



GILA RIVER INDIAN COMMUNITY

DEPARTMENT OF ENVIRONMENTAL QUALITY

July 1, 2015

Sent via email to: kurpius.meredith@epa.gov

Meredith Kurpius
Chief, Technical Support Office
USEPA R9 Air Division
75 Hawthorne St.
San Francisco, CA 94105

Re: 2014 GRIC Air Monitoring Network Review document
Gila River Indian Community

Dear Meredith:

The Gila River Indian Community (GRIC) Department of Environmental Quality (DEQ) has developed an Ambient Air Monitoring Network Review document for the year 2014. GRIC DEQ presented the document to the members of the Gila River Indian Community through district community meetings. The presentations were well received by the GRIC members.

The *2014 Ambient Air Monitoring Network Review* is attached for your review and approval of the requested recommendations within the document.

Thank you. If you have any questions please contact me at Leroy.WilliamsJR@gric.nsn.us or (520) 796-3781.

Sincerely,

Leroy Williams,
Environmental Engineer, GRIC DEQ Air Quality Program

Cc w/ attachment: Ondrea Barber, GRIC DEQ
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2014 AMBIENT AIR MONITORING NETWORK REVIEW



Casa Blanca Air Monitoring Station



**Gila River Indian Community
Department of Environmental Quality
Air Quality Air Monitoring Program
June 2015**

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- A Detailed Monitoring Site Information and Photographs
- B District Meeting Presentation Slides
- C Sacaton Monitor Move Request document

DEFINITION OF TERMS

AQMP:	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).
AQP:	Air Quality Program within the Gila River Indian Community's Department of Environmental Quality.
AQS:	Environmental Protection Agency's Air Quality System
Attainment:	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.
CFR:	Code of Federal Regulations.
Community:	Gila River Indian Community
Continuous monitoring:	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.
Criteria Pollutants:	Six pollutants (Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone, Particulates, and Sulfur Dioxide) that have NAAQS established by the US EPA.
DEQ:	Gila River Indian Community's Department of Environmental Quality
Design Value:	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 th highest concentrations each year.
EPA:	U. S. Environmental Protection Agency.
Exceptional Events:	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.

FEM:	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).
Filter-based Monitor:	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.
FRM:	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.
GRIC:	Gila River Indian Community
$\mu\text{g}/\text{m}^3$:	Microgram per cubic meter.
MSA:	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.
NAAQS:	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.
NO_2:	Nitrogen dioxide.
NO_x:	Nitrogen oxides. Sum of nitric oxide (NO), NO_2 , and other nitrogen-containing compounds.
PM:	Particulate matter. Material suspended in the air in the form of

minute solid particles or liquid droplets.

PM10:	Particulate matter of 10 microns in diameter or smaller.
NPAP-TTP:	National Performance Audit Program – Through the Probe
POC:	Parameter Occurrence Code is an identification number distinguishing multiple instruments that may measure the same pollutant.
PPM:	Parts per million.
Primary Standard:	One portion of the NAAQS. These standards are designed to protect the public health.
Secondary Standard:	One portion of the NAAQS. These standards are designed to protect the environment.
SIP:	State Implementation Plan. SIPs are a collection of state and local regulations and plans to achieve healthy air quality under the Clean Air Act.
SLAMS:	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.
TEOM:	Tapered Element Oscillating Microbalance. A continuous particulate measuring instrument used by the AQP to measure PM10.
TIP:	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).
VOC:	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 _x in the presence of sunlight to create ground-level ozone pollution.

1 INTRODUCTION

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 SLAMS, SPMs, and PSD (Prevention of Significant Deterioration) Air Monitoring
- 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

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 (PM10) and ozone. 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 (PM2.5), carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NO2), and lead (Pb).

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 USEPA with updates on December 17, 2014. 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 2014 monitoring results, changes to the monitoring network in 2014, and proposed changes to the monitoring network.
- **Compliance Discussion** – Includes a discussion of compliance with 40 CFR 58, including a cross-reference 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 District meetings.

2 AIR MONITORING NETWORK DESIGN

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:

- Microscale - An area of uniform pollutant concentrations ranging from several meters up to 100 meters.
- Middle Scale – Uniform pollutant concentrations in an area of about 110 meters to 0.5 kilometer.

- Neighborhood Scale – An area with dimensions in the 0.5 to 4 kilometer range.
- Urban Scale – Citywide pollutant conditions with dimensions of from 4 to 50 kilometers.
- Regional Scale – An entire rural area of the same general geography (that ranges 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 – St. Johns, Casa Blanca, and Sacaton (see Figure 1). All three monitoring stations are tribal monitors, but follow the requirements of SLAMS networks with appropriate flexibility as stated in the TAR.

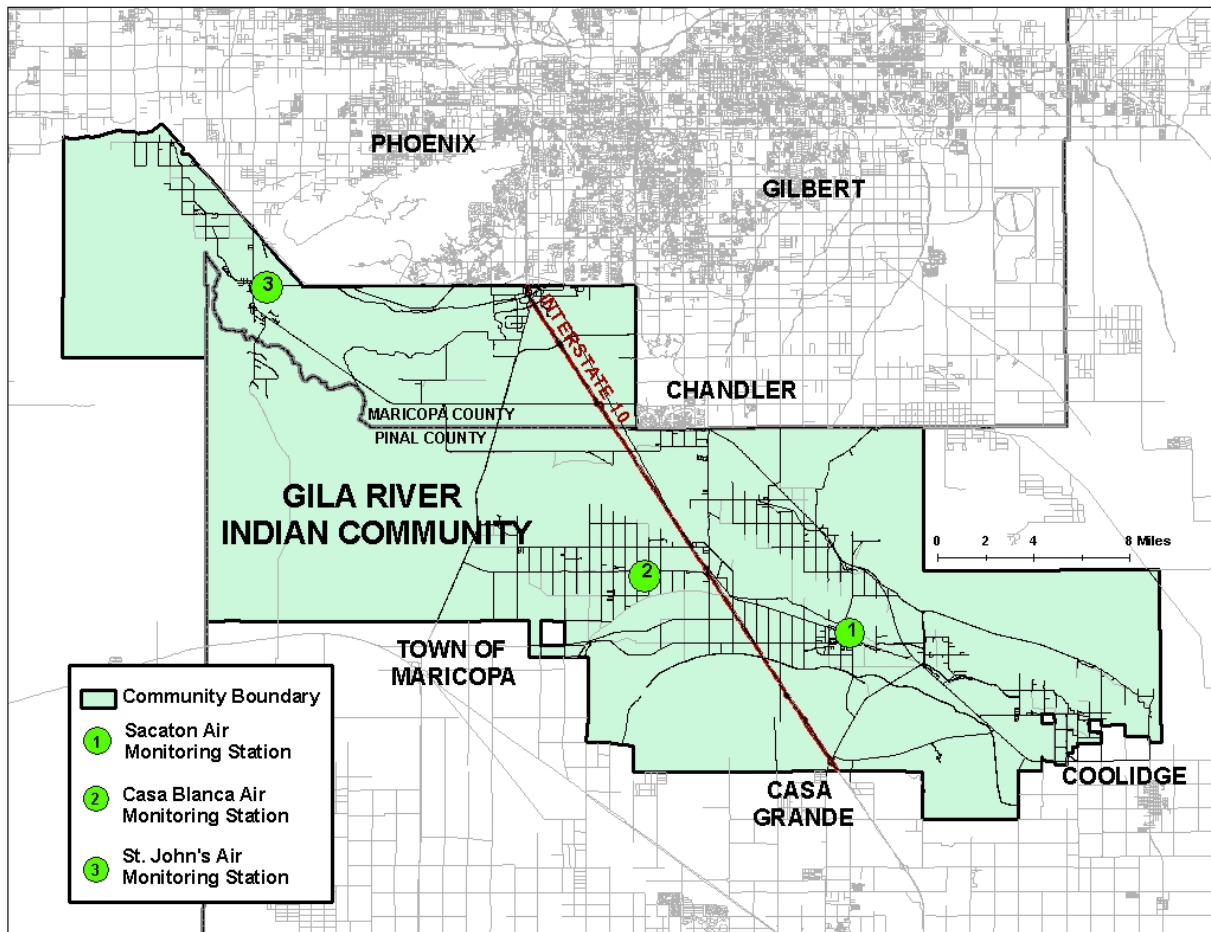


Figure 3-1: Map of Ambient Air Monitoring Stations on Gila River Indian Community

Table 3-1 lists these stations and the pollutant and meteorological parameters that are monitored at each location.

Table 3-1. Ambient Air Quality Parameters Monitored at Each Station

Parameter	Monitoring Station		
	St. Johns	Casa Blanca	Sacaton
Ozone	X		X
PM10 (FRM Primary)		X	
PM10 (FRM Collocated)		X	
PM10 (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
Table Notes: PM10 - Particulate Matter ≤ 10 microns FRM - Federal Referenced Method, Filter-based sampler (two samplers – 1-in-3 day and 1-in-6 day, 24 hour average) TEOM - Tapered Elemental Oscillating Microbalance. Continuous measuring monitor (1 hr averages).			

