



# DESERT BREEZE

VOLUME VI ISSUE I

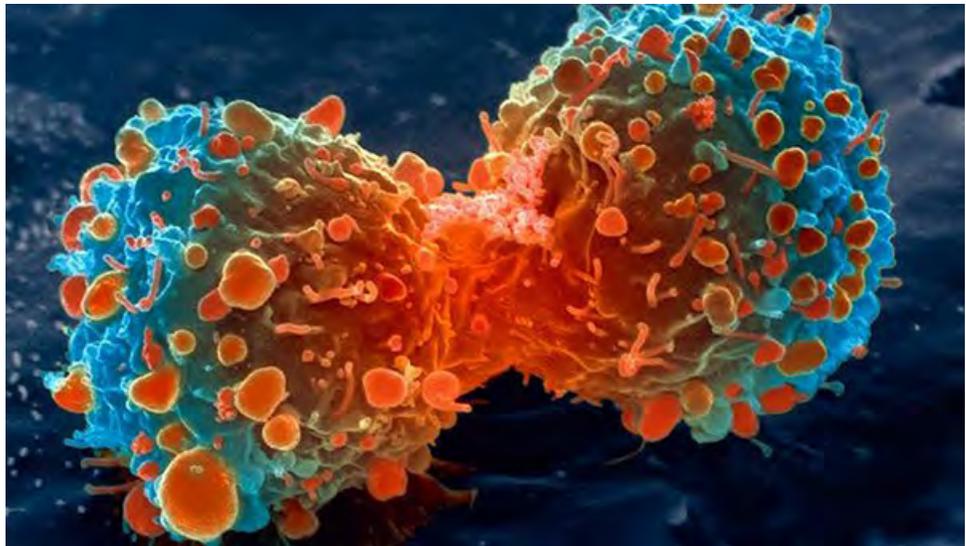
MARCH 2018

## WHAT IS CANCER?

**Cancer** is the name given to a collection of related diseases. In all types of **cancer**, some of the body's cells begin to divide without stopping and spread into surrounding tissues.

Cancer can start almost anywhere in the human body, which is made up of trillions of cells. Normally, human cells grow and divide to form new cells as the body needs them. When cells grow old or become damaged, they die, and new cells take their place.

When cancer develops, however, this orderly process breaks down. As cells become more and more abnormal, old or damaged cells survive when they should die, and new cells form when they are not needed. These extra cells can divide without stopping and may form growths called tumors.



### Many **cancers**

form solid tumors, which are masses of tissue. **Cancers** of the blood, such as leukemia, generally do not form solid tumors. Instead, (in leukemia) large numbers of abnormal white blood cells (leukemia cells and leukemic blast cells) build up in the blood and bone marrow, crowding out normal blood cells. The low level of normal blood cells can make it harder for the body to get oxygen to its tissues, control bleeding, or fight infections.

Cancerous tumors are malignant, which means they can spread into, or invade, nearby tissues. In addition, as these tumors grow, some cancer cells can break off and travel to distant places in the body through the blood or the lymph system and form new tumors far from the original tumor.

Some **cancers** grow and spread fast. Others grow more slowly. They also respond to treatment in different ways. We'll talk about treatment in one of our upcoming issues.

Why does the Air District care about cancer? It has been proven, some types of air pollution are carcinogenic (substance, radionuclide, or radiation that promotes carcinogenesis, the formation of cancer). Substances that are carcinogenic include (but not limited to): ultraviolet radiation (from sunlight), diesel fuel combustion exhaust, benzene, and tobacco smoke. Air Districts throughout California have programs that are actively reducing carcinogenic emissions from many sources. In our next issue we'll talk about the, carcinogenic emissions, and how they are being reduced.

*By: Brenton Smith*

## Pollutant of the Quarter: Greenhouse Gas: Nitrous Oxide (N<sub>2</sub>O)

In our previous issue, we talked about how greenhouse effect works and how greenhouse gases can trap heat in our atmosphere. Nitrous oxide (N<sub>2</sub>O) is one of four greenhouse gas types identified by United States Environmental Protection Agency (EPA). According to EPA, nitrous oxide accounted for about 5 percent of all U.S. greenhouse gas emissions in 2015 as described below.

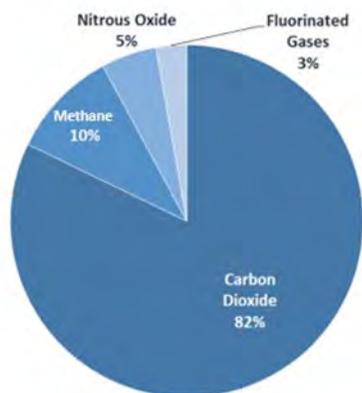
Nitrous oxide is naturally present in our atmosphere as part of our planet's nitrogen cycle. Human activities such

as agriculture, fossil fuel combustion, and industrial processes also emit nitrous oxide. However, human activities such as agriculture, fossil fuel combustion, wastewater management, and industrial processes are increasing the amount of nitrous oxide in the atmosphere.

