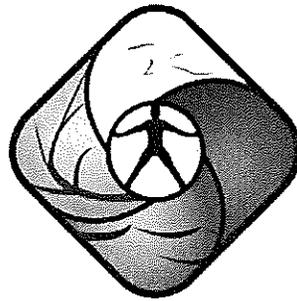


GOVERNMENT OF PUERTO RICO
OFFICE OF THE GOVERNOR
PUERTO RICO ENVIRONMENTAL QUALITY BOARD



Clean Air Act Section 110
State Implementation Plan Review

Guayama Air Basing
National Ambient Air Quality Standards
For Sulfur Dioxide

Air Quality Area
November, 2011

I. Background

Sections 108 and 109 of the Clean Air Act (Act), requires that the Environmental Protection Agency (EPA) establish the National Ambient Air Quality Standards (NAAQS). There are two types of NAAQS: primary and secondary. The primary standards set limits to protect public health, including the health of *sensitive* populations such as asthmatics, children, and the elderly. The secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. Currently, the EPA has set National Ambient Air Quality Standards (NAAQS) for six principal pollutants, which are called *criteria* pollutants. The six criteria pollutants are carbon monoxide (CO), nitrogen oxide (NO₂), ozone, lead, Particulate Matter (PM₁₀ & PM_{2.5}) and sulfur dioxide (SO₂).

During May 1999, the EPA issued a final Prevention of Significant Deterioration (PSD) permit for the AES Puerto Rico L.P. Company (AES), located in Guayama. Because of local environmental concerns, and as recommended by the Puerto Rico Environmental Quality Board (PREQB) in 1997, the final PSD permit required AES to conduct an air dispersion modeling of the nearby existing sources to assess compliance with the PSD increments and the NAAQS for SO₂ in the Guayama area. The AES submitted to EPA a multi-source SO₂ modeling report showing that while based on actual emissions there is no violation of the SO₂ NAAQS, there is a potential threat to the SO₂ NAAQS, based on the potential to emit (PTE) of the emission sources permitted in the Guayama area. The report indicates that Phillips P.R. Core refinery and the Puerto Rico Electrical Power Authority (PREPA) are the most significant contributors to the potential SO₂ violations. The model also indicates that Baxter Company contributes, to some extent, to the predicted SO₂ NAAQS concentrations.

In order to ensure that the air quality meets the NAAQS, section 110 of the Clean Air Act (CAA or Act) requires all states to develop air pollution regulations and control strategies. Each state must submit these regulation or control strategies to EPA for approval and incorporation into the federally enforceable State Implementation Plan (SIP). The SIP can contain state regulations or other enforceable document and supporting information, such as emission inventories, monitoring network and modeling demonstrations. A revision to the SIP is required whenever the applicable plan for any area is inadequate to attain or maintain the relevant NAAQS, or is necessary to comply with any requirement of the Act.

II. The Strategy

Back in 2002 a strategy was designed that would eliminate the predicted SO₂ violations in the Guayama area. After submitting a work plan to the EPA in which target sources were involved to reduce the potential SO₂ emissions, the EPA recommended specific sulfur content in fuel reductions that when modeled would eliminate the predicted SO₂ violations to the national ambient air quality standards. The plan requires that the Environmental Quality Board limit the PTE of the sources that contribute to the potential violations in order to remedy the situation¹. The emission limitations were established based on the dispersion modeling results and EPA recommended reductions which establish a value to protect the NAAQS standard.

A. SIP Revision by Permit

Three sources in the Guayama area were indentified to be the most significant contributors to the highest predicted SO₂ concentrations. Violations were predicted for the maximum 3 hour, 24 hour and annual SO₂ NAAQS by the multi-source modeling analysis performed by the AES Puerto Rico, L.P. Company. Based on that modeling of sources in Guayama the predicted SO₂ concentrations are 48 percent, 48 percent and 17 percent above the NAAQS for the Phillips P.R., Core refinery, PREPA Aguirre Power Plant and Baxter Pharmaceutical, respectively. It was determined that allowable SO₂ emissions for Phillip, PREPA and Baxter needed to be reduced by 51 percent, 50 percent and 20 percent, respectively, to adequately eliminate the predicted violations. The Air Quality Area (AQA) negotiated the reduction of allowable SO₂ emissions by reducing the percent sulfur content in fuels burned in all three target sources. This sulfur content reduction must be accomplished by revising their permits as follows:

Company	Limitation
BAXTER	Kerosene with a sulfur in fuel limit of 0.25% by weight
PHILLIPS	Fuel Oil #6 with a sulfur in fuel limit of 1.5% by weight Shutdown several combustion sources
PREPA Aguirre	See approved operating scenarios in Title V permit.