Table 3-2 shows the National Ambient Air Quality Standards (NAAQS) for pollutants that are currently monitored by GRIC, including ozone and particulate matter equal to and less than 10 microns (PM10). Additional pollutants for which EPA has established NAAQS and that are not currently monitored by GRIC include sulfur dioxide, nitrogen dioxide, carbon monoxide, PM2.5, and lead. 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 3-2. National Ambient Air Quality Standards Monitored for Pollutants by GRIC

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Ozone	primary and secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
PM10	primary and secondary	24-hour	150 $\mu\text{g}/\text{m}^3$	Not to be exceeded more than once per year on average over 3 years

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

Table 3-3. Site Types for Each Monitoring Station

Site Type	Ozone		Particulate Matter <10 Microns (PM10)		
	St. Johns	Sacaton	St. Johns	Casa Blanca	Sacaton
Highest Concentration					
Population Exposure			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 Tables A-1, A-2, and A-3 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). In 2014, both ozone monitors were reported as operational in AQS. Per an exemption granted by EPA to the annual ozone monitoring requirement, these monitors were only operated during ozone season (April to October 2014).

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 A.

3.2.1.1 Sacaton

Operated by the AQP since 2002, this site provides background and regional transport ozone monitoring on a regional 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 ID 7002) in 2002 and then relocated 2 miles south to Gila Crossing Middle School (AQS ID 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 a regional scale. Ozone concentrations at this site exhibit strong diurnal fluctuations caused by oxides of nitrogen (NO_x) 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 2014 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. Compliance with the standard is determined by averaging the 4th highest eight-hour average over a three-year period. This three-year average must be less than or equal to 0.075 ppm.

There was one exceedance, at each site, of the 8-hour primary standard (NAAQS) ozone in 2014. Table 3-4 presents the four highest 8-hour average ozone readings for each monitor during the 2014 monitoring season (April – October).

Table 3-4. 2014* 8-Hour Average Ozone Summary

Site	Max (PPM) Date	2nd High (PPM) Date	3rd High (PPM) Date	4th High (PPM) Date	Number of Days >0.075
Sacaton	0.077 6/6/2014	0.067 6/5/2014	0.066 5/17/2014	0.066 6/7/2014	1
St Johns	0.076 6/6/2014	0.069 5/15/2014	0.069 6/5/2014	0.069 8/29/2014	1
Table Notes: * - Ozone monitors only operate during ozone season (April through October)					

In 2014, there were no violations of 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 0.075 ppm). The fourth highest 8-hour average ozone reading for each of the past three years and the 3-year average is shown in Table 3-5.

Table 3-5. Three-Year* Average of 8-Hour Ozone

Site	2012 4 th High (PPM)	2013 4 th High (PPM)	2014 4 th High (PPM)	3-Year Average of 4 th High (PPM)
Sacaton	0.072	0.065	0.066	0.067
St Johns	0.072	0.068	0.069	0.069
Table Notes: * - Ozone monitors only operate during ozone season (April through October)				

3.3 PM₁₀ Particulate Monitoring Network

Beginning in 2002, the Community started monitoring for PM₁₀ 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 for PM₁₀ 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 PM₁₀ averages. In 2014, all three TEOM and both FRM monitors were reported as operational in AQS.

3.3.1 Background

The following subsections provide background information on the three PM₁₀ monitoring locations. Additional detailed information for each monitor is provided in Appendix A.

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 two collocated FRM samplers (two identical monitors that sample separately) and one TEOM monitor, providing precision measurements for the PM₁₀ monitoring program.

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 PM₁₀ sources (e.g., agricultural areas and dairy operations) that are outside of the Community's boundaries and control, and may be influenced by PM₁₀ generated from those sources.

3.3.1.2 Sacaton and St Johns

These two sites started reporting PM₁₀ data to the AQS database beginning January 1, 2013. Both sites are currently set up to monitor PM₁₀ 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 2014 Monitoring Results Summary

The 24-hour Primary standard for PM₁₀ is 150 µg/m³ (155 µg/m³ with mathematical rounding). 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.

There were 15 exceedances of the 24-hour primary standard (NAAQS) for PM₁₀ in 2014 from a combination of five (5) PM₁₀ monitors, and GRIC violated the PM₁₀ NAAQS on nine (9) days in

2014 (some exceedances at different monitors occurred on the same day). However, GRIC has flagged all 15 of the 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 3-6 presents the summary of the 24-hour average PM₁₀ readings for each monitor in 2014.

Exceedances of the 24-hour PM₁₀ NAAQS at the GRIC monitors also occurred in 2012 and 2013 and were flagged as Exceptional Events by GRIC. The EPA has not issued an official concurrence with the 2012 and 2013 data. Therefore, a determination of compliance with the 24-hour PM₁₀ NAAQS cannot be made at this time.

Table 3-6. 2014 24-Hour Average PM₁₀ Summary

Site Name (Monitor Type)	24-hr Average Max (µg/m ³)	24-hr Average 2nd High (µg/m ³)	Number of 24-hr NAAQS Exceedances	Expected Exceedances (Including Exceptional Events)	Annual Average (µg/m ³)	No. of Exceptional Events	No. of valid days / days possible
Sacaton (TEOM)	197* 10/19/2014	172* 9/4/2014	3*	3.1	42.6	3	357 / 365
St Johns (TEOM)	160* 5/11/2014	143 2014	1*	1	32	1	343 / 365
Casa Blanca (FRM –POC1)	274* 4/26/2014	156* 5/11/2014	2*	6.5	39.5	2	103 / 122
Casa Blanca (FRM-POC2)	160* 5/11/2014	72 8/21/2014	1*	6.1	39.4	1	59 / 61
Casa Blanca (TEOM-POC3)	325* 4/26/2014	207* 5/11/2014	8*	8.6	49.9	8	349 / 365
* Data has been flagged by GRIC as an Exceptional Event							

3.4 Changes to the Network in 2014

The following changes were made to the monitoring network in 2014:

- There were no changes made to the GRIC PM₁₀ Monitoring Network in 2014.
- GRIC requested to discontinue the manual Federal Reference Monitors at the Casa Blanca Site. Since GRIC has a continuous PM₁₀ Monitor (TEOM 1405) installed at this site (POC 3), approval was granted by EPA Region 9 Air Quality Analysis Office on October 27, 2014. GRIC discontinued operating the FRM PM₁₀ monitors (POC 1 and POC 2) on December 31, 2014. The POC 3 monitor is now the primary reporting monitor for this site beginning January 1, 2015.
- There were no changes made to the GRIC Ozone Monitoring Network in 2014.
- The GRIC Data Management System was upgraded from a PC-based (personal computer) operating system to a robust application that is installed on a network server. This application is described and outlined in the GRIC Ambient Air Monitoring Quality

Assurance Project Plan document. In addition to the software application, GRIC implemented an Exchange Network Node; the AQP will use this node to submit ambient air monitoring data to the EPA AQS data repository on a more automated basis.

- The AQP installed a remote visibility camera at the Sacaton Air Monitoring Site. The installation of this system was completed in September 2014.

3.5 Proposed Network Changes and Improvements

The following monitoring network changes are proposed for the next 6 months (July 2015 – December 2015):

- The Sacaton Site (TT-614-7001) relocation request was submitted to Region 9 Air Quality Analysis Office on January 27, 2015. See Appendix C for document submitted to EPA, Region 9 Office.

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 Table 4-1 below.

Table 4-1. Cross-Reference of 40 CFR 58 Requirements

40 CFR 58 Appendix	Requirement	Response
A	Were Precision/Accuracy reports submitted to AQS for data year covered by the plan?	Yes (see Section 4.2)
	Was an annual data certification package submitted for the data year covered by the plan?	Yes (see Section 4.2)
	What was the frequency of flow rate verification for manual (FRM) PM sampler audits?	Monthly (See Appendix A)
	What was the frequency of flow rate verification for automated PM analyzer audits?	Bi-Weekly (See Appendix A)
	What was the frequency of one-point QC checks for gaseous instruments?	Bi-Weekly (See Appendix A)
	When was the last Annual Performance Evaluation conducted for gaseous instruments?	See Appendix A Tables A-1 & A-3
	When were the last two semi-annual flow rate audits for PM monitors?	See Section 4.4
	When did PEP audits occur during the data year covered by the plan?	See Section 4.4
	When did NPAP audits occur during the data year covered by the plan?	4/29/14, NPAP-TTP, 040217001
C	What is the instrument manufacturer and model used for each monitor?	See Appendix A
	What is the start date of each monitor?	See Appendix A
D	What is the sampling season for each parameter?	See Sections 3.2 & 3.3
	Does the network meet minimum number of monitors required?	Yes (see Section 4.1)
E	For each site: <ul style="list-style-type: none"> Distance from nearest road in meters? Traffic count of nearest road? Surrounding groundcover (e.g. paved, vegetated, gravel, etc.)? 	See Appendix A
	For each monitor: <ul style="list-style-type: none"> Probe height in meters? If applicable, distance from the nearest supporting structure in meters? If applicable, distance from the nearest obstruction on the roof in meters? If applicable, distance from the nearest obstruction not on the roof in meters? Nearest distance from an obstructive tree in meters? If applicable, distance from the nearest furnace or incinerator flue in meters? If applicable, distance between collocated monitors? Unrestricted airflow in degrees? Probe material for reactive gases (i.e. O₃, NO₂, and SO₂)? Residence time for reactive gases? 	See Appendix A

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 PM₁₀, respectively. Tables D-2 and D-4 are reproduced as Tables 4-2 and 4-3, respectively, below. The minimum monitoring requirements are based on the population of the Metropolitan Statistical Area (MSA) and the design value for each NAAQS.

