



GILA RIVER INDIAN COMMUNITY

Department of Environmental Quality

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March 08, 2016

Electronic Submittal (to be followed by FedEx)

Deborah Jordan, Air Division Director
U.S. Environmental Protection Agency, Region IX
Air-1
75 Hawthorne Street
San Francisco, CA 94105

Re: Notice of Gila River Indian Community's Exceptional Events for PM₁₀ during 2015 and Request for Concurrence

Dear Ms. Jordan:

The purpose of this letter is to notify the United States Environmental Protection Agency (EPA), per the requirements of the Code of Federal Regulations Title 40 Subpart 50.14(c)(2)(iii), that the Gila River Indian Community (GRIC or Community) Department of Environmental Quality (DEQ) has placed flags on 2015 monitoring data as a result of exceptional events. The GRIC DEQ is responsible for the collection and submission of the monitoring data from the Community, and has placed the appropriate flags on the subject data in the EPA Air Quality System (AQS) database.

The flagged data and an initial description of the events are presented as an attachment to this letter. These are the measurements for which the GRIC DEQ is requesting concurrence from EPA. The GRIC DEQ will continue to work with the EPA to ensure that future submittals for the Community comply with the requirements of 40 CFR 50.14.

Additionally, the GRIC DEQ provides an annual presentation of the air monitoring network from the previous year to the Community members and policy makers. A 30-day public comment period will be opened pursuant to 40 CFR 50.14(c)(3)(i), and any comments received will be forwarded to the EPA.

If you have any questions regarding this request, please contact myself or Ryan Eberle, Air Quality Program Manager for GRIC DEQ, at (520) 562-2234.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ondrea Barber".

Ondrea Barber, Director
Gila River Indian Community Department of Environmental Quality

Cc: Colleen McKaughan, USEPA, Region IX
Mathew Lakin, USEPA, Region IX
Fletcher Clover, USEPA, Region IX
Ryan Eberle, GRIC DEQ Air Quality Program
Leroy Williams, GRIC DEQ Air Quality Program

Attachments

2015 Ambient Air Monitoring Flagged Events for the Gila River Indian Community

In 2015, one or more of the monitors on the Gila River Indian Community (GRIC or Community) exceeded the 24-hour PM₁₀ National Ambient Air Quality Standard (NAAQS) of 150 µg/m³ on four separate days. The Community has flagged these four exceedance days resulting from “exceptional events” as shown in Table 1 and as discussed below.

Table 1
2015 Air Quality Measurements Flagged as Exceptional Events

Date	Monitor (Operator/Type)	AQS-ID (poc) *	24-hr Ave PM ₁₀ (µg/m ³)	Time Hour flagged “RJ”	Max Wind (mph) #	Comment
6/27/2015	Casa Blanca (Cont)	04-021-7004 (3) and TT-614-7004 (3)	172	19:00, 20:00	28 mph Gust wind 38 mph	Monsoon/ Dust storm
8/11/2015	St Johns (Cont)	04-013-7003 (1) and TT-614-7003 (1)	200	10:00, 21:00, 22:00	19 mph Gust wind 35 mph	Monsoon
8/29/2015	Casa Blanca (Cont)	04-021-7004 (3) and TT-614-7004 (3)	191	19:00, 20:00, 21:00	18 Gust wind 28 mph	Monsoon/ Dust Storm
	St Johns (Cont)	04-013-7003 (1) and TT-614-7003 (1)	203	20:00, 21:00, 22:00, 23:00		
9/12/2015	Casa Blanca (Cont)	04-021-7004 (3) and TT-614-7004 (3)	157	18:00, 19:00	17 Gust wind 33 mph	Monsoon/ Dust Storm

Notes: Cont = Continuous PM10 monitor, Federal Equivalent Method monitor

RJ = AQS Qualifier Code requesting exclusion for Qualifier Description of “High Winds”

* Note – AQS Identification code of Tribal Monitors are denoted with TT-**-***.

Maximum sustained wind speed (1-hour average)

June 27, 2015 (Saturday)

The first Haboob of the 2015 Monsoon took place on Saturday, June 27, 2015 as strong outflows created a wall of dust that moved through the county late afternoon/early evening. Several monitoring locations within Pinal County (Pinal County Air Monitoring Network) including GRIC Casa Blanca Site exceeded the PM10 Health Standard.

