

IS THERE A HEALTH RISK FROM THE DUNES? “THE ANSWER, MY FRIEND, IS BLOWING IN THE WIND”

This report¹ investigates the public health risk to residents of, and visitors to, the Nipomo Mesa and nearby areas caused by high levels of particulate air pollution.

SUMMARY

The 2017-2018 San Luis Obispo County Grand Jury sought to understand the controversial issue of particulate air quality on the Nipomo Mesa from the perspective and interests of the residents on the Nipomo Mesa and nearby communities, as well as those of the thousands of visitors who highly value the unique recreational venue that is the Oceano Dunes State Vehicular Recreation Area (ODSVRA), located in San Luis Obispo County². The Grand Jury also reviewed the regulatory actions taken by the San Luis Obispo County Air Pollution Control District, (also known as “APCD” or “District”), and the position of the California Department of Parks and Recreation (State Parks) and their responses to District regulatory actions.

The Grand Jury learned that airborne dust or respirable particulate air pollution (PM_{2.5} and PM₁₀) ranging from “moderate” to “hazardous” levels³ is often recorded at ambient air monitoring stations on the Nipomo Mesa and nearby areas. These levels exceed State and Federal air quality standards⁴ and constitute a health risk to the thousands of residents who live in these areas. Measurement studies and numerical modeling have shown the predominate source of this particulate air pollution originates from vehicular riding activity on the foredunes (a part of a system of sand dunes on the side nearest to the ocean) of the La Grande Tract⁵ of the ODSVRA.

¹ The title of this report was inspired by the words from a song written by Bob Dylan

² See Attachment 1 - OCEANO DUNES STATE VEHICULAR RECREATION AREA (ODSVRA)

³ <https://airnow.gov/index.cfm?action=aqibasics.aqi>

⁴ See Attachment 2 - State and Federal Ambient Air Quality Standards

⁵ See Attachment 3 for the approximate location of the La Grande in the ODSVRA

After ten years of an often adversarial relationship between the APCD and State Parks regarding the source of the particulate air pollution, and how best to mitigate it, the relationship between the APCD and State Parks may have recently changed for the better. This change has resulted in a jointly-approved (APCD and State Parks) remediation plan proposed by State Parks and accepted by the APCD Hearing Board. This plan has the potential to reduce particulate air pollution, and its associated health risk to residents of the Nipomo Mesa and nearby communities within a five-year time-frame.

This report includes recommendations for the APCD, the Lucia Mar Unified School District (LMUSD), the San Luis Obispo County Board of Supervisors (BoS), and the APCD Hearing Board.

Should the State Parks plan fail to meet its goal of eliminating most of the exceedances of PM_{2.5} and PM₁₀ air quality standards within the five-year time-frame proposed, the 2017-2018 Grand Jury recommends the BoS and the APCD Hearing Board act decisively in the public interest and drastically restrict vehicular riding activity on the La Grande Tract and facilitate relocating the camping and riding areas to the southern end of the ODSVRA, near Oso Flaco Lake.

PURPOSE

The purpose of this report is to illuminate the history of the health risk to the public on the Nipomo Mesa and nearby communities and identify the most effective mitigation plan to reduce or eliminate it within the shortest time-frame possible.

ORIGIN

The Grand Jury initiated this report of its own volition.

AUTHORITY

The issuance of this report is authorized under the investigative powers of the Grand Jury pursuant to California Penal Code §925.

METHOD

The Grand Jury used the following sources and methods to develop this report:

- Inspected ODSVRA riding and recreational areas
- Reviewed APCD Phase 1, APCD Phase 2, and South County Monitoring Study Reports
- Reviewed APCD-recorded PM_{2.5} and PM₁₀ data
- Reviewed California Air Resources Board (CARB) reports, studies, and recorded PM_{2.5} and PM₁₀ data
- Reviewed Desert Research Institute (DRI) reports and studies
- Reviewed San Luis Obispo County APCD Hearing Board website documents
- Reviewed BoS documents regarding a proposed sale of the La Grande Tract
- Reviewed United States Environmental Protection Agency (US EPA) epidemiological literature on health effects of PM_{2.5} and PM₁₀
- Reviewed National Institutes of Health (NIH) and Centers for Disease Control (CDC) epidemiological literature on health effects of PM_{2.5} and PM₁₀
- Interviewed APCD Hearing Board members and their legal counsel, APCD Board members, members of the Board of Supervisors, local citizen activists' groups, APCD staff, San Luis Obispo County Health Director, Medical Professional Groups on Nipomo Mesa, LMUSD Administration
- Reviewed California Coastal Commission website and documents
- Reviewed State Parks' Coastal Development Permit (CDP)

HISTORY

Off-highway riding is an extremely important recreational activity to the over one and one half million people who each year use the unique resource called the Oceano Dunes State Vehicular Riding Area (ODSVRA). Although State Parks established the Oceano Dunes SVRA in 1982, the dunes have been a favorite camping and recreation site for families for over 100 years. Vehicle riding on the beach dates back to at least 1906. Today, the Oceano Dunes SVRA is the only place in California where people can legally drive and camp on the beach.⁶ Camping and off-highway riding enthusiasts who use this special resource strongly believe their rights to use it for off-highway riding should be protected.