Table 4-2. Ozone Monitoring Requirements for SLAMS (Number of Stations per MSA)

MSA Population	Most recent 3-year design value ≥85% NAAQS (≥ 0.0638)	Most recent 3-year design value <85% NAAQS (< 0.0638)
>10 million	4	2
4-10 million	3	1
350,000-<4 million	2	1
50,000-<350,000	1	0

Table 4-3. PM₁₀ Monitoring Requirements for SLAMS (Number of Stations per MSA)

MSA Population	High concentration Exceeds NAAQS by 20% or more (>180 µg/m ³)	Medium concentration >80% of NAAQS (>120 µg/m ³)	Low concentration < 80% of NAAQS (<120 µg/m ³)
>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 4-2 and 4-3) 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 guidance.

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 PM₁₀ monitors within the Community are presented in Tables 4-4 and 4-5, respectively. The GRIC Air Quality Management Plan (AQMP) does not require a minimum number of monitors for the Community.

Table 4-4. Minimum Monitoring Requirements for GRIC Ozone Monitors

MSA	Monitor Site: County	Population (GRIC Census 2013)	8-hour Design Value for 2011-2013 (ppm)	Site (AQS ID)	Minimum Monitors Required	Number of Active Monitors	Monitors Needed
NA ¹	St. Johns: Maricopa Sacaton: Pinal	21,277	0.070	St. Johns (TT-614-7003)	0 ^A	2	0
			0.070	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.
- A. A 3-year design value greater than 0.0638 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 2010 was 4,192,887 (according to the 2010 census), which would require a minimum of 3 monitors.

Table 4-5. Minimum Monitoring Requirements for GRIC PM10 Monitors

MSA	Monitor Site: County	Population (GRIC Census 2013)	Max Concentration ($\mu\text{g}/\text{m}^3$)	Site (AQS ID)	Minimum Monitors Required	Number of Active Monitors	Monitors Needed
NA ¹	St. Johns: Maricopa Casa Blanca: Pinal Sacaton: Pinal	21,277	329 ^A	Casa Blanca (TT-614-7004 POC3)	0 ^C	5 ^D	0
			143 ^B	Sacaton (TT-614-7001 POC1)			

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.
- A. Max concentration including data flagged as exceptional events
- B. Max concentration excluding data flagged as exceptional events
- C. A maximum concentration greater than 180 $\mu\text{g}/\text{m}^3$ would require 1-2 monitors for a population between 100,000 and 250,000 (smallest population group in Table 4-3). A maximum concentration between 120 and 180 $\mu\text{g}/\text{m}^3$ 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 4-3 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 2010 was 4,192,887 (according to the 2010 census), which would require a minimum of 6-10 monitors for maximum concentrations >180 $\mu\text{g}/\text{m}^3$ and 4-8 monitors for maximum concentrations between 120 and 180 $\mu\text{g}/\text{m}^3$.
- D. Three of the five monitors are collocated at one site (Casa Blanca).

Based on the information contained in Tables 4-4 and 4-5, the GRIC monitoring network meets the minimum monitoring requirements for all criteria pollutants measured (i.e., ozone and PM10) 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 USEPA AIRS/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 AIRS/AQS database and that the data accurately represents the air quality in the Community. The AQP certified and submitted the 2014 ozone and PM10 data for the Community to USEPA Region 9 Administrator on May 4, 2015 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 Air Quality Systems (AQS) database. The data generated at these stations are public information and are available in various formats from the respective agencies. Table 4-6 below lists some popular sources for air quality data.

Table 4-6. 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: Ondrea Barber, Director	Ondrea.Barber@gric.nsn.us	GRIC Air Monitoring Data
United States Environmental Protection Agency	Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460	www.epa.gov www.epa.gov/ttn/airs/airsaqs/index	National Air Monitoring Data, including GRIC data

4.4 Audits

The AQP performed audits of the monitoring equipment in 2014. The monthly audit dates for the ozone monitors are shown in Table 4-7, the semi-annual audit dates for the FRM filter-based PM10 monitors are shown in Table 4-8, and the monthly audits dates for the continuous TEOM PM10 monitors are shown in Table 4-9.

Table 4-7. Monthly Audit Dates for Ozone Monitors

Site	AQS ID	Parameter	2014 Audit Dates ¹
Sacaton	TT-614-7001	Ozone	3/28, 5/5, 6/4, 7/29, 9/4, 10/7
St Johns	TT-614-7003	Ozone	3/31, 5/2, 6/17, 7/25, 9/4, 10/7
Table Notes: 1. Ozone monitors are only operated during ozone season (April through October)			

Table 4-8. Semi-Annual Flow Rate Audit Dates for Filter-Based PM10 Monitor

Site	AQS ID	Parameter	2014 Audit Dates
Casa Blanca (Primary)	TT-614-7004 POC1	PM10	1/13, 7/28, 9/4, 10/16, 12/30
Casa Blanca (Collocated)	TT-614-7004 POC2	PM10	1/13, 6/4, 7/28, 9/4, 10/16, 12/30

Table 4-9. Monthly Flow Rate Audit Dates for Continuous TEOM PM10 Monitor

Site	AQS ID	Parameter	2014 Audit Dates
Sacaton (TEOM)	TT-614-7001	PM10	1/14, 7/28, 9/4, 10/7, 12/30
St Johns (TEOM)	TT-614-7003	PM10	1/13, 6/17, 9/4, 10/7, 10/15, 10/24
Casa Blanca (TEOM)	TT-614-7004 POC3	PM10	1/13, 7/28, 9/4, 10/16, 12/30

5 PUBLIC NOTICE

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 15, 2015. 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/public_notices.html).
- Presentations at Community District Meetings.

5.1 News Release

The following news release was advertised in the Gila River Indian Newspaper, VOL. 18, No. 10 Edition (dated May 15, 2015):

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 2014. This document will also be available for review at the GRIC DEQ office located at 35 Pima Street, Sacaton, AZ 85147, and on the AQP website at <http://www.gricdeq.org/documents.html>. Additionally, presentations will be provided at all GRIC district monthly meetings from May thru June 2015.

Public comments may be submitted in writing to GRIC DEQ Air Quality, P.O. Box 97, Sacaton, Arizona, 85147, or comments may be given orally at the scheduled community meetings. Additional information is available from GRIC DEQ Air Quality, 35 Pima Street, Sacaton, Arizona, the AQP website http://www.gricdeq.org/air_quality_program_html, or by calling 520-562-2234.

No requests to review the document were received.

5.2 District Meeting Presentations

The AQP also presented a summary of the content of this document during one of the bi-monthly meetings for each of the seven GRIC Districts. A copy of the presentation slides is included as

Appendix B. The district presentation dates along with some of the comments and questions received from the Community members at the District meetings is included in Table 5-1 below.

Table 5-1. Summary of Comments and Questions Received at District Meetings in 2015

District	Meeting Date	Comments / Questions Received
1	06/01/2015	<ul style="list-style-type: none"> No comments or questions received.
2	06/15/2015	<ul style="list-style-type: none"> No comments or questions received.
3	06/02/2015	<ul style="list-style-type: none"> The Clean Air Act seems more concerned with urban area pollution and we are a rural community. What are some things that we can do to reduce dust pollution?
4	06/15/2015	<ul style="list-style-type: none"> How does GRIC's air monitoring data compare to other neighboring jurisdiction's air monitoring data?
5	05/18/2015	<ul style="list-style-type: none"> What caused the high ozone concentration on June 6th? Why is there no ozone monitoring at Casa Blanca? With reduction of plastics and recycling, is the ozone hole getting better? The freeway (I10) goes down the center of the Community. That's a lot of cars and trucks every day. Would the ozone be higher along the freeway? Do you broadcast or announce the high pollution days? Are burn permits allowed on Gila River? Does Gila River operate under the air quality act?
6	06/01/2015	<ul style="list-style-type: none"> Why is there only monitoring data for the summer? Where's the rest of the data? What has been the difference in data? Can we see a then vs. now comparison? Where can we access past data?
7	06/29/2015	<ul style="list-style-type: none"> With the increase amount of vehicle traffic on Baseline Road through the years, is there a difference of ozone concentration? Does the vehicle traffic on 347 (AZ State Route 347, between Chandler and Maricopa) contribute to the ozone concentrations?

