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December 16, 2013

MRS JUDITH A ENCK
REGIONAL ADMINISTRATOR
USEPA – REGION II
290 BROADWAY 25TH FLOOR
NEW YORK NY 10007-1866

RE: Puerto Rico Area Initial Designation for the 2012 Revised Primary Annual Fine Particulate (PM$_{2.5}$) National Ambient Air Quality Standard
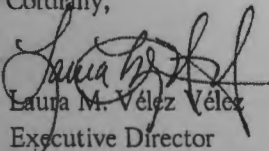
Dear Mrs. Enck:

The Puerto Rico Environmental Quality Board (PREQB) as representative agency of the commonwealth of Puerto Rico is submitting the initial recommendations of Puerto Rico as attainment for the 2012 revised primary annual fine particulate (pm$_{2.5}$) national ambient air quality standard. The designations recommendation is submitted according with Section 107(d) (1) (A) of the Clean Air Act.

On December 14, 2012 the Environmental Protection Agency (EPA) strengthened the nation's air quality standard for the particle pollution to improve public health protection by revising the primary annual fine particle (PM$_{2.5}$) standard to 12 micrograms per cubic meter (μg/m^3) and retaining the 24-hour fine particle standard of 35 μg/m^3.

Although PM$_{2.5}$ air sampling network is designed and meets the criteria of location by area, PREQB classified all areas *as unclassified* for not complying with the data completeness criteria (a minimum completeness of 75 percent per quarter for each year period). PREQB evaluated the air monitoring data for the most recent years, and determined that all monitors in the PM$_{2.5}$ monitoring network in Puerto Rico have at least one quarter below 50 percent data capture. Puerto Rico will need additional years, thereafter, to collect air quality data in order to determine compliance with the revised NAAQS. PREQB hope to complete the designation as soon as the minimum data period required approximately in the year 2015 ends.

Please feel free to contact me at (787) 767-8181 if you have any questions regarding these recommendations, or call our staff contact Mrs. Lucía Fernández Fontán, Chief, Data Validation and Air Dispersion Model Division, at (787) 767-8181 extension 3254.

Cordially,

Laura M. Vélez Vélez
Executive Director

COMMONWEALTH OF PUERTO RICO

OFFICE OF THE GOVERNOR

PUERTO RICO ENVIRONMENTAL QUALITY BOARD

PUERTO RICO AREA INITIAL DESIGNATION FOR THE 2012 REVISED PRIMARY
ANNUAL FINE PARTICULATE (PM$_{2.5}$) NATIONAL AMBIENT AIR QUALITY
STANDARD

AIR QUALITY AREA

NOVEMBER, 2013

TABLE OF CONTENTS

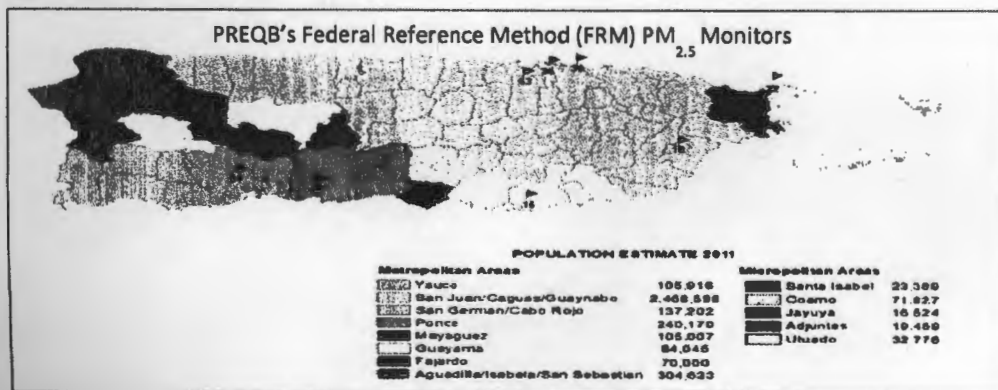## LIST OF FIGURES

LIST OF TABLES

Executive Summary and Background

The purpose of this document is to submit the Puerto Rico Area Initial Designation for the 2012 Revised Primary Annual Fine Particulate (PM$_{2.5}$) National Ambient Air Quality Standards (NAAQS). This document presents the data handling conventions and computations that PREQB used to determine if the NAAQS for PM$_{2.5}$ was met, specifically the primary and secondary annual and 24-hour PM$_{2.5}$ concentrations measured in the ambient air by a Federal Reference Method (FRM). The data used in this evaluation was collected from the years 2010 through 2012; however, for most of the stations, data capture was insufficient to obtain the necessary three (3) years of data, as most of the stations were in temporary shutdown. Therefore, PREQB requests that the Core-Based Statistical Areas (CBSAs) be reclassified to "Unclassified" since the CBSAs did not meet the data capture criterion. PREQB plans to obtain the necessary data to meet this criterion by 2015.