For more than 20 years, the APCD has conducted ambient air monitoring programs, which have recorded high levels of respirable particulate matter called PM_{2.5} and PM₁₀ at monitoring stations on the Nipomo Mesa and nearby areas. Multiple air measurement studies have determined with a high degree of certainty that the major source of the emissions of the PM_{2.5} and PM₁₀ air pollution originates from one specific coastal source: the open sand sheets of the La Grande Tract in the ODSVRA.⁷

Over the roughly 10-year period, from when the District first began to understand the air pollution problem, and until the present, State Parks has been reticent to acknowledge the air quality problem has been primarily the result of vehicular riding activity on the foredunes of the La Grande Tract. As the District adopted increasingly stringent regulatory actions, these actions have failed to cause the operator of the ODSVRA, State Parks, to implement adequate steps to remediate the health risk to residents of the Nipomo Mesa and nearby areas. The District maintained that State Parks frequently delayed or did not perform required compliance activities. Until recently, it appeared that the delays by State Parks to effectively mitigate the particulate air pollution, would result in the health risk to the local population continuing unabated for many years into the future.

⁶ “State Parks’ Answer to Petition for Abatement Order” Nov 13, 2017

<http://www.slocleanair.org/images/cms/upload/files/State%20Parks%27%20Answer%2011-8-17.pdf>

⁷ “Representativeness of the Oso Control Site Monitor Karl Tupper, Air Quality Specialist, SLO APCD”.

<http://www.slocleanair.org/images/cms/upload/files/APCD%20Exhibit%2018%20-%20Representativeness%20of%20Oso%20Control%20Site%20Monitor.pdf>

Over the same time-period, stakeholders, such as Friends of Oceano Dunes (Friends) initiated lawsuits of their own or joined with State Parks in several lawsuits against the District. These lawsuits were attempts to counter the regulatory actions of the APCD that were designed to reduce emissions of PM_{2.5} and PM₁₀ from the La Grande Tract of the ODSVRA. Friends is a non-profit California group representing the interests of approximately 28,000 off-highway riding enthusiasts who use the ODSVRA and other riding venues. Using the significant financial resources available to them, they promote off-highway riding and recreation. Some members of Friends live locally. Many of the Friends and their families are ardent users of the ODSVRA and have been for generations.

The efforts of the APCD to mitigate the particulate air pollution problem through enforcement actions have caused Friends to react in opposition to the District, as many of their actions have had the potential to restrict or eliminate the historically available riding areas of the ODSVRA. Given the history of lawsuits by Friends, and its goal to promote unlimited recreational use of the La Grande Tract, it would appear the legal efforts of Friends might continue far into the future.

Opposing stakeholders have been equally vocal and have initiated lawsuits of their own. Foremost among these are the local activists groups called the Concerned Citizens for Clean Air (CCCA) and the legal entity called the Mesa Community Alliance (MCA). CCCA is composed of local citizens whose stated goal is to protect the health of people on the Nipomo Mesa. MCA initiated lawsuits against State Parks, Friends, and the APCD.

In late 2017, after years of regulatory actions and contentious legal wrangling, the final regulatory authority over the particulate air quality problem came under the jurisdiction of the quasi-judicial body known as the APCD Hearing Board. Most recently, and most significantly, the APCD Hearing Board accepted a new and improved mitigation plan⁸ submitted by State Parks.

The reason for the new working relationship can be attributable, in part, to the latest change in leadership at State Parks. This agency has had five changes in Directors since 2007. The new Director of State Parks and the new Deputy Director of the Off-Highway Motor Vehicular

⁸ See Attachment 4 - Map of Proposed Remediation Areas

Recreation (OHMVR) division have begun implementing long-term changes and reorganization of the ODSVRA called the Public Works Plan (PWP), which may take years to complete. It now appears State Parks is willing to work cooperatively with the District to implement effective changes and avoid the legal actions that have constrained progress toward remediating the air quality problem in the past.

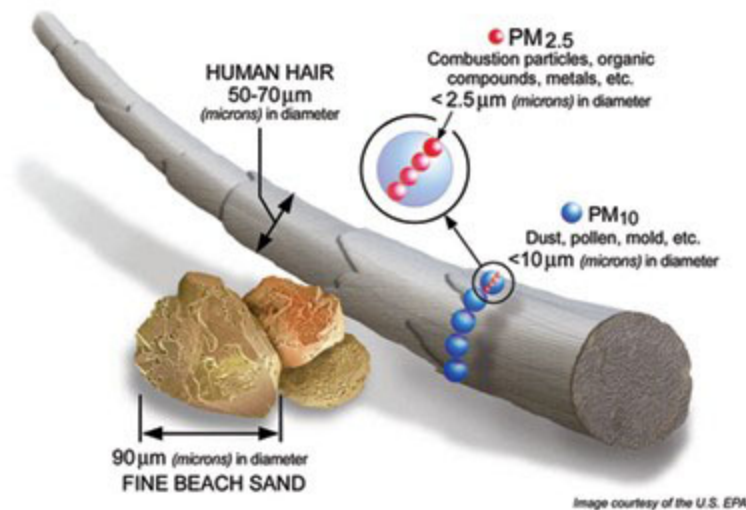
The most significant change in the relationship between State Parks and the APCD occurred after the former Air Pollution Control Officer (APCO) retired in November 2017. The new APCO immediately began to change the previous adversarial relationship between State Parks and APCD into a relationship that emphasized negotiation rather than only regulation. The most recent jointly-approved plan, to a large degree, is the result of the new cooperation between State Parks and APCD. It offers the promise that the long-standing air quality problems may finally be remediated within a realistic time-frame.