Appendix A

Detailed Monitoring Site Information and Photographs

- St. Johns
- Casa Blanca
- Sacaton

Table A-1. Detailed Site Information for St. Johns

Site Name	St Johns	
AQS ID	TT-614-7001 (Tribal Monitor)	
GIS Coordinates	N33 18 49.676134, W112 09 34.620808	
Location	Top of Building	
Address	4208 W. Pecos Rd Laveen, AZ	
Distance to Road	92 meters	
Traffic Count	1440 (2009)	
Groundcover	Gravel	
Representative Area	St Johns, AZ	
Pollutant	Ozone	PM 10
Parameter Occurrence Code (POC)	1	1
Site Type / Objective	Population Exposure	Population Exposure
Spatial Scale	Urban	Urban/Neighborhood
Sampling Method	Teledyne-API 400E	TEOM 1400AB TEOM 1405
Analysis Method	UV photometric	Gravimetric
Instrument Manufacturer	Teledyne-API	Thermo Scientific
Start Date	7/2/2002	1/1/2013 (TEOM1400AB) 3/3/2014 (TEOM 1405)
Operation Schedule	Continuous	Continuous
Sampling Season	April-October	All year
Probe Height	4 meters	4 meters
Distance From Supporting Structure	2 meters	n/a
Distance From Obstructions On Roof	n/a	n/a
Distance From Obstructions Not On Roof	n/a	n/a
Distance from trees	n/a	n/a
Distance to Furnace or incinerator flue	n/a	n/a
Distance between collocated monitors	n/a	n/a
Unrestricted airflow	360 deg	360 deg
Probe material	Teflon	n/a
Residence time	6 sec	n/a
Will there be changes within the next 18 months	No	No
Frequency of flow rate verification for PM analyzers	n/a	Monthly
Frequency of one-point QC check (gases)	Bi-weekly	n/a
Last annual performance evaluation (gases)	5/12/2015 (NPAP-TTP, EPA R 9) 10/7/2014 (GRIC)	n/a

Table A-2. Detailed Site Information for Casa Blanca

Site Name	Casa Blanca		
AQS ID	TT-614-7004 (Tribal Monitor)		
GIS Coordinates	N33°07'06", W111°53'22'		
Location	Top of Building		
Address	Casa Blanca/ Preschool Road, Bapchule, AZ 85221		
Distance to Road	30 meters		
Traffic Count	3038 (daily average 2008)		
Groundcover	Paved/gravel		
Representative Area	Casa Blanca, AZ		
Pollutant	PM 10	PM 10	PM 10
Parameter Occurrence Code (POC)	1	2	3
Monitoring Objective	Population Exposure	Population Exposure	Population Exposure
Spatial Scale	Urban	Urban	Urban
Sampling Method	Low-Vol FRM	Low-Vol FRM	TEOM 1405
Analysis Method	Gravimetric	Gravimetric	Gravimetric
Instrument Manufacturer	Rupprecht and Patashnick	Rupprecht and Patashnick	Thermo Scientific
Start Date	2002	2002	1/1/2013
Close Date	12/31/2014	12/31/2014	NA
Operation Schedule	1 in 3	1 in 6	Continuous
Sampling Season	All year	All year	All year
Probe Height	5 meters	5 meters	5 meters
Distance From Supporting Structure	n/a	n/a	n/a
Distance From Obstructions On Roof	n/a	n/a	n/a
Distance From Obstructions Not On Roof	n/a	n/a	n/a
Distance from trees	n/a	n/a	n/a
Distance to Furnace or incinerator flue	n/a	n/a	n/a
Distance between collocated monitors	2-3 meters	2-3 meters	2-3 meters
Unrestricted airflow	360 deg	360 deg	360 deg
Probe material	n/a	n/a	n/a
Residence time	n/a	n/a	n/a
Will there be changes within the next 18 months	No	No	No
Frequency of flow rate verification for PM analyzers	Monthly	Monthly	Bi-weekly
Frequency of one-point QC check (gases)	n/a	n/a	n/a
Last annual performance evaluation (gases)	n/a	n/a	n/a

Table A-3. Detailed Site Information for Sacaton

Site Name	Sacaton	
AQS ID	TT-614-7001 (Tribal Monitor)	
GIS Coordinates	N33 04 52.622859, W111 44 17.067146''	
Location	Top of Building	
Address	35 Pima Street, PO Box 97, Sacaton, AZ 85147	
Distance to Road	200 meters	
Traffic Count	2134 (2008)	
Groundcover	Paved	
Representative Area	Sacaton, AZ	
Pollutant	Ozone	PM 10
Parameter Occurrence Code (POC)	1	1
Monitoring Objective	Population Exposure	Population Exposure
Spatial Scale	Urban	Urban
Sampling Method	Teledyne-API 400E	TEOM 1400AB TEOM 1405
Analysis Method	UV photometric	Gravimetric
Instrument Manufacturer	Teledyne-API	Thermo Scientific
Start Date	7/2/2002	1/1/2013
Close Date	NA	NA
Operation Schedule	Continuous	Continuous
Sampling Season	April-October	All year
Probe Height	4 meters	4 meters
Distance From Supporting Structure	2 meters	n/a
Distance From Obstructions On Roof	n/a	n/a
Distance From Obstructions Not On Roof	n/a	n/a
Distance from trees	n/a	n/a
Distance to Furnace or incinerator flue	n/a	n/a
Distance between collocated monitors	n/a	n/a
Unrestricted airflow	360 deg	360 deg
Probe material	Teflon	n/a
Residence time	9 sec	n/a
Will there be changes within the next 18 months	Yes	No
Frequency of flow rate verification for PM analyzers	n/a	Monthly
Frequency of one-point QC check (gases)	Bi-weekly	n/a
Last annual performance evaluation (gases)	4/29/2014 (NPAP-TTP, Region 9 EPA) 10/7/2014 (GRIC)	n/a

St. Johns Air Monitoring Site Photographs



Figure B7. St Johns Air Monitoring Station, view to the southwest direction.



Figure B8. St Johns Site, view to the south



Figure B9. St Johns Site, view to the south.

Casa Blanca Air Monitoring Site Photographs



Figure A-1. Casa Blanca Site, view from west side.



Figure B3. Casa Blanca Site, view to southeast direction.



Figure A-2. Casa Blanca Site, view from east side.

Sacaton Air Monitoring Site Photographs



Figure B4. Sacaton Site, east side of building.



Figure B5. Sacaton Site, north side of building.



Figure B6. Sacaton Site, top of building, southeast direction .

Appendix B

District Meeting Presentation Slides

GRIC Air Monitoring Network Review



Leroy Williams
GRIC DEQ Air Quality Program
June 29, 2015

GRIC DEQ Air Quality Program



- ▶ Permitting
- ▶ Compliance & Enforcement
- ▶ Ambient Air Monitoring



GRIC Air Monitoring Network

▶ Sacaton Site

- PM10
- Ozone

▶ Casa Blanca Site

- PM10

▶ St. Johns Site

- PM10
- Ozone

▶ Approved Quality Assurance Project Plan

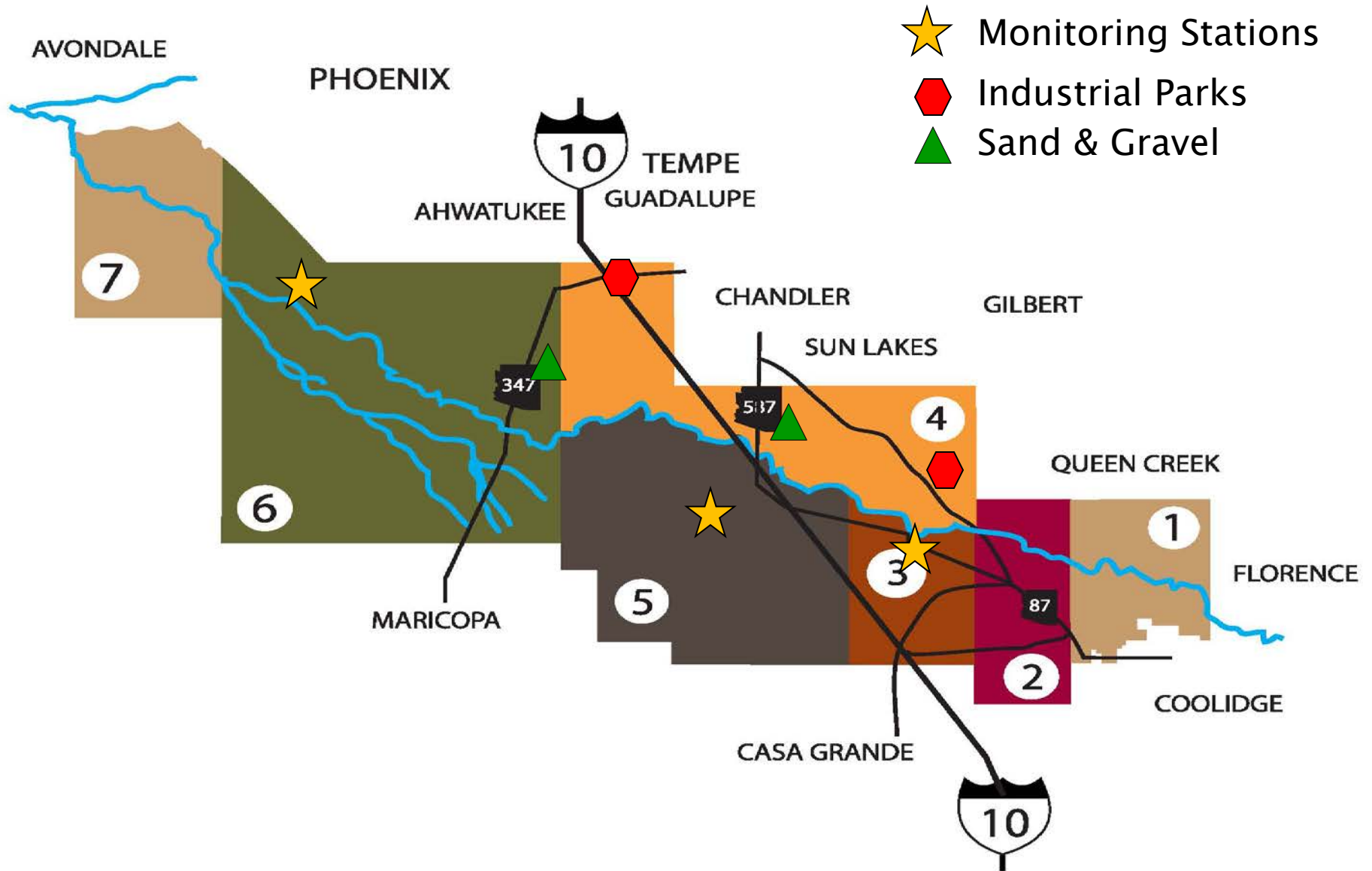
▶ Started monitoring July 2002

Weather station at all sites

- Wind direction
- Wind speed
- Ambient Temperature
- Relative Humidity
- Ambient Pressure
- Precipitation



