

NEISD Responses to the Air Quality Health Alert (AQHA) and the Air Quality Index (AQI) Programs from the Alamo Area Council of Governments (AACOG), the Texas Commission on Environmental Quality (TCEQ), and the Environmental Protection Agency (EPA)

NEISD actions in response to the



and



Programs

from

**the Alamo Area Council of Governments (AACOG)
the Texas Commission on Environmental Quality (TCEQ)
and
the Environmental Protection Agency (EPA)**

**prepared
by**

**Health Services
PE/Health/Athletics
Asthma Education
Indoor Air Quality**



November 2009

NEISD Responses to the Air Quality Health Alert (AQHA) and the Air Quality Index (AQI) Programs from the Alamo Area Council of Governments (AACOG), the Texas Commission on Environmental Quality (TCEQ), and the Environmental Protection Agency (EPA)

Air Quality Health Alert (AQHA) Program

The Air Quality Health Alert (AQHA) notification program is a forecast of the potential that an air pollutant level in San Antonio will exceed the Environmental Protection Agency's (EPA) Air Quality Index (AQI) Orange Target level sometime during the day. The two air pollutants of concern in San Antonio are Ozone and Particulate Matter (PM). Outdoor air quality forecasts are made daily from April 1st to October 31st for the San Antonio area. Each forecast is a simple yes or no prediction for the question, "Will a pollutant level reach or exceed the Level Orange target level for that day in the San Antonio area?" If yes, an AQHA is first announced the day before a high pollutant level is expected so that persons living in the San Antonio area can take the following "**preventive actions**"

1. to protect their health by limiting their exposure to the pollutant e.g., an Asthma Action Plan, and
2. to reduce their pollution emissions so that the predicted target level is not actually achieved. See Appendix A for the list of AACOG recommended daily choices that can help reduce air pollution.

Pollution typically increases during hot days with little or no wind or when winds are coming from the northeast, east, and southeast directions. Area sampling and monitoring stations can show when the pollutant is exceeding an unhealthy level. Typically, high levels are experienced in the afternoon hours. Often the predicted level of pollution is not realized during the day due to changes in the local weather conditions that have prevented the accumulation of the pollutant.

When AACOG receives a forecast of a Level Orange pollution level, it issues an AQHA to all local media entities and over 300 local organizations via email. AQHAs are announced with the weather during television network news, on most local radio stations, and in the San Antonio Express-News.

Figure 1 shows the official logo for the AACOG air quality health alert that will appear with the announcement of day and the pollutants that are of concern. An alert will be issued for each day.

Appendix A lists actions that AACOG recommends an individual to perform for preventing pollution.



Figure 1 Logo of AACOG's announcement for an Air Quality Health Alert Day

NEISD Responses to the Air Quality Health Alert (AQHA) and the Air Quality Index (AQI) Programs from the Alamo Area Council of Governments (AACOG), the Texas Commission on Environmental Quality (TCEQ), and the Environmental Protection Agency (EPA)

Air Quality Index (AQI) Program

The Air Quality Index (AQI) is a rating system for each pollutant that establishes a relationship between the level of the pollutant and the health effects that can be experienced by individuals exposed to that pollutant. Figure 2 shows the official logo for the EPA’s AQI program that appears on their website <http://www.airnow.gov> announcement of day and the pollutants that are of concern. An alert will be issued for each day.



Figure 2 Logo for the EPA’s Air Quality Index program

Each of the six National Ambient Air Quality Standard (NAAQS) air pollutants has a separate AQI scale, with an AQI rating of 100 corresponding to the highest acceptable concentration for that pollutant. The AQI scale is divided into six categories and each pollutant will be color coded as shown in Figure 3:

AQI	Air Quality	Color
0 - 50	Good	Green
51 - 100	Moderate	Yellow
101 - 150	Unhealthy for sensitive groups	Orange
151 - 200	Unhealthy	Red
201 - 300	Very Unhealthy	Purple
301 +	Hazardous	Dark Purple

Figure 3 EPA’s Air Quality Index numerical and color codes for rating levels of outdoor pollutants

The EPA lists daily national forecasts for selected cities in the United States. The AQI tells you how clean or polluted the air will be and warns of any associated health concerns. The AQI is being used across the nation by television, newspaper, websites (<http://www.airnow.gov>), and radio.

Appendix B contains more details about the health effects of the common air pollutants.

NEISD Responses to the Air Quality Health Alert (AQHA) and the Air Quality Index (AQI) Programs from the Alamo Area Council of Governments (AACOG), the Texas Commission on Environmental Quality (TCEQ), and the Environmental Protection Agency (EPA)

The District receives notification of an Air Quality Health Alert and passes the information via E-Mail to each school campus. The campuses are to respond to an AQHA and AQI announcements as follows

Responses to Air Quality Health Alerts announcement by ACCOG or other sources

1. Display the yellow Air Quality Health Alert banner as shown in Figure 4 that have been provided by AACOG in a prominent location so that persons can take the **preventive actions** recommended by their personal health physician and by AACOG, and
2. Restrict outdoor activities for students in accordance to the student's **Asthma Action Plan¹**, and the individual recommendations from their parents, guardian, or health physician².



