# Puerto Rico
# Air Monitoring Network Plan

## 2012

## PUERTO RICO
## ENVIRONMENTAL QUALITY BOARD

**APRIL, 2012**

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## Acronyms and Abbreviations

AQS: Air Quality System
CFR: Code Federal Register
EPA: Environmental Protection Agency
FEM: Federal Equivalent Method
FRM: Federal Reference Method
NAAQS: National Air Ambient Quality Standards
NAMS: National Air Monitoring Stations
NCore: National Core Multi-pollutant Monitoring Stations
$NO_2$: Nitrogen Dioxide
$O_3$: Ozone
OSI: Information System Office
PAMS: Photochemical Assessment Monitoring Stations
PB: Lead
$PM_{10}$: Particulate Matter
$PM_{2.5}$: Fine Particulate Matter
ppm: parts per million
PR: Puerto Rico
PREQB: Puerto Rico Environmental Quality Board
PREPA: Puerto Rico Power Electrical Authority
QAMP: Quality Assurance Monitoring Plan
QAPP: Quality Assurance Project Plan
RCPA: Regulation for the Control of Atmospheric Pollution of Puerto Rico
SLAMS: State and Local Air Monitoring Stations
$SO_2$: Sulfur Dioxide
$SO_4$: Sulfate
SPM: Special Purpose Monitor
TEOM: Tapered Element Oscillating Microbalance
TSP: Total Suspended Particulate

## 1.0 INTRODUCTION

The Puerto Rico Environmental Quality Board (PREQB) develops an annual ambient air monitoring network plan which is a review of the ambient air monitoring network each year as required by Title 40 of the Code of Federal Regulation (CFR), Part 58. This Air Monitoring Network Plan meets the requirements of 40 CFR 58.10(a) (1). The purpose of this plan is to provide for the establishment and maintenance of an air quality monitoring system in Puerto Rico that consists of a network of National Air Monitoring Stations (NAMS), State and Local Air Monitoring Stations (SLAMS) and Special Purpose Monitoring (SPM) sites that include federal reference method (FRM) monitors.

The review finds the state's ambient air quality concentrations are demonstrating attainment with EPA's National Ambient Air Quality Standards (NAAQS). Modifications to the state's ambient air monitoring network are being proposed to adjust the sampling sites to meet the changing needs of Puerto Rico.

A complete description of each station is on file at the Air Monitoring Area and is available to review upon request.

### 1.1 COMMENTS ON PUERTO RICO AIR MONITORING NETWORK PLAN

The annual plan is published in the PREQB's website to provide public review and comments so adjustments can be made to meet the needs of the general public before the annual plan is finalized. This Monitoring Network Plan was available for public inspection for 30 days until May 30, 2012. Comments will be reviewed to determine if changes or modifications to the plan are necessary.

### 1.2 CURRENT PUERTO RICO AIR MONITORING NETWORK

The following sections describe the SLAMS, and SPM sites in Puerto Rico's current air monitoring network and identifies the location (address), the objective, and the spatial scale represented by each site. The location identified is the actual address where each monitoring site is located. The Air Quality System (AQS) number is the number that identifies the site by state, county, and location. Also, used for internal reasons, the EQB number is in accordance with the following parameters:

- ✓ A station may be designated as a State and Local Air Monitoring Station (SLAMS), or as a Special Purpose Monitor (SPM).
- ✓ The spatial scale represented is described in terms of the physical dimensions of the air parcel surrounding an air monitoring station throughout which pollutant concentrations are reasonably homogeneous. The scales used for Puerto Rico's network are:

- Micro: Several meters to about 100 meters
- Middle: About 100 to 500 meters
- Neighborhood: About 500 meters to 4 kilometers
- Urban: Overall citywide conditions, usually about 4 to 50 kilometers requires more than one station to define.

✓ The monitoring objectives include: population exposure (Population), source impact (Source), highest expected concentration (High) or background station (Background).

## 1.3 METROPOLITAN STATISTICAL AREAS (MSA) AND CORE BASED STATISTICAL AREAS CBSA

To review the PR Monitoring Network, PREQB uses the statistical definitions provided by the Office of Management and Budget and the Census Bureau and others criteria such as geography, climatologic conditions, industrial distribution to making decisions concerning locations and distributions of the air monitoring stations among metropolitan areas. Understanding these conditions and natural forces is one of the keys to make successful decisions in order to establish monitoring programs that benefit the air quality and public health on each individual metropolitan area.

**Core-based statistical area (CBSA)** - Defined by the U.S. Office of Management and Budget, as a statistical geographic entity consisting of the county or counties associated with at least one urbanized area/urban cluster of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration.

**Metropolitan Statistical Area (MSA)** - A Core-based statistical area (CBSA) associated with at least one urbanized area of 50,000 population or greater. The central county plus adjacent counties with a high degree of integration comprise the area.

## 1.4 MONITORING DATA QUALITY ASSURANCE

The Quality Assurance Management Plan (QAMP) was prepared by the Puerto Rico Environmental Quality Board and approved by EPA Region II. The air monitoring network meets the criteria identified in the QAMP.

The Quality Assurance Project Plan (QAPP) is under revision. The QAPP describes in greater detail the monitoring effort and quality assurance procedures that the data must meet before it is considered as quality assured and acceptable for submittal to the public and EPA.

The Standard Operating Procedure (SOP) manuals have been prepared by the Air Quality Area. It identifies the steps, procedures and criteria that must be meet in operating of the monitoring network and in the validation of the air quality data.

## 1.5 MONITORING SITE DISCUSSION

The following pages discuss each monitoring site, the objective of the monitoring site, and if that objective is being met. The instruments used at each site are also identified. Monitoring for the criteria pollutants identified by EPA is performed using EPA reference or equivalent samplers or analyzers according to the list dated February 1, 2011. In all cases, the instruments used in the PREQB monitoring network are EPA reference or equivalent instruments. The instruments used to measure the criteria pollutants comply with 40 CFR Part 58, Appendix C.

## 1.6 NETWORK MODIFICATION PROCESS

The Puerto Rico monitoring network is reviewed annually to verify that the objectives of the network are met according with the last review of the NAAQS. The most recent emissions inventories (2010) for each pollutant are reviewed along with population data and ambient data gathered in the area. When it is available, the current computer air pollution dispersion modeling is also reviewed. Based on that information, Puerto Rico may identify the need for an additional monitoring station or the need to relocate a station to better meet the objectives of each site. Puerto Rico may also identify sites that are no longer needed for the monitoring needs of the State. If a change is needed in the monitoring network, a Network Modification Form is submitted to EPA Region II prior to or as part of installing, modifying, or removing a monitor.

## 1.7 REVIEW OF NETWORK MODIFICATIONS IN 2011-12

With increasing monitoring needs and fiscal constraints, EQB determined that it is critical to verify that the monitoring network is operating as efficiently as possible. To meet that goal each station is evaluated to determine if the station addresses a critical need without duplicating existing information. To do that, the following criterion is used.

1. Ensure that the air monitoring network meets the requirements of 40 CFR 58.
2. Identify the monitoring sites that are required to evaluate compliance with the NAAQS and provide public notification of air quality conditions.
3. Provide the technical information needed to support SIP development, including monitoring data for modeling and control strategy selection.
4. Meet the available budget allocations by consolidating monitoring equipment to selected sites and removing monitoring stations that are collecting redundant or immaterial data.

As a result of this review, some modifications to the monitoring network may need to occur.

The EQB staff have met to consider how to collect the air monitoring data needed to meet the goals and objectives of EQB and implement the new EPA monitoring regulations while, at the same time, receiving substantially reduced federal EPA funding for the monitoring program. A number of primary objectives were identified and served as the basis for a major realignment of PR's monitoring network. Those objectives are:

- Provide timely air quality data to the public to support and enhance EQB's public notification process whenever unhealthy air quality conditions are forecast or already exist. This notification allows the public to take the appropriate precautions to protect their health while providing them and local industry the opportunity to reduce their emissions and their impact on air pollution.
- Collect air pollution data to evaluate areas against the NAAQS new regulations.

## 2.0 PUERTO RICO AIR MONITORING NETWORK

### 2.1 $PM_{2.5}$ Air-Monitoring Network

#### $PM_{2.5}$ FRM

The PREQB operates ten (10) $PM_{2.5}$ FRM sites in the air-monitoring network. All of the sites operate on a 1-in-3 day sample schedule. Two sites, Guaynabo and Baldorioty Ave. in San Juan, operate collocated $PM_{2.5}$ FRM samplers on a 1-in-6 day sample schedule. Three of these sites were in temporary shutdown. During the 2011, EQB re-start these sites. The details of these sites are included in Section S.0 Site Description.

#### Continuous $PM_{2.5}$

The PREQB operates three (3) continuous $PM_{2.5}$ sites in the air-monitoring network. All continuous $PM_{2.5}$ samplers are operated year-round and the measurements are sent to the EPA AQS on an hourly basis. All continuous $PM_{2.5}$ samplers have TEOM 1400 AB. All the sites of $PM_{2.5}$ continuous will be for AQI purposes.

