



Palm Beach County Health Department  
Air Pollution Control Program

# SEMI ANNUAL REPORT



*The purpose of this report is to summarize the accomplishments of the Palm Beach County Health Department's Air Pollution Control Program, and to share information regarding new developments and issues related to air quality.*

January - June 2008

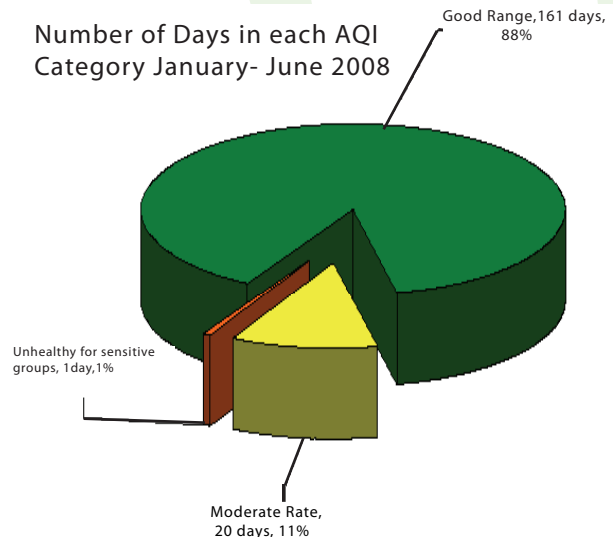
1



## Air Quality Index

The Air Quality Index (AQI) is a uniform method of reporting daily air pollution levels along with associated health effects. Air pollution levels are obtained from PBCHD's network of monitors on a daily basis. An AQI value is determined for each of the monitored pollutants, and the highest value is used to describe the air quality for the day. The AQI is provided 7 days a week, and can be obtained by calling (561) 355-3962 or visiting the PBCHD web site: [www.pbchd.com](http://www.pbchd.com)

Number of Days in each AQI Category January- June 2008



# SEMI ANNUAL REPORT

January - June 2008

2

Outreach & P2



## Earth Day at Florida Atlantic University

PBCHD P2 members participated with FAU Environmental Health and Safety Department to hand out information to reduce pollution in the environment.

## Care Car Month

Emissions Testing at Lincoln College of Technology.



Car Care month is in April and the big event this year was the car inspection point at Lincoln Tech (formerly

known as New England Tech). This free inspection consisted of an emissions test and a tire check-up. The Sun Sentinel ran an article for this event the first week of March. The event was so successful Lincoln College of Technology agreed to extend testing until the end of May (Clean Air Month). In addition, the Health Department created new brochures on how to run your vehicle more efficiently. These were handed out at several local automotive stores including: AC Delco, NAPA Auto parts and Advanced Auto Parts. Not surprisingly, due to the high cost of vehicular fuel, these brochures were very popular.

## CLIMATE PROTECTION & GREENHOUSE GAS REDUCTION WORKSHOP

This workshop was held on February 21<sup>st</sup> and was hosted by Camp, Dresser & McKee, Inc. There were many notable speakers including Dr. Hal Wanless, Ph.D.; University of Miami who talked about Florida's diminishing coastal future and Jeff Clemens, mayor of Lake Worth, who discussed his city's climate protection efforts.



Palm Beach County Commissioner's Declare May as "Clean Air Month"

On May 6, 2008 at the Board of County Commissioners regular session meeting PBCHD received a proclamation declaring the month of May as Clean Air Month. Pictured l-r: (PBCHD) Dr. Alina Alonso, Commissioner Jeff Koons, and (PBCHD Air Pollution) Selva Selvendran.



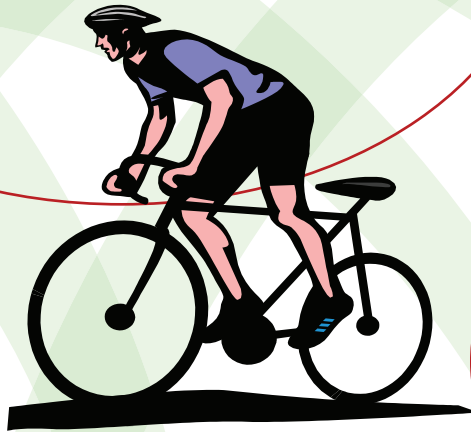
## ADVANCES IN THE USE OF ETHANOL

There was one minor victory in the alternative fuels field with the addition of ethanol to local gas stations. As of February, the majority of Hess stations in Palm Beach County are now using a partial blend of ethanol with their gasoline. The stickers they placed on the pumps noted that a "10% blend or less" is used. By April, other major gas companies were doing the same.