Figure 4 Air Quality Health Alert banner provided by AACOG to NEISD schools

Responses to Air Quality Index announcement from NEISD Central Office

1. The NEISD Central Office will forward an e-mail to each campus when an AQI level of Orange or Red for outside air pollution is actually being experienced in the San Antonio area, and
2. **Modify outdoor activities for students and staff when the NEISD announcement is received that an Orange Level or red Level for the AQI of an outdoor pollutant has been experienced in the San Antonio area.** See the following restrictions for each category of student or campus

Restrictions Based on Actual San Antonio Area AQI Levels of Orange or Red³

Campus Administration

Orange AQI Level: announce that all students identified by the campus nurse as having respiratory problems will remain indoors for recess and any other activities such as outdoor science labs and gardening projects. Field trips and field days should continue with campus approval.

Field trips or field days, that require the student to be outside for lengthy periods of time, could trigger respiratory and/or asthma problems in these students. The administration, nurse and teachers should be guided by the Asthma Action Plan to determine participation on an outdoor field trip. Medication will accompany each child during the field day or field trip and should be planned and documented by the campus nurse.

Red AQI Level: there will be no outdoor activity for any student.

Physical Education

Orange AQI Levels, in schools with **AIR CONDITIONED GYMS**, students should remain inside the gym for activity.

Orange AQI Levels, in schools with **NON-AIR CONDITIONED GYMS**, students with respiratory problems and/or asthma should not go to the gym. These students should go to another location for an alternate activity. The activity should be of low intensity to keep the students increased lung use at a minimum. The nurse should be contacted immediately, if a child experiences difficulty breathing.

Red AQI Levels, in schools with **AIR CONDITIONED GYMS**, students should remain inside the gym for activity. The activity should be of low intensity to keep the students increased lung use at a minimum.

Red AQI Levels, in schools with **NON-AIR CONDITIONED GYMS**, there will be no gym or outdoor activity for any student.

Extracurricular Activity (e.g. ROTC, Band, Dance & Spirit Clubs and KENS)

Orange AQI Levels, students with respiratory problems and/or asthma should not go outside. These students should stay indoors for an alternate activity. The activity should be of low intensity to keep the students increased lung use at a minimum. The nurse or health official should be contacted immediately if a child experiences difficulty breathing.

Red AQI Levels, *The Superintendent, Associate Superintendent, or Program Director* will decide what appropriate response will be implemented at the time of the activity or event.

Restrictions Based on Actual San Antonio Area AQI Levels of Orange or Red³

Athletic Teams

Orange AQI Levels. students that have a heart, respiratory and/or asthma condition will be placed in the “sensitive group”. Disclosure of “sensitive group” students will be the responsibility of parents and/or guardians, and must occur in grades 7-12 while enrolled in the athletic program. Students in the sensitive group must be cleared for outdoor activity by a physician during the athletic physical examination as required by the UIL for all students wishing to participate in athletics. Students of the sensitive group who fail to receive physician clearance will be subject to curtailed outdoor activity on Air Quality Alert Days. Additionally, parents and students of this group will be required to consult with the high school athletic trainer regarding preventive measures and district athletic procedures on Air Quality Alert Days

Red AQI Levels. *The Superintendent, Associate Superintendent, or Athletic Director* will decide what appropriate response will be implemented at the time of the activity or event.

Classroom Teachers & Related Staff

Orange AQI Levels. teachers and staff with respiratory problems and/or asthma should not go outside. These people should go to another location for an alternate activity. Outdoor class assignments or experiments should be rescheduled for a non AQI Orange Level day.

Red AQI Levels. there will be no outdoor activity for any teacher or staff.

Notes:

1. An Asthma Action Plan should be in place for each child who has asthma and requires school interventions or restrictions, and the plan should be distributed to all staff members who will come in contact with the student. A student’s family physician will be requested to complete an Asthma Action Plan. If the physician does not feel an action plan is necessary, he/she will indicate that on the asthma plan form and confirm that with his/her signature.
2. The campus nurse is responsible for maintaining records and a list of all students who have respiratory health risks due to severe allergies, asthma, heart conditions or other issues. Campus nurses follow established protocols for record-keeping, parent communications, and medication management for students with these health risks. The campus nurse also provides a list of students at risk to teachers and other staff based on the need to know, and the nurse instructs staff as to precautions and interventions if risk situations are present.
3. The current AQI scale and color codes are found at the AIRNOW webpage for the State of Texas <http://www.airnow.gov/index.cfm?action=airnow.fcsummary>

NEISD Responses to the Air Quality Health Alert (AQHA) and the Air Quality Index (AQI) Programs from the Alamo Area Council of Governments (AACOG), the Texas Commission on Environmental Quality (TCEQ), and the Environmental Protection Agency (EPA)

Appendix A

AACOG recommended daily choices that can help reduce ozone air pollution

Air Quality Health Alert Day preventive actions that can help to reduce ozone pollution and improve outdoor air quality are carpooling, riding the bus, riding a bicycle, combining errands, and avoiding rush hour traffic. The following lists some of the daily choices that can help to reduce air pollution.