Different greenhouse gases (GHGs) have different effects on our planet's warming. The term Global Warming Potential (GWP) was created to allow comparisons of the global warming impacts of different gases. Basically,

GWP is a measure of how much heat energy the emissions of 1 ton of a gas will absorb over a period of time, relative to the emissions of 1 ton of carbon dioxide (CO<sub>2</sub>); hence CO<sub>2</sub> is the reference gas. The larger the GWP, the more that a given gas warms our planet compared to CO<sub>2</sub> over that time period. The time period usually used for GWPs is 100 years. According to U.S. EPA, nitrous oxide has a GWP 298 times that of CO<sub>2</sub>. Additionally, nitrous oxide emitted today remains in the atmosphere for more than 100 years.

U.S. Greenhouse Gas Emissions in 2015



Greenhouse Gases	Chemical Formula	Lifetime in Atmosphere (Years)	GWP (100 Years)
Carbon Dioxide	CO <sub>2</sub>	Variable	1
Methane	CH <sub>4</sub>	12	25
<b>Nitrous Oxide</b>	<b>N<sub>2</sub>O</b>	<b>114</b>	<b>298</b>
Hydrofluorocarbons (Fluorinated Gas)	HFCs	Up to 270	Up to 14,800
Perfluorocarbons (Fluorinated Gas)	PFCs	2,600-50,000	7,390-12,200
Sulfur Hexafluoride (Fluorinated Gas)	SF <sub>6</sub>	3,200	22,800
Nitrogen Trifluoride (Fluorinated Gas)	NF <sub>3</sub>	740	17,200

Nitrous oxide emissions can be reduced by applying nitrogen-based fertilizer more efficiently in agricultural operations. Nitrous oxide is also a byproduct of fuel combustion; therefore, reducing fuel consumption in motor vehicles and secondary sources can reduce emissions. Today, buying all-electric and plug-in hybrids cars can give buyers up to \$7,500 Federal tax credit. Additionally, California residents can get rebates and grant vouchers for new zero-emission or plug-in vehicles from the State and local Air Districts. Visit the websites <https://cleanvehiclerebate.org/eng> and <http://kernair.org> for more information. Therefore, Federal, State and local Air Districts are giving tax credits, rebates, and vouchers to achieve climate benefits for all.

By: *Wunna Aung*

## Ethanol—Fuel

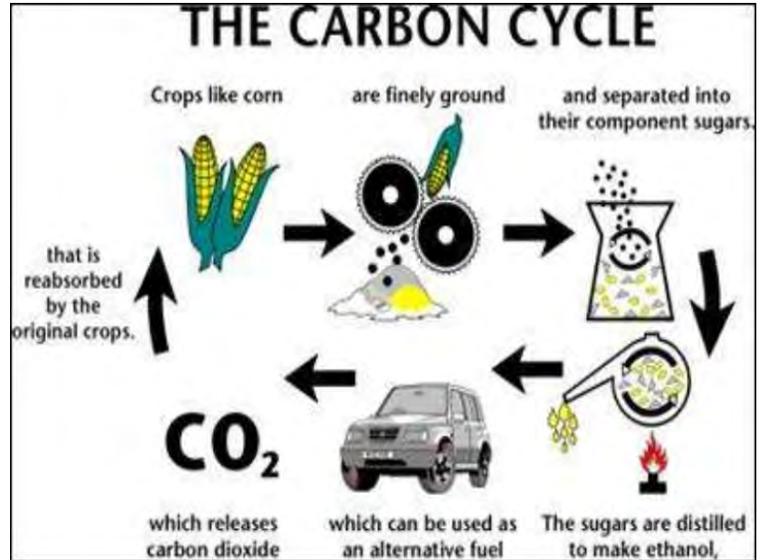
Millions of motor vehicles are on the road each day and most of which use gasoline or diesel as a fuel source. While driving, these vehicles produce tons of smog that greatly affects us and our environment. Alternative fuel sources have been developed to help alleviate some of these issues. One alternative fuel source that is becoming popular is ethanol. While ethanol is mixed into gasoline in low amounts at gas stations (up to 10%

ethanol in gasoline), ethanol fuel contains more ethanol than gasoline. One common ethanol fuel blend used is E85, which contains 85% ethanol and 15% gasoline (this blend may vary in the U.S. from 51% to 83% ethanol). Ethanol is made when cellulose from plants such as corn ferments, turns to sugar and then further ferments to alcohol. This makes ethanol a renewable fuel as plants can always be grown.