This storm clouded highways throughout central and southern Arizona, caused heavy downpours and flood watches in certain areas, and there were reports of 70 mph gusts in Gila Bend.

The forecast for areas within Pinal County Arizona on June 26 provided the following:

A change in the steering winds will help storms that develop over the mountains to our east move west and closer to the desert locals. Outflows associated with these storms will create areas of blowing dust on Saturday and the levels of PM10 are expected to approach and perhaps exceed the health standard. Therefore a PM10 Health Watch has been issued for Saturday. The chance for daily storm development over the mountains will remain over the next several days and as such the opportunity for strong outflows and associated blowing dust making their way into the desert locations will remain and so the PM10 forecasts are in the upper good to mid moderate range on the AQI scale.

The Arizona DEQ Air Quality Forecast team provided the following forecast on June 26th:

Even though PM-10 levels here in Maricopa County were in the Good range, strong thunderstorms did rage through eastern and southern Arizona yesterday afternoon. Gusts from outflows were reported as high as 62 mph at the Tucson International Airport with visibility down to 3 miles. Fortunately, we were spared due to the lack of moisture near the surface. However, all that can change tomorrow. The steering flow from this monsoonal High over the Four Corners continues to funnel in upper-level moisture. Therefore, all of these isolated convective cells originating near the White Mountains are slowly making their way inwards towards the Phoenix area and dumping moisture near the surface along the way. We can see some convection this afternoon. However, tomorrow looks to be our best chance for the first seasonal dust storm event. A group of convective cells is expected to traverse through Pinal County and generate strong outflows from the southeast during the afternoon hours. In doing so, they pose a high risk for dust activity since soils have been parched for the past few weeks. The Unhealthy PM10 risk level was factored “High” for this forecast.

Parts of the Community got a bit of rain, but most areas didn't get anything measurable as the showers were brief and light.

While there was no precipitation, the winds were very strong. The Monsoon brought 28 mph sustained winds (hourly average) across the Valley on this date, with a wind gust of 38 mph in GRIC, see Figure 1 below. GRIC received high winds between 19 and 28 mph for two hours between 7 and 8 pm. During the 28 mph sustained wind speed, the Casa Blanca Site had a hourly spike measurement of 2,622 $\mu\text{g}/\text{m}^3$, see Figure 2 below.

August 11, 2015 (Tuesday)

The forecast for areas within Pinal County Arizona on August 10 featured “more chances for Monsoon fueled storms with the outside chance at outflow winds and spotty blowing dust. A high pressure will begin to build over the area with afternoon high temperatures rising towards 110 degrees.”

The EnviroFlash Air Quality forecast (USEPA Air Quality Forecast E-Mail Alert Program) for the Maricopa County vicinity on 8-11-2015 stated:

We have something very interesting and potentially adverse to air quality on our plate this morning. Current radar and satellite trends show fast-moving storms headed our way from the southeast. Storm-related outflow now in Pinal County consists of winds ranging from 34-58 mph. So far, this boundary has shown itself sufficient to trigger new storms. Dust is already evident on radar, and so, blowing dust is very likely with this activity in the next couple hours. Monitors in the east and southeast portions of the Valley will experience the brunt of the dust (i.e. West Chandler, Mesa). The best case scenario would be for rain to quickly follow the dust, which looks possible.

The EnviroFlash Air Quality forecast for the Maricopa County vicinity on 8-12-2015 stated:

As if one dust storm wasn't enough, the Valley received the luxury of two dust storms yesterday--the first in the morning, the second later at night. The first had more dust and more punch to it - Sky Harbor recorded 50+ mph wind gusts! - but both were evident in PM-10 observations at multiple monitors. Fortunately, only two monitors in the PM-10 non-attainment area reached into the low Moderate category.

The GRIC St Johns PM10 monitor displayed two episodes of high wind events on August 11, 2015; the first one was at 10 AM and the second was at 9 PM, see Figure 3 below. First event had an hourly PM10 concentration of $2,470 \mu\text{g}/\text{m}^3$ with maximum wind speeds of 36 mph, see Figure 4 below. The second wind event had hourly PM10 concentration of $1,445 \mu\text{g}/\text{m}^3$ with wind speeds as high as 29 mph.