#### Changes proposed to Continuous $PM_{2.5}$

For the 2012 EQB propose the following changes:

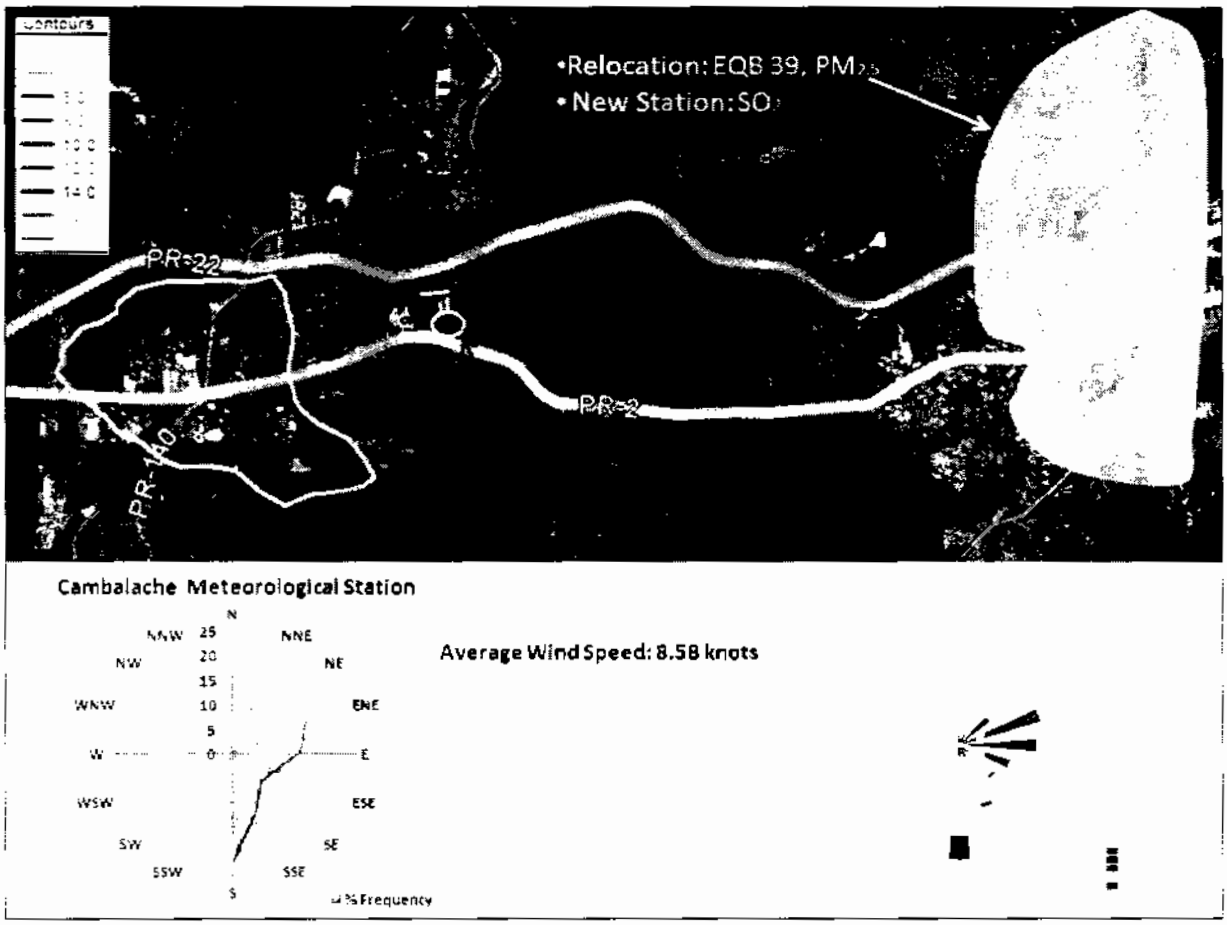
1. The monitor deployed at Barceloneta will be relocated to a new site at Manatí according with the PR Air Monitoring Network Plan 2011.
2. Add one new monitor in Ponce near CEMEX.

The details of these sites and changes are included in Section S.0 Site Description.

Manatí

The new site at Manatí will be established near the BASF industry. To determine the location, EQB uses the population[1] and $PM_{2.5}$ emissions in the area. See Figure #1.

Figure #1: Manatí

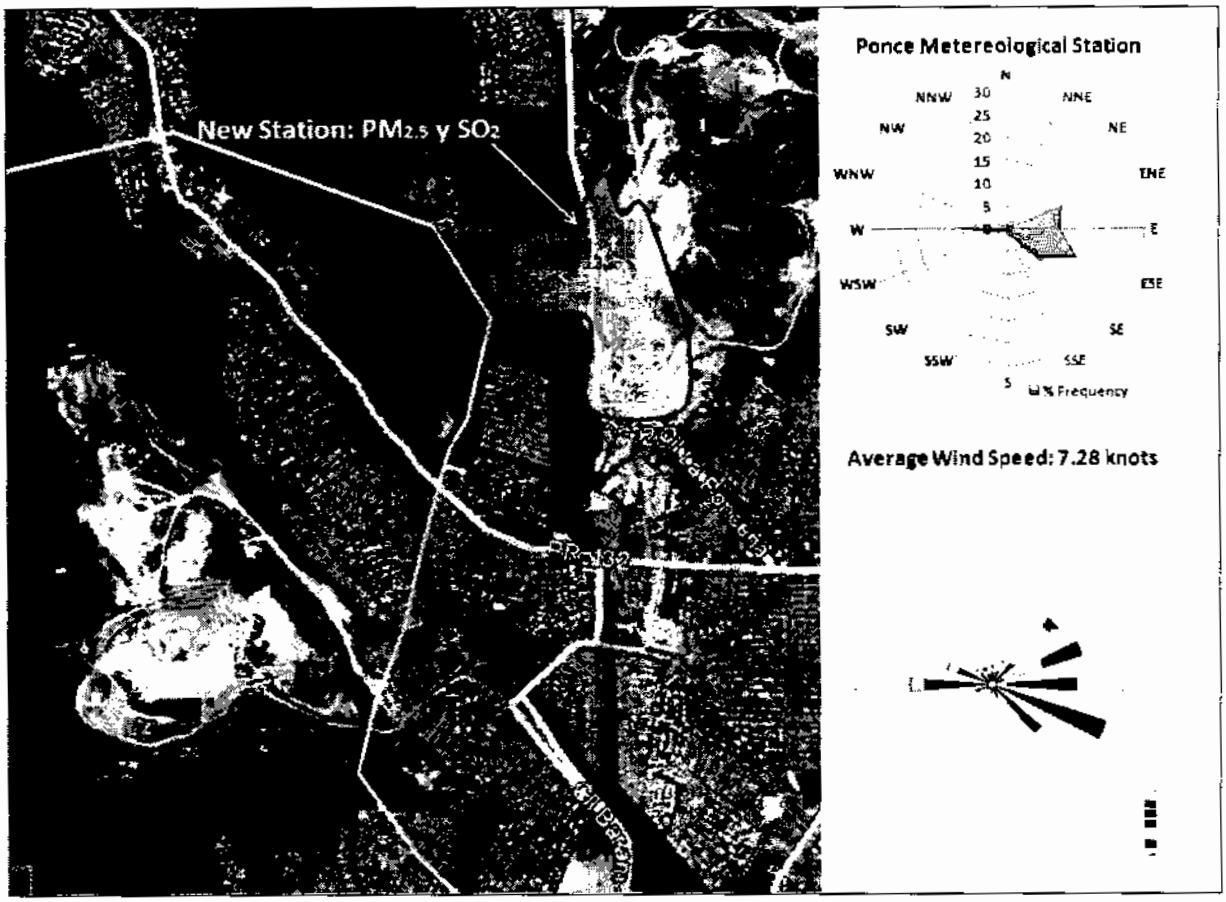



Ponce

The new site in Ponce will be located near the CEMEX industry area. To determine the location, EQB uses the population[2] and the $PM_{2.5}$ emissions in the area. See Figure #2.

[1] Population 582,153 according with the Census 2000 and Total $PM_{2.5}$ emission 62.47 tons/yr, *PR Emissions Inventory 2009*

Figure #2: Ponce




## 2.2 $PM_{10}$ Air-Monitoring Network

### $PM_{10}$ FRM

The PREQB operates five (5) $PM_{10}$ FRM sites in the air-monitoring network. Two of the sites, Fajardo and Guaynabo are operated every day. Three sites, USGS Office in Guaynabo, Guayama and Ponce are operated every three days (1-in-3 day) sample schedule. Two sites, Guayama and AEE Substation in Guaynabo, operate collocated $PM_{10}$ FRM samplers on a 1-in-6 day sample schedule. The details of these sites are included in Section 5.0 Site Description.

### Continuous $PM_{10}$

[2] Population 517,012 according with the Census 2000 and Total $PM_{2.5}$ emission 987.97 tons/yr, *PR Emissions Inventory 2009*

The PREQB operates two (2) continuous $PM_{10}$ site in the air-monitoring network. The continuous $PM_{10}$ sampler is operated year-round and the measurements are sent to the EPA AQS website and used for AQI purposes on an hourly basis. One site is deployed at Las Vegas in Cataño (72-033-0004) and the second site is located at Ponce (72-113-0004).