NARRATIVE

PARTICULATE MATTER

Particle air pollution, also called particulate matter or PM, is a mixture of solids and liquid droplets floating in the air. Some particles are released directly from a specific source, while others form in complicated chemical reactions in the atmosphere. Particle pollution can also originate from any disturbed crustal soil such as that found in off-highway riding areas of the La Grande Tract in the ODSVRA.

Particles come in a wide range of sizes. Particles less than or equal to 10 micrometers in diameter are so small that they can get into the lungs and bloodstream, causing serious health problems. Ten micrometers is less than the width of a single human hair.



- Coarse dust particles (PM) are 2.5 to 10 micrometers in diameter. Sources include crushing or grinding operations, including off-highway vehicular riding activity.
- Fine particles (PM_{2.5}) are 2.5 micrometers in diameter or smaller and can only be seen with an electron microscope. Fine particles are produced from all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, and agricultural burning. They can also result from off-highway vehicular riding activity.

PUBLIC HEALTH RISK

A large number of peer-reviewed epidemiological studies^{9,10} conducted by researchers in the US and other countries, combined with exposure assessments¹¹, confirm that exposure to high levels of PM_{2.5-10} air pollution impacts the health of everyone, particularly the very young, pregnant women, the elderly, and residents with moderate to serious health issues. These studies have shown that even short-term exposure to “Hazardous” particulate levels (as designated by US EPA) of PM_{2.5} and PM₁₀ can negatively affect ordinary, healthy people¹². The overarching fact is that when particulate matter is recorded at levels that exceed State and Federal air quality standards (which

⁹ <https://jamanetwork.com/journals/jama/article-abstract/2667069>

¹⁰ “Outdoor Particulate Matter Exposure & Lung Cancer” <https://ehp.niehs.nih.gov/1408092/>

¹¹ “Integrated Review Plan for National Ambient Air Quality Standards for Particulate Matter”. EPA-Dec 2016

¹² <https://www3.epa.gov/region1/airquality/pm-human-health.html>

it often does), the health of the local population on the Nipomo Mesa and nearby communities is at risk.

EXCEEDANCE OF AIR QUALITY STANDARDS

Measurement data has shown that the levels of PM_{2.5} and PM₁₀ recorded on the Nipomo Mesa and nearby communities are often high. The APCD has reported that there were 605 individual exceedances of the State PM₁₀ air quality standard recorded between 2012 and 2017^{13, 14}. On a number of occasions, the short-term levels, or hourly concentrations of PM₁₀ were recorded in the USEPA designated “Hazardous” range. Concentrations in this range constitutes a serious health risk to many residents on the Nipomo Mesa, including ordinarily healthy citizens. The District APCO has stated that the extraordinarily high particulate levels recorded on the Nipomo Mesa, on some occasions, produce some of the worst air quality conditions in the United States. Air measurement studies conducted by the APCD and the State Parks contractor, DRI, as well as numerical modeling performed by the CARB, have confirmed that the emissions of PM_{2.5} and PM₁₀ are a direct result of Off-Highway Vehicle (OHV) riding activity on the open sand sheets located on the foredunes of the La Grande Tract.

AIR QUALITY STUDIES

APCD Air Measurement Studies

The APCD conducted particulate monitoring on the Nipomo Mesa, which revealed that particulate concentrations on the Nipomo Mesa were significantly higher than other areas of the County. Based on that understanding, the APCD conducted a year-long Phase 1 monitoring field study from April 2004 through March 2005. In 2007, it published a report that documented the fact that there was a serious particulate air quality problem on the Nipomo Mesa and that exceedances of air quality standards represented a health risk to residents. The District’s analysis of this study did not yield a definitive conclusion as to the emission source of the particulate matter.

¹³ “Petition for Abatement Order”, APCD, Sep 2017

<http://www.slocleanair.org/images/cms/upload/files/Hearing%20Board%20Petition-Final.pdf>

¹⁴ See Attachment 5

In a follow-on study, the District, in conjunction with CARB, State Parks, DRI, and others conducted a second comprehensive study between January 2008 and March 2009 called the Phase 2 study. A report of the results of this study was published in 2010. A key focus of the study was to determine the role of off-highway vehicle activity on the SVRA. The primary conclusion of the Phase 2 study was that off-highway riding activity on the ODSVRA is a major contributing factor to the high particulate concentrations recorded on the Nipomo Mesa. The APCD conducted an additional air quality measurement study called the South County Study. That study also concluded the predominant source of high particulate levels on the Nipomo Mesa was due to vehicular riding activity on the La Grande Tract of the ODSVRA.