# SEMI ANNUAL REPORT

## BIKE MONTH

Nationally, Bike Month is in May but it has been determined that May is too hot, so South Florida celebrates Bike Month in March. There were many events held in honor of Bike Month including a proclamation given by the Board of County Commissioners as well as a Unity Ride from Juno Beach to south Miami. Also advertised were Bike to Work week and Bike-O, which is bingo for bicycle enthusiasts.



## Outreach



### Earth Day Celebration at Barnes and Nobel -Boynton Beach

Outreach Coordinator Kai Jones and Supervisor Selva Selvendran gave a kid friendly lecture on air pollution for Earth Day. The children helped demonstrate what happens to the air when there are more factories than trees. The green balloons represented air pollution. As we cut the trees down to build more homes, more power was needed to fuel the homes and more factories were built. Eventually there were no more trees and the factories continued to pollute the air. This mimics the current development trend and teaches the need to find alternative sources of energy as well as the need to plant more trees. The children had a great time.

# SEMI ANNUAL REPORT

January - June 2008

4

Compliance & Permitting

## Air General Permits for Crushers

The permitting and compliance staff continues to provide regulatory assistance to owners and operators of rock crushers regarding compliance requirements. These operations generate dust when dry materials, such as concrete, are crushed. The regulations require the owners to control the dust emissions resulting from crushers, screens, and conveyors. The Department staff must witness the compliance test conducted at the facility – once a year – to verify that the operations are in compliance with the Department’s air quality standards.

The Florida Department of Environmental Protection (FDEP) promulgated the General Permits (GPs) for Crushers, and the GP’s reduced the paperwork for the facilities without reducing the compliance requirements. Many of the crushers are owned and operated by the small businesses that may not have expertise to assess the regulatory provisions. Providing the timely assistance to the owners resulted in fewer instances of non-compliance. The GP’s simplify the requirements for the owners, especially when the crushers are relocated across county lines. The owners are required to notify the Department at least one day prior to relocation. They must submit the relocation form no later than five business days following the relocation.



## The New FPL Power Plant in Palm Beach County (Under Construction)



The new power plant, West County Energy Center (WCEC) has a capacity to produce 3,750-MW electricity. This plant is located on a 220 acre-site in Loxahatchee, west of Lion Country Safari Park. This is the first FPL plant since the 1960s in Palm Beach County. This plant has three units, and each unit has three advance combustion turbines; and three heat recovery steam generators which will utilize waste heat from the CT to produce steam to be used in the steam turbine generator.

Initially, FPL got approval on January 10, 2007 to construct 2 units that have the capability to produce 1,250 MW each. Later, FPL requested an additional unit for which DEP issued ‘Intent to issue’ on April 25, 2008. Currently, the installation of the first two units is in progress and the Unit 1 is scheduled to produce power in 2009, and will serve 250,000 homes and businesses. Unit 2 will begin serving the customers in 2010.

The fuel used at this facility is natural gas. In addition ultra-low sulfur diesel fuel oil will be used as a back up fuel source for up to 500 hours per year. The emissions of nitrogen oxides (NOx) are controlled by dry low NOx combustion technology along with selective catalytic reduction (SCR) system. FPL claims that this plant is the cleanest of its type and in Florida and one of the cleanest of its kind in the nation.

# SEMI ANNUAL REPORT

## Dust Sampling Becomes Useful Tool in Air Pollution Compliance

The Palm Beach County Health Department's (PBCHD) Air Pollution Control (APC) program is now using microscopic analysis as a very useful tool to determine both the validity and source of nuisance dust complaints.



*C&D Dust (with Fiberglass Fibers)*

In addition to his other duties, APC staff member Randall Miller performs microscopic analysis on samples to identify the presence and relative amounts of vegetative dust, cigarette ash, sugar cane ash, bee droppings, fiberglass fibers, metal dust, paint overspray (and the specific colors used), Sahara dust (see related articles in this issue), oil soot, pollen, mold spores, agricultural soils, urban dust, recycling dust (from construction/demolition (C&D) processing), landscape maintenance dust, lint fibers, cement dust, wood shop dust, and various engine exhaust dust (to list a few).