August 29, 2015 (Saturday)

The Saturday evening thunderstorms were consistent with monsoon seasonal weather. Isolated showers and damaging downbursts were widespread in the Valley. The storm caused extensive damage with downed trees and power outages for several hours. This active weather had plenty of strength that included blowing dust.

On Friday, August 28th, the local forecasters from both, the Maricopa and Pinal County air agencies confirmed a presence of a strong high pressure and an unquestionable monsoon in the forecast for the next couple of days with isolated to scattered thunderstorms.

Hourly average wind speeds were 18 mph between 7 PM and 11 PM; with maximum gust winds reaching 28 mph, see Figure 5 below. And the hourly PM10 concentrations from the Casa Blanca and St Johns PM10 sites increased significantly during this time, see Figure 6 below. The hourly concentrations peaked at $2,089 \mu\text{g}/\text{m}^3$ for the Casa

Blanca PM10 monitor while the St Johns PM10 monitor peaked at $1,737 \mu\text{g}/\text{m}^3$. The wind directions were from the southwest direction. The Casa Blanca site recorded a trace amount of rainfall between 9 and 10 PM; the hourly PM10 concentrations at 10 PM was back down to $63 \mu\text{g}/\text{m}^3$.

September 12, 2015 (Saturday)

On Friday, September 11th, the local forecast from Pinal County Air Quality indicated “Another batch of Monsoon moisture will start moving into the area on Sunday and last into the early to middle of next week.” There were no forecasts for major thunderstorm activity for Saturday. However, south central Pinal County in southeastern Arizona including GRIC received a severe thunderstorm at 6 PM that had damaging winds that were in excess of 60 mph.

The National Weather Service continued to issue dust storm warning for metro Phoenix throughout the evening of September 12, 2015. Frequent updates throughout the evening stated strong thunderstorm with small hail and wind speed over 55 mph. This severe Thunderstorm Warning included Sacaton and Santan Mountain in the early 6 PM hours.

The wind speeds at Casa Blanca reached 33 miles per hour at the 6 PM hour, see Figure 7 below. The Casa Blanca PM10 monitor hourly concentrations spiked to $2,565 \mu\text{g}/\text{m}^3$ during this time period, see Figure 8 below. This significant spike in a one hour period caused the 24-hour average concentration to exceed the standard with a measurement of $157 \mu\text{g}/\text{m}^3$.