## 2.3 $PM_{2.5}$ Speciation Network

$PM_{2.5}$ chemical speciation measurements are being obtained at one site in the PREQB air-monitoring network. The site will be located at the NCore site as was suggested by EPA. It will be operated on the same 1-in-6 day sample schedule and provides 24-hour integrated filter-base measurements.

The $PM_{2.5}$ speciation site is temporary shutdown. The principal objective of the site is to determine the contribution of the exceptional events in the PM data of Puerto Rico. EQB is waiting for the EPA HQ decision to establish the monitor.

## 2.4 Ozone Air-Monitoring Network

The PREQB operates two ozone sites in the air-monitoring network. One ozone air-monitoring site is located at Cataño (72-033-0008) and the other site is located at Juncos municipality (72-077-0001). All ozone samplers are operated year-round and the measurements are sent to the EPA AQS on an hourly basis. The ozone sites are classified as SLAMS and use FEM monitors. Details of the sites location are included in Section 5.0 Site Description.

## 2.5 $NO_2$ Air-Monitoring Network

The existing nitrogen dioxide ($NO_2$) monitoring stations were installed at their current locations based on a combination of emissions inventories and population centers. The oxides of nitrogen ($NO_x$) are important precursors in the secondary formation of particulate matter and ozone. These pollutants tend to be more regional in nature, rather than occurring directly downwind of major sources of $NO_x$. For this reason, $NO_2$ monitoring stations have been collocated (QA) to better understand and model the formation of these pollutants.

The PREQB operates two (2) nitrogen oxide ($NO_2$) sites in the air-monitoring network. The $NO_2$ samplers are operated year-round and the measurements are sent to the EPA AQS on an hourly basis. The SLAMS $NO_2$ sites are used as a FRM. The sites are located at Cataño (72-033-0008) and Salinas (72-123-0002). The $NO_2$ stations at Cataño re-start on February 9, 2012 and the Salinas site will be start in 2012. The details of these sites are included in Section 5.0 Site Description.

## $NO_2$ Network Changes

In compliance with the revised new short-term standard, PREQB proposes installed two (2) monitors at locations where maximum $NO_2$ concentrations are expected to occur, including within 50 meters of major roadways, as well as monitors that will be sited to measure the area-wide $NO_2$ concentrations that occur more broadly across communities.

The two (2) new sites proposed will be located one (1) in Buchanan Area and the other one in Caguas. The areas show the maximum $NO_2$ short-term impact according with the results of the $NO_2$ model.

Figure #3 Buchanan

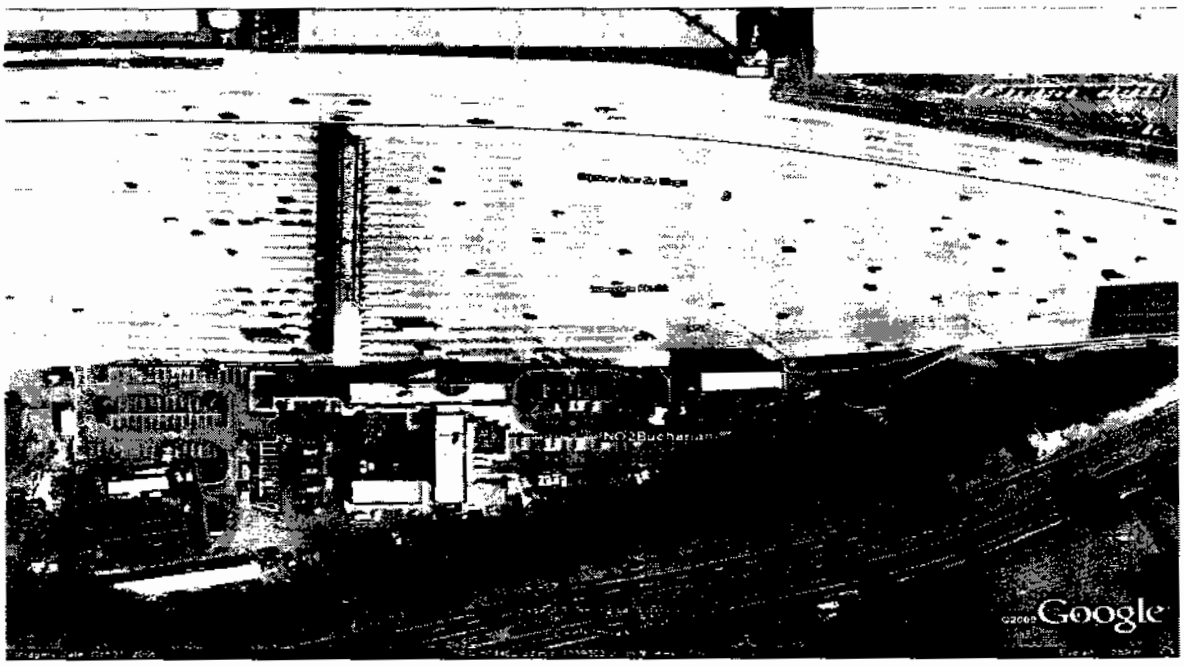
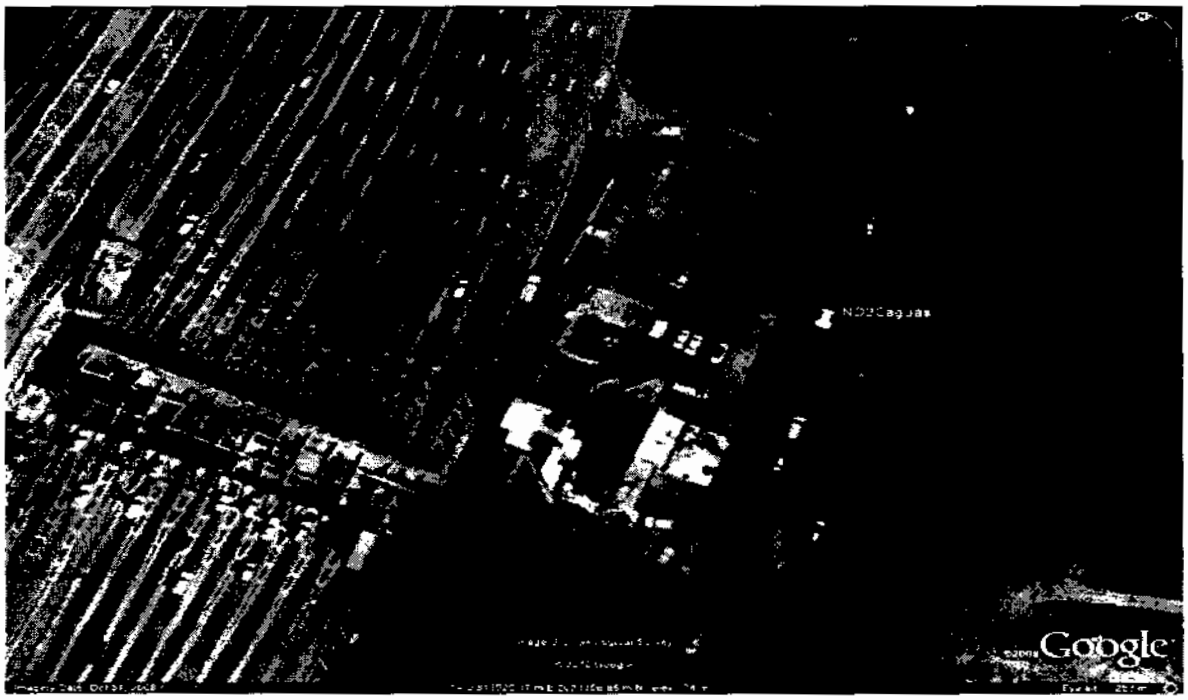


Figure #4 Caguas




## 2.6 CO Air-Monitoring Network

The PREQB operates three (3) carbon monoxide (CO) sites in the air-monitoring network. All CO samplers are operated year-round and the measurements are sent to the EPA AQS on an hourly basis. The SLAMS CO sites use FRM monitors. One site is located at San Juan, 72-127-0003 Baldorioty De Castro Ave., one site at 72-021-0006 at Bayamón and the other one is located at Ponce 72-113-0004. The details of these sites are included in Section 5.0 Site Description.

## 2.7 $SO_2$ Air-Monitoring Network

The PREQB operates five (5) sulfur dioxide ($SO_2$) sites in the air-monitoring network. All $SO_2$ samplers are operated year-round and the measurements are sent to the EPA AQS on an hourly basis. The SLAMS $SO_2$ sites use FEM monitors. The sites are located two at San Juan-Caguas Area, two at Industrial Area (Guayama – Salinas), and one at Juncos.

EQB will need to make some adjustments to the EQB $SO_2$ network to ensure that monitors meet today's network design regulations for the new 1-hour. Some of the existing $SO_2$ monitoring locations may not represent appropriate monitoring locations for the new 1-hour standard monitoring requirements, because the existing locations were selected according with requirements in place at the time for the annual and 24-hour $SO_2$ standards.

The final network design is intended to be flexible to meet multiple monitoring objectives. Ambient monitoring networks are generally designed to meet three primary monitoring objectives, as listed in 40 CFR Part 58 Appendix D, Section 1, including:

1. Providing air pollution data to the general public in a timely manner.
2. Support compliance with ambient air quality standards and emissions strategy development.
3. Support air pollution research studies (which include health studies and research).