For a recent recurring complaint, microscopic analysis of samples collected in the area of the complainant's concern determined that, dust residue from the activities at a particular facility site was present. The main "finger print" used to identify the facility was the presence of fiberglass and wood fibers, consistent with materials being processed at the site.



*Fine Mesh Screen Dust Control Placed Over  
The Pollutant Source*

The facility was approached with the sampling evidence and required to provide dust control corrections. As various controls were instituted, monitoring with microscopic analysis was continued to monitor their effectiveness in controlling dust from the facility. After several moderately effective measures failed to provide satisfactory control of the dust, a fine mesh screening was added to an off loading and screen processing area to address the remaining main source of emissions. Subsequent sampling and analysis has demonstrated very noticeable improvements from these additions.

In recognition for many of his valuable contributions to the PBCHD, including his expertise in microscopic analysis, Miller was selected in June 2008 to receive the "Employee of the Quarter Award".



Randy Miller, Environmental Supervisor, discussing air pollution with students from a local middle school.

# SEMI ANNUAL REPORT

In 2007, 303,018 acres of sugarcane were burned prior to harvesting

January - June 2008

6

Air Quality



## Sugarcane Emissions Study

The PBCHD received a grant from the U. S. Environmental Protection Agency to characterize the emissions from sugarcane burning. The pre-harvest burning of sugarcane produces a significant amount of air pollution especially carbon monoxide and particulate matter. The emission quantities are estimated using the number of acres burned and pollutant specific emission factors for sugarcane burning. Presently, the only emission factors available are limited to pollutants that have associated air quality standards. However, the burning of sugarcane (like any other combustion process) produces a number of other pollutants which do not have standards but nevertheless have potential health impacts. The PBCHD has contracted with a research team from the University of Florida, (UF) Department of Environmental Engineering Sciences, to perform the actual study. The UF researchers will be constructing a small combustion chamber on campus to simulate the burning of the cane. The smoke produced will then be sampled and analyzed. The sugar industry is participating by

providing valuable input on the experimental design so as to better simulate field burning conditions. It is anticipated that the project will be completed by December 31, 2009. The information derived from the study will provide for an improved emissions inventory for Palm Beach County.

## EPA Proposes New Ozone Standard

On March 21, 2008, the U.S. Environmental Protection Agency (EPA) revised the national ambient air quality standard (NAAQS) for ground level ozone. The new 8-hour primary standard is 0.075 parts per million (ppm). The previous standard set in 1997 was 0.08 ppm. Because ozone is measured out to three decimal places, the standard was effectively 0.084 due to rounding.

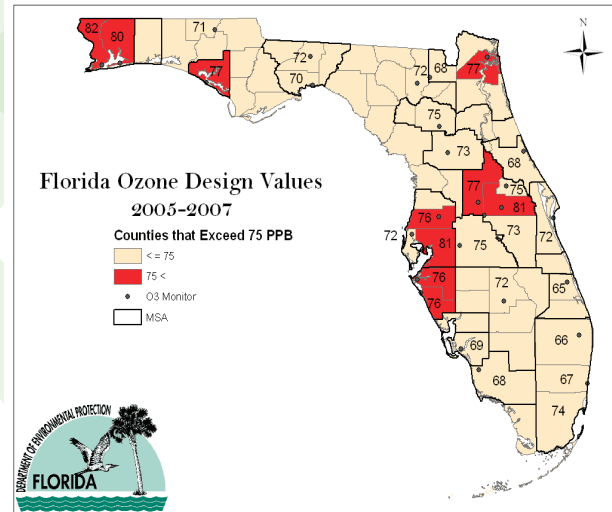
The standard was revised based on recent scientific evidence that concluded public health effects occur following exposure to ozone at levels below the

# SEMI ANNUAL REPORT

previous standard. Ozone is a strong oxidant, and breathing air containing ozone can reduce lung function and cause other respiratory symptoms especially in individuals with pre-existing respiratory problems such as asthma.

The new scientific evidence also indicated that repeated exposure to low levels ozone damages vegetation, trees and crops.