¹ Letter dated April 29, 2004 from Walter Mugdan, Director, Division of Environmental Planning and Protection, EPA to Esteban Mujica Cotto, President, PREQB which supplemented a letter dated December 7, 2001 from Raymond Werner, Chief, Air Programs Branch, EPA to Angel O. Berrios, Director, Air Program Area, PREQB.

The sulfur content reductions are incorporated into the revised permits which are submitted as part of the section 110 state implementation plan revision and thus are federally enforceable. This SIP revision provides for the expeditious correction of a deficiency that represent a potential threat to the SO₂ NAAQS, through the limitations and operating restrictions that are set forth into the permits issued by the EQB. Two types of permits are being issued to the sources subject to this revision: minor NSR construction permit and Title V operating permit.

III. Enforceable Limitation

Implementation of the control strategy to maintain the SO₂ emission levels well within the NAAQS in the Guayama area will be accomplished by mean of three main actions:

1. Revision to SIP by revising the permits issued to the target sources.
2. Reduction on the allowed percent sulfur content of target sources to bring the potential SO₂ emissions below the NAAQS.
3. Assignment of sulfur content in fuel, as established in Rule 410 or the Regulation for the Control Atmospheric Pollution (RCAP).

To ensure that the SO₂ NAAQS are adequately protected in the Guayama area, a minor NSR construction permit was issued to Baxter Pharmaceutical with revised percent sulfur content in fuels burned by the fuel burning equipment that will be maintained in operation, and a Title V operating permit was issued to PREPA Aguirre Power Plant with revised percent sulfur content in fuels burned by the boilers and the combined cycle. The emission limits imposed upon these sources through the enforceable limitation of the sulfur content in fuels are included in the source permits that are part of this SIP revision. A contraction permit was issued for Phillips P.R., Core refinery. However, the facility ceased operations and the Title V permit application and construction permits were closed.

IV. Summary of enforceable permit limitation

A. Baxter Pharmaceutical

Minor NSR Construction Permit No. **PFE-30-1291-1654-I-II-C** issued to Baxter Pharmaceutical and dated **August 29, 2002**. This construction permit modifies previous permit by revising number 4 to read as follows: “**Maximum sulfur content in kerosene fuel allowed to burn in each of the 500 HP boilers is limited to 0.25% by weight**”. All other conditions, pertaining to the boilers, from previous permit dated February 18, 1992 are still enforceable and include NSPS applicability, monitoring, recordkeeping and reporting requirements. (See Appendices)

B. PREPA Aguirre Power Plant

A Title V Operating Permit **PFE-TV-4911-63-0976-0005** was issued to PREPA Aguirre Power Plant and dated February 24, 2008. This Title V operating permit contains the revised sulfur content in fuel that PREPA Aguirre is allowed to burn according to a negotiate compliance schedule between EPA and PREPA. All other conditions of the permit were also revised following the agreements of a final Consent Decree signed by both parties. The compliance schedule for PREPA Aguirre is as follows:

OPERATING SCENARIOS APPROVED FOR PREPA AGUIRRE

Emission Units	Operation since March 1, 2007			
	Normal Operation	Alternate Scenario 1	Alternate Scenario 2 ²	Alternate Scenario 3 ³
Boilers (AG1 and AG2)	0.50% sulfur in the No. 6 fuel oil.	0.75% sulfur in the No. 6 fuel oil.	Natural Gas	Use additives injection.
Combined Cycle (CC1/1, CC1-2, CC1-3, CC1-4, CC2-1, CC2-2, CC2-3 and CC2-4) and Power Block (AGGT2-1 and AGGT2-2)	0.50% sulfur in the No. 2 fuel.	0.25% sulfur in the No. 2 fuel.	Natural Gas	---

² PREPA Aguirre will be authorized after a construction permit process under Rule 203 of the RCAP has been approved.

³ PREPA Aguirre will be authorized after a construction permit process under Rule 203 of the RCAP has been approved.

C. Chevron-Phillips

Chevron shutdown and request the closure of its Title V operating permit application. The Governing Board of the Environmental Quality Board closed the Title V operating permit on August 3, 2010 through Resolution R-10-21-6.