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Board Agenda Item

TO: Air Pollution Control District Board

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SUBJECT: The District's Air Toxics Program and the Revised Guidance Manual for Health Risk Assessments

RECOMMENDATION:

Receive a presentation from District staff on the District's air toxics program and a presentation from Dr. Melanie Marty on the upcoming revised Guidance Manual for health risk assessments.

BACKGROUND:

Children's Environmental Health Protection Act

Due to growing concerns regarding children's increased susceptibility to environmental contaminants, the California Legislature passed the Children's Environmental Health Protection Act in 1999 (SB 25). This Act requires explicit consideration of infants and children in assessing health risks from air toxics. In response to SB 25, the Office of Environmental Health Hazard Assessment, commonly referred to as OEHHA (pronounced oh-EEE-ha), re-assessed their methods and found that infants and children were not adequately protected by the existing health risk assessment methodology established in 2003. As a result, OEHHA is releasing a revised *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments* (Guidance Manual) to more explicitly consider and protect the health risk to infants and children; and provide additional protection to other age groups. This revised Guidance Manual methodology may increase cancer risk results as compared to the existing 2003 health risk assessment methodology.

Today's Presentation

In order to inform your Board on this subject, the District will first provide you with background on the District's current air toxics program. Then, Dr. Melanie Marty (OEHHA) will brief your Board on the revised Guidance Manual for health risk assessments.

Dr. Melanie Marty

Melanie Marty, Ph.D. is Assistant Deputy Director for Scientific Affairs at OEHHA. Dr. Marty received her Ph.D. in Pharmacology and Toxicology from the University of California, Davis. As Assistant Deputy Director, she helps oversee production of scientific assessments of environmental chemicals at the California Environmental Protection Agency (Cal/EPA), and participates in policy development and administration.

Dr. Marty has authored/co-authored numerous articles and publications relating to health risk assessment, including evaluation of children's health risks. She has served on a number of Environmental Protection Agency (EPA) peer review committees and was Chair of the Federal EPA's Children's Health Protection Advisory Committee from 2001-2009. Dr. Marty is also an Adjunct Assistant Professor at the University of California, Davis in the Department of Environmental Toxicology.

DISCUSSION:

Air Toxics

Air toxics is a generic term referring to a chemical or group of chemicals in the air that are known or suspected to cause cancer, or other serious health problems, such as birth defects or reproductive effects. The Federal Clean Air Act, as amended in 1990, lists 188 of these chemicals, called hazardous air pollutants. The California Air Toxics "Hot Spots" Program lists 729 air toxics, which includes the 188 federal pollutants.

Health Risk

The increased health risk posed by emissions of these air toxics is estimated by performing health risk assessments. In this context, health risk refers to the increased likelihood that exposure to air toxic emissions will result in negative health effects for an individual or population. Health risk is affected by several factors, including the amount of air toxics emitted, the meteorological conditions, the age of the individual exposed, and the amount of time the individual is exposed to air toxics. Health risk assessments are performed using a California Air Resources Board (ARB) computer model, the Hotspots Analysis Reporting Program (HARP).

The health risk posed by a particular air toxic can be a cancer risk or a non-cancer risk, or both. Cancer risk refers to the increased chance of contracting cancer as a result of exposure to air toxic, and is expressed as a probability: number of chances-in-a-million. The cancer risk results do not predict actual cases of cancer that will result from exposure to air toxics. Rather, they conservatively state a possible risk of contracting cancer over and above the cancer risk level in the area. Non-cancer risk can be acute, meaning effects can be felt from a relatively short amount of exposure to the air toxic, or chronic, meaning effects are the result of exposure over an extended period of time. For non-cancer health effects, risk is characterized by a Hazard Index (HI). The HI presents the ratio of the predicted air toxic exposure to the level of air toxic exposure considered acceptable by health professionals. For example, the level of acute exposure considered acceptable by health professionals for benzene is 27 micrograms per cubic meter. Therefore, if an individual is acutely exposed to 15 micrograms per cubic meter of benzene, the HI is equal to 15 divided by 27 or 0.56.

Air Toxics “Hot Spots” Information and Assessment Act

One part of the District’s air toxics program is to evaluate health risk from businesses as required by the Air Toxics “Hot Spots” Information and Assessment Act (AB 2588). The California State Legislature passed AB 2588 in 1987 and amended the Act in 1992. There are four main purposes of this legislation:

1. To identify the amount of air toxics emitted into the air by individual businesses;
2. To estimate potential health risk for members of the public exposed to these air toxics;
3. To inform individuals when they are exposed to air toxic emissions causing a significant health risk; and
4. To protect the public health by reducing air toxic emissions from businesses to acceptable levels.