DRI Air Quality Studies

Desert Research Institute (DRI) is a highly-respected environmental research institute. It is an autonomous division of the University of Nevada. State Parks contracts with DRI and has utilized their expertise to conduct a wide range of air quality studies on the ODSVRA. These have included both air measurement studies and particle emission research activities in the La Grande Tract. DRI performed studies to characterize the crustal top-soil of the dunes and the effect called “saltation”¹⁵, and the impacts that occur when off-highway riding activity is performed on the open sand sheets of the La Grande Tract. DRI studies have consistently confirmed that riding on the open sand sheets in the foredunes is responsible for the largest portion of PM_{2.5} and PM₁₀ particulates entrained into the air and recorded downwind at monitoring stations on the Nipomo Mesa.

DRI studies have also shown that vegetation is the most effective method of dust control; they have found that it is 90% - 99% effective at reducing sand flux and is also the least costly control method over time, providing permanent rather than seasonal emission reductions. State Parks has previously proposed to plant most of the new vegetation outside the riding areas, which is contrary to the data from the comprehensive scientific field studies performed by DRI at the ODSVRA.

¹⁵ California Geological Survey, Memorandum to Mat Fuzie from Will Harris, (California, 2017), 1.
http://www.slcleanair.org/images/cms/upload/files/67%20FINAL_CGS%20Acreage%20Analysis_WJH_WRS.pdf

This has clearly shown the riding areas to be far more emissive than the non-riding areas of the La Grande Tract of the ODSVRA.

CARB Modeling

The California Air Resources Board (CARB) has developed sophisticated numerical air quality dispersion models that predict with good correlation to actual conditions where known or suspected emission sources would impact downwind population areas. These models are being used to identify the optimum remediation strategies to implement in the ODSVRA, including where to revegetate and how much area to revegetate. It is also being used by State Parks to determine whether other remediation strategies they are testing can be effective.

REGULATORY PROCESS

Over the past ten years, the former Air Pollution Control Officer (APCO) implemented a variety of enforcement actions, such as the adoption of APCD Rule 1001, APCD Rule 402, filing a Notice of Violation (NOV) to State Parks for violation of Rule 1001, and filed a Nuisance Abatement Petition (Case No. 17-01) to the APCD Hearing Board for State Parks under the statutes of the State of California Health and Safety Code section 41700¹⁶. The former APCO has said that State Parks had not been a willing participant in implementing effective solutions that would reduce the health risk to the residents of the Nipomo Mesa and nearby areas. State Parks has consistently maintained that while there is some contribution from off-highway riding activity, they believed it was not possible to quantify the exact amount attributable to the natural background component of dust or sand, or to the even larger amount that is caused by off-highway riding activity. Studies by the APCD, CARB, and by State Park's own contractor, Desert Research Institute (DRI) have provided convincing evidence that off-highway riding activity is by far the most significant contributor to PM_{2.5} and PM₁₀ standards violations recorded at monitoring stations on the Nipomo Mesa and nearby communities.

¹⁶ <http://www.slocleanair.org/images/cms/upload/files/APCD%20Draft%20Abatement%20Order%282%29.pdf>

PUBLIC NOTIFICATIONS

The APCD issues warnings to the public when high levels of pollutants are recorded at monitoring stations in the County. The APCD records ambient air quality data from 11 monitoring stations within the County. The data is stored in the Air Quality Management Information System (AQMIS) data base system and is available to the public online.

Alerting Individual Residents

Current air quality conditions, along with air quality forecasts for San Luis Obispo County, the Nipomo Mesa and nearby communities, are made available to the public via the APCD website¹⁷. These are referred to as AirAware Alerts and Better Breather Alerts. In addition, forecasted Air Quality Index (AQI)¹⁸ is also available to the public via email. The public can sign up to receive daily air quality forecasts via email by visiting the APCD website¹⁹ and clicking on the EPA enviroflash link.

AirAware Alerts generated by the APCD can include notifications about Particulate Matter (PM_{2.5} and PM₁₀), or other pollutants the APCD monitors at the locations throughout the County. These alerts can include a rolling, six-day forecast generated by the APCD staff meteorologist, or the current air quality conditions.

The public can elect to automatically receive AirAware Alerts on their electronic mobile devices. Using this knowledge, persons with allergies or cardiopulmonary disease, or other health problems associated with particulate air pollution, can choose to stay indoors or change their daily routine whenever adverse air quality conditions occur.

Some residents on the Nipomo Mesa have such heightened concern about the high levels of particulates in the ambient air near their homes that they operate their own particulate monitoring instruments. Other residents on the Nipomo Mesa have been reported to have taped up their windows and doors to prevent unwanted particulates from leaking into their homes during

¹⁷ <http://www.slocleanair.org/air-quality-alerts.php>

¹⁸ See Attachment 6 - Air quality index (AQI) chart

¹⁹ <http://www.slocleanair.org/air-quality/forecasting.php>

particulate episode conditions. The APCD alerting system has proven to be an effective tool for many of the residents on the Nipomo Mesa and nearby communities who are concerned about breathing polluted air during high particulate episode conditions.

Public Complaints About Air Quality

The APCD receives numerous complaints about poor particulate air quality from local residents. The District logs these complaints and performs a follow-up with each complainant. The District maintains detailed statistics about all complaints they receive. Complaints are received from people who are impacted by a variety of air pollution sources, such as agriculture burning and abnormal conditions at industrial plants that cause emission releases. Between May 2012 and October 2017, the District received 133 complaints from residents on the Nipomo Mesa and nearby areas about poor air quality and the effects it was having on them.

