

To: Santa Clara County Airport Commission

From: Bud Beacham – Airport Commissioner

Date: 9/26/09

Subject: Notifying the public per California Proposition 65 of their exposure to airborne lead pollution from general aviation aircraft while attending third party public events held on Santa Clara County airport property.

Recommended Action:

The recommended action is the Santa Clara County Airport Commission adopts the following motion:

The Santa Clara County Airport Commission recommends county airport staff work with county legal staff, and

- 1. Develop Proposition 65 compliant warnings notifying the public of their exposure to airborne lead while attending third party public events on Santa Clara County airport property.*
- 2. Require all third party organizations using Santa Clara County airports for public events to use these warnings, effective January 1, 2010.*

Reasons for Recommendation:

This motion is based on there being a legal obligation, and an equally valid moral obligation, to inform the public of the fact general aviation aircraft use highly leaded fuel, 95% of the lead in the fuel is emitted in aircraft exhaust, and attending public events on Santa Clara County airport property will expose the attendee to elevated levels of airborne lead pollution.

There is no denying, from a health perspective, any amount of lead is harmful and dangerous to humans, and especially harmful and dangerous to pregnant women and children. The data is irrefutable. The appropriate position in regard to notifying the public of exposure to lead pollution from general aviation is the old and wise expression, "It is better to be safe than sorry."

By having Proposition 65 warnings, the public can make an informed, intelligent, rational decision as to whether attending any Santa Clara County airport event is in the best interests of their family and themselves.

Fiscal Implications:

Failure to alert the public of exposure to general aviation aircraft lead pollution could have fiscal implications ranging from zero, to making Santa Clara County legally liable for compensation from law suits regarding negative health and reproductive harm to the public from inhaling lead generated from Santa Clara County airports.

This could result in judgments against Santa Clara County for untold amounts of monetary damages.

Background:

Each year, groups not affiliated with the Santa Clara County government use Santa Clara County airports for public events, such as Eastridge Little League ball games, the annual Open House at each airport, and the annual "Take Flight For Kids" event held at Reid-Hillview on August 8, 2009. While these events are certainly worthwhile, and are examples of how Santa Clara County airports can provide some limited utility to the general public, the public events do create a dichotomy.

The dichotomy is Santa Clara County is providing a recreational activity to county residents, while simultaneously exposing county residents to elevated levels of airborne lead pollution.

The airborne lead pollution at any Santa Clara County airport is from the exhaust of general aviation aircraft operating on, or near, the airport. Only general aviation aircraft use leaded fuel. General aviation aircraft fuel contains 2.12 grams of lead per gallon, and 95% (2 grams) of the lead is emitted in the exhaust. General aviation lead pollution only occurs when an aircraft engine is operating. However, the lead particles will remain in the air for some period of time until either inhaled, or settles on a surface. During any given hourly, daily, weekly, monthly, yearly period, the amount of lead pollution generated by each Santa Clara County airport is directly proportional to the amount and type of aircraft operations occurring within that period. Increased aircraft operations equals more lead pollution, reduced aircraft operations equals less lead pollution.

Medical research has shown inhaled airborne lead is absorbed into the blood. Other medical research into the effects of lead on children is showing virtually any amount of lead in the blood of a child, or fetus, can result in permanent, measurable, cognitive impairment (brain damage, IQ loss).

The United States *Environmental Protection Agency* (EPA) now states there is no known safe level of lead, and further states there is a direct association between airborne lead pollution and population IQ loss. EPA research at two Southern California general aviation airports show airborne lead levels to be higher on airport property, and in adjacent neighborhoods, than in areas further away from the airports.

Additionally, the EPA ranks Reid-Hillview, Palo Alto, and South County, out of 3,414 general aviation airports, as the 25th, 36th, and 539th highest lead polluting general aviation airports in the United States, respectively emitting 580,000 grams (1300 pounds), 524,000 grams (1200 pounds), and 138,000 grams (300 pounds) of lead into airport air, and into the local air adjacent to the airports, during 2002.

California law, Proposition 65, requires the public to be notified of exposure to any known chemical which causes cancer, or has reproductive toxicity. Lead is listed in both Proposition 65 categories. Yet, for the most part, the public is completely unaware of the fact general aviation aircraft use highly leaded fuel, and throughout the county, the public is breathing the resultant lead pollution on a daily basis. When individuals, and their families, attend public events held on Santa Clara County airport property, they are being exposed to elevated levels of airborne lead pollution, thus increasing the amount of lead they can inhale.

The lack of notification to the public that they will be exposed to airborne lead while on Santa Clara County airport property appears to be in conflict with Proposition 65. The motion presented here will resolve this conflict by requiring non-Santa Clara County government organizations using Santa Clara County airports for public events to provide Proposition 65 compliant notification to each person attending the event.

This motion is based on the following points.

