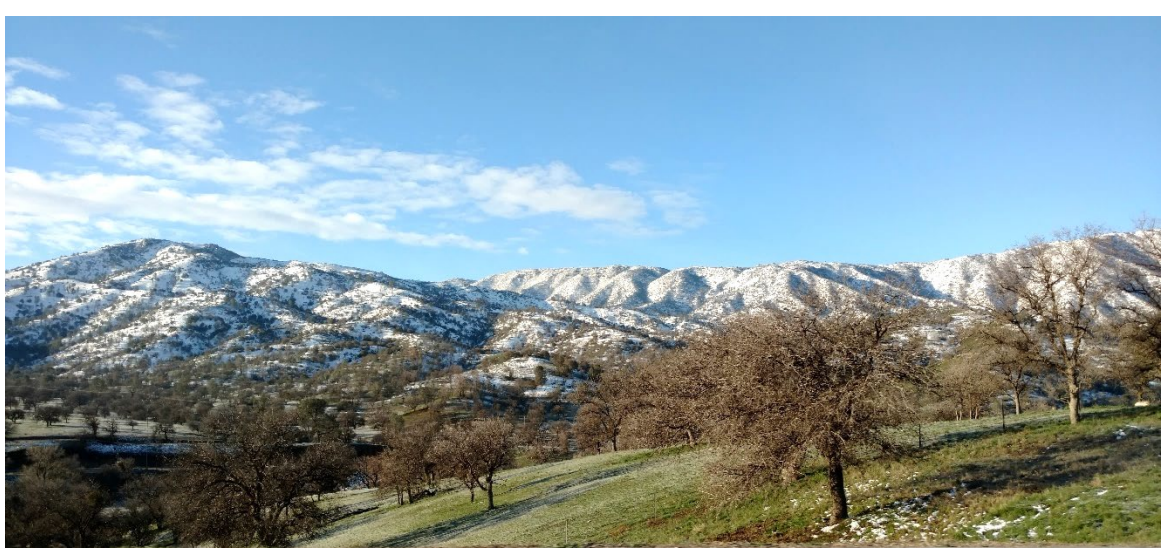
Eastern Kern County

Air Pollution Control District

2020-2021

Information Report



A message from the

AIR POLLUTION CONTROL OFFICER

On behalf of the Eastern Kern Air Pollution Control District (District) Board of Directors and the District Staff, it is my pleasure to present the District's 2020-2021 Report (our second report). As stated in the previous Report, our mission is:

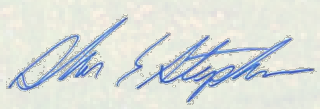
To attain and maintain National and State Ambient Air Quality Standards and to insure air pollutants do not pose a nuisance or significant public health threat.

One of the ways we determine how we are progressing in achieving our goals is through air monitoring. The District operates several air monitors that measure particulate matter 10-microns and smaller (PM_{10}), particulate matter 2.5-microns and smaller ($PM_{2.5}$), and ozone. The air monitors are located in Tehachapi, Mojave, Ridgecrest, Canebrake, and Kernville. On the District website (www.kernair.org) there is a link to view the air quality at most of the sites mentioned.

In addition to our regulatory air monitors, there are Purple Air monitors in the District. The Purple Air monitors measure $PM_{2.5}$. The data collected is uploaded to the Purple Air website (https://www2.purpleair.com/) as an air quality value. The Purple Air monitors are relatively inexpensive and can supply satisfactory data within its operational range. The District has deployed 7 Purple Air monitors and is seeking new sites to deploy additional monitors.

Within the District's jurisdiction are over 40-solar power facilities ranging from 38 to over 1700-acres. The District has partnered with a company to monitor fugitive dust leaving these facilities. The company has set up a grid of air monitors that measure PM_{10} to determine the air quality at and around these solar facilities. This assures the solar panel installer stabilized the area after the solar panels were installed.

A few weeks ago, I received notification the air conditioner in our Tehachapi monitor had failed, and the temperature in the shelter was over 100°F. Therefore, I drove to Tehachapi to activate the secondary A/C unit or restart the primary A/C unit. I was able to activate the secondary A/C unit and returned to Bakersfield. This little incident reminds me of the randomness of life. We make plans, back-up plans, and contingencies to the back-up plans. Through all the plans, the goal is clear: Cleaner Air. We have made strides in improving air quality and will continue to do so. Cleaner air is an achievable goal, and together we can achieve it, because we all want clean air.



Glen E. Stephens, P.E.
Air Pollution Control Officer

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Zack Scrivner
District II Supervisor

Phillip Peters
District I Supervisor

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Jim Creighton
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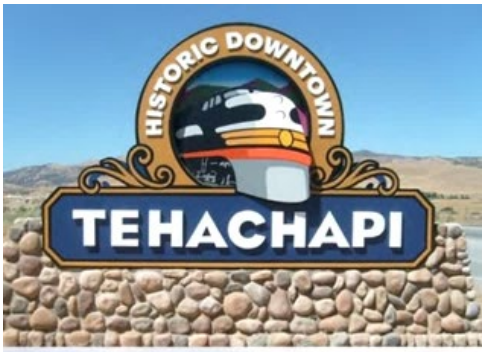


About the **District**

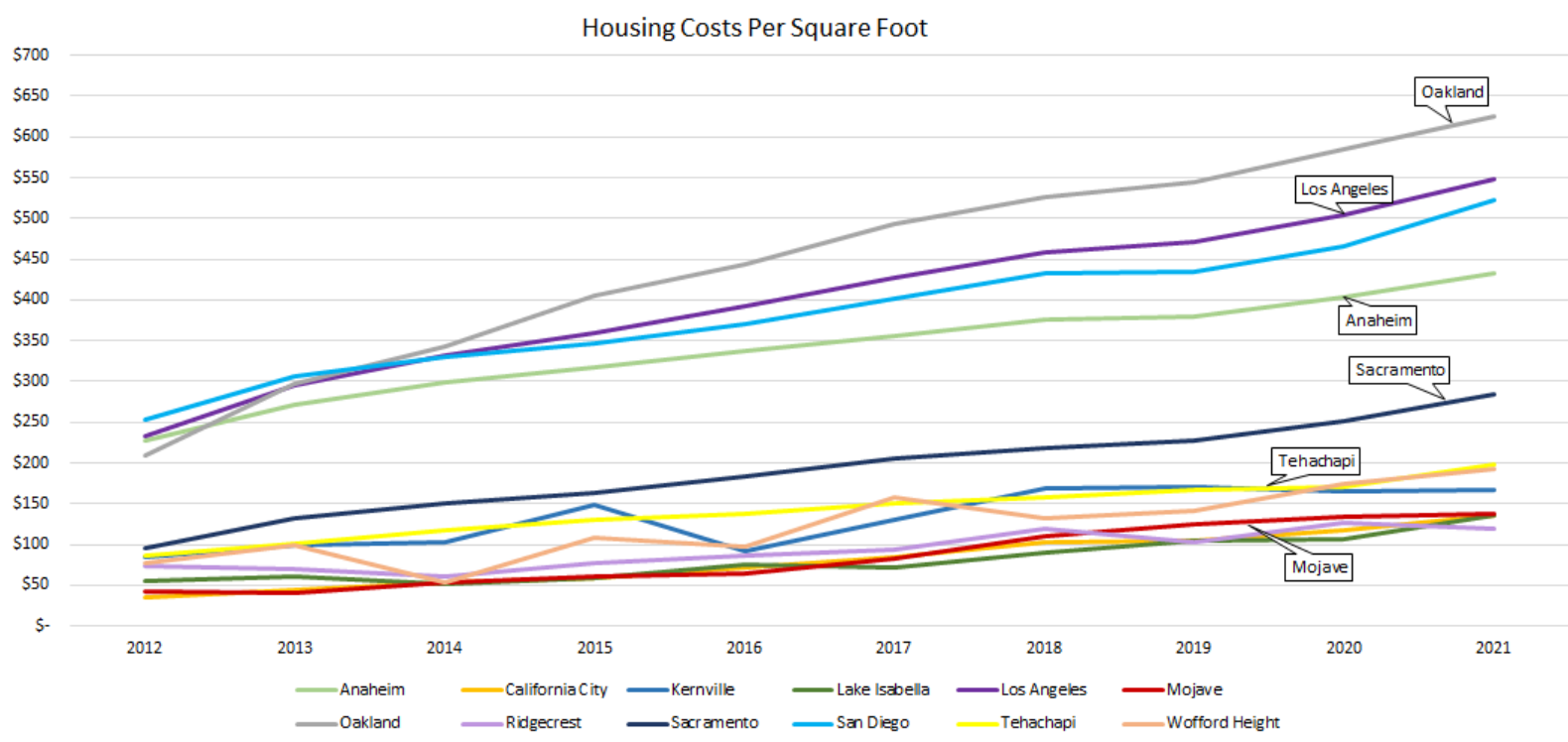
The District is located in the western edge of the Mojave Desert and includes approximately 3,700 square miles of the eastern half of Kern County. This region contains a unique mix of geography, topography, and meteorology separated from heavily populated valleys and coastal areas to the west and by several mountain ranges to the south. The climate is very dry and arid with little rainfall. Temperatures can exceed 100° Fahrenheit sixty to seventy days per year.

Although the District is primarily rural with a relatively low population of 174,000 compared to its size, it is classified as a medium district due to its vast industry and number of large area sources.

Housing

While there are many places in California with a high cost of living, the cities within the District boundary have noticeably affordable housing rates compared to other parts of the State. According to 2020 data from Redfin, the Tehachapi housing market shows an average of $171 per square foot ($ft^2$), while Ridgecrest is approximately $128 ft^2. The rates in other major cities in California are double or sometimes triple the rates found in the District; Anaheim ($404 ft^2), Los Angeles ($505 ft^2), San Diego ($465 ft^2), and Oakland ($585 ft^2).