Air Quality Data Monitoring and Jurisdictional Boundaries

The PREQB maintains a comprehensive network of PM$_{2.5}$ air quality monitors located throughout Puerto Rico with its primary objective being to determine compliance with the PM$_{2.5}$ NAAQS. The PREQB submits network reviews to the EPA Region 2 annually, demonstrating that air monitoring operations meet or surpass all applicable federal requirements. State air monitoring data is submitted to EPA's data repository called the Air Quality System (AQS). Figure 1 is a map illustrating the locations of PREQB's FRM PM$_{2.5}$ monitors as of the end of 2013. PREQB continues to operate these ten (10) FRM PM$_{2.5}$ sites.
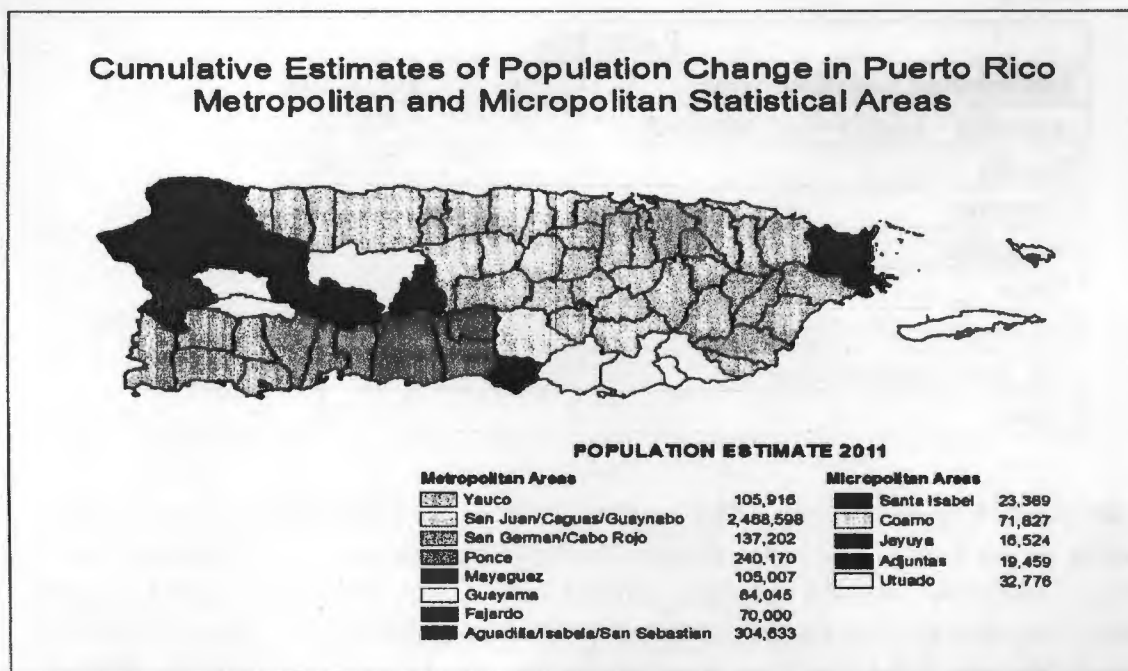
Figure 1

In accordance with and as defined by the U.S. Office of Management and Budget, Puerto Rico has three (3) Core-Based statistical areas (CBSAs): San Juan-Caguas-Fajardo, Once-Yauco-Coamo and Mayaguez-San German-Cabo Rojo. A CBSA consists of the county or counties associated with at least one urbanized area/urban cluster with a population of at least 10,000, plus adjacent counties having a high degree of social and economic integration.

Figure 1

Cumulative Estimates of Population Change in Puerto Rico Metropolitan and Micropolitan Statistical Areas

POPULATION ESTIMATE 2011

Metropolitan Areas		Micropolitan Areas	
Yauco	105,916	Santa Isabel	23,389
San Juan/Caguas/Guaynabo	2,488,598	Coamo	71,827
San German/Cabo Rojo	137,202	Jayuya	16,524
Ponce	240,170	Adjuntas	19,459
Mayaguez	105,007	Utuado	32,776
Guayama	84,045		
Fajardo	70,000		
Aguadilla/Isabela/San Sebastian	304,633		

The number of monitors at each CBSA are as follow:

San Juan – Caguas - Fajardo: five (5) monitors;

Ponce - Yauco - Coamo: two (2) monitors;

Mayagüez – San Germán – Cabo Rojo: one (1) monitor; and

Unclassified: two (2) monitors; one (1) at Guayama and one (1) at Salinas.