The EPA ranks all of Santa Clara County as being in the “Highest in U.S.” category in regard to airborne lead pollution. [1]

The EPA states virtually all Santa Clara County lead air pollution is from general aviation aircraft. [2]

General aviation fuel contains 2.12 grams of lead per gallon. [3]

2 grams (95%) of the lead in every gallon of general aviation fuel is expelled into the atmosphere in the form of lead particulates, which are easily inhaled and absorbed into the blood. [4]

EPA research at Southern California general aviation airports show airborne lead levels on airport property, and in adjacent neighborhoods, to be higher than airborne lead levels on property distant from the airport. [5]

The EPA ranks Reid-Hillview at 25th out of 3,414 general aviation airports in regard to airborne lead levels in the atmosphere at both the airport, and in surrounding neighborhoods, by polluting 580,000 grams (1300 pounds) of lead particles into the local atmosphere in 2002. [6]

The EPA ranks Palo Alto at 36th out of 3,414 general aviation airports in regard to airborne lead levels in the atmosphere at both the airport, and in surrounding areas, by polluting 524,000 grams (1200 pounds) of lead particles into the local atmosphere in 2002. [6]

The EPA ranks South County at 539th out of 3,414 general aviation airports in regard to airborne lead levels in the atmosphere at both the airport, and in surrounding areas, by polluting 138,000 grams (300 pounds) of lead particles into the local atmosphere in 2002. [6]

FAA data shows every year between 60% to 65% of aircraft operations (takeoff or landing) at Reid-Hillview are “local”. Local operations are where aircraft continually fly around the airport while repetitively taking off and landing. [7]

Local operations at Reid-Hillview consist of aircraft continually operating on, and over, airport property, and repetitively flying at a low altitude over 8 schools, thousands of homes, and tens of thousands of East San Jose residents. [8]

The EPA states lead pollution from local flight operations is more likely to increase airborne lead levels on the airport, and in neighborhoods around the airport. [9]

Medical research is showing blood lead levels at 1ug/dl, or lower, in a child can result in permanent, measureable, IQ loss. [10]

The EPA states there is no known safe level of lead in the blood. [11]

Medical research shows inhaled airborne lead is absorbed into the blood. [12]

The EPA states there is a direct association between airborne lead pollution and population IQ loss. [13]

In addition to causing permanent IQ loss in children, lead in the blood is associated with aggressive, antisocial behavior in children and adults. [14]

Other than being lower in level, current lead pollution at Reid-Hillview, Palo Alto, and South County is no different than lead pollution from Reid-Hillview, Palo Alto, and South County over the last 40 years, and past lead pollution had the same negative effects on people then as current lead pollution does now.

Groups not associated with the Santa Clara County government hold public events on Santa Clara County airport property throughout any given year.

General aviation aircraft are operating on Santa Clara County airport property, and in the local air, before and during these public events.

Attendees at these public events can include pregnant women, infants, young children, older children, and adults.

California Proposition 65 requires the public to be notified if they will be exposed to a known chemical which causes cancer, or has reproductive toxicity. [15]

Proposition 65 lists lead in both the cancer causing and reproductive toxicity categories. [16]

Members of the general public attending public events on Santa Clara County airports are not informed they will be exposed to airborne lead from general aviation aircraft.

The lack of notification regarding the public's exposure to airborne lead while on Santa Clara County airport property appears to be in conflict with Proposition 65, the above motion is presented for consideration.

Consequences of Negative Action:

Failure to alert the public of exposure to general aviation aircraft lead pollution deprives the public of essential and valuable information, and the absence of this information can negatively affect their health, negatively affect the health of their children, and affect the decision they make to attend public events located on Santa Clara County airports.

Failure to alert the public of exposure to general aviation aircraft lead pollution can result in pregnant women unnecessarily inhaling lead, and passing the lead onto the fetus. Children inhaling lead can absorb it into their blood. Alone, or combined with other lead currently in their blood, general aviation lead pollution can be sufficient to cause irreversible IQ loss in children.

Failure to alert the public of exposure to general aviation aircraft lead pollution exposes Santa Clara County to legal litigation from individuals unwittingly and/or unwillingly exposed to lead generated from Santa Clara County airports.

Steps Following Approval:

Santa Clara County Airport Staff will inform all third party groups, and co-sponsors, desiring to use Santa Clara County airports for public events, they will be required to place Proposition 65 compliant warnings on all flyers, web-sites, written and broadcast ads, and any other form of notification or advertisement of the event. Additionally, appropriate penalties, up to and including event cancelation, need to be defined for non-compliance with providing Proposition 65 warnings to the public.

Attachments:

1. *Lead Emissions from the Use of Leaded Aviation Gasoline in the United States - Technical Support Document*, by the United States Environmental Protection Agency
2. *Cognitive Deficits Associated With Blood Lead concentrations < 10ug/dl in US Children and Adolescents*, by Bruce Lanphear MD MPH, Kim Dietrich PHD, Peggy Auinger MS, Christopher Cox PHD
3. Flyer advertising "Take Flight for Kids" August 8, 2009 at Reid-Hillview Airport.
4. Example Proposition 65 warning.