Risk Management

In 1993 your Board approved the *Santa Barbara County Air Toxics “Hot Spots” Information and Assessment Act Public Notification Procedures* (Public Notification Procedures). These Public Notification Procedures established the significant health risk definition and set thresholds. In this document, “significant” health risk was defined as the level at which the public shall be informed of potential adverse health impacts resulting from exposure to air toxics emissions. For cancer risk, if a facility’s air toxics emissions result in a cancer risk of equal to or greater than 10 in a million, it is considered a significant risk facility. For non-cancer risk, if a facility’s air toxics emissions result in a Hazard Index greater than 1.0, it is considered a significant risk facility.

In response to the 1992 amendment to AB 2588, your Board approved risk reduction health risk thresholds. These thresholds were approved in 1998 and are identical to the significant health risk thresholds approved in 1993.

Santa Barbara County Air Toxics Program Accomplishments

The District air toxics program has significantly reduced the amount of air toxics emitted in Santa Barbara County through implementation of AB 2588. Since 1991, the number of significant risk facilities has been reduced by 100 percent. In 1991 there were 51 significant risk facilities and today there are zero.

In addition to evaluating existing facilities in AB 2588, the District evaluates health risk associated with new or modified facilities during the permit process when issuing new Authority to Construct permits. The goal for the District’s new source review health risk program is to prevent a new or modified facility from creating a significant risk to the community (using the significance criteria established by the AB 2588 program). With this program no additional significant risk facilities have been created since 1991.

The Office of Environmental Health Hazard Assessment

The Office of Environmental Health Hazard Assessment (OEHHA) is a specialized department within the cabinet-level of Cal/EPA with responsibility for evaluating health risks from air toxics. OEHHA is the scientific adviser within Cal/EPA and assists regulatory decision-makers with health risk assessments.

Guidance Manual

One of OEHHA's many responsibilities is to develop the health risk assessment guidelines for California regulatory agencies (Health and Safety Code Section 44360(b) (2)). In 1999 the Children's Environmental Health Protection Act required OEHHA to ensure that these health risk assessment guidelines adequately protect infants and children. When OEHHA re-assessed these methods, they found that infants and children were not adequately protected by the existing health risk assessment methodology established in 2003. As a result, OEHHA is revising the *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments* (Guidance Manual) to more explicitly consider and protect the health risk to infants and children.

In addition, the revised Guidance Manual reflects advances in the field of health risk assessments. Specifically: the cancer risk calculation was revised to account for sensitivity at early ages; the calculations were revised to account for higher exposure at younger ages; and the atmospheric dispersion model was changed to the American Meteorological Society / Environmental Protection Agency Regulatory Model (AERMOD), the EPA preferred regulatory model. With all of these changes, the revised Guidance Manual methodology may result in increased cancer risk results as compared to the existing 2003 health risk assessment methodology.

This revised Guidance Manual was issued as a draft and has undergone review by the California Air Pollution Control Officers Association (CAPCOA), the general public, and the State's Scientific Review Panel. OEHHA expects to finalize it in February of 2015. At the same time, the ARB will release the new version of HARP, which will incorporate the revised Guidance Manual requirements for performing health risk assessments. A beta version of HARP was released to air districts for testing in late December.

Next Steps

The District is currently evaluating the impacts of the revised Guidance Manual, considering the major changes to the way future health risk assessments will be performed and the potential for increased cancer risk results.

The District air toxics program is receiving our highest attention, and resources have been dedicated to address the many needs we foresee in the near future. The air toxics team will be staffed with three full-time employees (a Supervisor and two air quality engineers) as well as one specialized contractor.

In addition, we have formed a South Central Coast air toxics team consisting of air toxics professionals from our District, Ventura County Air Pollution Control District, and San Luis Obispo County Air Pollution Control District. This team meets on a weekly basis to transfer information and share workload. In order to successfully communicate these new health risk assessment requirements, we have begun updating our air toxics web pages to more easily and clearly share information with the general public and regulated community. Lastly, the District air toxics team, with assistance from the South Central Coast air toxics team, is well underway towards analyzing data and establishing a modeling platform to determine the effects of the revised Guidance Manual on our regulated community and the general public.

We have begun this effort, but there is still much work to do in the next few months. We plan to continue working in-house, with the South Central Coast air toxics team, and with CAPCOA to ascertain how best to execute the revised Guidance Manual and continue our robust air toxics program.

We do not know the full impacts of the revised Guidance Manual yet, therefore at this time we are not proposing any changes to the District risk management policies or requesting any actions from your Board. We will return to your Board with our findings on the full impacts of the revised Guidance Manual at a future date.