Daily choices can help reduce ozone air pollution

- Share a ride to work or school;
- Avoid lunch-time trips—take your lunch to work or school;
- Walk, ride a bicycle, car/vanpool, or ride the bus instead of driving alone;
- Combine errands into one trip;
- Avoid drive-through lanes;
- Postpone refueling your vehicle and using gas-powered lawn equipment until after 6 p.m., and don't top off your gas tank;
- Keep your vehicle properly tuned and your tires properly inflated for improved gas mileage;
- Report smoking vehicles;
- Participate in your local utility's energy conservation programs; and
- Seal containers of household cleaners, workshop chemicals and solvents, and garden chemicals to prevent VOCs from evaporating into the air.

Category	AQI Value	1997 8-hour (ppm)	2008 8-hour (ppm)
Good	0-50	0.000-0.064	0.000-0.059
Moderate	51-100	0.065-0.084	0.060-0.075
Unhealthy for Sensitive Groups	101-150	0.085-0.104	0.076-0.095
Unhealthy	151-200	0.105-0.124	0.096-0.115
Very Unhealthy	201-300	0.125-0.374	0.116-0.374
Hazardous	301-400	No Change	No Change
	401-500	No Change	No Change

Figure A1 Levels of Ozone Concentration in the ambient air according to old and new action values

Appendix B

Effects of Common Air Pollutants

RESPIRATORY EFFECTS

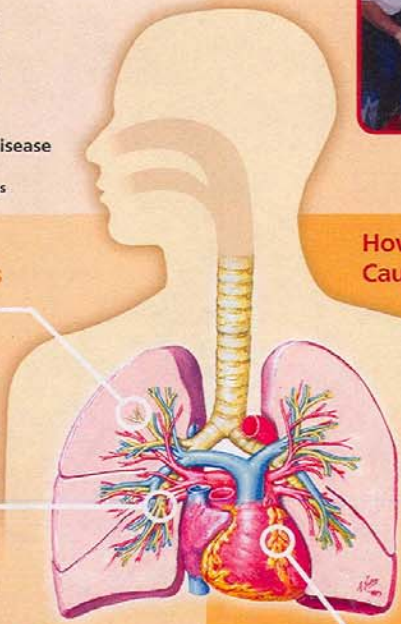


- Symptoms:**
- Cough
 - Wheezing
 - Phlegm
 - Shortness of breath
 - Chest tightness
- Increased sickness and premature death from:**
- Asthma
 - Bronchitis (acute or chronic)
 - Emphysema
 - Pneumonia
- Development of new disease**
- Chronic bronchitis
 - Premature aging of the lungs

CARDIOVASCULAR EFFECTS



- Symptoms:**
- Chest tightness
 - Chest pain (angina)
 - Palpitations
 - Shortness of breath
 - Unusual fatigue
- Increased sickness and premature death from:**
- Coronary artery disease
 - Abnormal heart rhythms
 - Congestive heart failure



How Pollutants Cause Symptoms

Effects on Lung Function

- Narrowing of airways (bronchoconstriction)
- Decreased air flow

Airway Inflammation

- Influx of white blood cells
- Abnormal mucus production
- Fluid accumulation and swelling (edema)
- Death and shedding of cells that line airways



Increased Susceptibility to Respiratory Infection



How Pollutants May Cause Symptoms

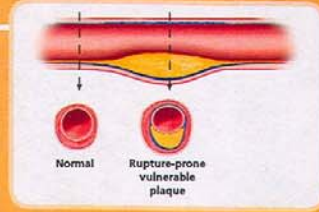


Effects on Cardiovascular Function

- Low oxygenation of red blood cells
- Abnormal heart rhythms
- Altered autonomic nervous system control of the heart

Vascular Inflammation

- Increased risk of blood clot formation
- Narrowing of vessels (vasoconstriction)
- Increased risk of atherosclerotic plaque rupture



Reduce your risk by using the Air Quality Index (AQI) to plan outdoor activities – www.airnow.gov

AQI Levels of Health Concern	AQI Values	What Action Should People Take?
Good	0-50	Enjoy Activities
Moderate	51-100	People unusually sensitive to air pollution: Plan strenuous outside activities when air quality is better
Unhealthy for Sensitive Groups	101-150	Sensitive Groups: Cut back or reschedule strenuous outside activities Particulate Pollution: People with heart or lung disease (including diabetics), older adults, and children Ozone: Active children and adults and people with lung disease Sulfur Dioxide: Active children and adults with asthma Carbon Monoxide: People with heart disease and possibly fetuses and infants
Unhealthy	151-200	Everyone: Cut back or reschedule strenuous outside activities Sensitive groups: Avoid strenuous outside activities
Very Unhealthy	201-300	Everyone: Significantly cut back on outside physical activities Sensitive groups: Avoid all outside physical activities



Water: Reproduced with permission from Core Learning Systems, a Division of Knowledge USA, Inc. All rights reserved.