The 2020 Coronavirus pandemic caused a building supply shortage and prompted remote work which influenced buyers to take advantage of low interest rates and move into larger, more affordable homes (redfin.com). Housing prices have increased 13% since 2019 estimates, and the trend is continuing into 2021.



Outdoor Activities

Due to Kern County's size and geography, there is a wide variety of landscapes within Kern's boundaries: mountainous regions, bodies of water, high desert, and rocky terrains. Whether it's wine tasting or apple picking, Eastern Kern County offers a selection of outdoor activities for our community to enjoy.

Camping – The Kern River Valley offers a variety of camp grounds in the surrounding area of Lake Isabella. Visitors can enjoy camping lakeside or in a forested atmosphere in their recreational vehicle or tent. Camping is also available in the Tehachapi Mountains, Jawbone Canyon, and Red Rock Canyon State Park off of Highway 14.

Off-Roading – Along with camping, Jawbone Canyon is also a destination for riding your green or red stickered Off Highway Vehicle (OHV). There is a wide variety of opportunities and trails in which to operate 4x4's, dirt bikes, or All-Terrain Vehicles (ATVs). ATVs are also available to rent at the Jawbone Country Store on Highway 14.

Water Activities – You can enjoy an afternoon of fishing, boating, or watersports including kayaking in Lake Isabella. There are also guided tours to take you rafting down the Kern River. Rafting outings can range from beginner to experienced skill levels and include camping and picnics.

Glider Flights – Visitors who want to learn to pilot a plane on their own or want to ride with a certified pilot for the afternoon, can do so in Eastern Kern County. Gliders are towed to altitude by a high-powered single engine aircraft. Once the correct altitude is reached, the towline is released and the glider soars in a motorless flight while passengers experience the scenic views. At the end of the flight, the Glider is landed smoothly by the pilot. California City Airport, Inyokern Airport, and Mountain Valley Airport in Tehachapi have Glider Flight lessons and rides available.

Snow Activities – Seasonal snow allows for skiing or snowboarding at the Alta Sierra Ski resort. Automated lifts take visitors to a higher elevation and there are numerous trails to choose from, depending on your experience level. Riding inter-tubes is also available at the resort. The inter-tube run has a small lift to allow for more time tubing and less time hiking the hill.

Filming

The varied landscapes of Eastern Kern County provide interesting backdrops for some major Hollywood films and TV productions. Some filming was done in:

RED ROCK CANYON, CANTIL – ***Jurassic Park*** starring Sam Neill, Laura Dern and Jeff Goldblum; while much of the movie's filming was done in Hawaii, Red Rock Canyon and the Tehachapi pass were utilized in creating archeological dig scenes. ***Holes*** starring Shia LaBeouf, Sigourney Weaver and Jon Voight; a story where a boy gets into trouble and is sent to a juvenile work camp to dig holes in the desert, Cantil's landscape assisted with the nature of the movie. ***The Mummy*** starring Brendan Fraser was filmed in Red Rock Canyon to set the scenes for the story that takes place in the Egyptian desert.

MOJAVE AIR & SPACEPORT – ***Speed*** starring Keanu Reeves, Sandra Bullock and Dennis Hopper. The Mojave Airport stood in for LAX for its climactic scenes involving a cargo jet explosion. ***Die Hard II: Die Harder*** starring Bruce Willis had numerous filming locations, but the Mojave Airport helped capture a scene where the protagonist gets run over by a plane.

KERN RIVER VALLEY – ***Blue Steel*** starring John Wayne and released in 1934; one of many John Wayne films filmed in the area that depicted the trying times of the old west.

EDWARDS AIR FORCE BASE – ***Armageddon*** starring Bruce Willis, Ben Affleck and Billy Bob Thorton. When asteroids are discovered to be barreling towards Earth, the National Aeronautics and Space Administration (NASA) and the U.S. Military must create a plan to save Earth. The hangars and surrounding scenery in Edwards Air Force Base fits with the theme of the film. ***Iron Man*** starring Robert Downey Jr, Gwyneth Paltrow, Jeff Bridges and Terrence Howard. A storyline where business mogul and billionaire Tony Stark is often transported by plane, Edwards Air Force Base helps creates a scene with Tony arriving on a military transport plane and touring a hangar.

ROSAMOND – ***Rat Race*** starring Breckin Meyer, Whoopi Goldberg, and Cuba Gooding Jr., among many others. ***Ocean's Thirteen*** starring many actors, such as Brad Pitt, George Clooney, Matt Damon and Elliot Gould. ***Furious 7*** starring Vin Diesel, Paul Walker, and Dwayne Johnson. The *Fast and the Furious* film series is known for characters immersed in stealing, upgrading and racing vehicles. The production team utilized the track at the **Willow Springs International Motorsports Park** for a scene in the film called "Race Wars". The track is popular with automobile-related filming, including the film ***Ford v Ferrari*** starring Matt Damon, Christian Bale, and Jon Bernthal.

TEHACHAPI – ***Terminal Velocity*** with Charlie Sheen and Nastassja Kinski and ***The Hangover Part III*** starring Bradley Cooper, Zack Galifianakis, Ed Helms and Justin Bartha. Both movies have scenes that were filmed among the giant wind turbines at the south-eastern end of Tehachapi. The Hangover Part III included additional filming along Highway 58, requiring the highway to shut down during production.

BORON – ***Erin Brockovich*** starring Julia Roberts, Albert Finney and David Brisbin. While the movie was based on a true story about Hinkley, California, much of the film production was completed in Boron.

RIDGECREST – ***Planet of the Apes*** with Mark Wahlberg, Helena Bonham Carter and Tim Roth. ***Star Trek V: The Final Frontier*** starring William Shatner, Leonard Nimoy and DeForest Kelley. ***Star Wars: The Force Awakens*** starring Daisy Ridley and John Boyega. These films take place in a futuristic setting with interplanetary travel. The Trona Pinnacles rock formation outside of Ridgecrest created the mood for scenes where the storyline took the characters to new, strange planets.

Earthquake

While the San Andreas Fault is a well-known fault in California, there are many small faults littering the state that generally do not get much attention. The Walker Lane and Eastern California shear zone are regions located east of the San Andreas Fault, and the two regions meet in the desert which includes part of Death Valley National Park, the Mojave Desert, part of Joshua Tree National Park, and several small California towns including Ridgecrest, Searles Valley, and Barstow.

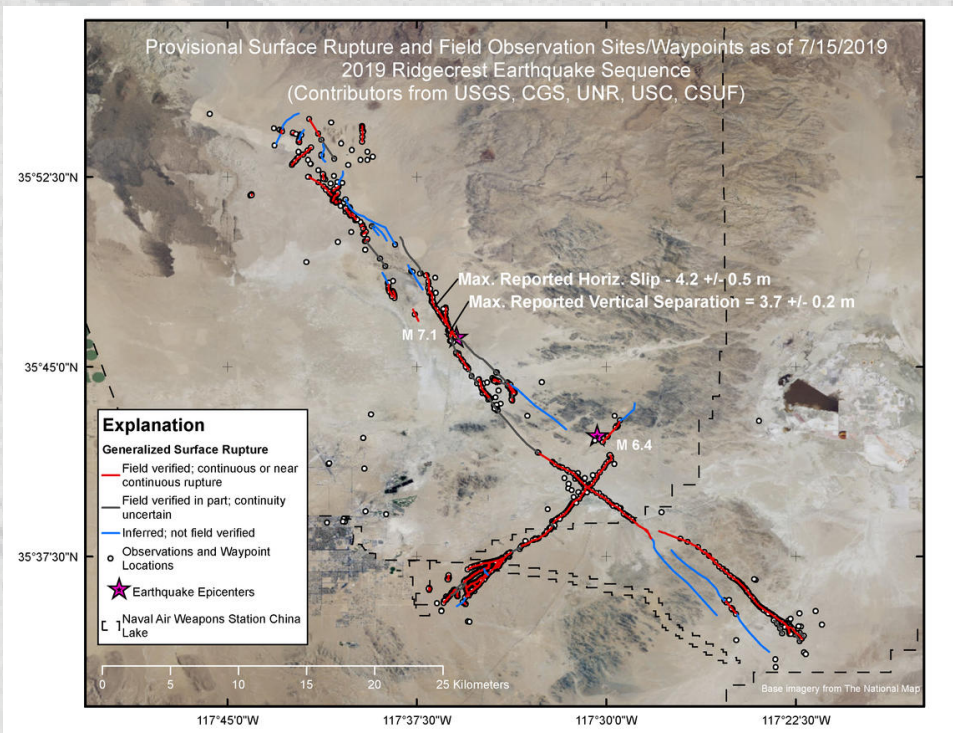
Over the last 40 years, the region has experienced eight moderate-sized earthquakes measuring between 5 and 5.8 magnitudes (M). The M5.8 earthquake was in September 1995 and was felt strongly in the China Lake/Ridgecrest area, and more broadly from Los Angeles to Las Vegas. However, that trend changed on July 4th, 2019, at approximately 10:34 a.m. when a M6.4 earthquake shook people from Northern California to Phoenix Arizona. The epicenter of the M6.4 was located 11.3 miles southwest of Ridgecrest and was followed by multiple aftershocks (almost 250) that measured M2.5 or larger. Thirty-four hours after the M6.4 event, another quake shook the region on July 5th, at approximately 8:19 p.m. The second quake measured M7.1 and caused a shift in the fault that ran perpendicular to the initial quake. The second event is considered the first major earthquake in southern California since the Hector Mine earthquake in 1999 which also measured M7.1.