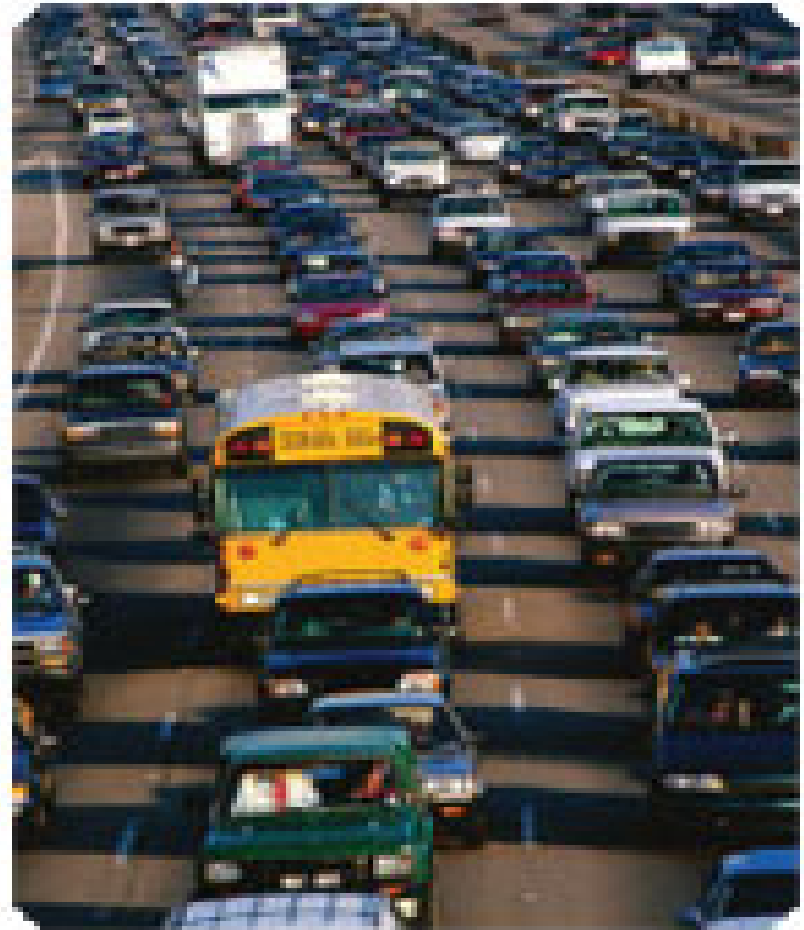
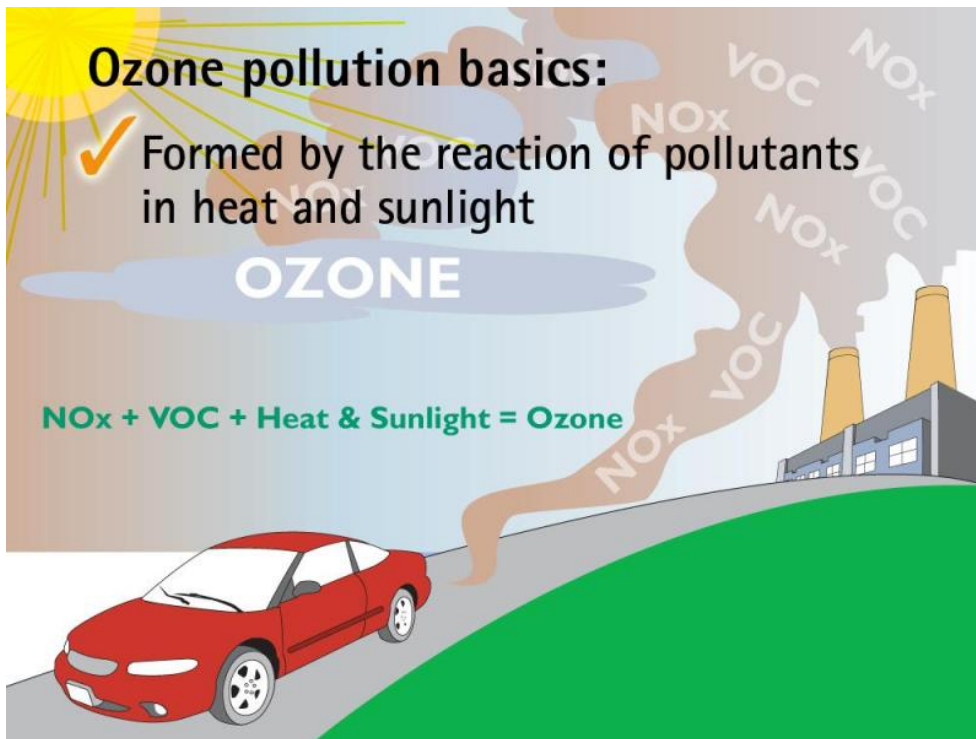
Gila River Indian Community



OZONE

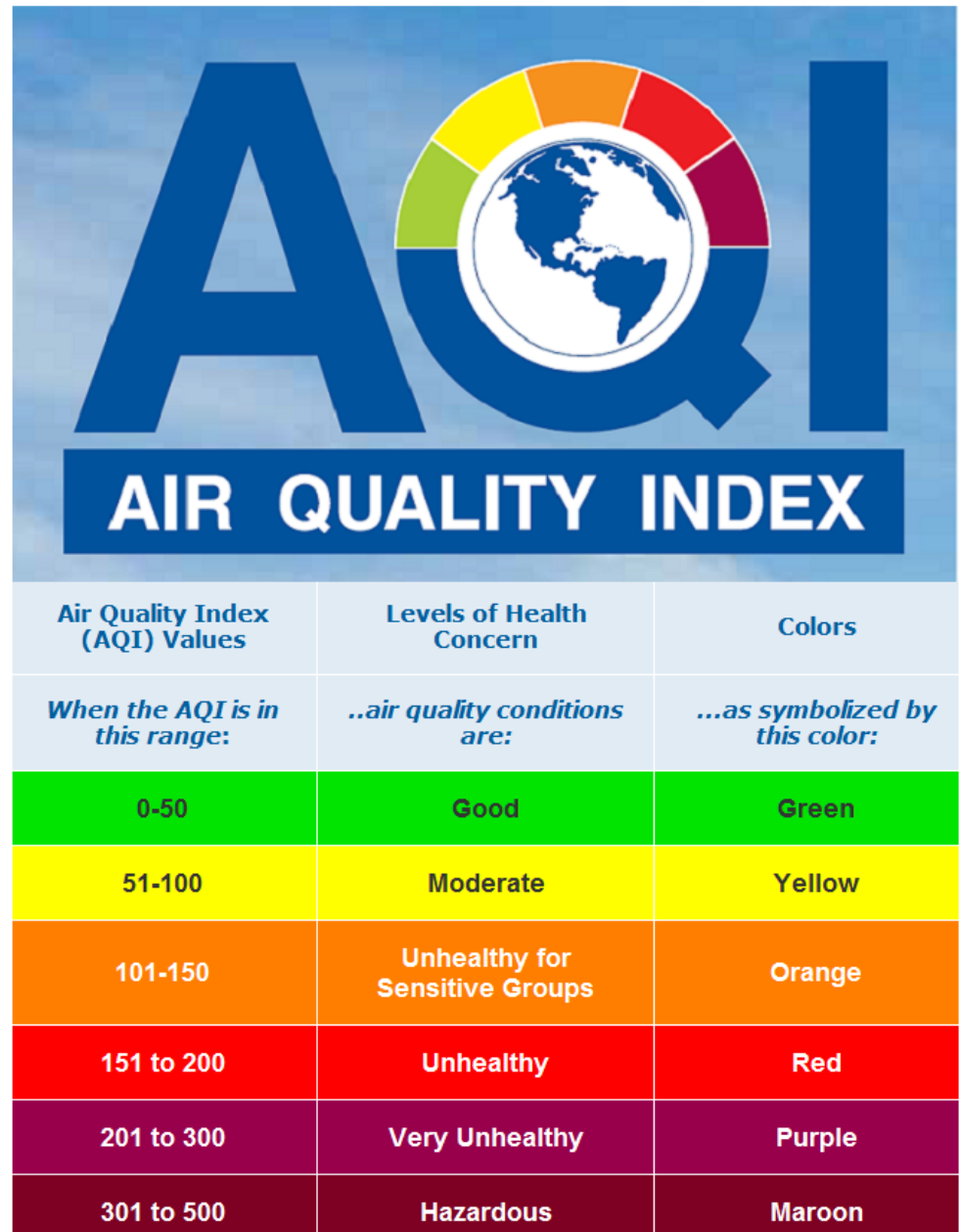
Ozone Monitoring Season starts April to October

