, site type and spatial scale, and population represented.)

- St. Johns
- Casa Blanca
- Sacaton

DRAFT

## St. Johns (SJ), TT-614-7003 (Tribal Monitor)



**Location:** 4665 W. Pecos Rd,  
Laveen Village, AZ 85339

**Spatial Scale:** Urban (O<sub>3</sub>) and  
Neighborhood (PM<sub>10</sub>)

**Monitoring Type:** Population  
Exposure, Highest  
Concentration (O<sub>3</sub>)

**Site Description:** This site has been operational since 2003. This site is located on the Gila Crossing Community School campus. This Tribal Monitoring location monitors for ozone and PM<sub>10</sub>. The spatial scale for the St. Johns site is *Neighborhood* for PM<sub>10</sub> and *Urban Scale* for ozone. It is located in a residential area. This site operates one gaseous ozone analyzer and one continuous PM<sub>10</sub> monitor that are both FEM instruments. Meteorological monitors operating at this site include: ambient temperature, barometric pressure, wind speed/direction, relative humidity, and precipitation. This site also includes two digital cameras that take 10 minute still images.



Pollutant	Condition	2018	2019	2020
O <sub>3</sub>	Max. 8-hr O <sub>3</sub> Average (PPM)	0.071	0.074	0.081
	O <sub>3</sub> # Daily Exceedances > 0.070 PPM	1	2	5
	O <sub>3</sub> 3-year Average of 4 <sup>th</sup> Highest (PPM)	0.066	0.066	0.068
PM <sub>10</sub>	Max. 24-hr PM <sub>10</sub> Average (µg/m <sup>3</sup> )	318*	134	195*
	Number of exceedances 24-hr PM <sub>10</sub>	9†	0	1†
	Annual PM <sub>10</sub> Average (µg/m <sup>3</sup> )	37.4‡	25.3	27.8‡

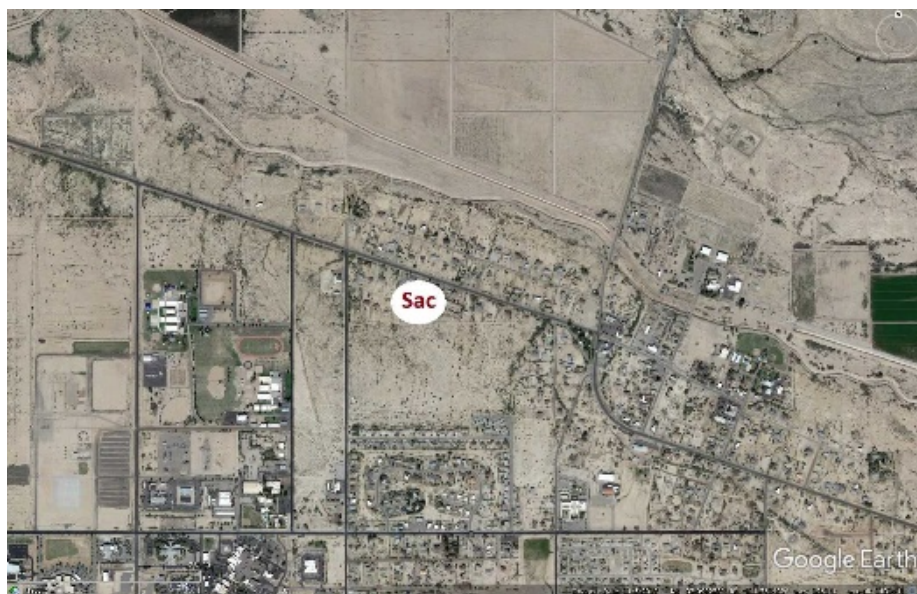
\* Indicates an exceedance of the NAAQS

† Indicates exceptional events concurrence requested at this site and no Regional EPA assessment to date.

‡ The annual average values include exceptional events data that has not been concurred by EPA.



## Sacaton (Sac), TT-614-7001 (Tribal Monitor)



**Location:** 291 W. Casa Blanca Rd., Sacaton, AZ 85147

**Spatial Scale:** Urban (O<sub>3</sub>) and Neighborhood (PM<sub>10</sub>)

**Monitoring Type:** Population Exposure

**Site Description:** This site has been operational since 2002. This Tribal Monitoring location monitors for Ozone and PM<sub>10</sub>. The spatial scale for the Sacaton site is *Neighborhood* for PM<sub>10</sub> and *Urban Scale* for Ozone. It is located in a community residential area. This site operates one gaseous ozone analyzer and one continuous PM<sub>10</sub> monitor that are both FEM instruments. Meteorological monitors operating at this site include: ambient temperature, barometric pressure, wind speed/direction, relative humidity, and precipitation. This site also includes two digital cameras that take 10 minute still images.



Pollutant	Condition	2018	2019	2020
O <sub>3</sub>	Max. 8-hr O <sub>3</sub> Average (PPM)	0.071	0.080	0.078
	O <sub>3</sub> # Daily Exceedances > 0.070 PPM	1	1	4
	O <sub>3</sub> 3-year Average of 4 <sup>th</sup> Highest (PPM)	0.066	0.066	0.068
PM <sub>10</sub>	Max. 24-hr PM <sub>10</sub> Average (µg/m <sup>3</sup> )	278*	128	200*
	Number of exceedances 24-hr PM <sub>10</sub>	9†	0	1†
	Annual PM <sub>10</sub> Average (µg/m <sup>3</sup> )	39.9‡	27.1	31.7‡

\* Indicates an exceedance of the NAAQS

† Indicates exceptional events concurrence requested at this site and no Regional EPA assessment to date.

‡ The annual average values include exceptional events data that has not been concurred by EPA.



## Casa Blanca (CB), TT-614-7004 (Tribal Monitor)



**Location:** 3455 W. Casa Blanca Road  
Bapchule, AZ 85121

**Spatial Scale:** Neighborhood

**Monitoring Type:** Population Exposure, Highest concentration (PM<sub>10</sub>)

**Site Description:** This site has been operational since 2002. This Tribal Monitoring location monitors for PM<sub>10</sub>. The spatial scale for the Casa Blanca site is *Neighborhood*. It is located in a residential area and within a community elementary school property. This site operates one continuous PM<sub>10</sub> monitor that is a FEM instrument. Meteorological monitors operating at this site include: ambient temperature, barometric pressure, wind speed/direction, relative humidity, and precipitation. In addition, this site operates two digital cameras that take images every 10 minutes.