After the quakes of 2019, Governor Gavin Newsom declared a state of emergency for the region, citing that the multiple quakes and aftershocks damaged roads and buildings which resulted in multiple structural fires. The quakes also damaged critical infrastructure, including electrical service lines, water lines, and gas lines which impacted thousands of customers. Additionally, he requested the U.S. Small Business Administration include the region in their Disaster Loan Assistance program, which offers low interest loans to businesses, nonprofit organizations, homeowners, and renters located in regions affected by declared disasters. The loans help those affected to repair or replace real estate, personal property, machinery and equipment, inventory and business assets that were damaged or destroyed.

To assist with the reconstruction efforts, the District waived fees for demolition and asbestos abatement for damage sustained in the earthquakes. The U.S. Geological Survey estimated the economic loss to the area was as much as $1 billion. The China Lake Naval Air Weapons Station sustained damage to multiple buildings that were built in the 1980's and some buildings that date back to World War II, and therefore did not meet current earthquake standards. It was estimated that the cost to repair or replace the buildings and equipment on the base would reach $5 billion.

Members of the U.S. Geologic Survey traveled to the region after the first quake and were able to collect data from the secondary quake and the resulting aftershocks. Detailed maps and findings on the event can be accessed at https://earthquake.usgs.gov/storymap/index-ridgecrest.html

With almost 16,000 known faults, each region of California holds earthquake risk; most of us live within 30 miles of an active fault. Remember, during an earthquake doorways and bathtubs are not the safest place to seek shelter. In the event of an earthquake, practice the **Drop, Cover, and Hold On** mantra**:** drop to the ground and get under a sturdy piece of furniture such as a table or desk, cover your head and neck, and hold on until the shaking stops. Injuries generally occur when people move from safe locations.



Sources of **Pollution**

Mining

Eastern Kern is home to five mining facilities. U.S. Borax, part of the Rio Tinto Group, supplies about 30% of the world-wide demand for refined borates. Borate and lithium products produced by U.S. Borax are helping to meet increasing world-wide demand for battery storage. Golden Queen is a Silver and Gold mine in Mojave. Technology makes it possible to recover precious metals from a mine that had previously ceased to be profitable. Three cement plants, California Portland Cement Company, Lehigh Cement, and National Cement produce valuable cement products that build modern infrastructure world-wide. Processes common to mining activities and of concern to the District include: fuel combustion, quarry extraction, crushing, processing, and production. These activities produce criteria pollutants such as Oxides of Nitrogen (NOx), Sulfur Oxides (SOx), Carbon Monoxide (CO), Particulate Matter (PM_{10} and $PM_{2.5}$), Volatile Organic Compounds (VOC) and, Toxic Air Pollutants. Air District Permits to Operate limit activity rates and air pollutant emissions. When processes are modified newer, more efficient equipment; and, more stringent emission limits are required.

Military

Research, design, testing, and development of weapons systems, aerospace navigation and guidance systems, and technology are conducted at the Naval Air Weapons Station (NAWS) at China Lake, and the Air Force Flight Test Center (AFFTC) Edwards Air Force Base (EAFB). Located at the North Eastern and South Eastern corners (respectively) of the District, both facilities are state of the art, and responsible for significant technological developments and achievements. To help support their mission, both facilities are essentially cities; they have landfills, wastewater treatment plants, internal combustion engine powered pumps and generators, boilers, surface coating operations, woodworking operations, jet and rocket engine testing facilities, public works (Civil Engineering), gasoline storage and dispensing facilities, and residential areas. Both facilities are sources of criteria and toxic air pollutants.

Aerospace

Located in Mojave is the Mojave Air and Space Port (MASP). More than 60 companies are developing state of the art tools, materials, and technology for the Aviation Industry and the nascent commercialization of spaceflight. At the Space Port, they conduct activities such as fuel storage, rocket propulsion development and testing; high performance coating application; and part, tool, and system design and fabrication. The MASP is the site of several historic commercial aviation and aerospace accomplishments. In December 1986, the first non-stop flight around the world, without refueling, started at Edwards Air Force Base and ended in Mojave 9 days later. In June of 2004 Scaled Composites successfully conducted the first privately piloted and funded spaceflight. The District regulates activities at the Space Port that produce air pollution. Permits to Operate at the Space Port include fuel storage and combustion, material fabrication, and highly specialized material and part surface coating (painting) operations. VOCs from coating operations are significant at the Space Port and limited by District Permits to Operate.

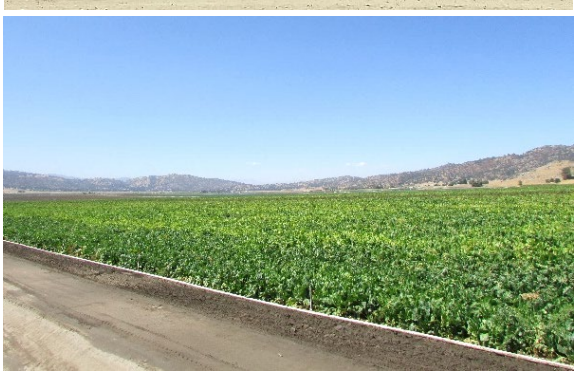
Farming Activities

The District is home to several farming operations. The Walker Valley, Kern River Valley, Cummings Valley, Brite Valley, Tehachapi Valley, and Rosamond area have active farming operations. Greenhouses in the Cummings Valley use generators and boilers and farming often produces dust. The District has developed a rule to establish Conservation Management Practices to reduce dust from agricultural operations. The District also registers internal combustion engine powered irrigation pumps (Ag Pumps). Increasingly, electrification of these pumps occurs where practical.

Cannabis

California City is the only city in the District that has approved cannabis cultivation and processing. Developments in areas appropriately zoned for cannabis are proliferating. These activities can be sources of blowing dust (in a similar manner as the solar projects.) VOC's are also produced at cultivation and processing facilities. The District requires dust management plans and best management practices for the construction of cultivation facilities and VOC controls at cultivation and processing facilities. Owners and/or operators of VOC control systems are required to obtain an Authority to Construct and a Permit to Operate.

Most of the VOC controls in use are able to partially control odors but in some cases, odors still create nuisance conditions despite the controls in place. Elsewhere, processing facilities that only handle and package cannabis products are not currently required to have the same VOC controls, and can still be sources of odors that create a nuisance. The District is evaluating odor control options at facilities that still create nuisance conditions.



Renewable Energy

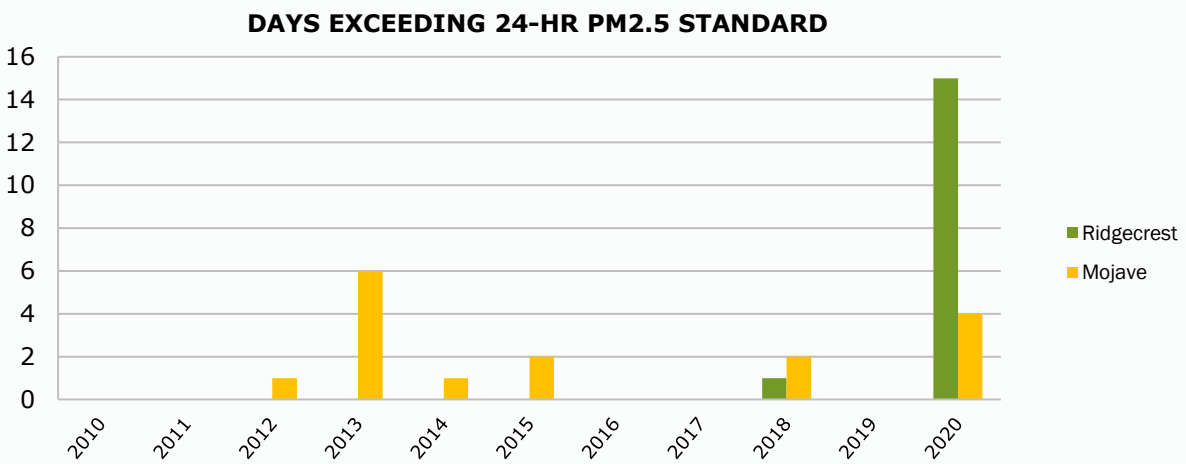
Renewable energy projects, including wind farms and photovoltaic solar energy generating plants have been operating in the District for several years. The early wind energy generating projects can be over 30 years old. The older developments in Tehachapi, Cameron Canyon, and Oak Creek Pass can be recognized by the much smaller turbines. This is also the approximate useful lifespan of the projects. At the Eastern edge of the Tehachapi Valley and the Cameron Canyon the older, smaller, turbines are being replaced by the newer, much larger, turbines. In this century however, new wind and solar energy generating facilities have witnessed explosive growth. The newer wind farms now range from the Eastern edge of the Tehachapi Valley, Cameron Canyon and Oak Creek Pass to Mojave, and Rosamond. It is quite a red blinking sight, at night. This area is also designated as the Tehachapi Wind Resource Area (TWRA), producing approximately 3,500 Megawatts (MW) of renewable electricity.

These projects are independently owned and operated and have Permits to Operate for fuel tanks and emergency internal combustion engine generator sets. The construction phase of the wind farms involves big parts, big trucks, and big cranes; but, it is not as disruptive as construction of new solar energy generating stations.