Alerting Doctors' Offices and Medical Clinics

The APCD and the County Health Department jointly created pamphlets about air pollution in the County. The County Health Department distributes these pamphlets to local doctors' offices and medical clinics. The County Health Department cooperates with the APCD in making public notifications and distributing literature.

Alerting Schools

The Lucia Mar Unified School District (LMUSD) includes schools on the Nipomo Mesa and nearby communities. School children are among the most sensitive groups of the population and can be adversely affected by particulate air pollution. Whenever PM_{2.5} and PM₁₀ are recorded at elevated levels, the health of children in these schools is at risk.

The school district noted that it does not routinely receive automatic Alert Warnings from the APCD. LMUSD acknowledged they had reached out to the APCD during the recent Thomas Fire to obtain guidance about particulates caused by the fire. LMUSD monitored the APCD website during that time to determine if the high levels of particulates in the air caused by the fire were affecting their students.

The Grand Jury found the APCD did not have a consistent program to alert schools or other vulnerable residents regarding the alert warnings such as AirAware Alerts, Better Breather Alerts, and other notifications. There was no follow-up to determine whether those who signed up for the notifications actually received them.

COUNTY BOARD OF SUPERVISORS

The Board of Supervisors (BoS) has a moral and ethical responsibility to protect the health of the residents of San Luis Obispo County.

Ownership of the La Grande Tract

In 1944, the County of San Luis Obispo acquired ownership of most of the lots in the 584 acre La Grande Tract through foreclosures of lots that were in tax default. In 1982, the BoS leased the La Grande Tract to State Parks for no fee. When that lease expired in 2008, State Parks continued to operate off-highway recreational activities on the La Grande Tract without a written lease, compensation, or memorandum of understanding.

The Ability to Eliminate the Health Risk

The BoS has the authority to substantially eliminate the health risk to the residents on the Nipomo Mesa and in nearby areas by the act of terminating all vehicular recreational activity on the La Grande Tract of the ODSVRA. Remarkably, this can be done at the will of the Board of Supervisors and a stroke of their pens.

APCD HEARING BOARD

The APCD Hearing Board is a five-member quasi-judicial body whose purpose is to decide on matters of conflict between the APCD and industry, and to act at the time of an air pollution emergency resulting from an upset or breakdown. The Hearing Board is an independent body, appointed at-large by the County APCD Board. The Hearing Board issues variances from APCD rules and regulations from Health and Safety Code Section 41701, issues abatement orders requiring a source to cease and desist from a particular act unless specified conditions are met, and resolves permit disputes.

Nuisance Abatement Order

Following the issuance of the Notice of Violation to State Parks issued by the APCD in 2017 under District Rules 1001 and 402, and the subsequent issuance of the Nuisance Abatement Petition by the District, the resolution of the air quality problem came under the purview of the APCD Hearing Board. Under the statutes of State law governing the abatement of public nuisances, the APCD Hearing Board has the authority to decide how and when the particulate air quality problem on the Nipomo Mesa shall be remediated.

Acceptance of State Parks Remediation Plan

On April 30, 2018, the APCD Hearing Board accepted a Stipulated Order of Abatement, submitted by State Parks and the APCD, that included the establishment of a Particulate Matter Reduction Plan (PMRP). This plan proposes to remediate the particulate air pollution problem by reducing the emission of particulates by 50% and the attainment of state and federal air quality standards within four years after the plan is approved.

Authority to Modify or Impose Further Conditions

The Hearing Board retains the authority to modify or change any of the requirements agreed to by APCD and State Parks at any time. The Hearing Board may alter, change, or impose further remediation actions on the currently accepted plan at any time in the future. This could include closing off the entire La Grande Tract to vehicular riding, should they choose to do so.

STATE PARKS' MISSION

State Parks is an important State of California department that provides recreational resources for the citizens of California, and to visitors from across the United States and around the world. State Parks has worked diligently to fulfill the goals described in their Mission Statement²⁰:

“Our Mission: To provide for the health, inspiration and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation.”

²⁰ <https://www.parks.ca.gov/>

To the citizens and visitors who have experienced the wonder of these resources in California, it is apparent that State Parks has faithfully carried out their mission statement to provide recreation for everyone who uses the exceptional recreational venue known as the ODSVRA.

Unintended Health Risk

However, in pursuit of its quest for excellence in offering recreational opportunities, State Parks had in the past overlooked one important word in their mission statement: the “health” of the people of California. Their mission statement implies that the “health” component applies to all citizens of California, including those people who live downwind of the ODSVRA on the Nipomo Mesa and nearby communities. State Parks has resisted acknowledging this fact.

A MUCH-NEEDED CHANGE

Recent events indicate the historical adversarial relationship between the APCD and State Parks has significantly changed for the better. Beginning in December 2017, the new District APCO started to implement a better working relationship with the State Parks Deputy Director. The new relationship has resulted in these two parties being able to negotiate a much-improved remediation plan. State Parks and the APCD jointly submitted a plan to the APCD Hearing Board on April 30, 2018. This plan was incorporated into a legal document called a Stipulated Order of Abatement. Even with its delayed implementation and built-in uncertainties, this detailed plan offers the possibility of achieving real, tangible, remediation results that may eliminate most of the health risk to residents of the Nipomo Mesa and nearby communities within the next five years.