Pollutant	Condition	2018	2019	2020
PM <sub>10</sub>	Max. 24-hr PM <sub>10</sub> Average (µg/m <sup>3</sup> )	471*	255*	221*
	Number of exceedances 24-hr PM <sub>10</sub>	13†	3†	2†
	Annual PM <sub>10</sub> Average (µg/m <sup>3</sup> )	56.6‡	40.9‡	43.5‡

\* Indicates an exceedance of the NAAQS

† Indicates exceptional events concurrence requested at this site and no Regional EPA assessment to date.

‡ The annual average values include exceptional events data that has not been concurred by EPA.

# Appendix B

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## EPA-REQUIRED SITE METADATA

Detailed information includes: compliance information regarding air monitoring technical specifications found in 40 CFR §58.10 and Appendices A, C, D, and E (QA, monitoring methods, network design, and monitor siting)

### Site Schematic Descriptions

**Analysis Method (filter samples only)** refers to the method used to process and analyze PM and Pb filter samples.

**Distance from Supporting Structure** refers to those sample probes that are attached to a supporting structure, such as the side of a building. In most cases the sample probe is located above the supporting structure, in which case the entry will show as “N/A”, aka not applicable.

**Distance from Obstructions** refers to those obstructions, both on the roof and off the roof, which are located higher than the probe. In the case of a nearby obstruction being higher than the probe, details of its location will be listed in the entry. If there are no obstructions higher than the probe, then the entry will be N/A.

**Date of Annual Performance Evaluation** refers to the last 2020 QA audit on the gaseous analyzers. These evaluations are performed by the GRIC’s QA personnel. Twenty-five percent of the monitors operating within each gaseous pollutant’s network are evaluated quarterly; thereby, each monitor is evaluated at least once per year as per 40 CFR Part 58, Appendix A, §3.2.2.

**Date of Semi-Annual Flow Rate Audit** refers to the last 2020 QA audit on PM monitors as per 40 CFR Part 58, Appendix A, §§ 3.2.4 and 3.3.4, respectively. These evaluations are performed by the GRIC’s QA personnel at least once every six months.

**Probe Sample Line Material** refers to the material makeup of the intake sample lines.

**Pollutant Sample Residence Time** refers to the amount of time that it takes a sample of air to travel between the probe inlet and the bulkhead of the analyzer. This residence time is calculated by a formula that is based on the sample line’s diameter and length, and the flow rate of the air intake. It is important to keep residence time low to prevent gases in the air sample from reacting with the sample line material or with other gases in the sample; i.e., O<sub>3</sub> could react with nitrogen oxides in the sample if the residence time exceeds 20 seconds.

St. Johns

GRIC ID: SJ

AQS ID: TT-614-7003 (Tribal Monitor Code)

Address: 4665 W. Pecos Rd., Laveen Village, AZ 85339

Coordinates: N 33° 17' 25.05", W 112° 09' 37.74"; (elevation 1057 ft)

<b>- General Information</b>		
Pollutant (parameter code)	O <sub>3</sub> (44201)	PM <sub>10</sub> (81102)
Parameter Occurrence Code (POC)	1	1
Sampling Schedule	Continuous	Continuous
Analysis Method (filters only)	N/A	N/A
Any Proposal to Remove or Move Monitor?	No	No
Is site suitable for comparison to PM <sub>2.5</sub> NAAQS per Part 58.30?	N/A	N/A
<b>-Appendix A Requirements</b>		
# Precision Checks Performed Annually	22	36
# Accuracy Audits Performed Annually & Date of Last 2020 Check on Gaseous Analyzers & Last Two 2019 Checks for PM	3, 11/5/2020	3, 7/17 & 11/5/2020
All Precision/Accuracy Reports Submitted to AQS?	Yes	Yes
Annual Data Certification Submitted?	April 21, 2021	April 21, 2021
Frequency of One-Point QC Check	Bi-Weekly	N/A
Frequency of Flow Rate Verification	N/A	Bi-Weekly
<b>-Appendix C Requirements</b>		
Sampler Make & Model (method code)	TAPI T400 (087)	TEOM 1405 (079)
Date Established	03/24/2003	01/01/2013
Monitor Type	Tribal	Tribal
Method (FRM, FEM, ARM)	FEM	FEM
<b>-Appendix D Requirements</b>		
Site Type	Population Exposure	Populations Exposure
Basic Monitoring Objective	NAAQS Comparison	NAAQS Comparison
Monitoring Scale	Urban	Neighborhood
Sampling Season	April - October	January – December
Network Meets Minimum Number of Monitors Required?	Yes	Yes
<b>-Appendix E Requirements</b>		
Distance between collocated samplers	N/A	N/A
Probe Inlet Height	4.7 meters	4.7 meters
Airflow Arc	360 degree	360 Degree
Probe Sample Line Material	Teflon	NA
Pollutant Sample Residence Time	2.5 seconds	NA
Distance from Supporting Structure	NA	NA
Distance from Obstructions	43 meters (building, below probe)	43 meters (building, below probe)
Distance to Furnace Flue	None	None
Spacing from Trees	None	None
Nearest Major Roadway	Pecos Road	Pecos Road
Distance and Direction to Road	17 meters, North	17 meters, North
Traffic Count (ADT)	1440 (2009)	1440 (2009)
Groundcover	Pavement and pea pebble landscape	Pavement and pea pebble landscape

Sacaton

GRIC ID: Sac

AQS ID: TT-614-7001 (Tribal Monitor Code)

Address: 291 W. Casa Blanca Rd., Sacaton, AZ 85147

Coordinates: N 33° 04' 53.82", W 111° 45' 08.02"; (elevation 1289 ft)