In order to support the air quality management objectives, monitoring networks can have a variety of monitoring sites that can be sited, as necessary, to characterize:

a. emission sources (*i.e.*, source-oriented monitoring)
b. the highest concentration in an area
c. population exposure
d. general background concentrations levels
e. regional pollutant among populated areas or wind direction
f. welfare-based impact

The final network design requires that any $SO_2$ monitors required in a particular CBSA as determined based on PWEI values, shall satisfy the minimum monitoring requirements if they are sited at locations where they can meet any one or more of the monitoring objectives.

## $SO_2$ Minimum Monitoring Requirements

Table #1

| $SO_2$ Station Require according with the PWEI[3] Value to Puerto Rico | | | | |
|---|---|---|---|---|
| Puerto Rico CBSA | Population | $SO_2$ Emissions (ton/yr) | PWEI | Stations Required |
| San Juan – Caguas - Fajardo | 2,748,991 | 53,250 | 146,383.77 | 2 |
| Aguadilla – Isabela - San Sebastián | 339,523 | 394 | 133.77 | 0 |
| Guayama-Salinas | 186,552 | 32,040 | 3,730.55 | 0 |
| Ponce – Yauco - Coamo | 490,066 | 126,070 | 61,782.62 | 1 |
| Mayagüez – San Germán-Cabo Rojo | 147,270 | 1,555 | 401.01 | 0 |
| Jayuya - Adjuntas | 55,019 | --- | --- | --- |
| Culebra - Vieques | 11,390 | --- | --- | --- |
| Maricao – Las Marías | 18,256 | --- | --- | --- |
| Total | 3,954,037 | 213,309 | | |

[3] PWEI: Population Weighted Emission Index

Table #2

| National Sulfur Dioxides Emissions in 2005[4] | |
|---|---|
| Source Sector | Total Emissions |
| Electricity Generation | 10,402,756 |
| Fertilizer & Livestock | 2,098 |
| Fires | 36,879 |
| Fossil Fuel Combustion | 2,172,886 |
| Industrial Processes | 1,116,099 |
| Non Road Equipment | 362,447 |
| On Road Vehicles | 145,966 |
| Residential Wood Combustion | 5,263 |
| Waste Disposal | 29,503 |
| Solvent Use | 593 |

Table #3

| $SO_2$ Station Require according with PR Contribution to the Total National Emissions Inventory | | | | |
|---|---|---|---|---|
| Puerto Rico | Population | $SO_2$ Emissions (ton/yr) | $SO_2$ National Inventory | Stations Required |
| | 3,954,037 | 213,309 | 13,691,741[5] | 1 (0.015) |

## $SO_2$ Network Changes

The section below shows the change in the number of monitoring sites and locations of $SO_2$. EQB proposes maintain the five (5) stations and install one (1) new station according to the minimum required by the regulation, PWEI values and the results of the air dispersion models.

### CBSA San Juan - Caguas - Fajardo

EQB proposes maintain the monitors located at San Juan Area; Bayamón (72-021-0006), Cataño (72-033-0004), as part of the PWEI requirements and, maintain the monitor located at Juncos (72-077-0001) as part of the PR Emission Contribution to the Total National Emissions Inventory and in correlation with mathematical air dispersion modeling results.

[4] National Summary of Sulfur Dioxides Emissions, http://Www.Epa.Gov/Air/Emissions/$SO_2$.htm
[5] Total Emissions: Industrial Processes + Electricity Generation + Fossil Fuel Combustion

The station at Juncos is located inland to determine concentration behavior caused by geographic mountain-valley factors.

CBSA Guayama - Salinas

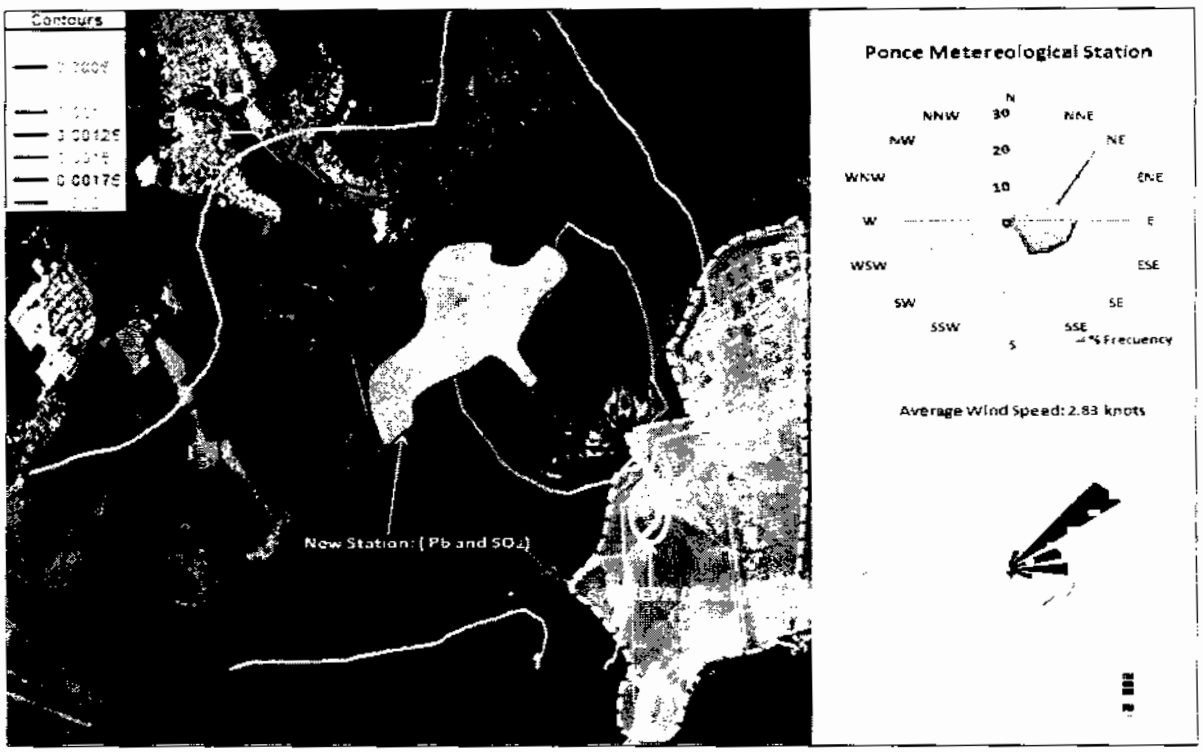
EQB proposes to maintain the EQB station #18 (72-123-0002) according with emissions inventory. This area represents the maximum concentration of the $SO_2$ emissions in Puerto Rico. Also, this station is located to capture the maximum concentrations according to the results of the mathematical model on 1-hour and 3-hours.

Also, EQB will maintain the station EQB #69 (72-057-0009) according with emissions inventory. Also, this station is located to capture the maximum impact of $SO_2$ concentration of 1-hour and 3-hours.

CBSA Ponce – Yauco - Coamo

EQB proposes to install one new station located near the PREPA South Coast at Guayanilla as required by the new regulation and the PWEI value shown at Table #1. That area shows the maximum $SO_2$ impact for 1-hour and 3-hours. See Figure #5

Figure #5: Guayanilla



In summary, make some adjustments to the EQB $SO_2$ network to ensure that monitors meet today's network design regulations for the new 1-hour.

- ✓ San Juan – Caguas area: three (3) stations, three existing monitors (EQB #40 72-033-0004, EQB #8 72-077-0001 and EQB #37 72-021-0006)
- ✓ Industrial Area Guayama-Salinas: two (2), one existing monitor in Guayama (EQB #69 72-057-0009) and the EQB #18 72-123-0002 in Salinas.
- ✓ Ponce Area: one (1) new station (Guayanilla).

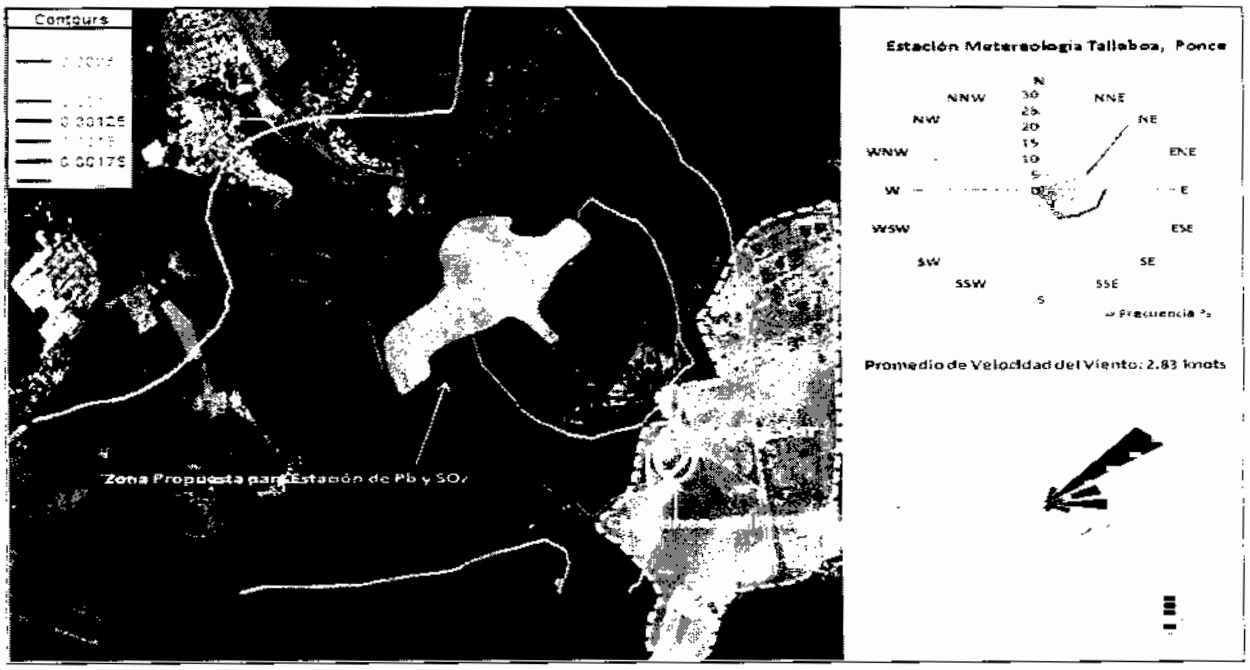
The details are including at Section 5.0 Site Description.