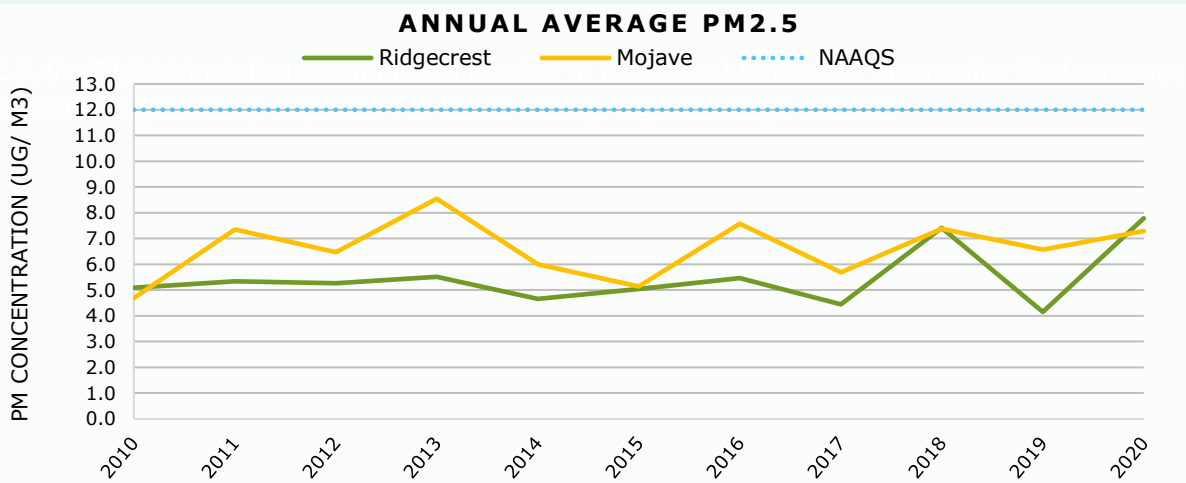
Common practice in the construction phase of solar energy generating stations is to clear the land of vegetation to prepare the site for construction activities. Unfortunately, this leaves the site highly susceptible to strong winds, and can be a significant source of blowing dust. When near roads and highways, this blowing dust can create very dangerous conditions, as visibility can often be severely impaired. Early solar projects in the District in Rosamond, Mojave, Wonder Acres, California City, Cantil, and the Fremont Valley prompted the District to require solar projects to obtain an Authority to Construct, and a Permit to Operate to mitigate dust producing activities at solar energy construction sites. A Fugitive Dust Emissions Control Plan, and Best Management Practices are now required for each project. The District takes an active role in communicating and enforcing dust management practices to increase safety and reduce nuisance conditions at the construction sites. After the first year, once some vegetation is re-established and the solar panels themselves reduce the wind disturbance under the panels, significant blowing dust events are less common. Open areas within the plant can still remain and be problematic; but, coordination with operators can often be enough to manage these events.

Types of Air **Pollution**

Particulate Matter Trends

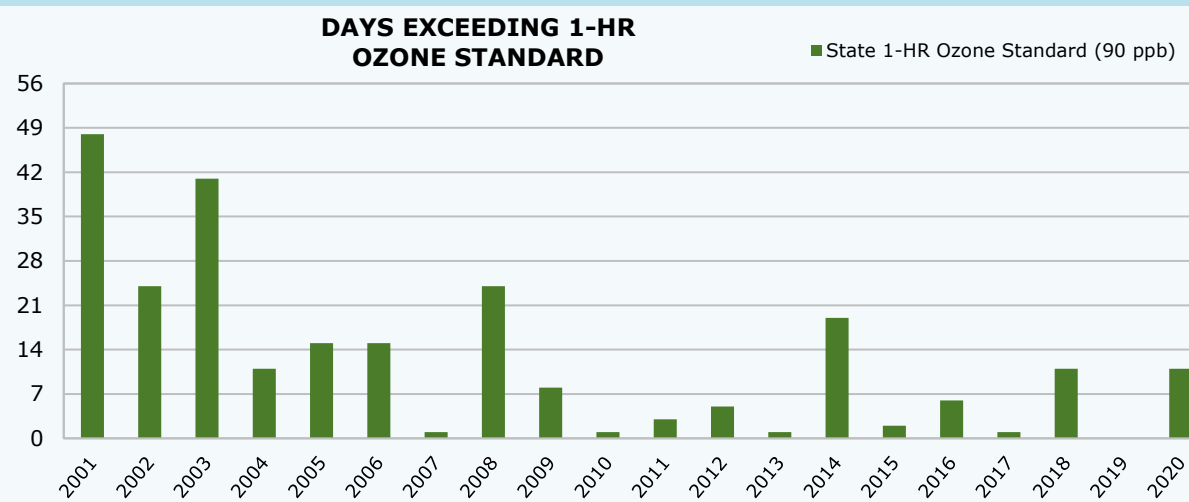


In 2018, the District installed a continuous monitor in Ridgecrest to replace the monitor that ran once every 6 days. In 2020, all exceedances occurred during August through October when smoke from wildfires was impacting Kern County.

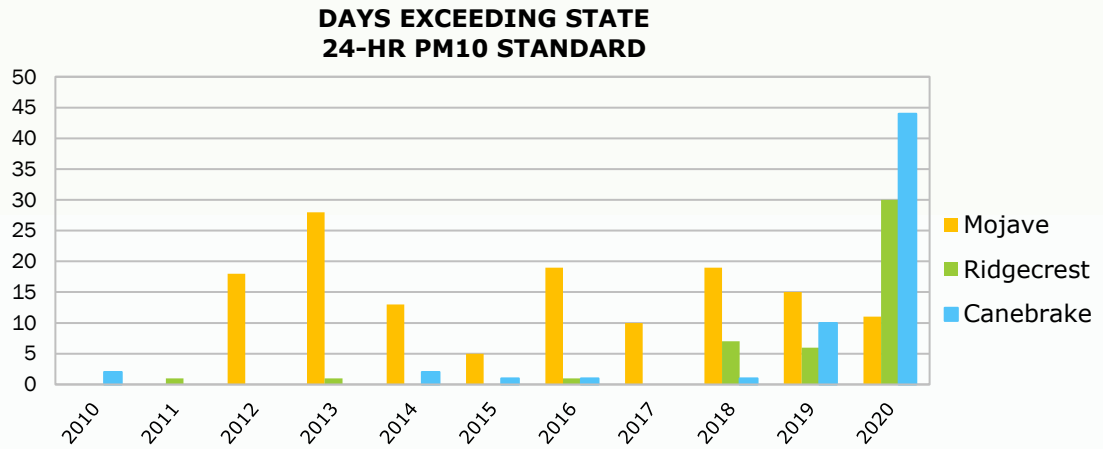


In 2018, the District installed a continuous monitor in Ridgecrest to replace the monitor that ran once every 6 days. In 2020, wildfire smoke significantly impacted PM levels during August through October

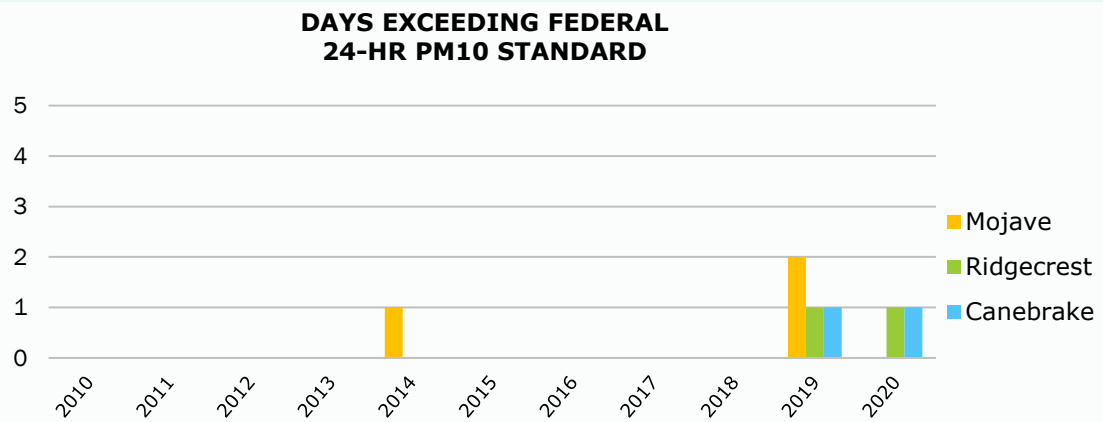
Ozone Trends



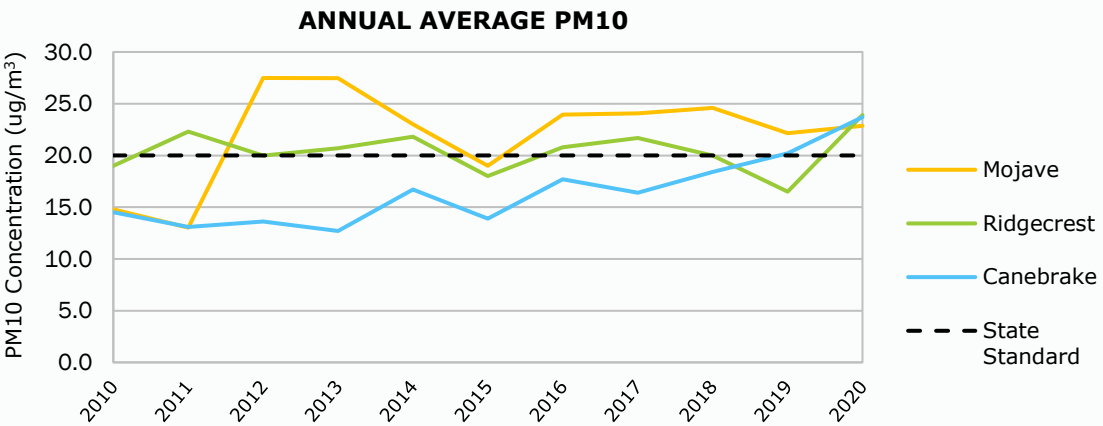
Days over the state 1-hour ozone standard have seen a significant decrease compared to previous years.