<b>- General Information</b>		
Pollutant (parameter code)	O <sub>3</sub> (44201)	PM <sub>10</sub> (81102)
Parameter Occurrence Code (POC)	1	1
Sampling Schedule	Continuous	Continuous
Analysis Method (filters only)	N/A	N/A
Any Proposal to Remove or Move Monitor?	Yes	Yes
Is site suitable for comparison to PM <sub>2.5</sub> NAAQS?	N/A	N/A
<b>-Appendix A Requirements</b>		
# Precision Checks Performed Annually	22	28
# Accuracy Audits Performed Annually& Date of Last 2020 Check on Gaseous Analyzers & Last Two 2020 Checks for PM	3, 11/5/2020	3, 7/16/2020 & 11/12/2020
All Precision/Accuracy Reports Submitted to AQS?	Yes	Yes
Annual Data Certification Submitted?	April 21, 2021	April 21, 2021
Frequency of One-Point QC Check	Bi-Weekly	N/A
Frequency of Flow Rate Verification	N/A	Bi-Weekly
<b>-Appendix C Requirements</b>		
Sampler Make & Model (method code)	TAPI T400 (087)	TEOM 1405 (079)
Date Established	07/01/2002	01/01/2013
Monitor Type	Tribal	Tribal
Method (FRM, FEM, ARM)	FEM	FEM
<b>-Appendix D Requirements</b>		
Site Type	Population Exposure	Population Exposure
Basic Monitoring Objective	NAAQS Comparison	NAAQS Comparison
Monitoring Scale	Urban	Neighborhood
Sampling Season	April – October	January – December
Network Meets Minimum Number of Monitors Required?	Yes	Yes
<b>-Appendix E Requirements</b>		
Distance between collocated samplers	N/A	N/A
Probe Inlet Height	4.6 meters	4.7 meters
Airflow Arc	360 degree	360 Degree
Probe Sample Line Material	Teflon	NA
Pollutant Sample Residence Time	2.54 seconds	NA
Distance from Supporting Structure	NA	NA
Distance from Obstructions	17 meters (tree to NE, 2 meters above probe)	17 meters (tree to NE, 2 meters above probe)
Distance to Furnace Flue	None	None
Spacing from Trees	17 meters	17 meters
Nearest Major Roadway	Casa Blanca Rd	Casa Blanca Rd
Distance and Direction to Road	153 meters, North	153 meters, North
Traffic Count (ADT)	2,108 (daily average 2008)	2,108 (daily average 2008)
Groundcover	Gravel and natural soil	Gravel and natural soil

Casa Blanca

GRIC ID: CB

AQS ID: TT-614-7004 (Tribal Monitor Code)

Address: Casa Blanca/ Preschool Road, Bapchule, AZ 85221

Coordinates: N 33° 07' 03.14", W 111° 53' 08.93"; (elevation 1209 ft)

<b>- General Information</b>	
Pollutant (parameter code)	PM <sub>10</sub> (81102)
Parameter Occurrence Code (POC)	3
Sampling Schedule	Continuous
Analysis Method (filters only)	N/A
Any Proposal to Remove or Move Monitor?	No
Is site suitable for comparison to PM <sub>2.5</sub> NAAQS per Part 58.30?	N/A
<b>-Appendix A Requirements</b>	
# Precision Checks Performed Annually	28
# Accuracy Audits Performed Annually& Date of Last Two 2020 Checks for PM	3, 7/16 & 11/12/2020
All Precision/Accuracy Reports Submitted to AQS?	Yes
Annual Data Certification Submitted?	April 21, 2021
Frequency of One-Point QC Check	N/A
Frequency of Flow Rate Verification	Bi-Weekly
<b>-Appendix C Requirements</b>	
Sampler Make & Model (method code)	TEOM 1405 (079)
Date Established	July 1, 2002
Monitor Type	Tribal
Method (FRM, FEM, ARM)	FEM
<b>-Appendix D Requirements</b>	
Site Type	Population Exposure
Basic Monitoring Objective	NAAQS Comparison
Monitoring Scale	Neighborhood
Sampling Season	January - December
Network Meets Minimum Number of Monitors Required?	Yes
<b>-Appendix E Requirements</b>	
Distance between collocated samplers	N/A
Probe Inlet Height	4.67 meters
Airflow Arc	360 Degree
Probe Sample Line Material	NA
Pollutant Sample Residence Time	NA
Distance from Supporting Structure	NA
Distance from Obstructions	20 meters (canopy/ shade to southeast, 2 meters above probe)
Distance to Furnace Flue	NA
Spacing from Trees	10 meters (tree to East, 2 meters above probe)
Nearest Major Roadway	Casa Blanca Road
Distance and Direction to Road	21 meters, to north
Traffic Count (ADT)	2,400 (daily average 2008)
Groundcover	gravel

# Appendix C

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EPA Letter of Approval for GRIC's 2020 Air Monitoring Network Review and 2021 Plan, includes:

- EPA Response / Approval Cover Letter dated October 26, 2020.
- 2019 Annual Monitoring Network Plan Checklist for GRIC Performing Regulatory Monitoring. (Not Attached).
- Approval of O<sub>3</sub> Seasonal Waiver for St Johns and Sacaton O<sub>3</sub> Monitors.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105-3901

Mr. Ryan Eberle  
Air Quality Program Manager  
Department of Environmental Quality/Air Quality Program  
Gila River Indian Community  
Post Office Box 97  
Sacaton, Arizona 85147

Dear Mr. Eberle:

Thank you for your submission of the Gila River Indian Community (GRIC) *2019 Ambient Air Monitoring Network Review and 2020 Plan* on June 30, 2020. We have reviewed the submitted document based on the requirements set forth in 40 CFR Part 58. Based on the information provided in the plan, the U.S. Environmental Protection Agency (EPA) approves all portions of the network plan except those specifically identified below. With this plan approval, we also formally approve the ozone season waiver from April - October 2021 for St Johns (AQS ID: 04-013-7003) and Sacaton (AQS ID: 04-021-7001) O<sub>3</sub> monitors. More information about this approval is included in Enclosure B. *Approval of O<sub>3</sub> Seasonal Waiver for St Johns and Sacaton O<sub>3</sub> Monitors*.

