

Example School District Action Plan for Unhealthy Air Quality

Purpose of the Plan: The (*district name*) Unified School District acknowledges the potentially adverse effects of unhealthy air quality on the health of students and employees. It is the purpose of this Plan to: (1) establish a communications protocol from the Idaho Department of Environmental Quality (DEQ) to the school district and school sites and to students and employees; (2) identify action levels based on State regulations and federal air quality index (AQI) levels reported by the air district; and (3) provide guidance for reducing student exposures to unhealthy air.

Notification of Unhealthy Air Quality

Receipt of air district information: It is the responsibility of the Superintendent of the (*district name*) USD, or his or her designee to monitor air quality information available from the Idaho DEQ on a daily basis. The prior day's 24-hr forecast for each school site in the district shall be verified on the morning of the effective date by viewing the DEQ Web page at www.deq.idaho.gov, or by calling the DEQ's hot line at (208) 373-0313. The (*district name*) USD will also subscribe to the DEQ automated e-mail notification system for air quality alerts and Air Quality Index (AQI) notification. The (*district name*) USD should contact the local with phone and facsimile numbers for receipt of Health Advisory Notices.

Transmitting air quality information: The (*name of district*) USD shall determine when to notify the schools and employees that actions should be taken to reduce exposures to unhealthy air. The district superintendent will notify principals or their designees at affected school sites by telephone, facsimile and e-mail to ensure that the message is received. In turn, principals or their designees shall disseminate by telephone, facsimile, and e-mail the air quality information, relevant parts of this Action Plan, and guidance for outdoor activities to teachers and coaches. Color-coded flags or pennants may be used as visual alerts to changing air quality.

School site responsibilities: Upon notification by the (*name of district*) USD, school sites should confirm that they are located in the geographical area of the current or forecast unhealthy air quality by viewing the DEQ Web page and confirm the valid time for the air quality alert or notification. School sites should implement the school district's policies and procedures for reducing children's and employees' exposures.

Unhealthy Air Quality

The AQI is a guide for reporting daily air quality. It indicates how clean or polluted the air is in a particular area and identifies potential health impacts. The AQI focuses on health effects that can happen within a few hours or days after breathing polluted air. DEQ uses the AQI for five major air pollutants regulated by the Clean Air Act: ground-



level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. For each of these pollutants, EPA has established [National Ambient Air Quality Standards](#) (NAAQS) to protect against harmful health effects. The NAAQS can be found at www.epa.gov/air/criteria.html. Further information on the AQI can be found at www.airnow.gov.

Actions and Cautionary Health Messages Under Federal Air Quality Categories

The AQIs for ozone are typically based on the average of eight 1-hour field measurements or computer-modeled predictions compared to the national 8-hr standard. The AQIs for fine particulates (PM_{2.5}) are based on the average of twenty-four 1-hour measurements compared to the 24-hr average federal air quality standard. There have been times when both the 8-hr ozone and 24-hr PM AQIs were based on fewer measurements in order to portray current conditions. The cautionary health messages that accompany the AQI categories below are based on the duration of a person's exposure being similar to the averaging times. Currently, there are no composite AQIs representing two or more pollutants or composite cautionary health messages for the cumulative effects of two or more pollutants.

US EPA's five categories of AQI for ozone and particulate material (PM):

<u>AQI</u>	<u>Descriptor</u>	<u>Health Cautionary Messages</u>
0 – 50	Good air quality (green flag)	No health impacts expected
51 – 100	Moderate air quality (yellow flag)	<u>Ozone:</u> <i>Unusually*</i> sensitive people should consider limiting prolonged outdoor exertion; <u>Particulate matter:</u> <i>Unusually*</i> sensitive people should consider reducing <i>prolonged*</i> or heavy exertion.
101 – 150	Unhealthy for Sensitive Groups (orange flag)	<u>Ozone:</u> Active children and adults, and people with respiratory disease, such as asthma, should <i>limit*</i> prolonged or heavy outdoor exertion; <u>Particulate matter:</u> People with respiratory or heart disease, the elderly and children should reduce prolonged or <i>heavy exertion*</i> .
151 – 200	Unhealthy (red flag)	<u>Ozone:</u> Active children and adults, and people with



		respiratory disease, such as asthma, should avoid prolonged or heavy outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion; <u>Particulate matter:</u> People with respiratory or heart disease, older adults, and children should avoid prolonged exertion, everyone else should limit prolonged exertion.
201 – 300	Very Unhealthy (purple flag)	<u>Ozone:</u> Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion; <u>Particulate matter:</u> People with heart disease, older adults, and children should avoid all physical activity outdoors; everyone else should avoid prolonged or heavy exertion.

As used above, the following terms can be generally defined as:

“*unusually sensitive people*” – typically, these people know who they are and are likely to have physical limitations and/or medical conditions that cause them to be more sensitive to air pollutants.