The ozone standard is based on a design value calculated on the three year average of the fourth-highest daily maximum 8-hour average at any monitor. The map from the Florida Department of Environmental Protection identifies Florida counties with design values that will exceed the standard based on 2005-2007 data. While the design value for Palm Beach County is .066 ppm (66 parts per billion), it should be noted that EPA considers Dade, Broward and Palm Beach Counties as a one area for attainment demonstration.



EPA also adjusted the ranges in the air quality index (AQI) for ozone to reflect the new standard. It is anticipated that Palm Beach County, will have more days in the “moderate” range and an increased likelihood for a few days in the range “unhealthy for sensitive groups .”

Danny Orlando, (EPA)  
Energy Star Program Manager  
gave a wonderful presentation  
**“Storms and Opportunities”**  
**A planetary energy and climate discussion.**

This presentation was held at the Environmental Health and Engineering Department for a gathering of DEP and PBCHD personnel. The presentation gave numerous amounts of data as evidence that there is a direct correlation between human activity and the increased levels of carbon dioxide (a green house gas), not to mention providing alarming images of global warming’s irreversible impact on the Earth. Subsequently, if nothing is done to reduce human impact, global warming would cause sea levels to rise and current coast lines to become submerged. This presentation emphasized conservation as a means to reduce the human footprint on our planet. Simple ways to conserve, include

replacing your light bulbs for compact florescent bulbs, buying appliances that have earned a energy star, ensuring your home is sealed, heating and cooling smartly, and lastly spreading the word. The presentation also models what would happen if current trends continue without intervention. It has been said that we have not inherited this Earth from our parents but we are borrowing it from our grandchildren. Let’s make sure we protect the environment for future generations by converting to these energy conservation practices now.



Land that would be threaten

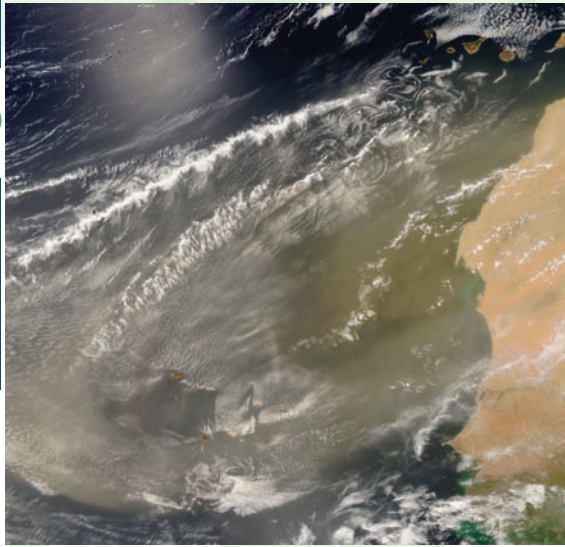
# SEMI ANNUAL REPORT

January - June 2008

8

Air Quality

## Global Winds Draft Sahara Dust Toward South Florida



Dust storm image captured by NASA's *Aqua* Satellite June 23, 2008.

NASA's *Aqua* satellite captured images of a large dust storm drafting Sahara Desert sands off the western coast of Africa toward the eastern coast of the United States of America on June 23, 2008. Sahara dust storm events are not unusual for south Florida, and being on the very east coast of Florida, Palm Beach County often sees the event before the rest of the nation.

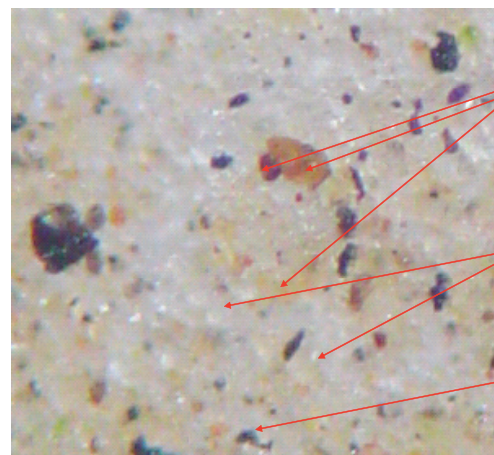
The Air Pollution Control Program of the Palm Beach County Health Department sometimes observes evidence of these dust storms while collecting ambient air samples from community sampling devices, frequently before local weather media outlets report them.