Please note that we cannot approve portions of the annual network plan for which the information in the plan is insufficient to judge whether the requirement has been met, or for which the information provided does not meet the requirements as specified in 40 CFR 58.10 and the associated appendices. EPA Region 9 also cannot approve portions of the plan for which the EPA Administrator has not delegated approval authority to the regional offices. Enclosure A (*Annual Monitoring Network Plan Checklist for Tribes Performing Regulatory Monitoring*) is the checklist EPA used to review your plan for items that are required to be included in the annual network plan along with our assessment of whether the plan submitted by your agency addresses those requirements. Items highlighted in yellow are those EPA Region 9 is not acting on, as we either lack the authority to approve the specific item, or we have determined that a requirement is either not met or information in the plan is insufficient to judge whether the requirement has been met. Items highlighted in green in Enclosure A require attention in order to improve next year's plan.

We also want to thank you for your timely submission of the *Gila River Indian Community Air Quality Monitoring Network 5-year Network Assessment, 2015-2019*, as required under 40 CFR Part 58.10. We recognize that preparing the network assessment was a significant project and we appreciate your effort.

All comments conveyed via this letter and enclosures should be addressed prior to submittal of next year's annual monitoring network plan to EPA.

If you have any questions regarding this letter or the enclosed comments, please feel free to contact me at (415) 947-4134 or Randall Chang (415) 947-4180.

Sincerely,

GWEN  
YOSHIMURA

Digitally signed by GWEN  
YOSHIMURA  
Date: 2020.10.29  
16:37:48 -0700

Gwen Yoshimura  
Manager, Air Quality Analysis Office

Enclosures:

- A. Annual Monitoring Network Plan Checklist for Tribes Performing Regulatory Monitoring
- B. Approval of O<sub>3</sub> Seasonal Waiver for St Johns and Sacaton O<sub>3</sub> monitors

cc (via email): Leroy Williams, GRIC

#### **B. Approval of O<sub>3</sub> Seasonal Waiver for St Johns and Sacaton O<sub>3</sub> monitors**

Per 40 CFR 58, Appendix D §4.1(i), monitoring agencies must have O<sub>3</sub> season deviations approved by EPA, documented in the annual monitoring network plan, and updated in EPA's AQS database. The past five years of historic data from GRIC's network show a low probability that the St Johns (AQS ID: 04-013-7003) and Sacaton (AQS ID: 04-021-7001) sites would measure an exceedance of the 2015 8-hour O<sub>3</sub> NAAQS during the winter months (November-March). A comparison of data from the GRIC sites with representative sites in Maricopa and Pinal counties that operate year-round supports the conclusion of low probability of exceedance of the 2015 O<sub>3</sub> NAAQS during the winter months. Therefore, EPA approves the waiver for an O<sub>3</sub> season of April-October for calendar year 2021 for GRIC's St Johns and Sacaton O<sub>3</sub> monitors.

# Appendix D

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## Public Notice and Comment Information

1. Figure D-1. 2021 public notice and news release information.
2. Figure D-2. Public Meeting PowerPoint Presentation Slides and Handouts (*5 pages*)
3. Figure D-3. Public Meeting Handout (*3 page FAQ Sheet*).
4. Figure D-4. Public comments and questions received.

Figure D-1. 2021 public notice and news release information.

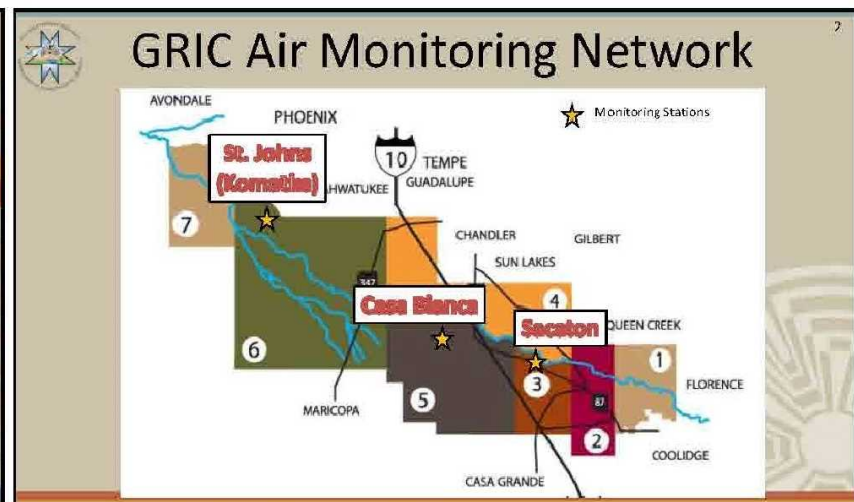
Page nn, Gila River Indian News,  
VOL. xx, NO. yy, May zz, 2021.

Figure D-2. Public Meeting PowerPoint Presentation Slides and Handouts (5 pages):

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GILA RIVER INDIAN COMMUNITY  
DEPARTMENT OF  
ENVIRONMENTAL QUALITY

2020 GRIC Air Monitoring  
Network Review



## Air Monitoring Network Plan

- Requirement for Regulatory Monitoring
- Includes
  - Description of Air Monitoring Network (AMN)
  - Review of 2020 Performance/Data/Changes
  - Recommendations for 2021 Network Changes
- Requires 30-Day Public Comment Period
- Plan due to US EPA by July 1, 2021

## 2020 Summary

- 97-100% Data Completeness (Valid Data)
- Seasonal Monitoring for Ozone
  - April – October
- Data Management System Software Upgrades
- Completed 5-Year Air Monitoring Network Assessment





## 2021 Activities

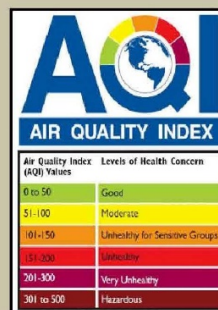
5

- No Significant Changes to Network in 2021
- EPA Audit Conducted March 2021
- Revise Quality Assurance Project Plan (QAPP)
- Continue Seasonal Ozone Monitoring  
– (April – October)