STIPULATED ORDER OF ABATEMENT

A Stipulated Order of Abatement for Case No. 17-01 was submitted by State Parks and the APCD to the APCD Hearing Board, and was signed and accepted on April 30, 2018²¹. It requires that State Parks develop and submit a Particulate Matter Reduction Plan (PMRP) to the District APCO for approval by March 2019. The plan includes detailed procedures and methods State Parks shall

²¹ Stipulated Order of Abatement for Case No. 17-01 April 30, 2018
<http://www.slocleanair.org/images/cms/upload/files/%5BProposed%5D%20Stipulated%20Order%20of%20Abatement%282%29.pdf>

employ to mitigate the particulate air pollution problem that is caused by vehicular riding activities on the La Grande Tract of the ODSVRA.

Particulate Matter Reduction Plan (PMRP)

The following are the key points of the PMRP from the Stipulated Order of Abatement:

- The term of the PMRP shall be four (4) years from the date of approval by the APCO. (The date of approval is expected to occur in March 2019.)
- The PMRP shall be designed to achieve state and federal air quality standards.
- The PMRP shall establish an initial target of reducing the maximum 24-hour PM₁₀ baseline emissions by fifty percent (50%), based on air quality modeling carried out by CARB or other modeling groups, and reviewed by a Scientific Advisory Group (SAG).
- The SAG shall be established and its members appointed no later than July 1, 2018. SAG shall review the progress of the PMRP, using CARB modeling, subject to permitting agency approval (APCD). The PMRP shall include feasibility and effectiveness analyses of alternative mitigation measures. SAG shall meet in person at least once annually, and may meet more often telephonically or by other networked conferencing means as needed, to review the progress of the plan, issue reports, and make recommendations. State Parks, with assistance of SAG, shall develop an Annual Report and Work Plan that includes proposals, assessments of progress, assessments of budgetary issues, and implementation schedule.
- State Parks shall use its best efforts to increase the current rate of native plant seed production, plant yield, and dune planting.
- A draft PMRP demonstrating attainment of state and federal ambient PM₁₀ air quality standards shall be submitted to the APCO and SAG by State Parks no later than February 1, 2019 for APCO's approval.
- If APCO's approval of the PMRP precedes completion of State Parks' Public Works Plan (PWP) public review process, State Parks shall integrate elements of the PMRP, with APCO approval, into the PWP.
- The PMRP shall include the provision that a failure to meet any increments of progress or deadlines associated with the PMRP mitigation plan shall constitute a violation of the Stipulated Order of Abatement.

- State Parks shall develop, and/or revise annual Work Plans in collaboration with the SAG, implement near-term and future mitigation efforts within ODSVRA.
- The California Coastal Commission shall review and approve proposed annual Work Plans before any mitigation may commence each year.
- Draft Reports shall be submitted by State Parks to the APCO and SAG by August 1 of each year from 2019 through 2022.
- In October of each year from 2019 through 2022, the Hearing Board may convene a meeting to receive an informational update.
- The Hearing Board shall retain jurisdiction until December 1, 2023, at which time the Order of Abatement shall expire. State Parks or the APCO may apply to modify the terms and conditions of the Stipulated Order of Abatement, including this deadline.

How Will the Plan Achieve the Required Emission Reductions?

According to the PMRP, State Parks shall implement the following initial mitigation steps to achieve the target of 50% reductions in emissions and attainment of state and federal air quality standards by 2022:

- State Parks shall begin work to fence specified riding areas of the foredune areas with a perimeter fence and an internal fence array shown in Attachment 5, no later than June 1, 2018, and finish no later than September 15, 2018.
 - The fenced areas shall conform as closely as possible to diagrammed plots shown in Attachment 5 while considering public safety constraints.
 - Riding, driving, and camping within those areas shall be prohibited.
- All fencing shall remain in place and be maintained as internal fenced arrays until being replaced by vegetation, or the APCO approves alternate mitigation measures.
 - State Parks shall prioritize the fenced areas as shown in Attachment 5 for vegetation to increase the dust mitigation effectiveness in years after 2018.
 - By June 30, 2019, State Parks shall install APCO approved “sand-track-out control devices” at Grand and Pier Avenue entrances (sic) to the ODSVRA.
- In addition to the above initial mitigation steps, the Annual Work Plan, as developed and approved each year by State Parks, APCO, and SAG shall specify how State Parks shall

implement each year's mitigation efforts through the year 2022 to achieve the targeted reduction in emissions and attainment of State and Federal PM₁₀ air quality standards.

What Will Happen if the Plan Fails?

The health risk to the residents on the Nipomo Mesa and nearby areas may continue indefinitely if the Particulate Matter Reduction Plan (PMRP) were to fail.

How Will This Impact Off-Highway Riding Enthusiasts?

The total riding area now available in the 584 acre La Grande Tract may be reduced by about 100 acres when the wind fencing is installed. However, State Parks has begun to implement a Public Works Plan (PWP), which has been under development for some time. PWP is a long-term plan to reorganize and enhance user experience in the ODSVRA. Among other anticipated changes, there will be a relocation and expansion of riding and camping areas further to the south, near Oso Flaco Lake. State Parks has publicly committed to maintaining the current high level and quality of recreational experience in the ODSVRA. PWP implementation activities may be concurrent with the remediation activities of the PMRP. An important question: will the PWP ultimately satisfy riding enthusiasts' desire to replace every acre taken away by remediation with an acre for recreation somewhere else in the ODSVRA? The State Parks' PWP and time will provide the answer to that question.