## 2.8 Lead Air-Monitoring Network

The PREQB operates three (3) lead (Pb) sites in the air-monitoring network. All Pb samplers are operated year-round and the measurements are sent to the EPA AQS on daily basis. The SLAMS Pb sites use FRM monitors. One site is located at Arecibo 72-013-0001, other is located at Salinas 72-123-0002 and one monitor non-source oriented at Bayamón 72-021-0006.The details of these sites are included in Section 5.0 Site Description.

According with the new lead regulation approved, EQB plan to install other station at Guayanilla area near sources with emissions more than 0.5 ton/yr of lead. The Guayanilla new lead monitor proposed will be located on a new site near the industrial area of South Coast (PREPA). The figure below shows the area where the new monitor will be established. See Figure #6.

Figure #6: Guayanilla



Also, requested by EPA and part of the Lead Arecibo SIP, PREQB will be establishing a new Pb monitor at Arecibo. The new lead Arecibo monitor proposed will be located on a new site near the industrial area of Battery Recycling. The figure below shows the area where the new monitor will be established. See Figure #7.

Figure #7: Arecibo


## 2.9 PM Sulfate Air Monitoring Network

The PREQB operates four (4) $PM_{10}$ -Sulfates ($SO_4$) sites in the air-monitoring network. The particulate sulfate-monitoring network utilizes $PM_{10}$ filter sampling analysis to generate ambient sulfate concentrations.

The $SO_4$ sites are located at USGS in Guaynabo (72-061-0001), Amelia in Guaynabo (72-061-0005), Fajardo (72-053-0003) and Guayama (72-057-0008). All $SO_4$ samplers are operated year-round and the measurements are sent to the EPA AQS on a daily basis. Details of the sites locations are included in Section 5.0 Site Description.

## 2.10 NCore – Air Monitoring Network

NCore, or National Core multi-pollutant monitoring stations, is a new National Monitoring Network required in the October 17, 2006 revisions to the Air Monitoring Regulations (40CFR, Part 58). NCore sites are required to measure, at a minimum, $PM_{2.5}$ particle mass

using continuous and integrated/filter-based samplers, speciation $PM_{2.5}$, $PM_{10-2.5}$ particle mass, speciation $PM_{10-2.5}$, $O_3$, $SO_2$, CO, $NO/NO_x$, wind speed, wind direction, relative humidity, and ambient temperature. Sampling methods for $PM_{2.5}$, speciation $PM_{2.5}$, $O_3$, $SO_2$, $NO/NO_x$ are described under the individual pollutant sections throughout this document. Trace level measurements of CO and $SO_2$ are performed at NCore sites. $PM_{10-2.5}$ or PM Coarse is determined by the difference between collocated $PM_{10}$ and $PM_{2.5}$ FRM samplers.

For Puerto Rico is required to operate at least one NCore site. According with the requirements, PREQB selected the AIRS 72-021-0006 site at Bayamón to establish the NCore.

PREQB is waiting for approval by EPA-HQ office.

## 3.0 METEOROLOGICAL DATA

By measuring surface wind speed and direction, one can attempt to determine where a pollutant-laden air mass has come from and where it is going. This information is essential any time an attempt is made to determine the cause of high pollution periods.

The wind patterns in the mountainous geography of Puerto Rico can be very difficult to analyze. Because of these complex wind patterns, EQB will establish meteorological stations in the cardinal points: northwest, southeast, and southwest of the Island. The sites to be located are being evaluated by EQB according with their industrial development. Each station must be evaluated separately because of the complex micrometeorology in Puerto Rico.

## 4.0 EMERGENCY EPISODE MONITORING

One of the responsibilities of EQB is to ensure that the public is protected from air pollution concentrations that will cause immediate damage or impact to their health.

Rule 107 of RCAP establishes emergency response criteria in accordance with Subpart H and Appendix L of 40 CFR S1. Whenever air pollution concentrations meet or exceed the Alert, Warning, or Emergency levels, an emergency episode is determined to exist and actions are taken to reduce the emissions of air pollutants. It is the responsibility of the monitoring section to collect the air pollution data used to determine when an emergency episode occurs. The data collection telemetry system is alarmed and the monitoring staff is alerted whenever the Alert, Warning, or Emergency levels are approached. The Air Quality Area staff has the primary responsibility to notify an emergency episode exists. This is a critical function that is required by State and Federal law.

The PREQB operates two (2) $PM_{10}$ -continuous site in the air-monitoring network. One site is located at Cataño 72-033-0004 and the other is located at Ponce 72-113-0004.

PREQB establish a $PM_{2.5}$ monitor at Cataño at existing site 72-033-0008. Also, propose change the $PM_{10}$ continuous monitor located at Ponce to a $PM_{2.5}$ continuous monitor. The monitors used to AQI are part of the $PM_{10}$ and $PM_{2.5}$ network at Section 2.1 and 2.2.

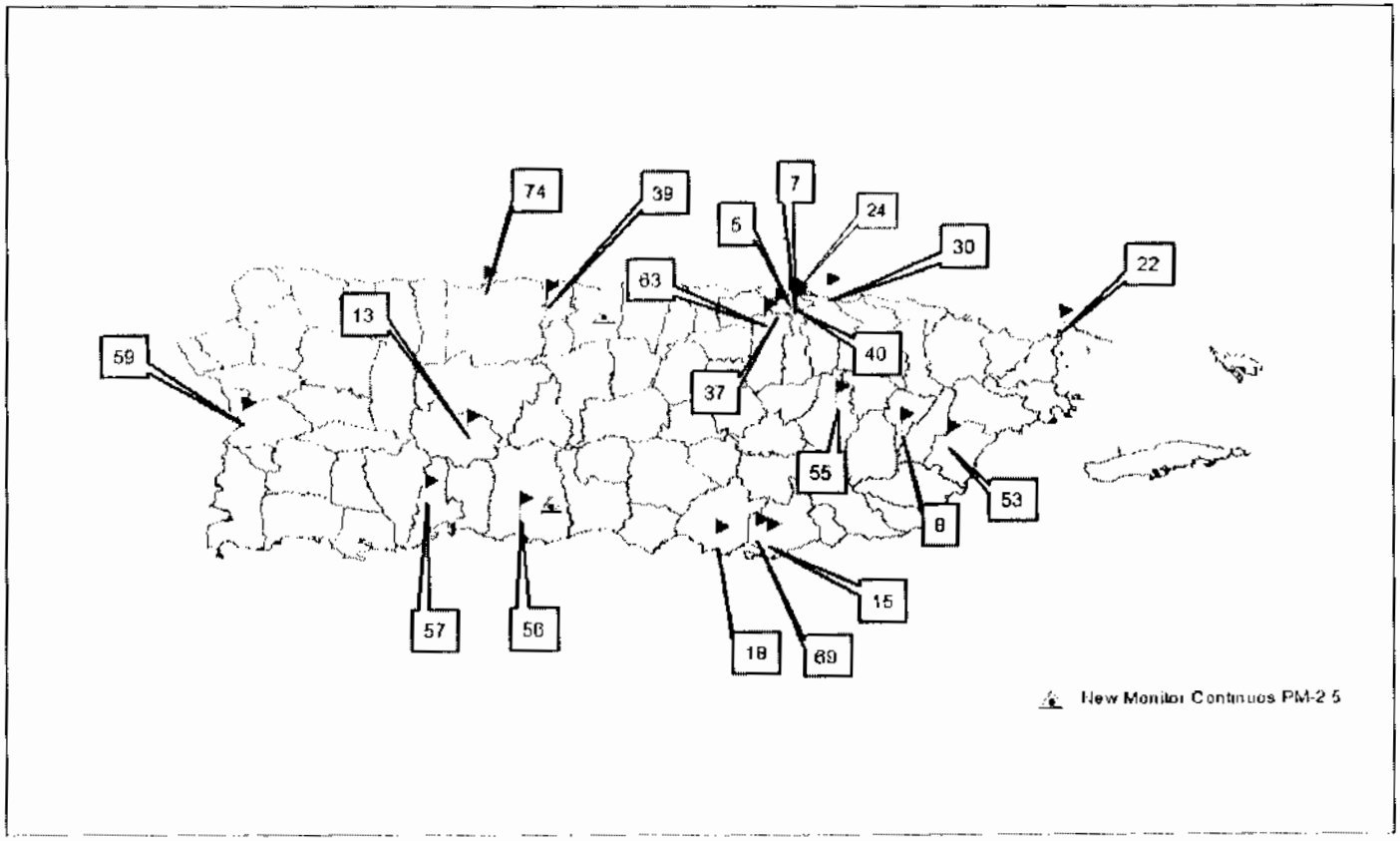
The details of the sites locations are included in Section 5.0 Site Description.