## The Air Quality Index (AQI)

6



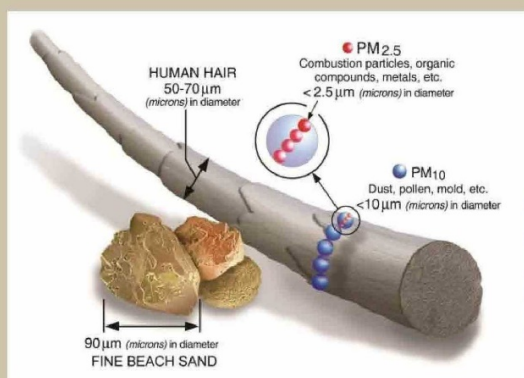
Note: Hazardous is extremely rare and not included in the Flag Program

- Indicator of how clean (or polluted) the air is
- Colors associated with health affects/action steps
- Orange ~ Exceedance of National Ambient Air Quality Standard (NAAQS)



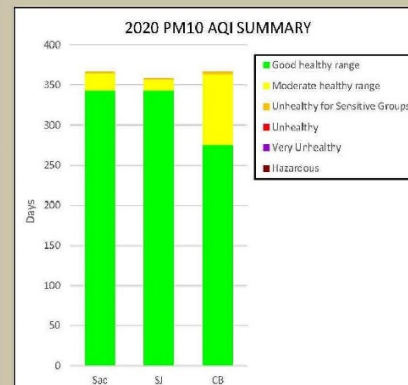
## What Is PM10?

7

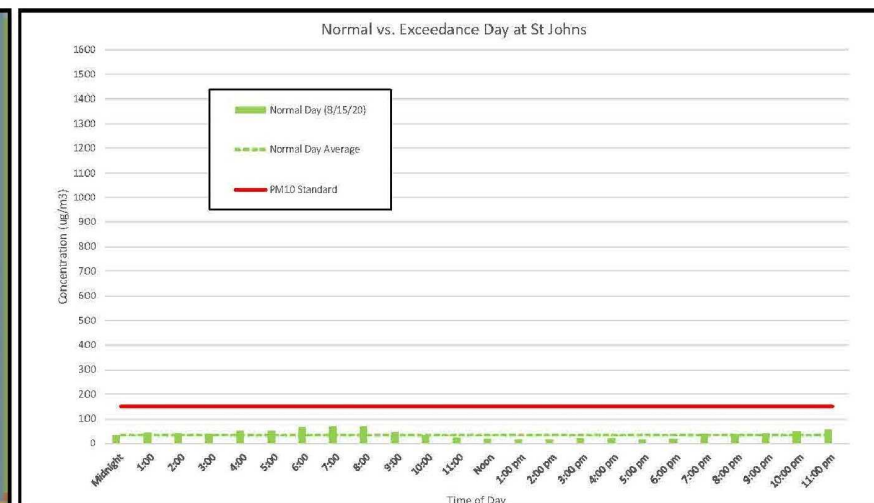
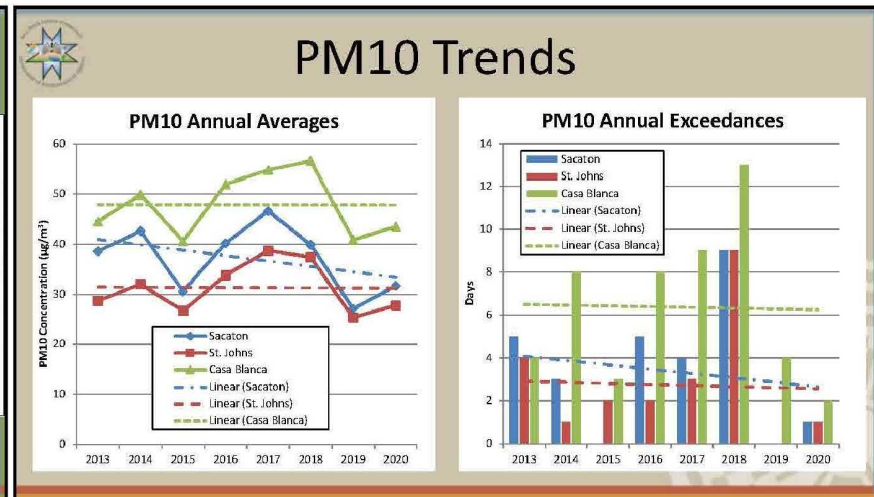
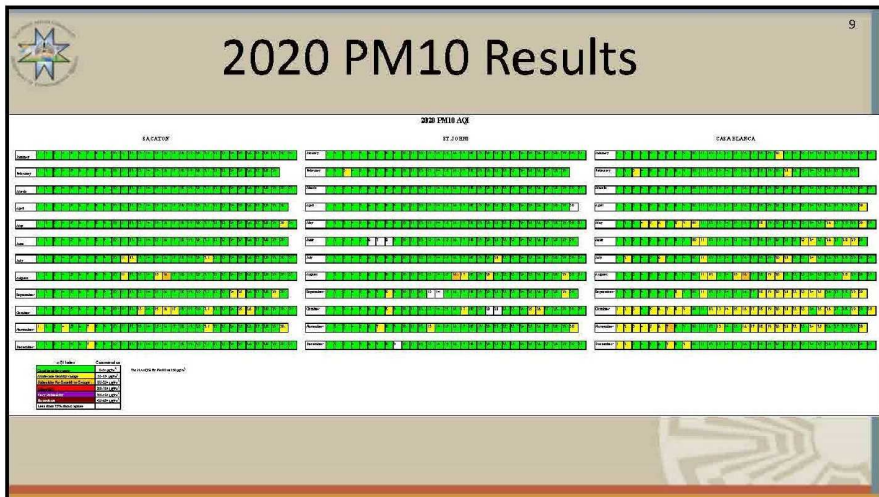