“Ozone Pollution”



“SMOG”

GRIC Air Monitoring Data Report



GRIC 2014 Ozone Data

Sacaton Site

Apr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Jun	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Jul	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Aug	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Sep	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Oct	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

St Johns Site

Apr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Jun	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Jul	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Aug	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Sep	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Oct	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Particulate Matter (Dust) “PM10”

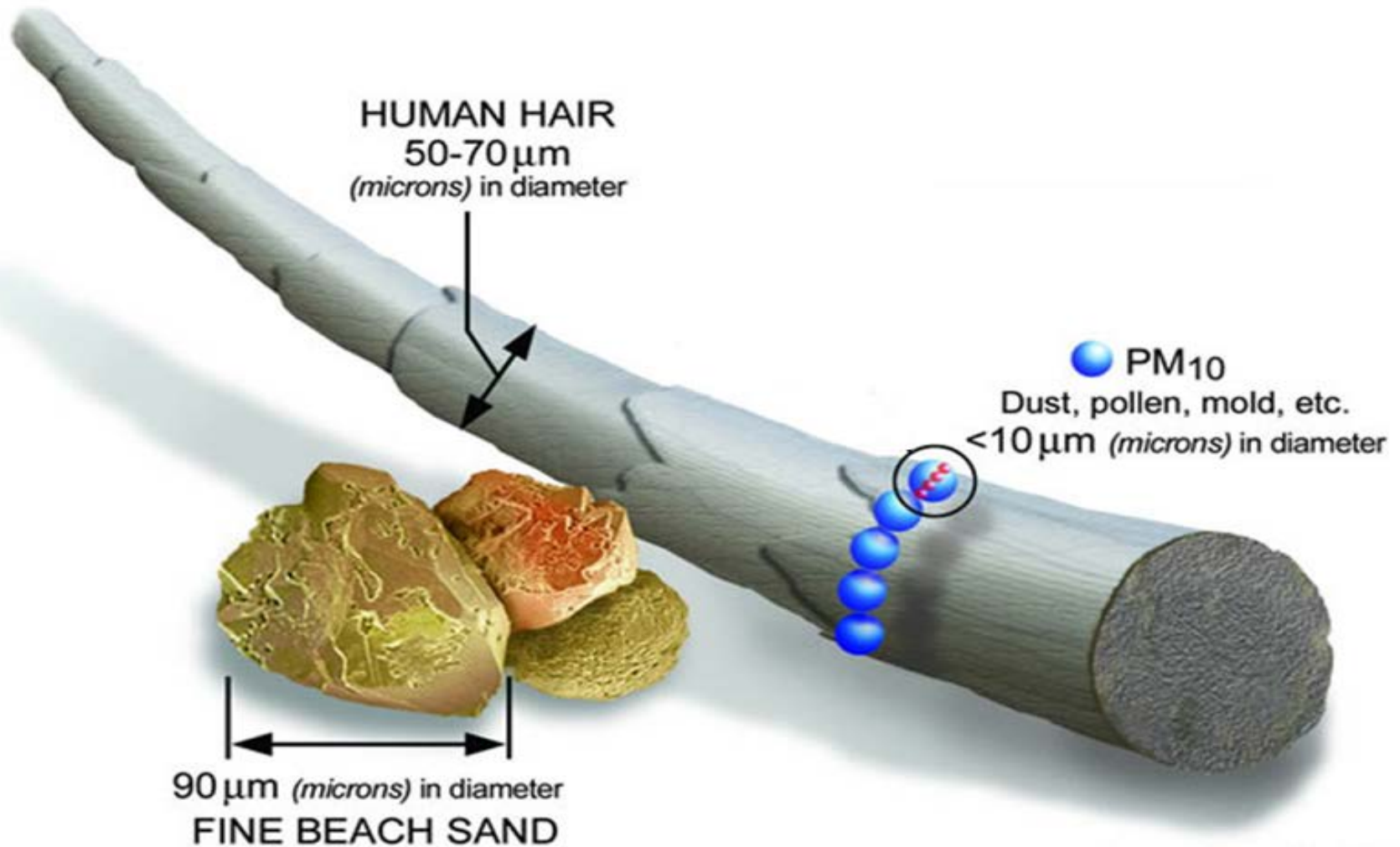
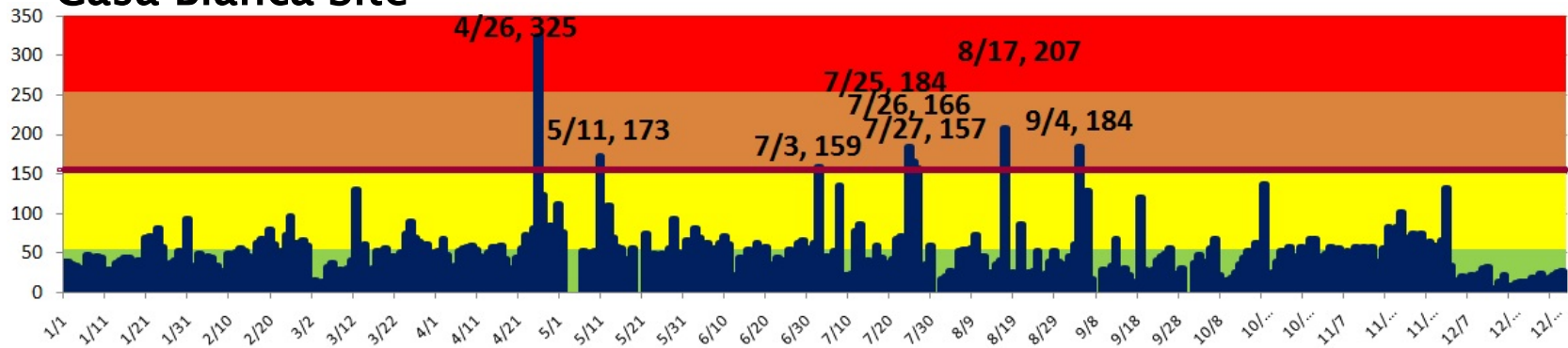


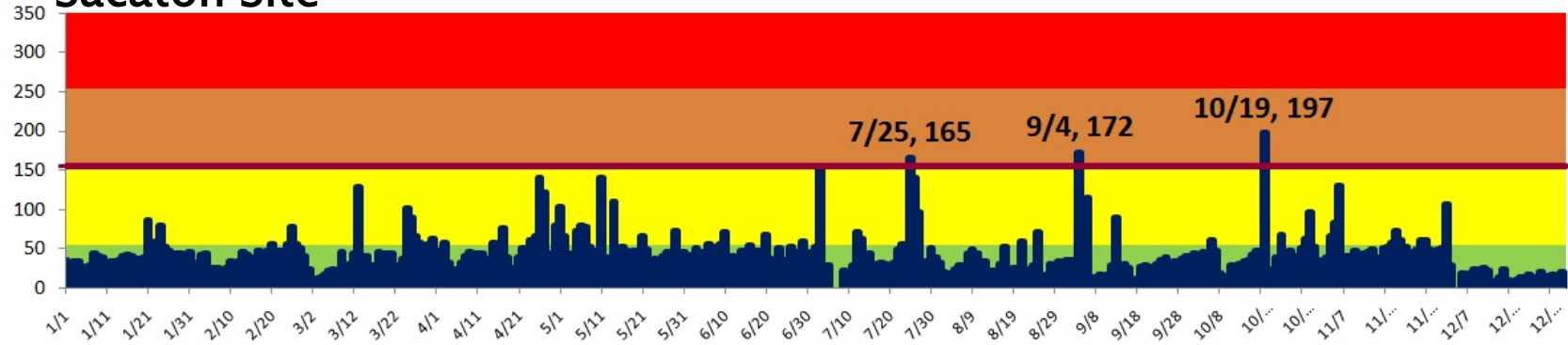
Image courtesy of the U.S. EPA

GRIC 2014 PM10 Data

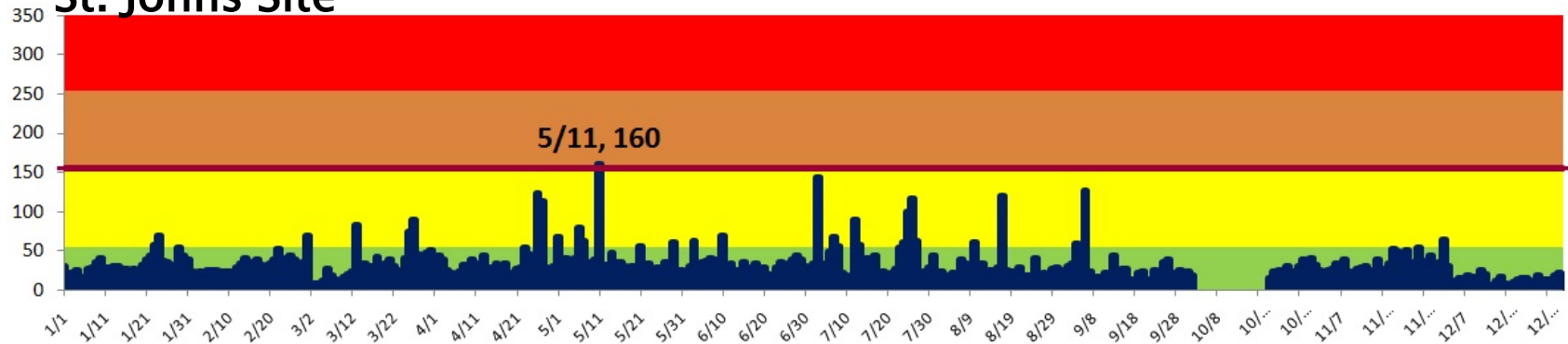
Casa Blanca Site



Sacaton Site



St. Johns Site



Gila River Indian Community Department of Environmental Quality



Contact Information:

GRIC DEQ Air Program
P.O. Box 97
Sacaton, Arizona 85247

Phone: (520) 562-2234
Fax: (520) 562-2245
Email: air@gric.nsn.us

Website: www.gricdeq.org/air_quality_program.html

Appendix C

Sacaton Monitor Move Request document



GILA RIVER INDIAN COMMUNITY

DEPARTMENT OF ENVIRONMENTAL QUALITY

Meredith Kurpius, PhD
Air Quality Analysis Office
Air Division, US EPA Region IX
75 Hawthorne St., AIR-7
San Francisco, CA 94105

Email: kurpius.meredith@epa.gov

January 23, 2015

Dear Ms. Kurpius:

The Air Quality Program for the Gila River Indian Community (GRIC) Department of Environmental Quality (DEQ) is requesting approval for relocation of the GRIC Sacaton Tribal Air Monitoring Station (Site ID: TT-614-7001). Attached for EPA's review and approval is a description of the Sacaton site, including details on the Ozone and PM10 (particulate matter less than 10 micron in size) monitors, and information on the proposed relocation.

The requested change includes moving the monitoring site 120 meters west of the existing location into the secure fenced area of the main DEQ building. Per the Code of Federal Regulations, Title 40, Part 58.14 (40 CFR 58.14), monitoring agencies are required to obtain EPA approval for the relocation of regulatory ambient air monitors. Relocation of this monitoring site will not significantly impact GRIC from meeting the 40 CFR 58, Appendix D requirements.

If there are any questions regarding this request, please feel free to contact me at (520) 796-3781 / ryan.eberle@gric.nsn.us or Leroy Williams at (520) 796-3782 / Leroy.williamsjr@gric.nsn.us.

Sincerely,

Ryan Eberle, P.E.
Air Quality Program Manager

Attachment: GRIC Sacaton Tribal Air Monitoring Station Relocation Summary

Cc Michael Flagg, EPA Region 9
Jennifer Williams, EPA Region 9
Randall Chang, EPA Region 9
Sara Bartholomew, EPA Region 9
Lauren Maghran, EPA Region 9
Ondrea Barber, GRIC DEQ Director
Leroy Williams, GRIC DEQ AQP Environmental Engineer

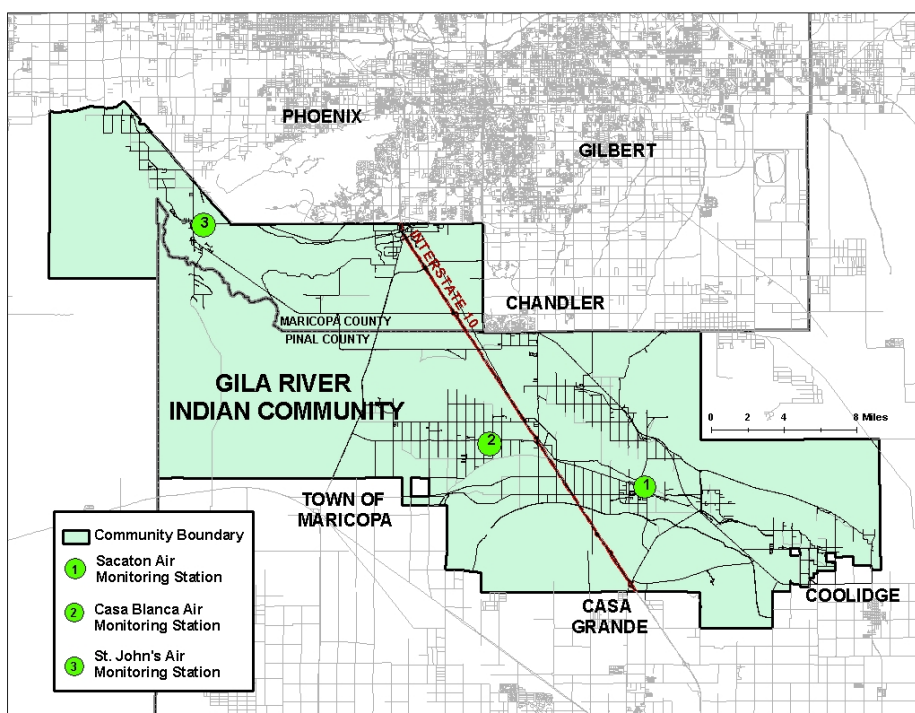
GRIC Sacaton Tribal Air Monitoring Station Relocation Summary

This document summarizes the Gila River Indian Community's (GRIC or Community) Air Monitoring network and describes the details of the proposed relocation of the Sacaton monitoring station.

GRIC Monitoring Network

The GRIC Air Monitoring Network has been established within the Community since 2002. GRIC operates three air monitoring sites (Sacaton, Casa Blanca, and St. John's) where PM₁₀ (particulate matter smaller than 10 microns) and ozone are monitored. GRIC's network was designed and sited at suitable locations where utilities and security were key rationale within specific geographical areas. Figure 1 below displays a map of the GRIC Air Monitoring Network.

Figure 1. Map of the Gila River Indian Community



Sacaton Site Background and Reason for Relocation

The Sacaton Site (AQS 04-021-7001) has been monitoring for ozone and meteorological parameters since July 2002. The PM₁₀ pollutant monitoring at Sacaton started January 1, 2013. Air pollution sources for these two criteria pollutants (PM₁₀ and ozone) are from area sources that are beyond the Sacaton community. In addition to the approximately 3,000 residents, Sacaton is the center of commerce and government activity of the Community.

The Sacaton Site is currently located within the previous GRIC Department of Environmental Quality (DEQ) Air Quality Program (AQP) office building. This building was originally a Bureau of Indian Affairs (BIA) school administration building built in the mid 1900s. The building has been declared condemned by the GRIC Office of Safety and Health, and demolition of the building is currently being discussed. The AQP office has relocated to Chandler, Arizona, in the Lone Butte Industrial Park within the Community.

Sacaton Site PM10 Data

The Sacaton Site has collected 2 years of PM10 data. The annual average for 2013 and 2014 are 38 and 43 $\mu\text{g}/\text{m}^3$, respectively. The Sacaton Site violated the PM10 NAAQS on 5 days in 2013 and 3 days in 2014. GRIC has requested claims of exceptional events* on all eight violations described above. Table 1 below provides the top six maximum PM10 concentrations collected in 2013 and 2014. Figure 1 and Figure 2 below displays PM10 concentrations in 2013 and 2014, respectively. The graphical displays of the PM10 concentrations are charted against the PM10 Air Quality Index (AQI) values. Based on these charts and the annual average concentration values, the air quality of the PM10 concentrations at the Sacaton Site is of “Good Air Quality”. The daily violations described above are primarily due to high winds during monsoon seasons and aggressive weather conditions.

Table 1. Maximum 24-hour Average PM10 Concentrations in 2013 and 2014 for Sacaton Site.

	2013		2014	
	<i>Date</i>	<i>24 hour average PM10 concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Date</i>	<i>24 hour average PM10 concentration ($\mu\text{g}/\text{m}^3$)</i>
1 st Maximum	5/3	315*	10/19	197*
2 nd Max	4/8	251*	9/4	172*
3 rd Max	11/13	206*	7/25	165*
4 th Max	7/2	182*	7/3	154
5 th Max	10/9	156*	4/26	140
6 th Max	6/30	143	5/11	140

* Flagged for exceptional events in Air Quality Systems (AQS)

Chart Legend: Chart parameters for Figures 1 through 2



Figure 1. Sacaton Site PM10 Data Monitored in 2013.