Figure 1. Casa Blanca Site Wind Speed Data on June 27, 2015

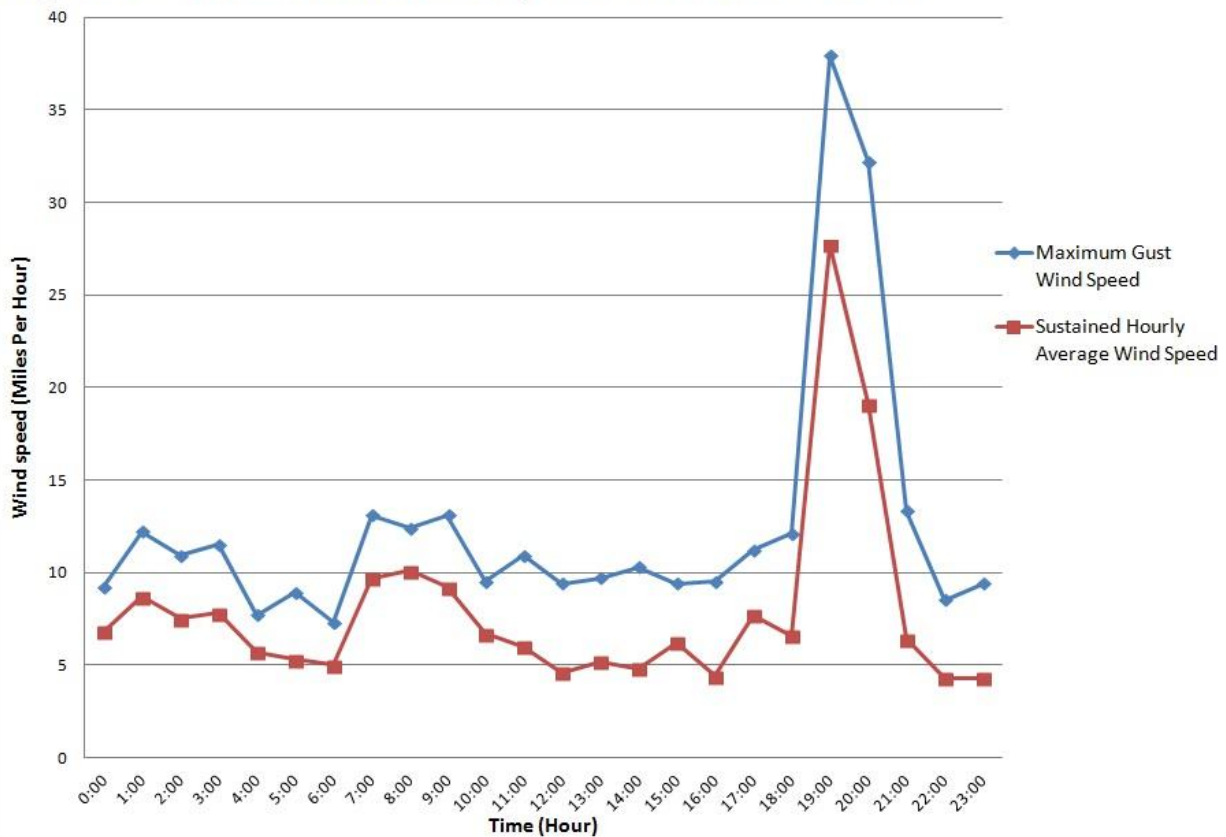


Figure 2. GRIC Hourly PM10 Data on Saturday, June 27, 2015