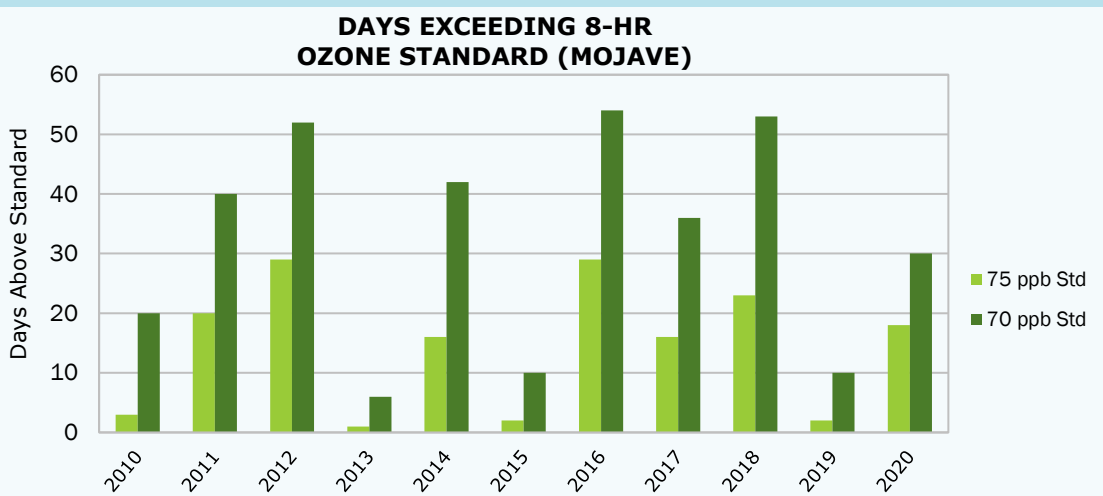
In 2018, the District installed a continuous monitor in Ridgecrest to replace the monitor that ran once every 6 days. In 2019, the District installed a continuous monitor in Canebrake to replace the monitor that ran once every 6 days. In 2020, the majority of exceedances occurred during August through October when smoke from wildfires was impacting Kern County.



In 2019, exceedances at Canebrake and Ridgecrest and one exceedance at Mojave occurred on the same day when most of the air monitors in the Mojave Desert air basin had an exceedance. In 2020, exceedances in Canebrake and Ridgecrest occurred in September while wildfire smoke was impacting Kern County; the Mojave monitor was being relocated during this time and was not reporting data.



In 2011, a continuous monitor was installed in Mojave to replace the monitor that ran once every 6 days. In 2018, the District installed a continuous monitor in Ridgecrest to replace the monitor that ran once every 6 days. In 2019, the District installed a continuous monitor in Canebrake to replace the monitor that ran once every 6 days. In 2020, wildfire smoke significantly impacted PM levels during August through October.



Exceedances of the Federal 8-hour ozone standard have decreased compared to previous years. However, District ozone levels are heavily impacted by ozone transport from both the San Joaquin Valley Air Basin and the South Coast Air Basin.

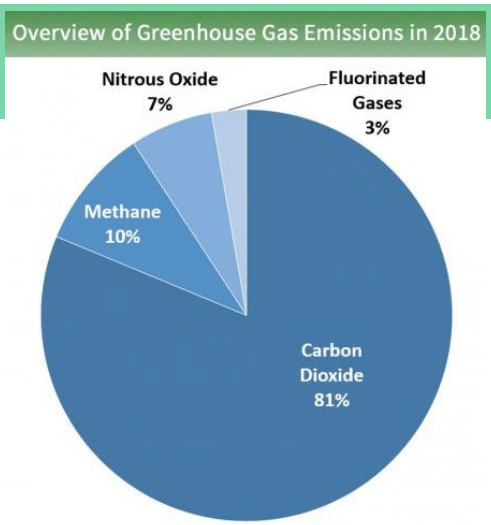
Wildfires

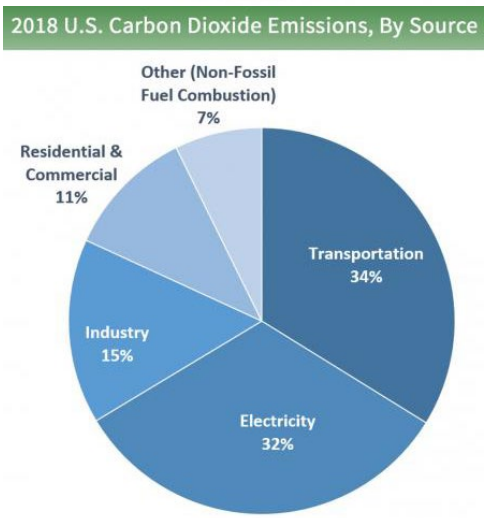
The California wildfire season continues to intensify, with 2020 setting a new record for total acres burned in one season. By the end of the year, 4 of the 5 largest fires in California History had occurred, burning approximately 4.2 million acres of land or roughly 4% of the California's total land area. The August complex became California's largest ever recorded wildfire triggering massive evacuations and causing 16 fatalities. As of September 2021, the wildfire season decimated 1.9 million acres of land.

During wildfire season, communities in Eastern Kern County, are severely affected by wildfire smoke. Smoke is made up of a complex mixture of gases and fine particles produced when wood and other organic materials burn. Fine particulates can penetrate deep into your lungs and they can cause a range of health problems, from burning eyes and a runny nose to aggravated chronic heart and lung diseases. District staff is continually informed by land managers on the latest situation so that the District can provide timely information to residents to minimize exposure to wildfire smoke. District Health Advisories provide important "Do's and Don'ts" for residents when smoke is impacting surrounding communities. The District also closely monitors air quality during wildfires by deploying portable air monitors as needed.

In order to prevent wildfires in the first place, the State and Federal Forest Services work to reduce severity of future wildfires by utilizing prescribed burning and other practices within their lands in California. The District works with the Forest Service to reduce smoke production during prescribed burning. The Fire Department has also established fire hazard reduction programs for residents. The goal of the fire department's fire hazard reduction program is to protect life and property by providing local residents in wildfire prone areas with proper education and tools for adequate defensible spacing. Defensible spacing reduces fire hazards and improves ability to protect property in the event of a fire. In cooperation with the fire department, the District issues fire hazard reduction burn permits to ensure fire is properly managed to reduce smoke. Burn data is then sent to the California Air Resources Board (CARB) for use in forecasting and attainment determination.

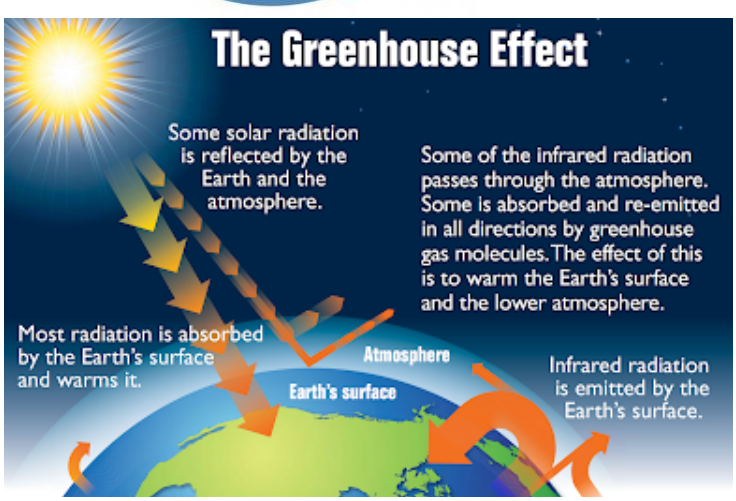
Greenhouse Gas

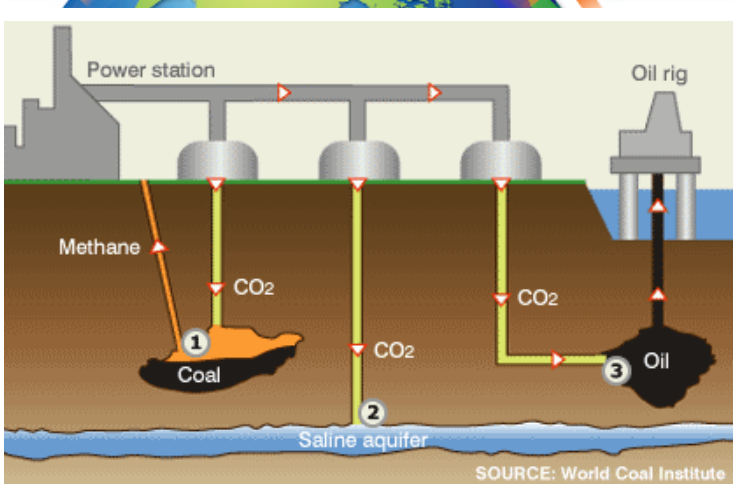




In addition to criteria and toxic emissions from facilities, the District is also concerned with Greenhouse Gases or "GHG" emissions. Although Carbon Dioxide (CO_2) only makes up about 0.04% of our atmosphere, CO_2 is the most prevalent Greenhouse Gas contributing to climate change. CO_2 is one of four categories of GHGs, also including Methane, Nitrous Oxides, and fluorinated gases, which trap heat in the atmosphere leading to global warming. CO_2 emissions account for 81% all GHGs making it the main contributor to global warming. Additionally, CO_2 emissions continue to increase annually. According to the US EPA, CO_2 emissions in the United States have increased by about 5.8 percent between 1990 and 2018. Since combustion of fossil fuel is the largest source of greenhouse gas emissions in the United States, the most effective way to reduce CO_2 emissions is to reduce fossil fuel consumption.

The District collects GHG emissions data from large GHG sources annually. This data is then used by businesses, states and cities to identify opportunities to cut pollution, and develop common-sense climate policies. Based on 2018 data, the largest source of CO_2 emissions is the transportation industry, accounting for 34% of all CO_2 emissions. The District encourages the reduction of CO_2 emissions from the transportation industry in part through grant programs. For example, the District's vehicle voucher program offers a financial incentive in the form of a voucher for the purchase of a new, zero or low emissions vehicle.