Evidence of this event was observed on a PM<sub>10</sub> ambient air filter (a filter sampling particles 10 micrometers or less). The sample was collected on June 24<sup>th</sup>. Under normal conditions, particulate matter captured on these filters appears gray after 24 hours of exposure to ambient air. When Sahara

Desert dust has migrated into the area, these filters begin to display a brown appearance; and with a more significant impact of the reddish-brown sand, the filter's dust zone may actually appear orange-red in color.

PBCHD also samples ambient air for pollen and mold spores, offering a count of those particles for allergy afflicted members of the community. These ambient air dust particle components are captured on a greased microscope slide for microscopic evaluation that results in a pollen and mold spore count published daily with the Air Quality Index. When impacted by Sahara Desert dust particles, the greased sample area displays a "fuzzy" brown appearance rather than the normal "fuzzy" gray appearance generated by local dust particles. This evidence was also observed on June 27, and the high background of fine, brown sand particles made pollen and mold spore counting a challenge.

Okay, so Health Department staff can see these tiny particles of dust in ambient air samples. What does it all mean for daily outdoor activities? You may have noticed a white haze in the sky or that the air seemed hot and "muggy" (we call it "humid"). Well, the haze you observed was Sahara Desert dust particles in the air, but you were seeing the dust cloud. In the photo, looking down onto the dust cloud from a satellite with the sun behind it, the dust's true brown color is more apparent. Looking up into that cloud as we do from the ground, the sun's glare makes it appear white. In years past and with larger, more numerous sand particles, that haze actually appeared brown from the ground.



**Quartz Silica Dust**  
(Sahara sand; Iron oxide Influence)

**Quartz Silica Dust**  
(Sahara & Local Sand)

**Carbonaceous Dust**  
(Local dust)

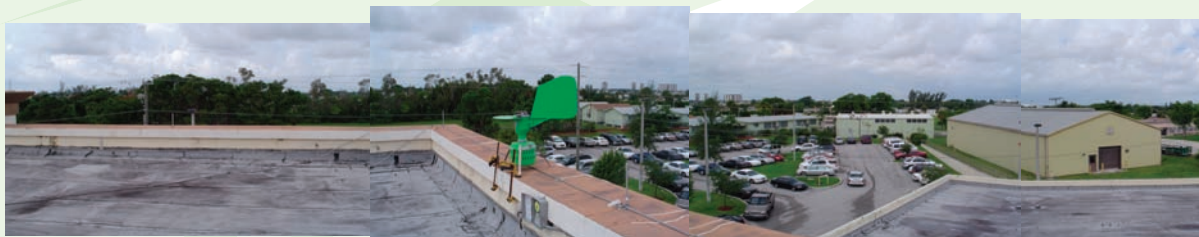
Sahara Desert Dust (3-6 micron size particles)

# SEMI ANNUAL REPORT

January - June 2008

9

Air Quality



*The new pollen/mold spore sampler location at the 45<sup>th</sup> Street Clinic in West Palm Beach*

## *The Pollen/Mold Spore Sampler Has Moved*

What difference a relocation can make! There are trees; lots of trees, but not too close. There is easy access without having to climb vertical ladders. And the counts are looking more tropical, as well. Of course daily afternoon rain storms help with that.

In May of this year, it became necessary for all of the air pollution field equipment to be removed from Palm Beach International Airport (PBIA) property. The field trailer and the pollen/mold spore sampler had to go. Protocol for sampling sites includes elevation above ground, (preferably a roof elevation), minimal impact from any single tree species (several stories above ground is best) and minimal interference from building structures.

Downtown buildings were considered, relocation of the tower to the Evernia Street vehicle compound was considered, but the location that seemed best fitted for this need was the West Palm Beach Health Center on 45<sup>th</sup> Street. The highest roof is about three stories; there is a good mix of tree species; and there is a good mix of vegetation and buildings in the area.



*Pollen/mold spore sampler at PBIA off Belvedere Road.*

The PBIA location was a massive expanse of concrete and asphalt near the sampler. Pollen and mold spore counts were consistently low, even after rain events. It became evident that the airport location was probably not the best location for this sampler. Originally the pollen/mold spore sample site was located on the roof of the South County Court House at 345 South Congress Avenue in Delray Beach. Pollen counts were observed throughout the range of 0-200 grains per cubic meter of air. Mold spore counts were observed throughout the range of 0-12,000 spores per cubic meter of air, and some excursions into the 20,000-25,000 spore range were observed. Our highest spore count at the PBIA location was probably 15,000 only a few times, with the typical range from 0-4,000. During the rainy season, the spore counts ranged from 700-1,000. The pollen count range at PBIA was typically in the 0-50 grain range.