Table 1

Puerto Rico	
Combined Statistical Area	Population[1]
San Juan – Caguas – Fajardo	2,582,746
Ponce - Yauco - Coamo	445,344
Mayagüez – San Germán – Cabo Rojo	243,792

Table 2

Puerto Rico	
Metropolitan Statistical Areas	**Population**
Aguadilla - Isabela - San Sebastián	306,292
Fajardo	70,692
Guayama	84,214
Mayagüez	106,330
Ponce	243,147
San Germán-Cabo Rojo	137,462
San Juan-Caguas-Guaynabo	2,478,905
Yauco	107,333

The San Juan – Caguas –Fajardo CBSA consists of forty- five (45) counties: Ceiba, Fajardo, Luquillo, Aguas Buenas, Aibonito, Arecibo, Barceloneta, Barranquitas, Bayamón, Caguas, Camuy, Canóvanas, Carolina, Cataño, Cayey, Ciales, Cidra, Comerío, Corozal, Dorado, Florida, Guaynabo, Gurabo, Hatillo, Humacao, Juncos, Las Piedras, Loíza, Manatí, Maunabo, Morovis, Naguabo, Naranjito, Orocovis, Quebradillas, Río Grande, San Juan, San Lorenzo, Toa Alta, Toa Baja, Trujillo Alto, Vega Alta, Vega Baja, Yabucoa and Utuado.

The Ponce - Yauco – Coamo CBSA consists of ten (10) counties: Juana Díaz, Ponce, Villalba, Guánica, Guayanilla, Peñuelas, Yauco, Coamo, Salinas and Santa Isabel.

The Mayaguez – San Germán – Cabo Rojo CBSA consists of six (6) counties: Hormigueros, Mayagüez, Cabo Rojo, Lajas, Sabana Grande and San Germán. The Unclassified CBSAs consist of thirteen (13) counties: Aguada, Aguadilla, Añasco, Isabela, Lares, Moca, Rincón, San Sebastián, Arroyo, Guayama, Patillas, Jayuya and Adjuntas.

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[1] Office of Management and Budget and the Census Bureau (April 2012)

Table 3

Stations locations and Objective by CBSA			
CBSA	Station	Objective	Scale
San Juan – Caguas – Fajardo	Fajardo #22	Regional Transport	Regional
	Guaynabo #24	Population Exposure	Neighborhood
	San Juan #30	Population Exposure	Neighborhood
	Humacao #53	Population Exposure	Neighborhood
	Bayamon #63	Extreme Downwind	Urban
Ponce -Yauco – Coamo	Ponce #56	Population Exposure	Neighborhood
	Guayanilla #57	Population Exposure	Neighborhood
Mayaguez– San Germán – Cabo Rojo	Mayaguez #59	Source Oriented	Neighborhood
Unclassified	Adjuntas #13	Upwind Background	urban
	Guayama #15	Population Exposure	Neighborhood

Although each PM$_{2.5}$ air sampling network is designed and meets the criteria of location by area, PREQB classified all areas *as unclassified* for not complying with the data completeness criteria (a minimum completeness of 75 percent per quarter for each year period). All monitors in the PM$_{2.5}$ monitoring network in Puerto Rico have at least one quarter below 50 percent data capture for the 2010-2012 monitoring period and, therefore, are not eligible for data substitution. Puerto Rico will need additional years, to collect air quality data in order to determine compliance with the revised NAAQS.

The insufficient data collection and data loss was caused by several reasons, but the most important is the lack of funding to allow for maintenance and purchase of back-up equipment, spare parts, etc.. In order to comply with the final designation, PREQB will take measures to improve the PM$_{2.5}$ monitoring network to correct for insufficient data collection, and take steps to avoid a reoccurrence. PREQB has modified line items in the PM$_{2.5}$ budget that allows for the maintenance and operation of back-up equipment for 3 years and the purchase of spare parts and equipment.

Final Recommendation

PREQB recommends that all areas of Puerto Rico be reclassified as "Unclassified" for insufficient data completeness, since they do not meet the requirement to be designated. PREQB plans to complete the designation as soon as the minimum required data is available to meet the data capture criterion, which will be by the year 2015.