The state as a whole is also making big strides to reduce CO_2 emissions overall. In 2006, legislation passed the California Global Warming Solutions Act also known as AB 32, which created a comprehensive multi-year program to reduce GHG emissions in California. Since then, California has become the leader in low-emitting vehicle purchases with 50% of all zero emission vehicles in the US. Aside from switching to a lower-emitting vehicle, there are many ways we can help reduce CO_2 emissions. For example, turning off lights and electronics when not in use can reduce CO_2 emissions by reducing the overall electricity demand. Other new emerging technologies to reduce CO_2 levels in the atmosphere include carbon capture and sequestration. Carbon capture can greatly reduce CO2 emissions from new and existing coal- and gas-fired power plants, industrial processes, and other stationary sources of CO_2. In essence, CO_2 from the stacks would be captured before it enters the atmosphere, CO_2 would be transported via pipeline, and then injected deep underground at suitable locations. As with all things in life, we must achieve a balance to survive in our modern society without creating a detrimental impact on our planet.

Toxic Emissions

In addition to regulating criteria emissions from stationary sources, the District is also responsible for ensuring that toxic air pollutants do not pose a significant health threat to the surrounding community at large. Toxics or hazardous air pollutants are suspected of causing cancer, birth defects, or other serious harms. These can be gases like benzene, or heavy metals such as mercury and chromium. New and modified sources of toxic substances are screened for potential health risk to the surrounding community. If health risk screening results in intermediate or high levels, the District conducts a more refined Health Risk Assessment (HRA). At this point, depending on the health risk, the District will require additional control technology be installed or conduct a public notice. During public notice, the District will notify the surrounding community of potential health risks and address public concerns to ensure the new or modified source will not cause adverse health effects.

To further protect the public from the harmful effects of air toxics, CARB has promulgated Airborne Toxic Control Measures (ATCMs) regulations for mobile and stationary sources of air pollution. The District implements requirements of ATCM by requiring prescribed control measures for various source categories that cause significant health risks to nearby communities.

Air Toxics Hot Spots Program

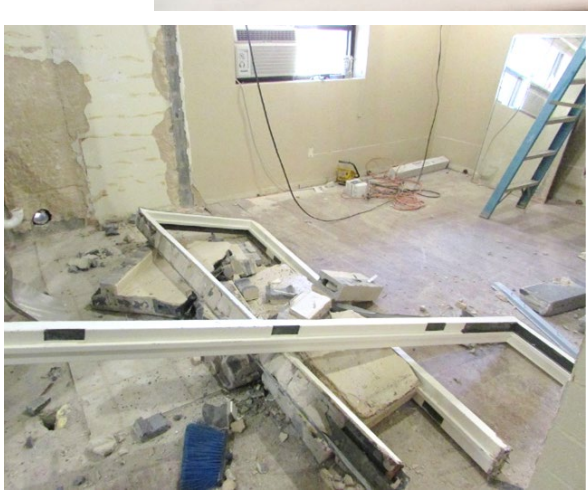
Every year, the State's Air Toxics Hot Spots program (known as AB2588) requires the District to quantify and assess health risks from subject facilities to nearby residents, notify affected residents of significant risks, and to reduce those significant health risks to acceptable levels. AB2588 requires the District to prioritize facilities based on the submitted emission inventories and then place them into one of three categories: high, intermediate, and low priority. Facilities designated as high priority are required to submit Heath Risk Assessments to assess the risk to their surrounding community. Facilities ranked with intermediate priority are considered "District Tracking" facilities, which are then required to submit a complete toxics inventory once every four years. Facilities ranked as low priority are exempt from reporting.

CARB is in the process of amending the Emission Inventory Criteria Guidelines Regulation to enhance the public access to information on toxic pollutant emissions and require the reduction of localized health risks at facilities that may present significant impacts. The proposed amendments are also designed to support community-focused efforts at CARB to reduce criteria pollutant and air toxic emissions from California's most disadvantaged communities

Asbestos

Asbestos is a hazardous air pollutant regulated by the Environmental Protection Agency (EPA) and the District. In general, asbestos is the name given to six silicate mineral fibers that can be found in nature. The EPA regulates those six minerals as "asbestos." Serpentine is one of six the minerals. Cancer-causing asbestos fibers can be emitted into the air from demolition and renovation projects. District Rule 423 provides conditions for the enforcement of the National Emission Standards for Hazardous Air Pollutants [NESHAPs] for Asbestos.

Before any demolition or renovation of a regulated facility can begin, an asbestos survey needs to be conducted to determine whether or not asbestos is present. If the survey confirms that there is asbestos in the building, a licensed asbestos removal specialist needs to be hired to perform such removal of asbestos. Demolitions of non-regulated facilities also require a District issued demolition permit release along with payment of asbestos demolition fees.



Plans and Regulations

We can go days without food, hours without water, but will last only a few minutes without air. On average, each of us breathes over 3,000 gallons of air each day. We must have clean air to survive and remain healthy. Air pollution causes many health issues, in addition to damaging plants, trees, crops, lakes, animals, buildings, monuments, and statues.

In order to reduce air pollution and protect public health and welfare across the nation, Congress passed the Federal Clean Air Act (FCAA) of 1970. The FCAA required the United States Environmental Protection Agency (EPA) to develop health-based National Ambient Air Quality Standards (NAAQS) for several categories of air pollutants, including the following six common "criteria pollutants": particulate matter (PM), ozone (O_3), sulfur dioxide (SO_2), nitrogen oxide (NOx), carbon monoxide (CO), and lead (Pb). The FCAA required states to adopt enforceable control measures designed to achieve and maintain the NAAQS. EPA periodically reviews and establishes new standards following advances in scientific understanding of the pollutant and its potential health effects.

The Federal Clean Air Act Amendments (FCAAA) of 1977 required EPA to divide the United States into "Planning Areas" and designate these areas "attainment", "non-attainment", or "unclassified" within 3 years of adopting the NAAQS. The FCAAA of 1990 gave each state the primary responsibility for achieving the NAAQS. At that time, EPA viewed all of Kern County as one "Planning Area" although Kern was located within two air basins. Unfortunately, there were no air monitoring stations located in Eastern Kern back then and the only data available was from the San Joaquin Valley portion of Kern County. Consequently, all of Kern County was classified as Serious Nonattainment.

In 1992, Kern County was split between the two air basins. The San Joaquin Valley portion of Kern County became part of the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) and the Mojave Desert portion remained the Kern County Air Pollution Control District, later renamed the Eastern Kern Air Pollution Control District in 2010. The EPA continued to consider Eastern Kern part of the San Joaquin Valley Federal Ozone Planning Area until 2001, at which time EPA granted the District's formal request to be considered a separate planning area.

In 2004, EPA divided the District into the Indian Wells Valley (IWV) Planning Area, and the remainder of Eastern Kern County (Nonattainment Area). Air monitoring data from the IWV indicated low O_3 levels with the peak being around 0.067 parts per million (ppm). The IWV attained the 1997, 8-hour O_3 NAAQS of 0.08 ppm, and was already in attainment with the 2008 standard of 0.075 ppm before it was adopted. The remainder of the District attained the 1997 standard in 2012, but has not yet attained the 2008 standard.

In order to meet the NAAQS, the FCAA requires certain emission sources in O_3 nonattainment areas to implement control methods called Reasonably Available Control Technology (RACT). RACT can be described as the lowest emission limitation that a particular source is capable of achieving by the application of an air pollution control device, system, or technique that is reasonably available, considering economic and technological feasibility. RACT requirements are included in the FCAA to assure that significant emission sources of the O_3 precursors VOCs and NOx are controlled to a reasonable extent.

California non-attainment areas must submit a State Implementation Plan (SIP) to CARB that details the methods used to achieve attainment. Adoption and implementation of RACT rules is a crucial component of an approvable SIP and is key to the District successfully attaining the NAAQS.

On May 11, 2017, the District adopted a RACT SIP pursuant to the 2008 O_3 NAAQS of 0.075 ppm, and two months later on July 27, 2017, adopted the attainment plan. A RACT SIP pursuant to the 2015 O_3 NAAQS of 0.070 ppm was adopted September 3, 2020. The District is currently drafting the 0.070 ppm attainment plan. The District also adopted a second Indian Wells Valley (IWV) PM_{10} Maintenance Plan in 2020. The first IWV PM_{10} plan was adopted in 2003. The second plan demonstrated continued maintenance of the PM_{10} NAAQS for at least an additional ten years, which extends well beyond 2025.

Additionally, a majority of the District has attained the PM_{10} NAAQS, with exception of the Kern River Valley, Bear Valley, and Cummings Valley. Those regions were previously included in the federally designated San Joaquin Valley PM_{10} Serious Nonattainment Area. At the District's request, EPA made those regions a separate nonattainment area. Although air-monitoring data has shown the regions to be in attainment, EPA determined a few more years of "clean data" is necessary in order to have the nonattainment area reclassified to attainment.

Lastly, under direction of the EPA and CARB, the District has developed and implemented approximately 135 rules and regulations designed to reduce air pollutants being emitted from local source activities. Such activities include open burning, fuel burning, gasoline storage, solvent use, dry cleaning, various coating operations, cement production, mining, construction, agricultural sources, landfills, and more. The District develops and revises its rules as needed. Rule development can be a very lengthy process that involves many guiding principles and procedural steps.

Permitting

The Eastern Kern APCD's permitting program has been established to implement requirements of the federal and state Clean Air Act (CAA), by specifying operating and compliance requirements for stationary sources of air pollution. Permitting helps the District carry out its mission to achieve Clean Air Standards established by the EPA and CARB.