## 5.0 SITE AND MAP DESCRIPTION

The following tables provide a technical summary of the air monitoring network. They include: the site name, AQS code, the type of analyzer used and frequency of data collection, the source of gases used to calibrate the gaseous monitors, sampling method, analysis method, spatial scale, and the latitude and longitude of each site and plans for the next 18 months.

Also, you see a map with the locations of existing stations and new stations propose.

**Map: Air Monitoring Network 2012**



| | |
|---|---|
| Site Name | EQB #13 |
| Address | Road #123 |
| City | Adjuntas |
| AQS Code | 72-001-0002 |
| PR County | Adjuntas |
| MSA/CSA | N/A |
| Latitude | +18.175378 |
| Longitude | -66.725988 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | Yes |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Average Temperature | | Electronic | 1 in 3 | Urban | Extreme Downwind | 2005/01/01 |
| Sample Average Barometric Pressure | | Barometric Sensor | 1 in 3 | Urban | Extreme Downwind | 2005/01/01 |
| $PM_{2.5}$ | R&P Model 2025 | Gravimetric | 1 in 3 | Urban | Extreme Downwind | 2005/01/01 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ | SLAMS |

| | |
|---|---|
| Site Purpose | Reference for Extreme downwind |
| Plans for the next 18 months | No changes |
| Other comments | |

| | |
|---|---|
| Site Name | EQB #74 |
| Address | Victor Santoni Cordero Road #123 |
| City | Arecibo |
| AQS Code | 72-013-0001 |
| PR County | Arecibo |
| MSA/CSA | N/A |
| Latitude | +18.457039 |
| Longitude | -66.696693 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | n/a |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Temperature Average | | | 1 in 6 | | | |
| Ambient Pressure Average | | | 1 in 6 | | | |
| Lead TSP | Hi-Vol | Atomic Emission Spectrometry | 1 in 6 | Micro Scale | Source Oriented | 2010/01/01 |

| Parameter | Monitor Type |
|---|---|
| Lead | SLAMS |

| | |
|---|---|
| Site Purpose | Reference for Extreme downwind |
| Plans for the next 18 months | No changes |
| Other comments | Pb collocated |

| | |
|---|---|
| Site Name | EQB #39 |
| Address | Centro Comunal Tiburones |
| City | Barceloneta |
| AQS Code | 72-017-0003 |
| PR County | Barceloneta |
| MSA/CSA | Arecibo-Manatí |
| Latitude | +18.436794 |
| Longitude | -66.580020 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | No |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| $PM_{2.5}$ (88501) | $PM_{2.5}$ wins w/correction factor | TEOM | Continuous | Neighborhood | Population Exposure | 2000/04/10 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ (88501) | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | To be close and relocated to Manatí |
| Other comments | |

| | |
|---|---|
| Site Name | EQB # (new) |
| Address | |
| City | Manatí |
| AQS Code | |
| PR County | Manatí |
| MSA/CSA | Arecibo-Manatí |
| Latitude | |
| Longitude | |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| $PM_{2.5}$ (88501) | $PM_{2.5}$ wins w/correction factor | TEOM | Continuous | Neighborhood | Population Exposure | |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ (88501) | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | Add new monitor and new site according with the new NAAQS |
| Other comments | |

| | |
|---|---|
| Site Name | EQB #37 |
| Address | Regional Jail of Bayamón |
| City | Bayamón |
| AQS Code | 72-021-0010 |
| PR County | Bayamón |
| MSA/CSA | San Juan - Bayamón |
| Latitude | +18.417315 |
| Longitude | -66.150293 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | N/A |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Sulfur Dioxide | Instrumental | Pulsed Fluorescent | Continuous | Neighborhood | Population Exposure | 2011/03/16 |
| Carbon Monoxide | Instrumental | Non Dispersive Infrared | Continuous | Neighborhood | Population Exposure | 2011/03/16 |
| Lead TSP | Hi-Vol | Atomic Emission Spectrometry | 1 in 6 | Neighborhood | Population Exposure | 2011/03/22 |
| Ambient Temperature Average | | | 1 in 6 | | | |
| Ambient Pressure Average | | | 1 in 6 | | | |

| Parameter | Monitor Type |
|---|---|
| Sulfur Dioxide | SLAMS |
| Carbon Monoxide | SLAMS |
| Lead TSP | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | The NCore site waiting for HQ approval. |
| Other comments | The site began in March 16, 2011. As part of NCore will be establish $PM_{2.5}$ speciation monitor |

| | |
|---|---|
| Site Name | EQB #63 |
| Address | Escuela Juan Morell Campos – Villa Rica |
| City | Bayamón |
| AQS Code | 72-021-0009 |
| PR County | Bayamón |
| MSA/CSA | San Juan - Bayamón |
| Latitude | +18.399820 |
| Longitude | -66.171125 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | Yes |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Average Temperature | | Electronic | 1 in 3 | Urban | Extreme Downwind | |
| Sample Average Barometric Pressure | | Barometric Sensor | 1 in 3 | Urban | Extreme Downwind | |
| $PM_{2.5}$ | R&P Model 2025 | Gravimetric | 1 in 3 | Urban | Extreme Downwind | 1999/02/02 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | Monitor re-start 2011/11/02 |
| Other comments | |

| | |
|---|---|
| Site Name | EQB #55 |
| Address | Calle Muñoz Rivera Calle Georgetti |
| City | Caguas |
| AQS Code | 72-025-0003 |
| PR County | Caguas |
| MSA/CSA | San Juan |
| Latitude | +18.233331 |
| Longitude | -66.036474 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | No |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| $PM_{2.5}$ (88501) | $PM_{2.5}$ wins w/correction factor | TEOM | Continuous | Neighborhood | Population Exposure | 2003/05/02 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ (88501) | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | No changes |
| Other comments | |

| | |
|---|---|
| Site Name | EQB #40 |
| Address | 11 Final St. Las Vegas |
| City | Cataño |
| AQS Code | 72-033-0004 |
| PR County | Cataño |
| MSA/CSA | San Juan - Bayamón |
| Latitude | +18.431208 |
| Longitude | -66.141683 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | N/A |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Sulfur Dioxide | Instrumental | Pulsed Fluorescent | Continuous | Neighborhood | Population Exposure | 1993/12/07 |
| $PM_{10}$ | R&P SA246B | Continuous | Urban | Population exposure | TEOM-AQI | 2000/07/13 |

| Parameter | Monitor Type |
|---|---|
| Sulfur Dioxide | SLAMS |
| $PM_{10}$ | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | No changes |
| Other comments | AQI ($PM_{10}$) |

| | |
|---|---|
| Site Name | EQB #5 |
| Address | PR Rd. 165 |
| City | Cataño |
| AQS Code | 72-033-0008 |
| PR County | Cataño |
| MSA/CSA | San Juan - Bayamón |
| Latitude | +18.440774 |
| Longitude | -66.12631 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | NO |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ozone | Instrumental | Ultra Violet | Continuous | Urban | Population exposure | 2004/07/22 |
| $PM_{2.5}$ (88501) | $PM_{2.5}$ wins w/correction factor | TEOM | Continuous | Neighborhood | Population exposure | 2004/06/30 |
| Nitrogen Dioxide | Instrumental | Chemiluminescence's | Continuous | Urban | Population exposure | 2004/10/21 |

| Parameter | Monitor Type |
|---|---|
| Ozone | SLAMS |
| $PM_{2.5}$ (88501) | SLAMS |
| Nitrogen Dioxide | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | The $PM_{2.5}$ monitor change to SLAMS as AQI. $NO_2$ monitor re-start 2012/02/09 |
| Other comments | |

| | |
|---|---|
| Site Name | EQB #22 |
| Address | Fajardo Lighthouse |
| City | Fajardo |
| AQS Code | 72-053-0003 |
| PR County | Fajardo |
| MSA/CSA | Humacao - Fajardo |
| Latitude | +18.383333 |
| Longitude | -66.619444 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | Yes |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Average Temperature | | Electronic | 1 in 3 | | | |
| Sample Average Barometric Pressure | | Barometric Sensor | 1 in 3 | | | |
| $PM_{2.5}$ | R&P Model 2025 | Gravimetric | 1 in 3 | Neighborhood | Background | 1999/04/20 |
| $PM_{10}$ | Hi-Vol | Gravimetric | 1 in 1 | Neighborhood | Background | 1989/03/05 |
| $PM_{10}$ Sulfate | Colorimetric | | 1 in 6 | Neighborhood | Background | 1998/01/05 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ | SLAMS |
| $PM_{10}$ | SLAMS |
| $PM_{10}$ Sulfate | SLAMS |