Now that the sampler (a *Burkard* pollen and mold spore sampler) has been relocated, more reasonable results are being recorded.

For those of you interested in monitoring the pollen and mold spore counts, you can access the web site (PBCHD AQI website [www.PBCHD.com](http://www.PBCHD.com)) or call the number (561) 355-2962 for daily updates.

# SEMI ANNUAL REPORT

January - June 2008

10

Air Quality

## Changes in the Ambient Air Monitoring Network

As of June 1, the PBCHD discontinued ambient air monitoring at Site No. 25, located along Belvedere Road on property owned by Palm Beach International Airport (PBIA) that had been leased to PBC Facilities Management. This site had been operating since 1988 and used primarily for monitoring carbon monoxide (CO) and nitrogen dioxide (NO<sub>2</sub>). It was necessary to discontinue monitoring because PBIA took control of the property for their use, and could not allow the monitoring operations to continue due to security issues. While the monitoring history for these two pollutants indicate levels well within the air quality standards, it is still important to continue CO and NO<sub>2</sub> monitoring for trends and establishing background levels. Since these were the only operating CO and NO<sub>2</sub> monitors in the county, it is intended to relocate the monitors. The NO<sub>2</sub> monitoring will be moved to Site No. 36 located at Lantana. For CO monitoring, it is necessary to have the monitor located along a major roadway because a majority of CO emissions into the air are attributed to motor vehicles. PBCHD is currently evaluating potential sites.

In recent years, EPA has placed more emphasis on monitoring for fine particulate matter (PM<sub>2.5</sub>). The reason is that more and more scientific evidence has linked PM<sub>2.5</sub> exposure to serious health effects, including premature death. PBCHD operates a number of manual PM<sub>2.5</sub> samplers that utilize filters. Before concentration levels can be determined, the filters have to be collected and analyzed. Recently, PBCHD put into service a continuous PM<sub>2.5</sub> monitor at Site No. 35 in Royal Palm

Beach. This sampler provides information on PM<sub>2.5</sub> levels on a continuous level. The advantage is that the information in real time can be used in determining the daily air quality index for the county. PBCHD has purchased another continuous PM<sub>2.5</sub> monitor that will be set up at Site No. 31 located at the Belle Glade Health Center. The new monitor is recognized by EPA as an "equivalent method" to the "reference method" manual samplers.



Dan Brunet, Environmental Specialist, performing instrument check of NO<sub>x</sub> analyzer at PBIA site



PM<sub>2.5</sub> monitor that will be set up in Belle Glade

# SEMI ANNUAL REPORT

January- June 2008

11

Air Quality

<b>Air Pollution Control Activity Summary</b>	<b>July 06- June 07</b>	<b>July 07-June 08</b>
Facility Inspections: All licensed and permitted air pollution facilities are inspected annually. Sources out of compliance may receive additional inspections.	387	290
Compliance Investigations: All air pollution complaints are investigated and resolved or referred to the appropriate agency.	91	35
Open Burning Inspections: PBCHD authorizes open burning for land clearing purposes. Each project is inspected to ensure air pollution compliance.	10	4
Asbestos Inspections: The air program is committed to inspecting at least 75% of all asbestos abatement and demolition projects.	303	345
Permit Requests and Plan Reviewed: PBCHD has been delegated the authority to issues State permits for certain classes of air pollution sources. PBCHD also issues County licenses and approves plans for vapor recovery installations at fuel dispensing facilities.	59	46
Enforcement Actions: Actions range from warnings under a notice of noncompliance to cases resolved through the Environmental Control Hearing Board or negotiated through consent agreements.	42	34
Enforcement Penalties: This shows total penalties collected for air pollution violations. All penalty monies are deposited in Palm Beach County Pollution Recovery Trust Fund.	\$128,075	\$119,530

# SEMI ANNUAL REPORT

January - June 2008

12

Palm Beach County Health Department  
901 Evernia Street  
PO Box 29  
West Palm Beach, FL 33402