“*prolonged*” - U.S. EPA defines as 4 hours or more

“*limit*” - shorten duration or reduce intensity

“*moderate exertion*” – breathing rate 25 to 45 liters per minute

“*heavy exertion*” – breathing rate greater than 45 liters per minute

Specific Considerations and Actions to Reduce Exposures

When air quality is determined by the air district to be “unhealthy for sensitive groups” (AQI = 101 to 150), special consideration shall be given to those who would have trouble breathing or show other health symptoms resulting from outdoor activities. Children with asthma action plans developed in conjunction with their physician, parents, and school nurse should follow their plan. (Responsible person or office) shall ensure that space indoors is available for children with asthma or other respiratory diseases; such children should be allowed to remain indoors if they request to do so. Sensitive children who remain outdoors should reduce the intensity of their activities commensurate with the increase in the AQI. Breathing rates for sensitive groups should not exceed the normal resting (walking) rate as the AQI nears 150.



Options for Physical Education Classes and Recesses on Poor Air Quality Days are provided in attachment #1.

Options for Physical Education Classes and Recess on Poor Air Quality Days

It is important to remember that ozone or PM 2.5 affects each child differently. Children with asthma or other respiratory diseases are more susceptible to the health effects that can be triggered by ozone or PM 2.5. Each child may show symptoms at different levels of pollution. Therefore, the best way to monitor activities during times of elevated exposure is to ask children to report any symptoms related to difficulty in breathing to school staff (teacher, nurse, coach). If a child is particularly affected, or has been in the past, take steps to ensure their exposure or activity level is reduced to decrease the chance of symptoms. Alternatively, children could be moved indoors for continued exercise (indoor environments can have 20 to 80% less ozone or PM 2.5). Children with asthma should have an asthma management plan on file at their school so that symptoms can be treated immediately and appropriately.

The cautionary health statements and recommendations that follow relate to 8-hr ozone AQIs reported on DEQ or AIRNOW websites. Outdoor activities of shorter duration (e.g., 15-minute recess or 1-hour physical education class) would not require the same restrictive measures because the exposures would be less. If ozone is accompanied by elevated levels of fine particulate material (PM2.5), it is recommended that schools also review the cautionary health statements for this pollutant that are available on US EPA's Web page (http://www.epa.gov/airnow/aqi/aqi_conc_calc.html).

50 to 100 is “moderate” air quality (yellow days)

US EPA recommends that *unusually sensitive people should consider limiting prolonged outdoor exertion.*

101 to 150 is “unhealthy for sensitive groups” (orange days)

U.S. EPA recommends that *active children and those with respiratory disease, such as asthma, should limit prolonged outdoor exertion.*

Limit outdoor physical activities to less than one hour (e.g., split time between morning and afternoon). Indoor activities should be made available to children with respiratory disease, such as asthma.

151 to 200 is “unhealthy” (red days)

US EPA recommends that *active children and those with respiratory disease such as asthma should avoid prolonged outdoor exertion.*



Healthy children should reduce the intensity of outdoor activities lasting an hour or more. Children with asthma or respiratory disease should reduce the intensity and duration of any outdoor activities and be given the opportunity to continue their activities indoors.

200 and greater is “very unhealthy” (purple days).

U.S. EPA recommends *active children and those with asthma should avoid all outdoor exertion.*

High ozone days are often bright and warm sunshine days. It is always recommended that school staff *watch children carefully for signs of distress and ensure ready access to medications for kids with asthma.*

Options for outdoor physical activities

What would normally be considered safe exposure to ozone or PM 2.5 (“safe” means not likely to result in adverse health effects in the general population”) becomes less so with increased breathing rates and the duration of exposures. Therefore, a risk reduction strategy involves reducing intensity (breathing rates) and duration (time) of vigorous outdoor activities.

Possible ways to reduce risks from exposures to ozone:

- 1) Reduce intensity of the activities:
 - a. Switch out players more often during practice and games
 - b. Focus on skill development versus endurance training
 - c. Alternate endurance activities with skills development
 - d. Take frequent rest and water breaks
- 2) Spend part of practice indoors and part outdoors
- 3) Split practice into two parts: one before and one after school
- 4) During weeks or months of high ozone, move practices to before school
- 5) Shorten the length of practices
- 6) Move inside when practical

Examples of activities that are of relatively low-to-moderate intensity include: diving, walking, gymnastics, wrestling, golf, karate, isometrics (stretching exercises), baseball, boxing, tetherball, four-square, horseback riding; non-competitive swimming, tennis, cycling, and volleyball.

Examples of activities of high intensity that result in sustained aerobic activity: Football, long-distance running, competitive cycling, basketball, soccer, rugby, ice hockey, ice skating, and cross-country skiing. Each of these involves some form of running.

Physical education instructors are encouraged to develop lesson plans that include options for reduced intensity and duration of outdoor activities on poor air quality days. Coaches of competitive sports should consider training (a situation when aerobic activity can be greater than the sports event itself) during times of the day when air quality is better (typically morning hours).