| | |
|---|---|
| Site Purpose | Reference and Background |
| Plans for the next 18 months | No changes |
| Other comments | |

| | |
|---|---|
| Site Name | EQB #15 |
| Address | Barrio Jobos, Intersection Highway 3 & 707 |
| City | N/A |
| AQS Code | 72-057-0008 |
| PR County | Guayama |
| MSA/CSA | Guayama |
| Latitude | +17.957894 |
| Longitude | -66.165016 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | Yes |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Average Temperature | | Electronic | 1 in 3 | | | |
| Sample Average Barometric Pressure | | Barometric Sensor | 1 in 3 | | | |
| $PM_{2.5}$ | R&P Model 2025 | Gravimetric | 1 in 3 | Neighborhood | Population Exposure | 1999/01/15 |
| $PM_{10}$ | Hi-Vol | Gravimetric | 1 in3 | Neighborhood | Population Exposure | 1988/10/06 |
| $PM_{10}$ Sulfate | Hi-Vol | Colorimetric | 1 in 6 | Neighborhood | Population Exposure | 1998/01/05 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ | SLAMS |
| $PM_{10}$ | SLAMS |
| $PM_{10}$ Sulfate | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | No changes |
| Other comments | $PM_{10}$ collocated monitor |

| | |
|---|---|
| Site Name | EQB #69 |
| Address | At the south side of the police station |
| City | Guayama |
| AQS Code | 72-057-0009 |
| PR County | Guayama |
| MSA/CSA | Guayama |
| Latitude | +17.967638 |
| Longitude | -66.187471 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | N/A |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Sulfur Dioxide | Instrumental | Pulsed Fluorescence | Continuous | Neighborhood | Source Oriented | 2001/11/14 |

| Parameter | Monitor Type |
|---|---|
| Sulfur Dioxide | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | This site is proposed to establish new $NO_2$ in 2012 |
| Other comments | |

| | |
|---|---|
| Site Name | EQB #57 |
| Address | Road 377 Bo. Quebrada |
| City | Guayanilla |
| AQS Code | 72-059-0016 |
| PR County | Guayanilla |
| MSA/CSA | Ponce |
| Latitude | +18.045111 |
| Longitude | -66.802253 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | Yes |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Average Temperature | | Electronic | 1 in 3 | | | |
| Sample Average Barometric Pressure | | Barometric Sensor | 1 in 3 | | | |
| $PM_{2.5}$ | R&P Model 2025 | Gravimetric | 1 in 3 | Neighborhood | Population Exposure | 1999/01/15 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | Monitor re-start 2011/11/2 |
| Other comments | |

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| | |
|---|---|
| Site Name | EQB # (new) |
| Address | |
| City | Guayanilla |
| AQS Code | 72-059-0001 |
| PR County | Guayanilla |
| MSA/CSA | Ponce |
| Latitude | |
| Longitude | |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | N/A |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Sulfur Dioxide | Instrumental | Pulsed Fluorescent | Continuous | Neighborhood | Source Oriented | |
| Lead TSP | Hi- Vol | Atomic Absorption | 1 in 6 | Micro Scale | Population Exposure | 2011 |
| Ambient Temperature Average | | | 1 in 6 | | | |
| Ambient Pressure Average | | | 1 in 6 | | | |

| Parameter | Monitor Type |
|---|---|
| Sulfur Dioxide | SLAMS |
| Lead TSP | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | Site with meteorological monitor |
| Other comments | Near South Coast PREPA |

| | |
|---|---|
| Site Name | EQB #7 |
| Address | USGS & Water Resources Bldg. |
| City | Guaynabo |
| AQS Code | 72-061-0001 |
| PR County | Guaynabo |
| MSA/CSA | San Juan - Bayamón |
| Latitude | +18.425652 |
| Longitude | -66.115846 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | No |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| $PM_{10}$ | Hi-Vol | Gravimetric | 1 in 3 | Micro Scale | Highest Concentration | 1999/02/28 |
| $PM_{10}$ Sulfate | Hi-Vol | Colorimetric | 1 in 6 | Neighborhood | Population Exposure | 1999/02/28 |

| Parameter | Monitor Type |
|---|---|
| $PM_{10}$ | SLAMS |
| $PM_{10}$ Sulfate | SLAMS |

| | |
|---|---|
| Site Purpose | Determine Highest Concentration |
| Plans for the next 18 months | No changes |
| Other comments | $PM_{10}$ Monitor is part of $PM_{10}$ SIP for Guaynabo LMP |

| | |
|---|---|
| Site Name | EQB #24 |
| Address | Electrical Substation |
| City | Guaynabo |
| AQS Code | 72-061-0005 |
| PR County | Guaynabo |
| MSA/CSA | San Juan - Bayamón |
| Latitude | +18.440095 |
| Longitude | -66.114460 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | Yes |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Average Temperature | | Electronic | 1 in 3 | | | |
| Sample Average Barometric Pressure | | Barometric Sensor | 1 in 3 | | | |
| $PM_{2.5}$ | R&P Model 2025 | Gravimetric | 1 in 3 | Neighborhood | Population Exposure | 1999/01/15 |
| $PM_{10}$ | Hi-Vol | Gravimetric | 1 in 1 | Neighborhood | Population Exposure | 1988/01/05 |
| $PM_{10}$ Sulfate | Hi-Vol | Colorimetric | 1 in 6 | Neighborhood | Population Exposure | 1998/01/05 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ | SLAMS |
| $PM_{10}$ | SLAMS |
| $PM_{10}$ Sulfate | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | No changes |
| Other comments | $PM_{10}$ Monitor is part of $PM_{10}$ SIP for Guaynabo LMP, $PM_{2.5}$ collocated monitor, $PM_{10}$ collocated monitor |

| | |
|---|---|
| Site Name | EQB #53 |
| Address | Gladiola & Girasol St.<br>Víctor Rincón School, Barrio Junquito |
| City | Humacao |
| AQS Code | 72-006-9001 |
| PR County | Humacao |
| MSA/CSA | Fajardo - Humacao |
| Latitude | +18.153440 |
| Longitude | -65.828617 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | Yes |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Average Temperature | | Electronic | 1 in 3 | | | |
| Sample Average Barometric Pressure | | Barometric Sensor | 1 in 3 | | | |
| $PM_{2.5}$ | R&P Model 2025 | Gravimetric | 1 in 3 | Neighborhood | Population Exposure | 2000/02/12 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | Monitor re-start 2011/11/02 |
| Other comments | |

| | |
|---|---|
| Site Name | EQB #59 |
| Address | Nenadich Street |
| City | Mayagüez |
| AQS Code | 72-097-0006 |
| PR County | Mayagüez |
| MSA/CSA | Mayagüez |
| Latitude | +18.200099 |
| Longitude | -67.145880 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | Yes |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Average Temperature | | Electronic | 1 in 3 | | | |
| Sample Average Barometric Pressure | | Barometric Sensor | 1 in 3 | | | |
| $PM_{2.5}$ | R&P Model 2025 | Gravimetric | 1 in 3 | Neighborhood | Source Oriented | 2007/02/21 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | Monitor re-start 2011/06/14 |
| Other comments | |

| | |
|---|---|
| Site Name | EQB #8 |
| Address | Road 183 |
| City | Juncos |
| AQS Code | 72-077-0001 |
| PR County | Juncos |
| MSA/CSA | Juncos |
| Latitude | +18.177939 |
| Longitude | -65.915482 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | N/A |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Sulfur Dioxide | Instrumental | Pulsed Fluorescent | Continuous | Neighborhood | Population Exposure | 2007/10/03 |
| Ozone | Instrumental | Ultra violet | Continuous | Neighborhood | Population Exposure | 2007/10/03 |

| Parameter | Monitor Type |
|---|---|
| Sulfur Dioxide | SLAMS |
| Ozone | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | No changes |
| Other comments | Meteorological monitor |

| | |
|---|---|
| Site Name | EQB #56 |
| Address | Civil Defense Bldg. Urb. San Antonio |
| City | Ponce |
| AQS Code | 72-113-0004 |
| PR County | Ponce |
| MSA/CSA | Ponce |
| Latitude | +18.009558 |
| Longitude | -66.627249 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | Yes |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Average Temperature | | Electronic | 1 in 3 | | | |
| Sample Average Barometric Pressure | | Barometric Sensor | 1 in 3 | | | |
| $PM_{2.5}$ | R&P Model 2025 | Gravimetric | 1 in 3 | Neighborhood | Population Exposure | 1999/01/15 |
| $PM_{10}$ | Hi-Vol | Gravimetric | 1 in3 | Neighborhood | High Concentration | 1999/01/06 |
| Carbon Monoxide | Instrumental | Non Dispersive Infrared | Continuous | Neighborhood | Population Exposure | 2011/10/01 |
| $PM_{10}$ continuous | R&P SA246B | Continuous | Continuous | Population exposure | TEOM-AQI | 2011/10/05 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ | SLAMS |
| $PM_{10}$ | SLAMS |
| CO | SLAMS |
| $PM_{10}$- continuous | SLAMS |

| | |
|---|---|
| Site Purpose | Determine High Concentration |
| Plans for the next 18 months | $PM_{10}$ monitor will be change to $PM_{2.5}$ continuous monitor to AQI purposes |
| Other comments | |

| | |
|---|---|
| Site Name | New |
| Address | Near Cemex Industry |
| City | Ponce |
| AQS Code | 72-113-00045 |
| PR County | Ponce |
| MSA/CSA | Ponce |
| Latitude | |
| Longitude | |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Sulfur Dioxide | Instrumental | Pulsed Fluorescent | Continuous | Neighborhood | Highest Concentration | new |
| $PM_{2.5}$ (88501) | $PM_{2.5}$ wins w/correction factor | TEOM | Continuous | Neighborhood | Highest Concentration | new |

| Parameter | Monitor Type |
|---|---|
| Sulfur Dioxide | SLAMS |
| $PM_{2.5}$ (88501) | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | New |
| Other comments | |