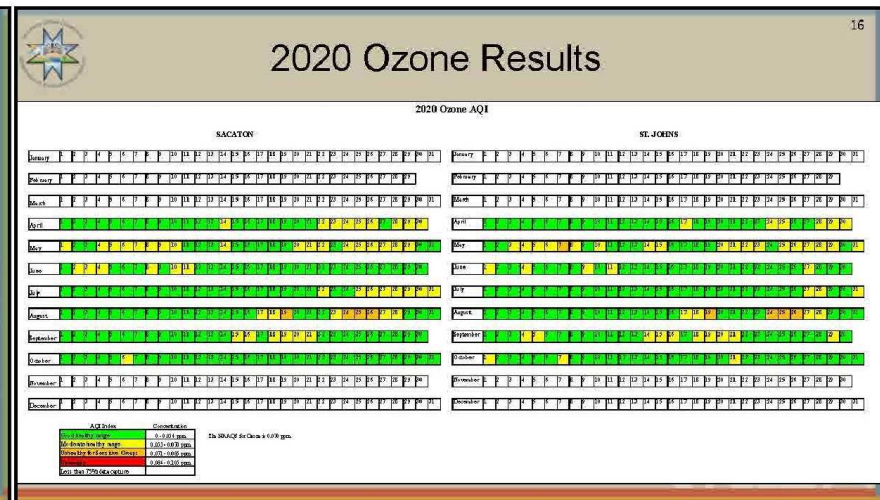
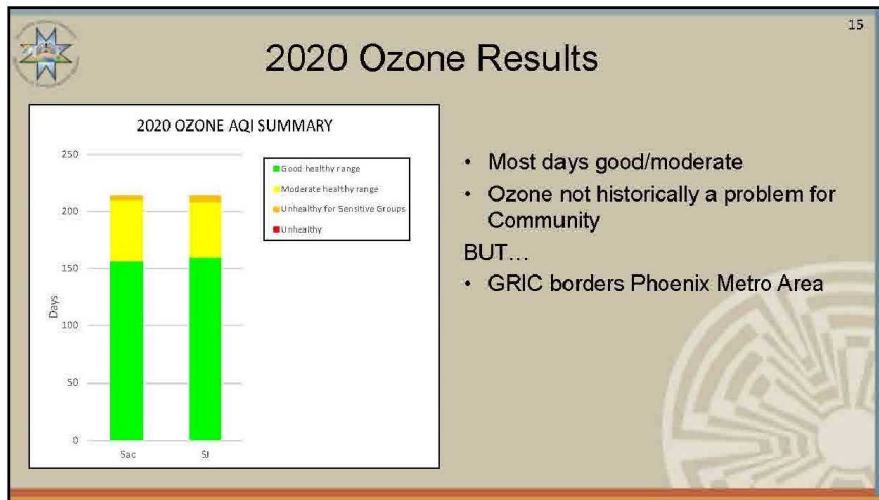
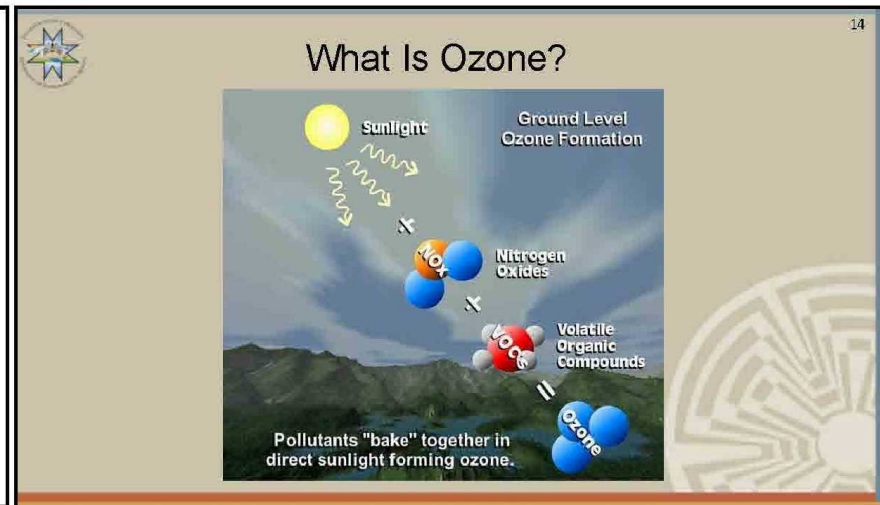
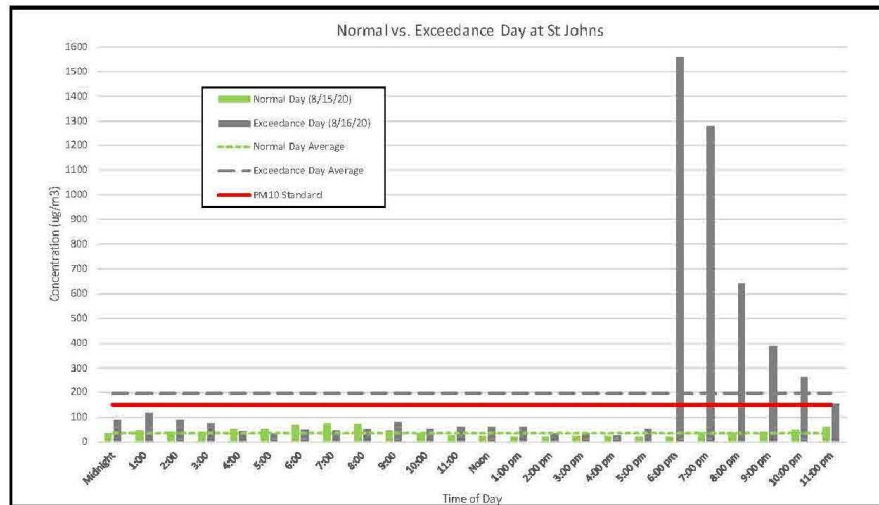
## 2020 PM10 Results