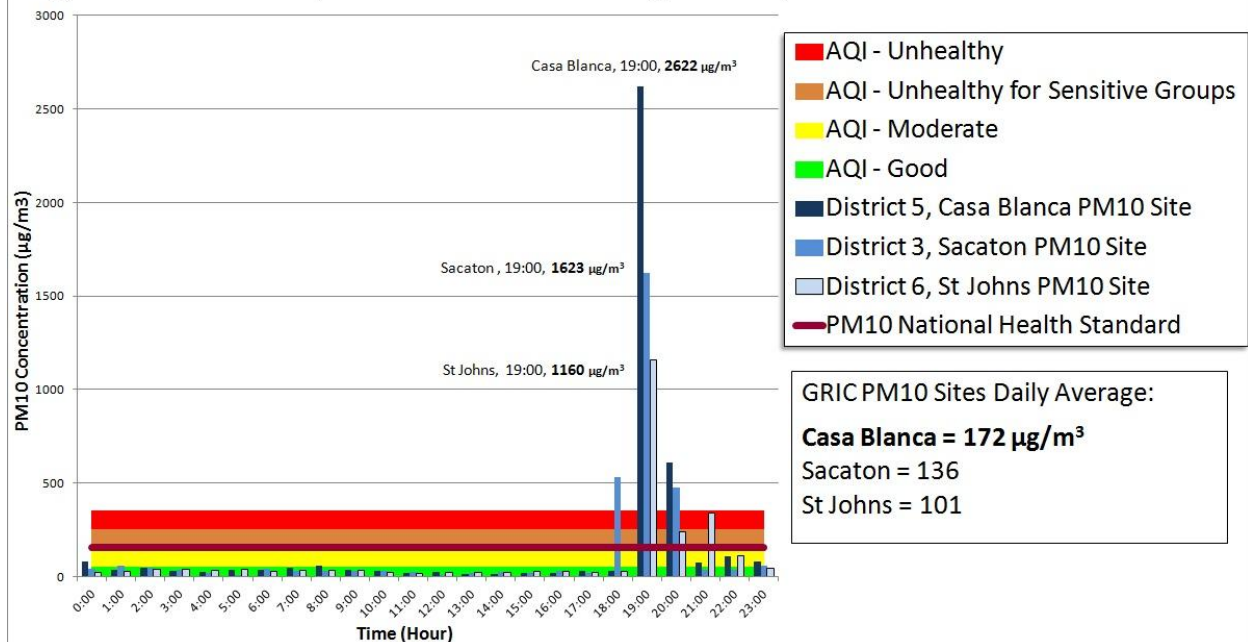


Figure 3. St Johns Site Wind Speed Data on August 11, 2015

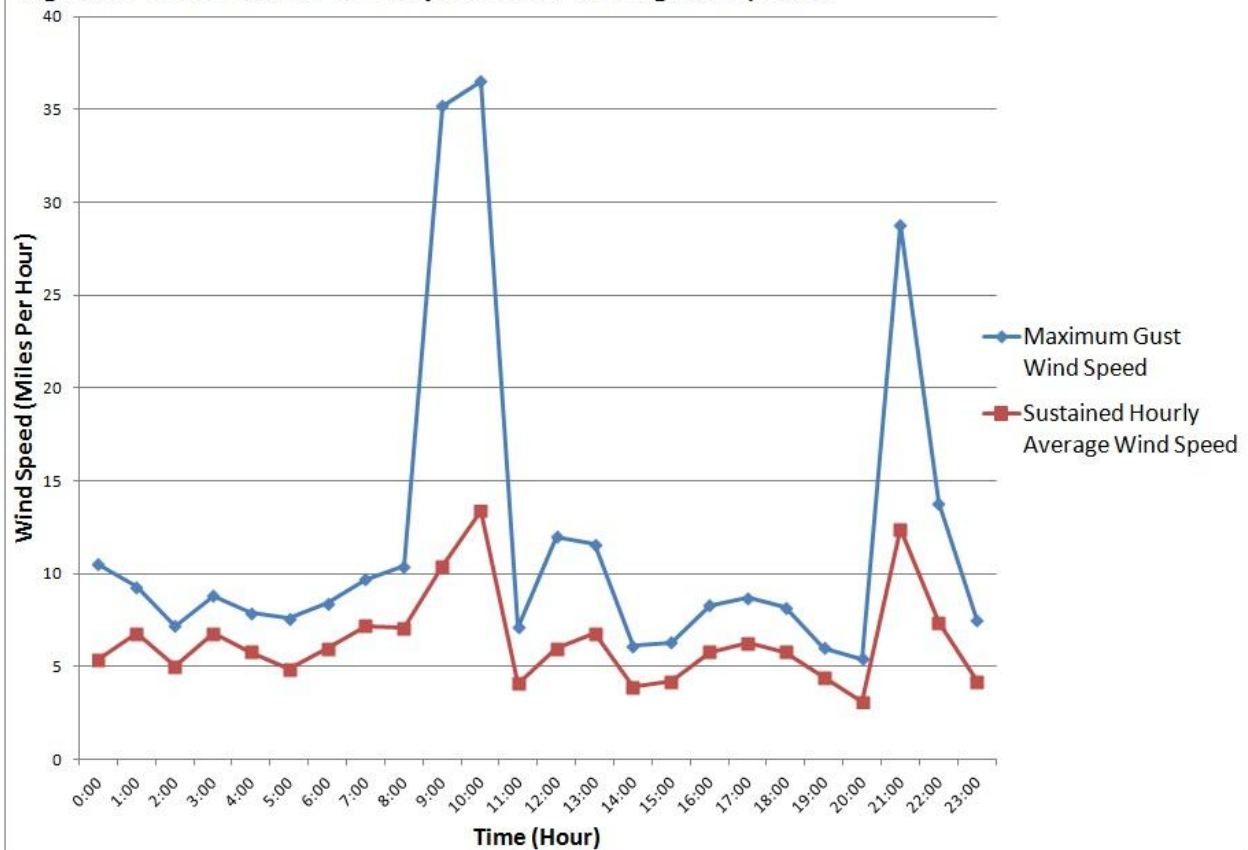


Figure 4. GRIC Hourly PM10 Data on Tuesday, August 11, 2015