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| | |
|---|---|
| Site Name | EQB #18 |
| Address | Road Las Mareas |
| City | Salinas |
| AQS Code | 72-123-0002 |
| PR County | Salinas |
| MSA/CSA | Ponce |
| Latitude | +17.953006 |
| Longitude | -66.261461 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | N/A |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Sulfur Dioxide | Instrumental | Pulsed Fluorescent | Continuous | Neighborhood | Population Oriented | 2008/09/24 |
| $NO_2$ | | | | | | new |
| Lead TSP | Hi-Vol | Atomic Emission Spectrometry | 1 in 6 | Micro Scale | Source Oriented | 2011/10/18 |

| Parameter | Monitor Type |
|---|---|
| Sulfur Dioxide | SLAMS |

| | |
|---|---|
| Site Purpose | Protection for the population |
| Plans for the next 18 months | Proposed a $NO_2$ monitor from 72-123-0001 |
| Other comments | |

| | |
|---|---|
| Site Name | EQB #30 |
| Address | Baldorioty de Castro Ave. |
| City | San Juan |
| AQS Code | 72-127-0003 |
| PR County | San Juan |
| MSA/CSA | San Juan- Bayamón |
| Latitude | +18.449814 |
| Longitude | -66.052510 |
| Suitable for Comparison to $PM_{2.5}$ NAAQS? | Yes |

| Parameter | Sampling Method | Analysis Method | Schedule | Spatial Scale | Monitoring Objective | Date Established |
|---|---|---|---|---|---|---|
| Ambient Average Temperature | | Electronic | 1 in 3 | | | |
| Sample Average Barometric Pressure | | Barometric Sensor | 1 in 3 | | | |
| $PM_{2.5}$ | R&P Model 2025 | Gravimetric | 1 in 3 | Neighborhood | Population Exposure | 1999/03/21 |
| Carbon Monoxide | Instrumental | Non Dispersive Infrared | Continuous | Neighborhood | High Concentration | 1995/04/01 |

| Parameter | Monitor Type |
|---|---|
| $PM_{2.5}$ | SLAMS |
| Carbon Monoxide | SLAMS |

| | |
|---|---|
| Site Purpose | Determine High Concentration and protection of population |
| Plans for the next 18 months | Not changes |
| Other comments | $PM_{2.5}$ collocated monitor |

Attachment II

Copy of Public Notice

## 6.0 NETWORK MODIFICATION FORMS

Network modification forms will be prepared for submittal to EPA Region II to implement the network modifications identified in this network plan.

## 7.0 SUMMARY AND CONCLUSIONS

The monitoring requirements identified by federal regulation are currently met with the existing monitoring network in Puerto Rico. The procedures that are being used and the instruments that are being operated meet the standards that have been established by EPA.

EQB is currently evaluating the monitoring network's ability to support the understanding of ozone and $PM_{2.5}$ formation, which are the State's most significant air pollutants. This has lead to recommendations for site consolidation and episode specific intensive studies.

The significant network changes proposed through 2011 include:

- Establish two new TSP lead filter sampling with atomic emission spectrometry analysis to generate ambient lead concentrations at Guayanilla and Arecibo.
- Relocated the $PM_{2.5}$ Speciation Site at NCore site.
- Begin the NCore site at AIRS Number 72-021-0006 at Bayamón.
- Reactive the $NO_2$ monitor 72-123-0002 located at Salinas's municipality.
- Relocate the $PM_{2.5}$ continuous monitor at Barceloneta to Manatí.
- Establish a new $SO_2$ site al Guayanilla according with the regulations for the new 1-hour.
- Change the $PM_{10}$ continuous monitor at Ponce to a $PM_{2.5}$ continuous monitor to be use for AQI.
- Establish a new $PM_{2.5}$ continuous monitor at Ponce near Cemex industry.
- Establish two (2) new $NO_2$ sites located, one (1) in Buchanan area and (1) in Caguas.

## 8.0 PUBLIC COMMENTS ON MONITORING PLAN

The public was invited to submit comments or recommendations to the attention of Mrs. Lucía Fernández Fontán, Chief of Data Validation and Air Dispersion Models Division or to the Air Quality Area. The comments received during the public review of the monitoring plan will be evaluated and the plan will be modified if needed.

GOVERNMENT OF PUERTO RICO
**OFFICE OF THE GOVERNOR**
**ENVIRONMENTAL QUALITY BOARD**

# PUBLIC NOTICE

## INTENTION TO MODIFY THE *PUERTO RICO AIR MONITORING NETWORK PLAN 2012*

The Puerto Rico Environmental Quality Board (PREQB) in fulfillment with Code 40 of Federal Regulations Parts 53 and 58 have delineated the **Puerto Rico Air Monitoring Network Plan 2012**. This plan must be submitted to the Environmental Protection Agency for its approval.

The State and Local Air Monitoring Network Plan provides information about ambient air quality monitoring sites in Puerto Rico. The network measures the ambient levels of criteria pollutants or those pollutants on which National Ambient Air Quality Standards (NAAQS) have been established. The plan proposes some changes to the actual network according with the new requirements.

The 2012 Puerto Rico Air Monitoring Network Plan will be available for public revision until May 31, 2012, in the Environmental Quality Board web site, www.jca.gobierno.pr, and from Monday through Friday, from 8:00 a.m. until 12:00 and 1:00 p.m. until 4:00 p.m. at the Environmental Quality Board Library, located at the 4th floor of the Environmental Building, Ponce de León Avenue, State Highway 8838 6.3 km, El Cinco in Río Piedras.

Comments should be received following the publication of this notice. The public is invited to submit comments or recommendations to the following email address, aire@jca.gobierno.pr, to the attention of Mrs. Lucía Fernández Fontán, Chief of Data Validation and Air Dispersion Models Division. The comments and recommendations will be considered in the final document that will be submitted to the Environmental Protection Agency.

In San Juan, Puerto Rico, today April 30, 2012.

Pedro J. Nieves Miranda, Esq.
Executive Director

This Public Notice is published in accordance with the requirements of the Environmental Public Policy Act of Puerto Rico, Law Num. 416 of September 22, 2004 as amended.

GOBIERNO DE PUERTO RICO
OFICINA DEL GOBERNADOR
JUNTA DE CALIDAD AMBIENTAL

# AVISO PÚBLICO

## INTENCIÓN DE EXPEDIR MODIFICACIÓN A *PLAN DE MUESTREO DE AIRE PARA PUERTO RICO 2012*

La Junta de Calidad Ambiental en cumplimiento con el Código 40 de Regulaciones Federales (CFR) Parte 53 y 58 presenta su **Plan de Muestreo de Aire para Puerto Rico 2012**. El mismo deberá ser sometido a la Agencia de Protección Ambiental en o antes del 1 de julio de 2012 para su aprobación.

El plan presentado provee información sobre los lugares donde ubican las estaciones de muestreo de aire en Puerto Rico. La red mide los niveles ambientales de los contaminantes criterios o de contaminantes en los cuales se han establecido normas de calidad de aire (NAAQS, en inglés). El plan propone realizar ciertos cambios a la red de muestreo.

El Plan de Muestreo de Aire para Puerto Rico 2012 estará disponible para revisión del público en general hasta el 31 de mayo de 2012, en la página web de la Junta de Calidad Ambiental, www.jca.gobierno.pr, y de lunes a viernes de 8:00 a.m. hasta las 12:00 m. y de 1:00 p.m. a 4:00 p.m. en la Biblioteca de la Junta de Calidad Ambiental localizada en el 4$^{to}$ piso del Edificio Ambiental, Avenida Ponce de León, Carretera Estatal 8838 Km. 6.3 Sector El Cinco en Río Piedras.

Los comentarios deberán ser recibidos a partir de la publicación de este aviso. Se invita al público en general a someter sus recomendaciones a la siguiente dirección electrónica, aire@jca.gobierno.pr a la atención de la Sra. Lucía Fernández Fontán, Jefa de la División de Validación de Datos y Modelaje Matemático. Las mismas serán evaluadas para el documento final que será sometido a la Agencia de Protección Ambiental Federal.

En San Juan, Puerto Rico, hoy 30 de abril de 2012.

Lcdo. Pedro J. Nieves Miranda
Director Ejecutivo

Este Aviso Público se publica conforme a lo requerido por la Ley sobre Política Pública Ambiental de Puerto Rico, Ley Número 416 del 22 de septiembre de 2004, según enmendada.