8

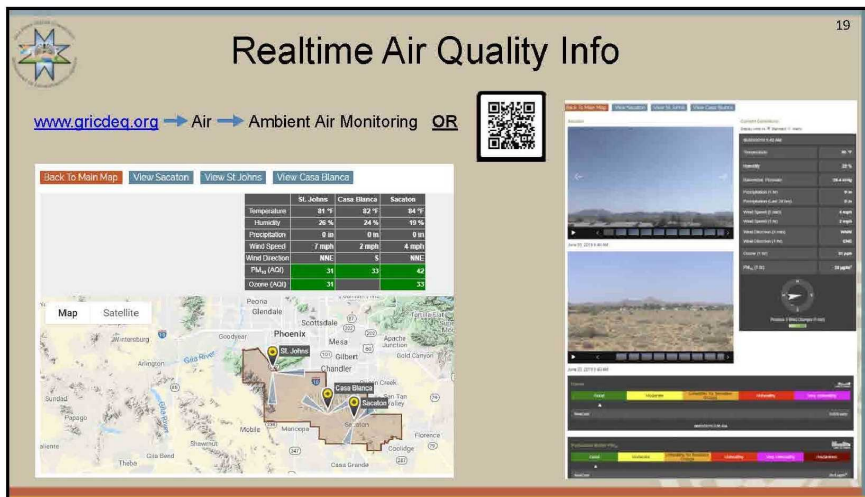
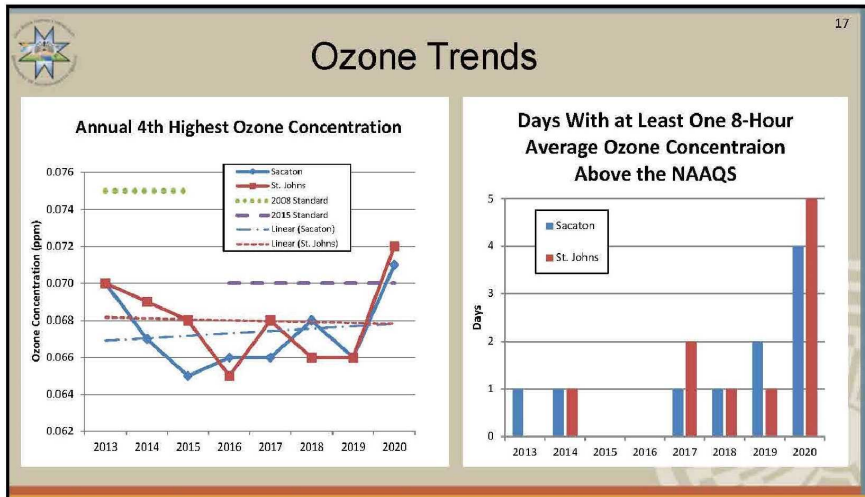


- Most days good/moderate
- CB has more moderate days due to surrounding agricultural activities









## Contact Information

**Ryan Eberle**  
Air Quality Program  
(520) 562-2234  
[Ryan.Eberle@gric.nsn.us](mailto:Ryan.Eberle@gric.nsn.us)

**Leroy Williams**  
Air Monitoring Network Review  
(520) 562-2234  
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168 Skill Center Dr.  
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[www.gricdeq.org](http://www.gricdeq.org)

Figure D-3. Public Meeting Handout (3 page *FAQ Sheet*):

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# Gila River Indian Community

## 2020 Ambient Air Quality Monitoring Network Review

### FAQ Sheet

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#### What is an Ambient Air Quality Monitoring Network Review?

It is a document that describes the air monitoring network for the Community including monitor types, background information, summary of annual monitoring results, and changes and future recommendations to the monitoring network. This annual document identifies the purpose of each monitor and provides evidence that the operation of each monitor meet the requirements in the Federal Regulations. In other words, it fulfills requirements needed for a regulatory air monitoring program.

#### What are the pollutants monitored in our network?

GRIC Department of Environmental Quality (DEQ) Air Quality Program (AQP) operates air quality monitors that record ambient concentrations of two criteria air pollutants- particulate matter less than or equal to 10 microns (PM<sub>10</sub>) and ozone (O<sub>3</sub>).

#### What are Criteria Air Pollutants?

Criteria Air Pollutants are those that the United States Environmental Protection Agency (EPA) has defined as a potential risk to human health and the environment. These six common air pollutants include particulate matter, ground-level ozone, carbon monoxide, lead, sulfur dioxide, and nitrogen dioxide. Due to the health risks of these pollutants, EPA has set National Ambient Air Quality Standards (NAAQS) for them.

#### Why do we only monitor two of the six criteria air pollutants?

The Clean Air Act (CAA) requirements are designed for high population areas and emission sources. Consequently, GRIC and other tribes do not fit all of the CAA monitoring requirements. Furthermore, tribes are not required to conduct ambient air monitoring. GRIC does not monitor for these pollutants because they have been found, through discrete sampling and emission inventories, to be at background ambient (outdoor) air quality concentrations. Additionally, GRIC does not have major stationary pollution sources that emit these particular criteria pollutants that may significantly affect the NAAQS within GRIC jurisdiction.

#### What is the NAAQS?

The National Ambient Air Quality Standards (NAAQS) are intended to protect public health and welfare by setting limits on the allowable level of each criteria pollutant in the ambient air. These standards, also known as public health standards, were developed through scientific-based studies that indicate the level or amount of air in which the public can safely breathe. The NAAQS for Ozone (O<sub>3</sub>) is 0.070 parts per million (ppm) based on the annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years. The NAAQS for PM<sub>10</sub> is to not exceed 150 micrograms per cubic meter (µg/m<sup>3</sup>) more than once per year on average over 3 years.

#### What is Particulate Matter?

It is particle pollution that comes from many different types of sources. Coarse particles (between 2.5 and 10 micrometers) that GRIC monitors come from crushing and grinding operations, road dust, and agricultural operations. Particulate matter can be a problem at any time of the year and can cause serious health problems (asthma attacks, heart attacks, and strokes).



## What is Ozone?

Ozone is a colorless gas found in the air we breathe. Ozone can be good or bad, depending where it occurs. Good ozone is present in the Earth's upper atmosphere shielding us from the sun's harmful ultraviolet rays. Bad ozone is present at ground level, where we breathe, because it can harm human health. Ozone forms when two types of pollutants (VOCs and  $\text{NO}_x$ ) react in sunlight, usually on hot summer days. These pollutants come from sources such as vehicles, industries, power plants, and products like solvents and paints.

## Where are the GRIC ambient air monitors located?

There are currently three permanent ambient air monitoring stations within the Community.