CONCLUSIONS

The Stipulated Order of Abatement offers the possibility that substantial remediation efforts may finally be implemented. Several individuals, including members of the Hearing Board and the former APCO, have identified deficiencies in the abatement order and question whether it will ultimately work. In the event that the Particulate Matter Reduction Plan (PMRP) fails to achieve the required attainment of the State and Federal PM₁₀ air quality standards within the four-year period specified, this would represent an unacceptable health risk to the public. If this were to occur, future BoS and APCD Hearing Boards may act decisively to protect public health, and take actions under the authorities they possess, and drastically restrict riding activity on the La Grande Tract as quickly as possible.

FINDINGS

- F1: The District does not have an effective system to follow-up with the public, schools, medical clinics, hospitals, or those who sign up to receive AirAware Alerts and Better Breather Alerts.
- F2: The LMUSD does not use the APCD AirAware Alerts system or routinely use the CARB AQMIS system.
- F3: CARB computer modeling performed in 2017 confirmed that emissions of PM_{2.5} and PM₁₀ predominately originate from riding areas in La Grande Tract of the ODSVRA.
- F4: State Parks Deputy Director and the District APCO have worked together cooperatively to create a mitigation plan that was accepted by the APCD Hearing Board.
- F5: When PM₁₀ concentrations were recorded in the hazardous range, the Nipomo Mesa experienced some of the worst air quality conditions in the United States.
- F6: A collective total of 605 individual exceedances of the State PM₁₀ air quality standard were recorded on 363 days between 2012 and 2017 at three monitoring stations on the Nipomo Mesa.
- F7: San Luis Obispo County is the owner of most of the land in the La Grande Tract, and the Board of Supervisors has the authority to terminate vehicular riding activity on the La Grande Tract.
- F8: The APCD Hearing Board has the authority to require vehicular riding activity on the La Grande Tract be terminated.
- F9: There is a health risk to the residents on the Nipomo Mesa and nearby communities caused by high levels of PM_{2.5} and PM₁₀ particulate matter in the ambient air.

RECOMMENDATIONS

- R1: The 2017-2018 Grand Jury recommends the San Luis Obispo County APCD prior to September 30, 2018 should:
- a. Contact senior centers, hospitals and clinics, child-care facilities, and local residents who may be unaware of the District air quality alert notification and alert forecast program and encourage them to sign up to receive AirAware Alerts.
 - b. Perform follow-ups with residents and groups who previously signed up for District alert notification programs and confirm whether these residents and groups are receiving alerts and forecasts.
 - c. Coordinate directly with the Lucia Mar Unified School District (LMUSD) and other schools on the Nipomo Mesa and nearby communities to facilitate sending them AirAware Alerts and warnings.
- R2: The 2017-2018 Grand Jury recommends the LMUSD should prior to the start of the next school year:
- a. Enroll in the APCD AirAware Alert notification program so that it can obtain current air quality alert conditions or alert forecasts.
 - b. Use the APCD's online Air Quality Management Information System (AQMIS) to obtain first-hand knowledge of the days when high particulate levels are forecast.
- R3: The 2017-2018 Grand Jury recommends to the Board of Supervisors that if the Particulate Matter Reduction Plan (PMRP) fails to achieve its required goal of eliminating exceedances of state and federal PM₁₀ air quality standards within the four-year time-frame specified in the PMRP, the Board of Supervisors should within 30 days perform the following:
- a. Rescind State Parks current month-to-month, informal agreement under which State Parks has operated and managed off-highway vehicular activities on the La Grande Tract, and under Board of Supervisors authority, do the following:
 - Give written notice to State Parks that all off-highway vehicular activity on the La Grande Tract shall cease after a period of no longer than six months.

- Support State Parks' planned transition of off-highway vehicular activity on the La Grande Tract to State owned areas in the southern portion of the ODSVRA located near Oso Flaco Lake within six months.
- b. Choose one of the following two options:
- Negotiate a lease with State Parks and include in the lease agreement the stipulation the La Grande Tract shall only be used for non-vehicular camping or conventional recreational activity and that it not be used for any type of vehicular-recreational activity.
 - Sell the La Grande Tract to State Parks and include in the sales agreement the stipulation that the La Grande Tract shall only be used for non-vehicular camping or conventional recreational activity, and it not be used for any type of vehicular-recreational activity.

R4: The 2017-2018 Grand Jury recommends to the APCD Hearing Board if the Particulate Matter Reduction Plan (PMRP) fails to achieve its required goal of eliminating exceedances of State and Federal PM₁₀ air quality standards within the specified four-year time-frame of the PMRP, the Hearing Board immediately restrict vehicular riding activity on the La Grande Tract.

COMMENDATIONS

The 2017-2018 San Luis Obispo County Grand Jury commends three individuals who have been intimately involved in every aspect of the particulate air quality problem over the past several years. Each of these individuals has played a critically important role in activities that have resulted in the Particulate Matter Reduction Plan (PMRP) described in this report. These persons are the Deputy Director of State Parks, and the previous and current Air Pollution Control Officers.