The District currently issues and manages permits, plans, and registrations for over 250 stationary sources of air pollution in eastern Kern County. The District issues two types of permits: Authorities to Construct (ATC) and Permits to Operate (PTO), to aid local businesses in complying with the District's regulations.

Once an application and required documentation are received and if the project is deemed to be in compliance, an ATC is assigned. The ATC permit allows for the construction of a new facility or installation as well as modification of equipment at an existing facility. The ATC ensures that the equipment is designed, constructed, and operated to meet local, state, and federal air quality requirements.

New sources of air pollution and modifications to existing sources that result in an increase in emissions are required to implement best available air pollution control devices or best management practices. After the construction of the equipment authorized by the ATC permit is completed, it undergoes an initial compliance inspection, which includes verifying installation of emission controls required by the ATC permit as well as any necessary emissions testing. Upon passing the inspection, a PTO is issued. The PTO allows for ongoing operation of the facility in accordance with all permit conditions and local, state, and federal air quality requirements. Operating permits are renewed annually upon payment of annual fees.

Federally Mandated Operating Permits or Title V permits are required by federal law for facilities considered to be "Major Sources" of air pollution or fall under federally regulated source categories. Title V permits enable both the EPA and the public to take a more active role in the permitting process of the largest air pollutant emitters. Additionally, Title V permits are also designed to standardize all monitoring and reporting requirements for major sources of air pollution. The District currently has Title V permits issued to 10 facilities.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) is state law that requires the environmental impacts of a project to be assessed and disclosed to the public, and requires mitigation of potentially significant impacts discovered during the assessment to a less than significant level when feasible. District staff reviews land development proposals, stationary source permit applications, and attainment plans for compliance with the requirements of CEQA.

Enforcement

A primary responsibility of the District is to ensure rule compliance with the regulated parties that operate within the district, and to protect the public health. The air quality regulatory criteria that the District is governed by is the National Ambient Air Quality Standards (NAAQS). Those standards are responsible for the achieving of State and Federal levels for air quality. The District currently oversees the issuance of over 1900 permits, at over 250 sources. Permitted sources range widely geographically within the District's boundaries from Rosamond to Ridgecrest, and from Lake Isabella to Boron. The types of sources which require permitting can be found in dry cleaners, construction, gas stations, alternative energy facilities (i.e. solar and wind technology), military installations and the research of next generation flight and aerospace aircrafts. An additional area of compliance is the inspection of construction sites that may not be permitted with the District but create emissions through the generation of such sources as dust and asbestos.

Each industry is unique and requires the District to evaluate the work being performed, duration of equipment used and impact to the surrounding air quality and community. When an applicant accepts the permit, the facility agrees to ensure that operations are being done within the limits set forth in the permits for that equipment or process. The conditions in the permit provide the requirements that need to be complied with, and as the basis for the District to verify compliance with the District rules. This is to fundamentally ensure that air contaminant emissions reduction milestones are achieved.

Emissions Inventory

Each year the District collects emission and process data from facilities, calculates annual emissions from those facilities, and reports the emissions to CARB. This information is used to aid in assessing the District's progress in improving air quality, as well as for modeling and planning purposes.

Source Testing

Some sources are required to have the equipment tested to prove that it remains in compliance with the District rules. When a source test is required, a third party testing company must perform the work to certify the results. One of the primary locations that require source testing are gas stations. Another facility that requires testing are factories that have emission stacks. A source testing company will notify the District 30 days prior of the date and time of test. An Air Quality Specialist will then be able to observe the test being performed.

Complaints

The public is often the first to be aware of an air pollution occurrence and can call the District to report a complaint. The Air District is required to investigate the complaints, which can encompass dust complaints, public nuisance, excess emissions or inaccurate or incomplete records being kept. A call to the District will be directed to an Air Quality Specialist to investigate through interviewing complainants, performing on-site visits to the source, and providing a course of action to resolve the problem.

Enforcement Actions

The District typically has two types of notices available for enforcement actions, to ensure that compliance is met after being identified as a violation. The first is a Notice to Comply (NTC) for a minor violation cited, which requires a facility to quickly correct a violation or provide specific records. When a Notice to Comply is issued, the recipient has a period of no less than 5 days, to no more than 30 days, to affect a corrective action. If within the cited due date there remains a condition of continued noncompliance, the District can elevate the enforcement action to a Notice of Violation (NOV).

An NOV, if applicable to the level of violation identified, can be issued without first being preceded by an NTC. The NOV is a formally identified violation of a District rule or regulation. The results of an NOV could range from financial penalties, an Abatement Order (requiring a facility take a specific action or risk shutting down its operation), or in some cases a civil or criminal prosecution. If a party having received an NOV decides it was incorrectly issued, a petition can be submitted to the District requesting a Hearing Board meeting to adjudicate the decision.

Air Monitoring

The District strives to attain the air quality standards set forth by the EPA and the State of California. To measure the ambient air quality in our District, three regulatory air monitors are stationed in three different locales: Mojave, Ridgecrest, and Canebrake (Kern River Valley) and three community air monitors stationed in Tehachapi, Kernville, and Cantil. The District has also installed Purple Air Monitors in some areas to supplement the community air monitoring with real time reporting of particulate matter (PM) concentrations. Each station/monitor measures a pollutant and gives an hourly average concentration. The pollutants our District measures are PM_{10}, $PM_{2.5}$ and Ozone. The real-time concentrations of PM and Ozone can be seen at http://www.kernair.org.

The regulatory monitors measuring PM_{10}, $PM_{2.5}$ and ozone are used to determine the District's NAAQS (National Ambient Air Quality Standard) Designation for each pollutant measured. After reviewing the data from these monitors, the EPA will designate an area as attainment or nonattainment for a pollutant standard. If an area is designated as attainment, it is the District's job to maintain this status. If an area is designated as nonattainment, it is the District's job to figure out what sources emit this pollutant and require these facilities to implement better air pollution control technology or lower emission limits. This may take years to see a change, but the goal is to get a status change to attainment.

There are many techniques to sample particulate matter. The District uses the Beta Attenuation Monitoring (BAM) method to measure $PM_{2.5}$ and PM_{10}. The BAM method employs the absorption of beta radiation by solid particles that are collected from the air flowing through the inlet. The particles are collected on filter tape but before the monitor begins to sample the air, it measures the absorption of beta radiation on the non-sampled filter tape. After sampling, it measures the absorption of beta radiation on sampled filter tape and from these measurements, the concentration of particulate matter is recorded.

The method used to measure ozone is called UV Absorption because the ozone molecule absorbs UV radiation. With this method, a portion of the ambient air is pulled through the inlet and is scrubbed of ozone and measured by the amount of UV light that is transmitted through the sample. Another sample of air bypasses the scrubber and the amount of UV light transmitted is measured. The ozone concentration is recorded as the difference of these two samples.

Air Quality Specialists and a consultant work to maintain and repair the monitors to keep them up and running. Timely quality control checks and calibrations are performed on the monitors to maintain data quality and transparency. Each regulatory site is audited by CARB biannually to ensure that the data collected is valid, and also upholds the standards of quality and consistency that is needed for accurately depicting ambient air quality.




Incentive **Programs**

The District offers financial incentives for the purchase and use of lower-emitting, cleaner technology through many grant programs. New, clean technology can come with greater or additional costs. The District's incentive programs provide funding to offset these costs and make cleaner technology more attractive and affordable to the grantees. The following sections provide brief overviews of the many incentive programs the District has to offer. Complete guidelines and applications are available on the District's website: www.kernair.org under the "Grants" tab. All incentive programs are only available to Eastern Kern County residents, businesses, and farms.

Carl Moyer Diesel Emission Reduction Program

Diesel engines emit a complex mixture of organic and inorganic compounds that exist in gaseous, liquid, and solid phases including PM, NOx, CO, CO2, SO2, and VOCs. Exhaust from uncontrolled high-emitting diesel engines is a health concern because it contains over 40 substances that have been listed as toxic air contaminants (TACs) by the state of California and as hazardous air pollutants (HAPs) by U.S. Environmental Protection Agency (EPA). Fifteen of these substances are listed by the International Agency for Research on Cancer (IARC) as carcinogenic to humans. Furthermore, U.S. EPA classified diesel exhaust as likely to be carcinogenic to humans by inhalation at environmental exposures.

The Carl Moyer Memorial Diesel Emission Reduction Program (CMP) complements California's regulatory programs by providing incentives for the incremental cost of cleaner-than-required heavy-duty diesel equipment that reduces NOx, PM10, and VOC emissions from diesel-fueled engines. The District's CMP offers funding for engine replacement and vehicle replacement/retirement for a variety of diesel powered vehicles and equipment that includes: On-Road Heavy-Duty Vehicles, Diesel Powered Emergency Equipment, Off-Road Compression-Ignition Equipment, Agricultural Pump Engines, Locomotives, and Aircraft Ground Support Equipment.

Community Air Protection Programs (AB617)

These programs provide funding to achieve the goals of Assembly Bill 617 (Statutes of 2017). Funds support selecting locations and deploying community air monitoring systems, deploying fence-line monitoring, developing an expedited schedule for requiring best available retrofit control technology, and developing Community Emissions Reduction Programs.

The District administers these funds for a variety of projects, including the following: purchasing HEPA air purifiers for residents, school bus replacement, upgrading ozone analyzers at regional air monitors, and continuing the Wood Smoke Reduction Program. The District has been awarded over $1.5 million for Community Air Protection Programs.

DMV Grant Program

The District's DMV Grant Program is designed to provide the fair, unbiased distribution of Assembly Bill 2766 (AB 2766) funds for vehicle related emission reduction projects within Eastern Kern County. AB 2766 authorized the Department of Motor Vehicles (DMV) to collect a motor vehicle registration clean air surcharge of $4 per vehicle. Revenues generated from AB 2766 were directed for use in the purposes of reducing air pollution from motor vehicles and other related sources needed to implement the California Clean Air Act (CCAA).