1. St. Johns (SJ) (District 6) - located in a residential area within Gila Crossing Community School property. This site location monitors for Ozone and  $\text{PM}_{10}$ .
2. Casa Blanca (CB) (District 5) - located in a residential area within Casa Blanca Community School property. This site location monitors for  $\text{PM}_{10}$ .
3. Sacaton (Sac) (District 3) - located within the GRIC Office of Land Use Planning and Zoning. This site location monitors for Ozone and  $\text{PM}_{10}$ .

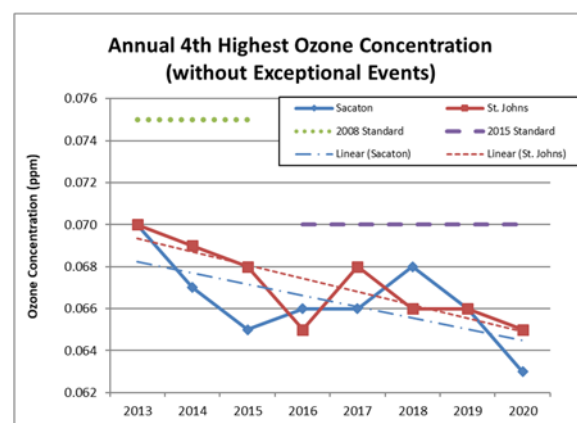
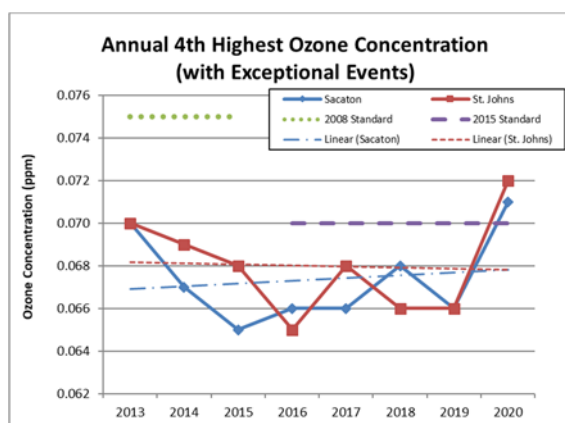
Meteorological data is collected at all three air monitoring sites which include measurements of ambient temperature, barometric pressure, wind speed/direction, relative humidity, and precipitation.

## Why are they located there?

Air monitoring sites are strategically based throughout the Community to provide data that meets monitoring objectives: Highest Concentrations, Population Exposure, Source Impacts, Background Concentrations, Regional Transport, and Welfare Impacts. For example, the Casa Blanca site analyzes for  $\text{PM}_{10}$  in the agricultural center of the Community and all three monitors are placed in locations within the highest population centers on the Community.

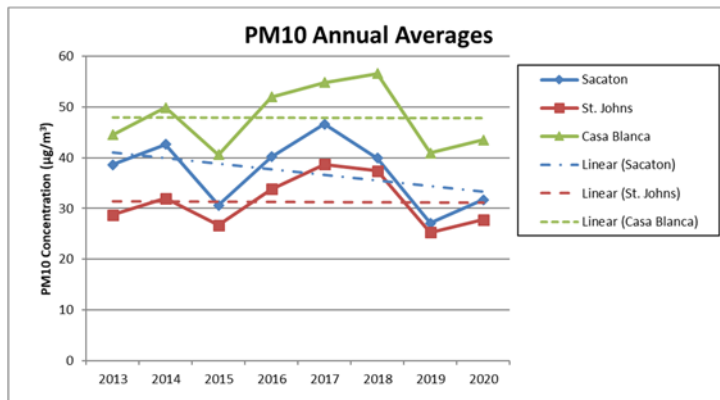
## How does the 2020 Ozone monitoring data compare with previous years' data?

Prior to 2016, ozone levels were below the 2008 NAAQS of 0.075 ppm. Then on October 1<sup>st</sup>, 2015, the EPA lowered the 8-hour ozone NAAQS from 0.075 to 0.070 ppm, which was applicable starting with the 2016 data. It is important to know that compliance with the ozone NAAQS is determined using the annual fourth highest concentration. The 2020 data shows an increase in the annual fourth highest ozone concentration compared to previous years. In 2020, there were several wildfire events in California, Arizona, and Colorado that caused four days of 8-hour average ozone concentrations above the NAAQS at each monitoring site. These wildfire events are considered exceptional events. The graphs below show the annual fourth-highest ozone concentrations with and without the exceptional events (wildfires).



### How does the 2020 PM<sub>10</sub> monitoring data compare with previous years' data?

Looking at the PM<sub>10</sub> graph below, one can see the PM<sub>10</sub> annual average concentrations are similar to last year and significantly lower than 2016-2018. There are many factors that can affect the annual average PM<sub>10</sub> concentration, including, but not limited to, the frequency, magnitude, and timing of summer monsoon storms, cold fronts, and rainfall events.



### Is the air getting cleaner?

This is a difficult question to answer because there are so many variables to factor in from year-to-year. Based on the ozone graphs above, ozone concentrations appear to be on a stable or downward trend. However, ozone on the Community is largely influenced by the Phoenix metropolitan area, day of the week, and weather conditions. A period of hot, stagnant air can easily cause ozone concentrations to become elevated. Similarly, PM<sub>10</sub> measurements are influenced by weather and local and upwind activities within the area (such as agriculture and construction). A warmer, drier season means less moisture in the soil, which may make smaller soil particles (e.g., PM<sub>10</sub>) more susceptible to entrainment at lower wind speeds. Based on the PM<sub>10</sub> graphs above, the PM<sub>10</sub> concentrations appear to be on a stable or downward trend; however, this data also includes the exceptional events.

### Can we get a monitor in our district?

Regulatory air quality monitors are expensive to operate and maintain. Additionally, the existing air monitoring stations already exceeds the minimum monitoring objectives outlined in Federal regulations. Therefore, there are currently no plans to expand the monitoring network.

Figure D-4. Public comments and questions received:

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**Table D. Summary of Comments and Questions Received from GRIC members and visitors**

<b>District</b>	<b>Date</b>	<b>Comments / Questions Received</b>

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