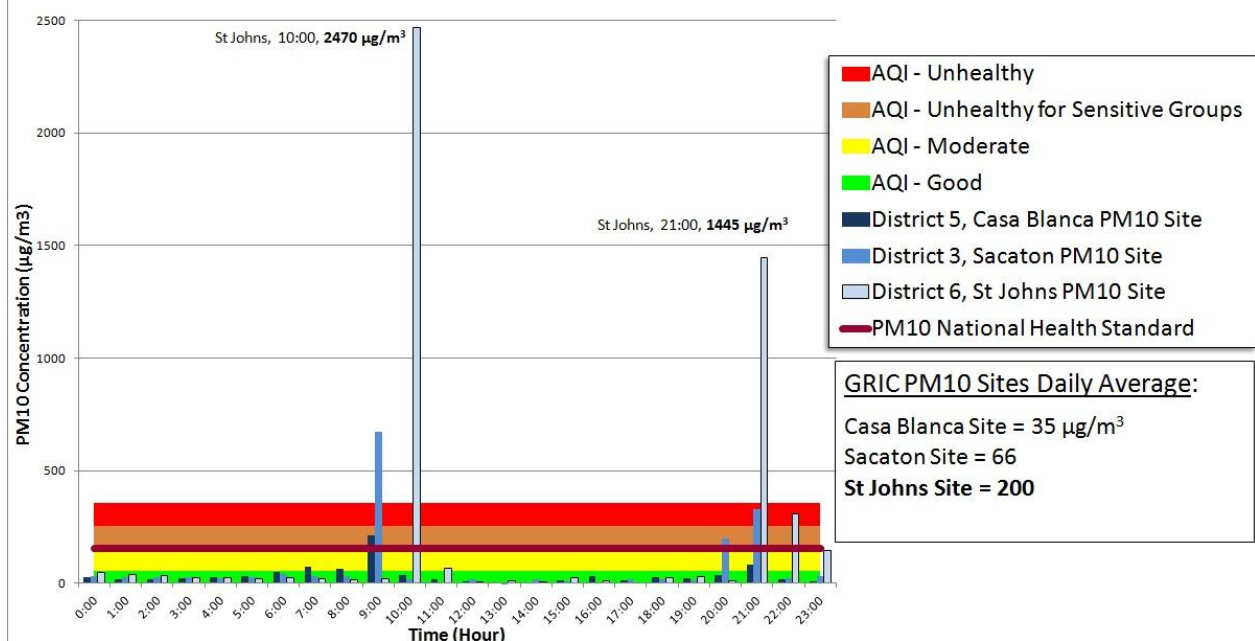


Figure 5a. Casa Blanca Wind Speed Data on August 29, 2015

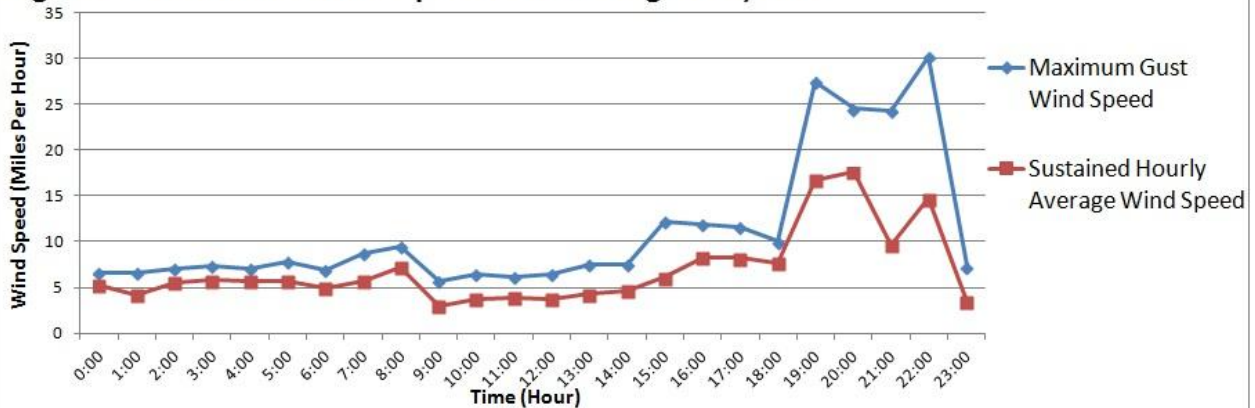