Grantees can receive up to $50,000 for an eligible project that reduces oxides of nitrogen (NOx), reactive organic gas (ROG), or particulate matter (PM10) emissions from on-road motor vehicle activities. Eligible project categories vary from year to year, but has included funding for: road paving, installation of a Level II or Level III public EV charging station, installation of a public CNG refilling station, public education courses geared toward reducing emissions, video conferencing networks, vanpool implementation, construction of a park & ride facility, and construction of a public bike path.

The District has awarded millions of dollars toward the completion of DMV Grant Program projects since its inception in 1992. The DMV Grant Program occurs annually with the application period beginning October 1 of each year and closing at 5 P.M on the last Friday of each February. All eligible projects are awarded DMV funds unless the Program is oversubscribed. If it is oversubscribed, the District uses random selection lottery to select grantees.

Lower Emission School Bus Program

Diesel exhaust is a serious public health risk and considered the number on airborne carcinogen in California. Diesel emissions contain PM_{10} and $PM_{2.5}$; when inhaled, these particles evade the respiratory system's natural defenses and lodge within the lungs. Exposure to PM_{10} aggravates a number of respiratory illnesses such as asthma and bronchitis, reduce the body's ability to fight infections, and can worsen the effects of heart and lung diseases. School-aged children are considered sensitive receptors and are more at risk of developing health-related illness due to diesel emissions PM exposure.

In an effort to reduce children's direct exposure to toxic diesel combustion pollution, the District awards grant funds through the Lower Emission School Bus Program (LESBP). The LESBP assists local schools in replacing older, high-emitting diesel-fueled school buses with new lower-emission school buses. The new bus must meet the state's lowest emissions standard and the old bus must be salvaged. The LESBP has been sufficient in replacing at least three older school buses per year.

Wood Smoke Reduction Program

In 2019, as part of the California Climate Investments, the Wood Smoke Reduction Program was initiated. This statewide program used cap-and-trade funds to reduce greenhouse gas emissions and improve public health and the environment. Funds were committed for the replacement of uncertified, inefficient wood burning devices in residential homes with cleaner burning, efficient devices.

The State ceased funding after two years of operation, however, due to the success of the program, the District has allocated Community Air Protection Program funds to continue the program. The program opens in October of each year, and applications are processed as they are received. This program is extremely popular as funds are typically exhausted within a matter of weeks. The Wood Smoke Reduction Program has assisted with the replacement of over 70 inefficient wood burning devices and has contributed more than $225,000 to the citizens of the District.

FARMER Tractor Replacement Program

The CARB developed the *Funding Agricultural Reduction Measures for Emission Reduction* (FARMER) Program, with the goal to reduce emissions from the agricultural sector. The FARMER program provides grants, rebates, and other financial incentives to decommission and replace inefficient equipment with cleaner operating technology. This includes, but is not limited to, engines, harvesting equipment, heavy-duty trucks, tractors, and other equipment used in agricultural operations.

The District administers these funds on behalf of the State and distributes the funds to eligible grantees through an application process. In two years of operation the District has awarded over $500,000 through the FARMER Program for the replacement of high polluting agriculture equipment in Eastern Kern County.

DMV Grant Voucher Program

This program offers financial incentives for the purchase of new, low-emitting vehicles. Voucher amounts are determined by which low emissions vehicle is purchased: $4,000 for Zero Emission Vehicles and $2,000 for Partial Zero Emission Vehicles. Applications are processed continually throughout the year, until the allocated budget is depleted. The DMV Voucher Program has helped to purchase over 70 vehicles and awarded over $180,000 in the first five years of operation.

Outreach

The District works with local residents, schools, non-profit organizations, and businesses in efforts to reduce air pollution by awarding incentive funds for public education. Such programs have included funding for science-based curricula designed to educate elementary students on the causes and effects of air pollution and what can be done to achieve reductions. Funding has also been provided for high school science education including courses on photovoltaic solar power generation and zero-emissions electric vehicles (EV). The EV course allowed students to build and race small solar-powered EV's. The District has also provided funding for "Park and Drive" events, which allowed participants to test drive passenger EVs and show off zero emissions buses and technology.

The District also collaborates with the other thirty-four California air districts along with CARB and EPA to share public outreach information. This information includes public notices, hearings, and presentations. Additionally, all District workshops, town hall meetings, variance hearings, and Board meetings are open to the public; and since the Covid-19 pandemic, all meetings are broadcast live via Zoom.

Additionally, the District publishes a quarterly newsletter titled the Desert Breeze. The Desert Breeze is available as a pdf download from the District's website: www.kernair.org and mailed out to recipients whom have signed up on the mailing list. Lastly, this Report is an outreach tool designed to keep the public informed of District activities.

For more information on the District's programs and outreach, including applications and guidelines, please visit the District's website: www.kernair.org or contact the District at: (661) 862-5250.

On the Horizon

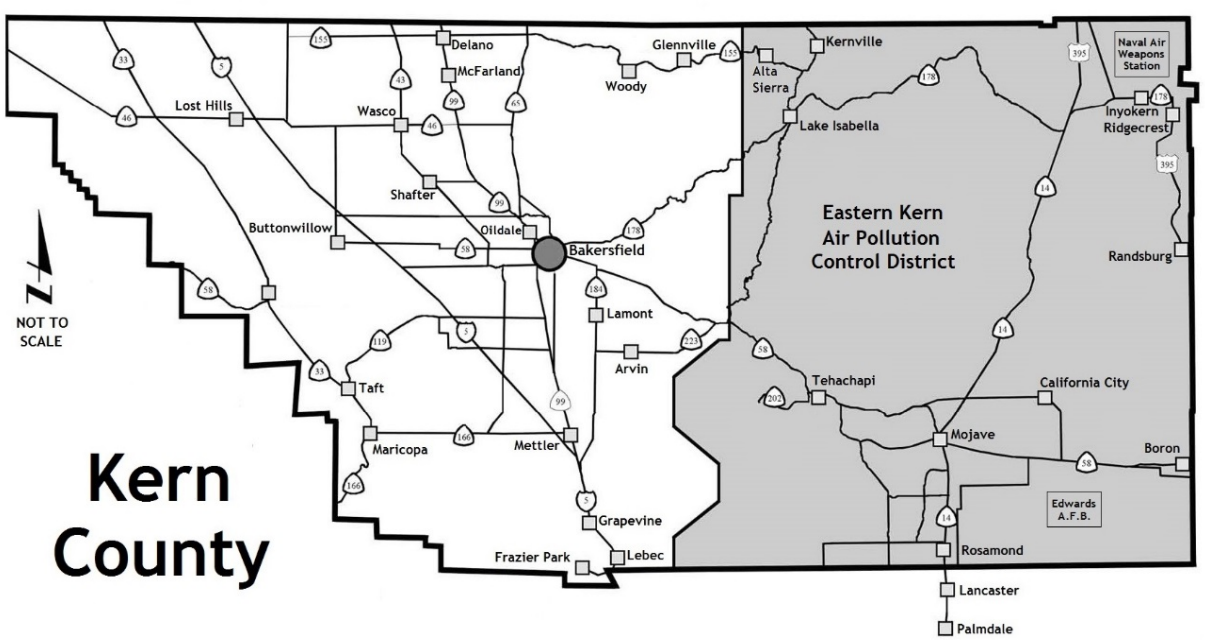
During the past year, one of the phrases we have often heard is: "In these difficult times." With the COVID-19 pandemic, there have been a lot of difficult times. We recently surpassed 500,000 deaths attributed to COVID-19, with a glimmer of hope the death rate will decrease. Wearing masks has become the new normal. Before we would see signs that state: "No Shoes, No Shirt, No Service," now we see signs that state: "No Mask, No Service." Moving forward, we cannot forget the past. Recognizing the simple fact: we are in this situation because of government and population failures. As a government agency, the District strives to be more efficient, and make better decisions that will yield better results.

The District is responsible for the air quality in the Tehachapi Mountains, southeast desert, and Kern River Valley areas. Historically, the emission reductions have come from reducing emissions from stationary sources. Since 1980, emissions from stationary sources have been reduced up to 95%. Correspondingly, carbon monoxide emission have dropped 85%, lead 98%, nitrogen dioxide 65%, ozone 35%, and PM_{10} over 46%. The question is: What do we do now? Part of the solution is to give incentives to voluntarily reduce emissions. The District has no jurisdiction over mobile sources; however, we will continue to give grants for electric and low-emitting personal vehicles, school buses and lower emitting diesel equipment. We expect these incentives to continue in the upcoming years. Another popular program we plan to continue is our Woodsmoke Reduction Program. This grant offers up to $4,000 to replace an old wood burning stove, heater or fireplace with a more efficient and lower emitting device. This program is wildly popular with the annual allotment of funds being depleted a month after the funding is available. We will try and generate more funds to this program.

We have upgraded our website (www.kernair.org) to include the District Current Air Quality. This site shows the air quality at the District's four air monitoring sites in Tehachapi, Ridgecrest, Mojave, and Kern River Valley. Additionally, the District has added and will add more Purple Air Monitors to monitor air quality in localized areas. Go to: www.purpleair.com; maybe you will find one in your neighborhood, or contact us to have one added to your neighborhood. Also, through a partnership with the Kern County Fire Department we have Community Connect, and the online burn permit program. Citizens can obtain a burn permit if you have no other means to dispose of hazardous/noxious weeds. Although an unexpected new addition, the program is very popular and will continue for the foreseeable future.

As someone wrote: "The only constant I am sure of is this accelerating rate of change." We have to keep up with change, embrace it, and use it to make a better tomorrow.

District **Staff**



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