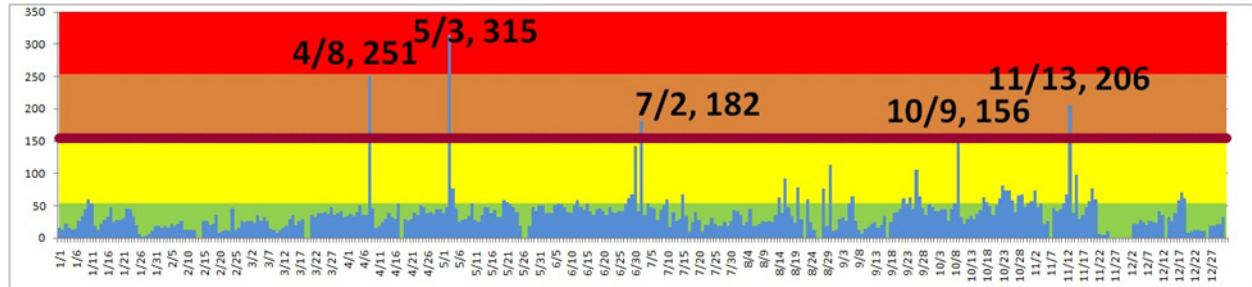
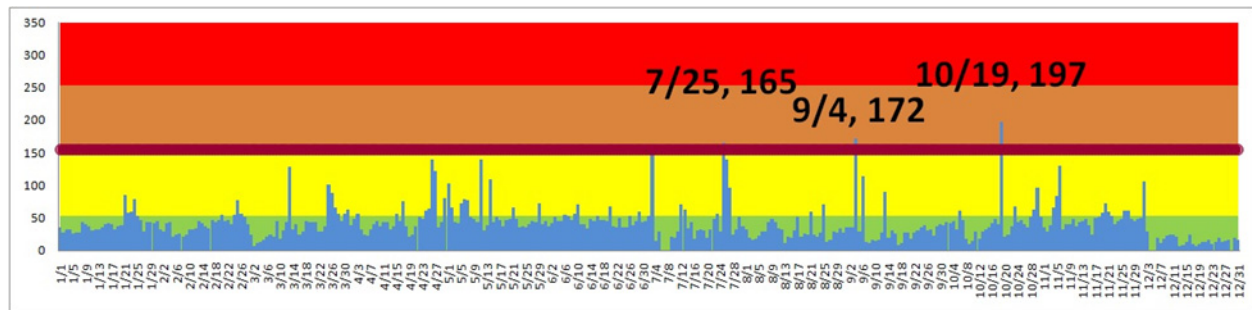


Figure 2. Sacaton Site PM10 Data Monitored in 2014.



The U. S. Environmental Protection Agency (EPA) has provided a scale called the Air Quality Index (AQI) for rating air quality. The AQI scale is based on the National Ambient Air Quality Standards (NAAQS). This chart is based on the EPA AQI scale for PM10.



Sacaton Site Ozone Data

The Sacaton Site ozone data Design Value Report for 2014 is displayed in Table 2, below. The Sacaton Site is within a rural geographical area. There are no major stationary sources that impact the Sacaton ozone monitor.

Table 2. USEPA AQS Preliminary Design Value Report, (note – does not include Oct. 2014)

Pollutant: Ozone (44201) Design Value Year: 2014
 Standard Units: Parts per million (007)
 REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
 NAAQS Standard: Ozone 8-Hour 2008
 Statistic: Annual 4th Maximum Level: .075 Tribe: Gila River Indian Community

Site ID	Poc	2014			2013			2012			3 - Year		
		Valid Days	Percent Complete	4 th Max	Valid Days	Percent Complete	4 th Max	Valid Days	Percent Complete	4 th Max	% Complete	Design Value	D. V. Validity
TT-614-7001	1	182	85*	.066	211	99	.065	212	99	.072	94	.067	Y

* Report of computed design values is a snapshot that does not include 4th Calendar Quarter 2014.

Description and Impacts of the Proposed Sacaton Site Relocation

The GRIC Air Monitoring Network is requesting relocation of the site to an adjacent location that will be approximately 120 meters west from the current location (see Figure 3). Photographs of the current Sacaton Site are shown in Figure 4, and photographs of the proposed location for the site are shown in Figure 5. The proposed location is within the fenced area of the main GRIC DEQ office that will provide additional security against vandalism. A climate-controlled storage container finished as an office on the inside has been purchased to house the monitoring equipment (see Figure 6).

The proposed site metadata will be exactly the same information from the current site data and the site will maintain the current scale of representation. The only change to the data will be the geographical coordinates by 120 meters. The current coordinates are Latitude 33.079969 Degrees, Longitude -111.739275 Degrees. The new location will be Latitude 33.079969 Degrees, Longitude -111.740625 Degrees. Table 3 below provides the relevant metadata related to the Sacaton Site.

Figure 3. Aerial visual map of the GRIC Sacaton Site (AQS ID 04-021-7001).

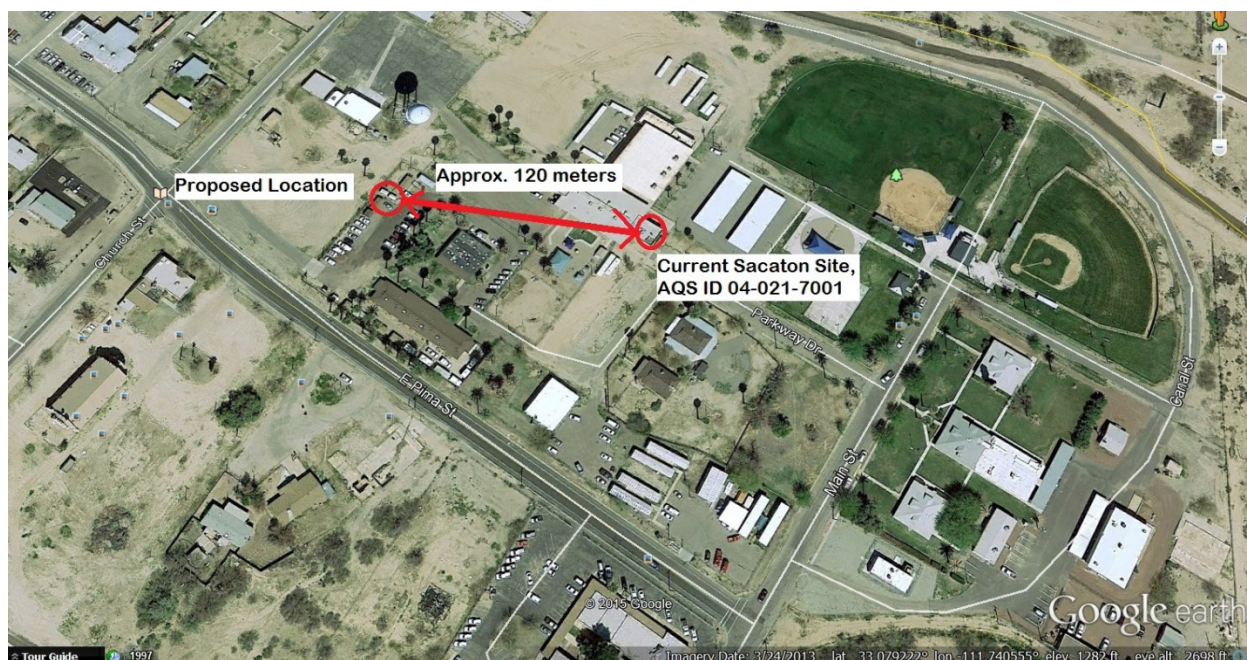


Figure 4. Sacaton Air Monitoring Site Photos of Current Site Location



Figure 4.1. Sacaton Air Monitoring Station, east side of building.



Figure 4.2. Sacaton Site, north side of building.



Figure 4.3. Sacaton Site, top of building southeast direction .

Figure 5. Sacaton Air Monitoring Site Photos of Proposed Site Location



Figure 6. Example of Climate-Controlled Equipment Enclosure for Sacaton Site Proposed Location



Table 3. Sacaton Air Monitoring Site Detailed Information

Site Name	Sacaton	
AQS ID	04-021-7001	
GIS Coordinates	N33 04 52.622859, W111 44 17.067146"	
Location	Top of Building	
Address	35 Pima Street, PO Box 97, Sacaton, AZ 85147	
Distance to Road	200 meters	
Traffic Count	1122	
Groundcover	Paved	
Representative Area	Sacaton, AZ	
Pollutant	Ozone	PM 10
Monitoring Objective	Population	Population
Spatial Scale	Urban	Urban
Sampling Method	Teledyne-API 400T	TEOM 1405
Analysis Method	UV photometric	Gravimetric
Start Date	7/2/2002	September 2013
Operation Schedule	Continuous	Continuous
Sampling Season	April-October	All year
Probe Height	4 meters	4 meters
Distance From Supporting Structure	2 meters	n/a
Distance From Obstructions On Roof	n/a	n/a
Distance From Obstructions Not On Roof	n/a	n/a
Distance from trees	n/a	n/a
Distance to Furnace or incinerator flue	n/a	n/a
Distance between collocated monitors	n/a	n/a
Unrestricted airflow	360 deg	360 deg
Probe material	Teflon	n/a
Residence time	4 sec	n/a
Will there be changes within the next 18 months	No	No
Frequency of flow rate verification for PM analyzers	n/a	Monthly
Frequency of one-point QC check (gases)	Bi-weekly	n/a
Last annual performance evaluation (gases)	4/29/2014	n/a