Figure 5b. St Johns Site Wind Speed Data on August 29, 2015

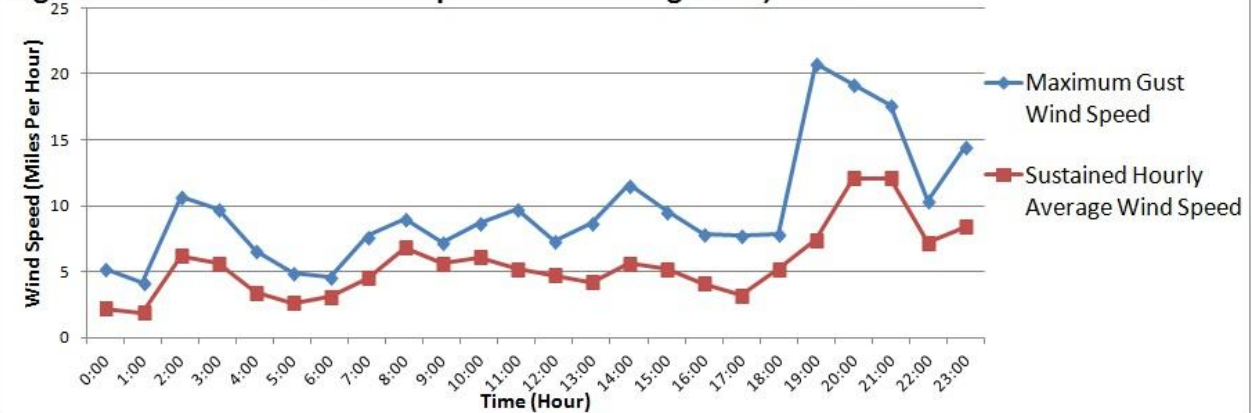


Figure 6. GRIC Hourly PM10 Data on Saturday, August 29, 2015

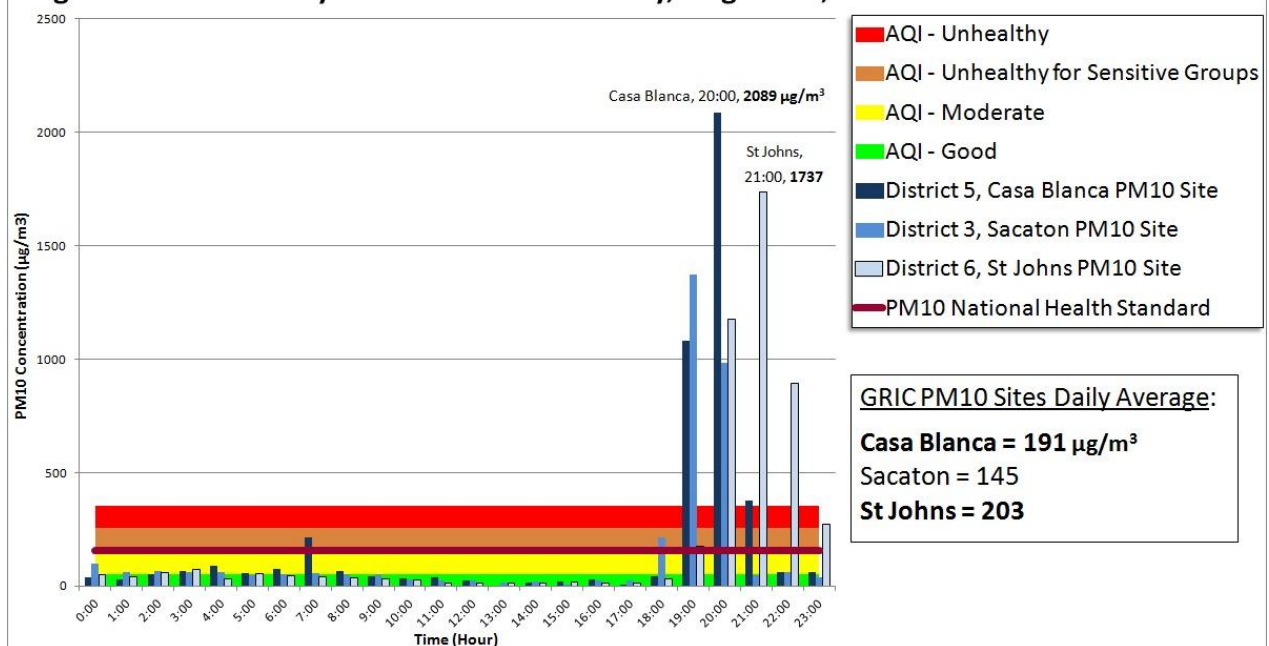