Footnotes:

[1] Two EPA sites list Santa Clara County in the highest category for airborne lead pollution.

http://www.epa.gov/cgi-bin/broker?geo=STCA&pol=80193&city=1&typ=e&_service=nata&_program=nata.scl.comap.scl&_debug=2&nata2=1

http://www.epa.gov/cgi-bin/broker?_service=data&_debug=0&_program=dataprog.dw_do_all_emis.sas&pol=219&stfips=06

[2] **Non Road Equipment** generates virtually all of the lead pollution in Santa Clara county.

http://www.epa.gov/cgi-bin/broker?_service=data&_debug=0&_program=dataprog.dw_do_all_emis.sas&pol=219&stfips=06

Non Road Equipment is defined as "Planes, Trains, & Ships". Only internal combustion general aviation aircraft use leaded fuel. Jet aircraft, trains, and boats use different non-leaded fuels.

<http://epa.gov/air/emissions/basic.htm#dataloc>

[3] "This concentration, 2.12 grams of lead per gallon of fuel, is maintained within tight specifications and should not be decreased or increased for the purposes of refining an airport lead inventory...."

Lead Emissions from the Use of Leaded Aviation Gasoline in the United States

<http://www.epa.gov/otaq/regs/nonroad/aviation/420r08020.pdf> page 7

[4] "Recent data collected from aircraft piston engines operating on leaded avgas suggests that about 5% of the lead from the fuel is retained in the engine and engine oil. Thus the emitted fraction is 0.95."

Lead Emissions from the Use of Leaded Aviation Gasoline in the United States

<http://www.epa.gov/otaq/regs/nonroad/aviation/420r08020.pdf> page 5

[5] Van Nuys and Santa Monica GA airports
http://www.reidhillview.com/EPA_VanNuys_Lead_Study_Slides_10_07.pdf

[6] Appendix 1 – Ranking of GA airports by lead pollution emissions
Lead Emissions from the Use of Leaded Aviation Gasoline in the United States
<http://www.epa.gov/otaq/regs/nonroad/aviation/420r08020.pdf>

[7] **General Aviation Manufacturers Association**, statistical data book for 2008, Table 4.5 - 48,440 Itinerant operations, 82,696 Local operations = 63% local operations.
<http://www.gama.aero/media-center/industry-facts-and-statistics/statistical-databook-and-industry-outlook>

[8] Schools are outlined in yellow. Increase magnification to 150% for a clearer presentation.
<http://countyairports.org/docs/PilotInsert-RHV.pdf>
http://www.reidhillview.com/RHV_brochure.pdf

[9] “Emissions during local flying are more likely to influence air and soil concentrations of lead in the vicinity of the airport because they occur near the airport, often at altitudes below the mixing height.”
Lead Emissions from the Use of Leaded Aviation Gasoline in the United States
<http://www.epa.gov/otaq/regs/nonroad/aviation/420r08020.pdf>

[10] **1ug/dl** is one microgram (ug) per deciliter (dl) of blood. That is, 1 one-millionth of a gram of lead per one-tenth of a liter (3 ounces) of blood is sufficient to cause measurable IQ loss in a child. 1 gram of lead has 1,000,000 micrograms. The 580,000 grams of lead from Reid-Hillview is 580,000,000,000 micrograms (580 billion ugs) of lead in the local air.

Table 3 - *Cognitive Deficits Associated With Blood Lead concentrations < 10ug/dl in US Children and Adolescents*
<http://www.reidhillview.com/bloodlead1.pdf>

[11] “Children are particularly vulnerable to the effects of lead. Exposures to low levels of lead early in life have been linked to effects on IQ, learning, memory, and behavior. **There is no known safe level of lead in the body.**” (bold emphasis mine)
<http://www.epa.gov/air/lead/pdfs/leadMonitoringReconsiderationFSs.pdf>

[12] “Lead that is emitted into the air can be inhaled.....Once in the body, lead is rapidly absorbed into the bloodstream and results in a broad range of health effects.”
<http://www.epa.gov/air/lead/pdfs/20081015pbfactsheet.pdf>

[13] "In this framework, we have drawn from the entire body of evidence as a basis for concluding that there are causal associations between air-related Pb exposures and population IQ loss."
http://www.reidhillview.com/EPA_Lead_Air_IQ_Loss_Data.pdf

[14] “The first study to follow lead-exposed children from before birth into adulthood has shown that even relatively low levels of lead permanently damage the brain and are linked to higher numbers of arrests, particularly for violent crime.”
http://www.reidhillview.com/SJM_Lead_Violent_052808.htm

[15] Proposition 65: “No person in the course of doing business shall knowingly and intentionally expose any individual to a chemical known to the state to cause cancer or reproductive toxicity without first giving clear and reasonable warning to such individual...”

<http://www.oehha.org/prop65/law/P65law72003.html>

[16] Proposition 65 listing of chemicals causing cancer or reproductive harm.

Chemical	Type of Toxicity	Date Listed
Lead	developmental, female, male	February 27, 1987
Lead and lead compounds	cancer	October 1, 1992
Lead acetate	cancer	January 1, 1988
Lead phosphate	cancer	April 1, 1988
Lead subacetate	cancer	October 1, 1989

http://www.oehha.org/prop65/prop65_list/files/P65single080709.pdf