**Ethanol Fuel** (continued from page 2)

Ethanol is a cleaner fuel than gasoline, in that it reduces the amount of carbon monoxide emissions, it is not as evaporative as gasoline and does not contain as much of the carcinogen Benzene. E85 burns at lower temperatures than gasoline and combusts more completely therefore engine deposits decrease as well. Vehicles that can use E85 fuel are called Flex Fuel Vehicles. It is very important not to pump E85 into your vehicle unless it is a flex fuel vehicle. Alcohol is very corrosive to engine parts so flex fuel vehicles are made with ethanol-compatible materials. As the popularity of flex fuel vehicles increases, the abundance of E85 stations expands as well. E85 is usually priced lower than gasoline. One drawback, flex fuel vehicles experience lower miles-per-gallon (MPG), when using E85, in comparison with gasoline. Overall, E85 may be better for our economy and most of all, our environment.

*By Nicole Dickerson*



**ASSEMBLY BILL 617**

As many residents are aware, California’s air quality has been improving over the past 50-years. In an effort to continue this trend, Assembly Bill 617 (AB 617) was signed by Governor Jerry Brown on July 26, 2017. AB 617 aims to establish a community air protection program (CAPP) to reduce pollutant exposure in neighborhoods most impacted by air pollution.

AB 617 creates a timeline of objectives for the California Air Resources Board (CARB) and local air districts to accomplish, beginning in 2018:

**CARB:**

- ⇒ Develop a uniform statewide system of annual reporting of emissions of criteria air pollutants and toxic air contaminants from certain categories of stationary sources.
- ⇒ Prepare a monitoring plan regarding technologies for monitoring criteria air pollutants and toxic air contaminants, as well as an evaluation on the need & benefits of additional community air monitoring systems by October 1, 2018;
- ⇒ Select locations for deployment of community air monitoring systems and preparation of community emissions reduction programs by October 1, 2018;
- ⇒ By October 1, 2018, prepare a statewide strategy to reduce criteria & toxic pollutant emissions in communities affected by a high cumulative exposure burden, and update the strategy at least once every 5 years.

**Air Districts:**

- ⇒ Deploy community air monitoring systems at locations selected by CARB by July 1st 2019;
- ⇒ Authorized to require fence-line (or other real-time, on-site monitoring) of stationary sources emitting air pollutants in,

or that materially affect, the selected locations;

- ⇒ Adopt a community emission reduction plan for selected areas within one year of selection.

CARB will be required to provide grants to community-based organizations for technical assistance and support community participation in areas selected for emission reduction programs. Additionally, CARB is authorized to annually select more areas for deployment of community monitoring systems beginning January 1, 2020.

Air districts that have deployed community monitoring systems will be required to provide CARB with air quality data produced by the monitoring system, and CARB will publish the provided data on their website. Additionally, air districts that are in nonattainment for one or more air pollutants are required to adopt an expedited schedule for implementation of best available retrofit control technology (BARCT), and apply the schedule to each industrial source that was subject to a specified market-based compliance mechanism (aka cap-and-trade) as of 01/01/17. Highest priority will be given to permitted units that have not modified emissions-related permit conditions for the greatest period of time. In order to support this requirement, AB 617 requires CARB to establish and maintain a statewide clearinghouse that identifies best available control technology (BACT) and BARCT for criteria air pollutants, as well as related technologies for toxic air pollutants.

Finally, AB 617 also increases the maximum civil & criminal penalties for violation of air pollution laws from non-vehicular sources. Additionally, maximum penalties would be adjusted annually, based on the California Consumer Price Index. With this new tool (AB 617) air quality in your neighborhood is expected to improve over the coming years.

*By: Samuel Johnson*

Board of Directors

- Ed Grimes, Chair (Mayor, Tehachapi)
- Don Parris, Vice Chair (Councilman, California City)
- Eddie Thomas (Vice Mayor, Ridgecrest)
- Mick Gleason (KC 1st District Supervisor)
- Zack Scrivner (KC 2nd District Supervisor)

Board of Directors usually meet once every two months starting in January at the Tehachapi Police Department Community Room.

Air Pollution Control Officer

Glen E. Stephens, P.E.

Hearing Board Members

- William Deaver
- Doris Lora
- Dr. Wallace Kleck
- Chris Ellis
- Charles Arbaut



For news updates and other information, please visit the Eastern Kern APCD website at [www.kernair.org](http://www.kernair.org)

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