Figure 7. Casa Blanca Site Wind Speed Data on September 12, 2015

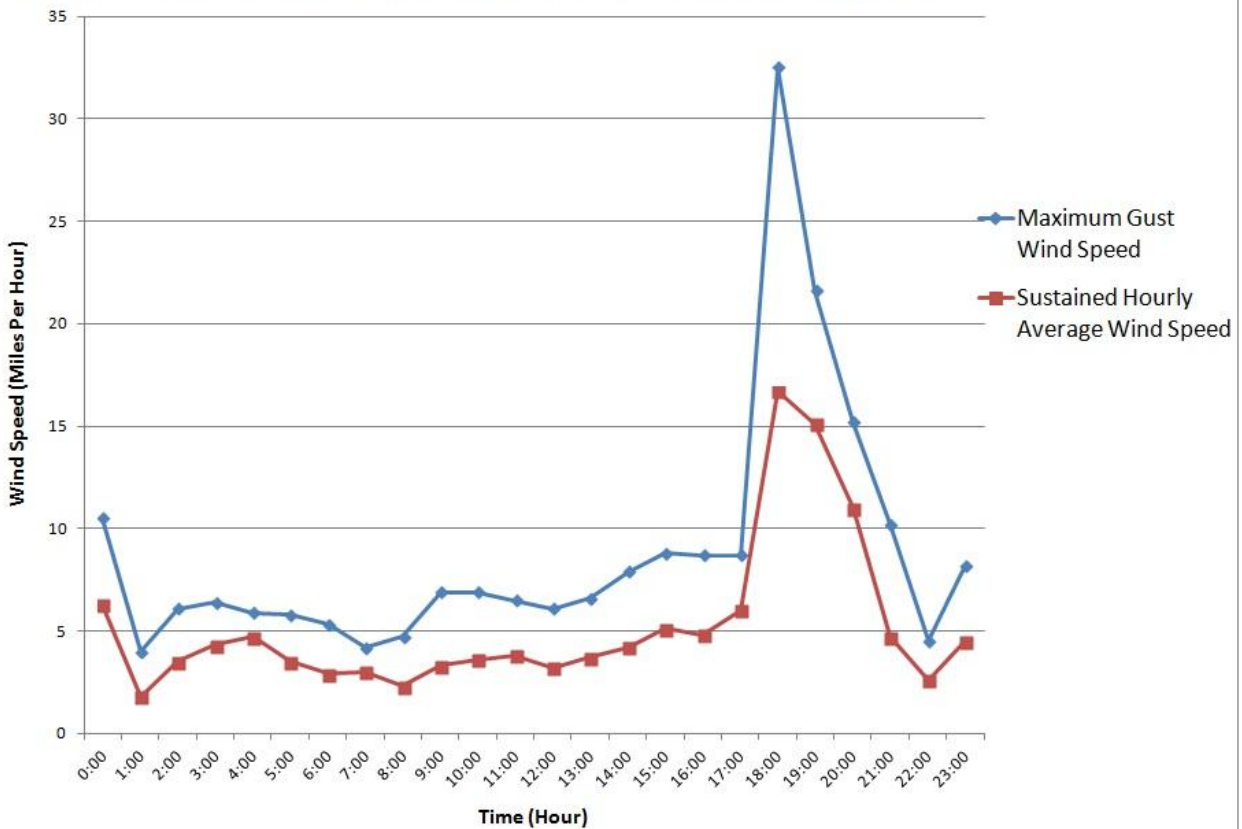


Figure 8. GRIC Hourly PM10 Data on Saturday, September 12, 2015