REQUIRED RESPONSES

San Luis Obispo County Board of Supervisors: F6, F7, F9, R3

San Luis Obispo County APCD Hearing Board: F8, R4

San Luis Obispo County APCD: F1, F4, F5, R1

Lucia Mar Unified School District: F2, R2a, R2b

“The responses shall be submitted to the Presiding Judge of the San Luis Obispo County Superior Court by August 13, 2018. Please provide a paper copy and an electronic version of all responses to the Grand Jury.” Informational reports shall state that “No Responses are required.”

Presiding Judge	Grand Jury
Presiding Judge Ginger E. Garrett Superior Court of California 1035 Palm Street Room 355 San Luis Obispo, CA 93408	San Luis Obispo County Grand Jury P.O. Box 4910 San Luis Obispo, CA 93403

ATTACHMENT 1

OCEANO DUNES STATE VEHICULAR RECREATION AREA (ODSVRA)

Oceano Dunes State Vehicular Recreation Area (ODSVRA)²²

The following photograph illustrates the location of the ODSVRA in San Luis Obispo County.



²² APCD South County Monitoring Study Map, 2010

ATTACHMENT 2

State and Federal Ambient Air Quality Standards²³

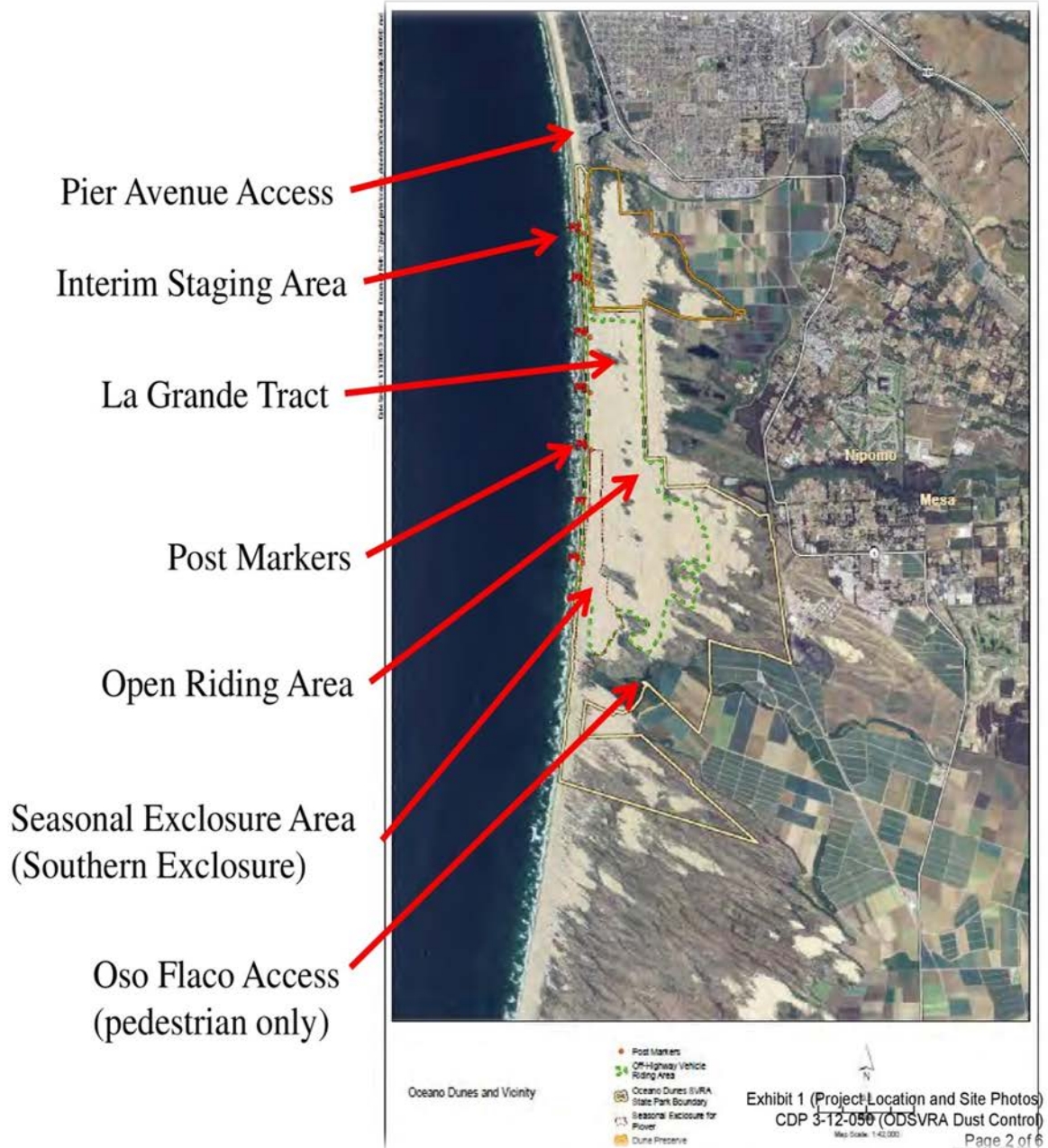
Particulate Matter, PM_{2.5} and PM₁₀, in Micrograms Per Cubic Meter

Applicable Standard	PM _{2.5}	PM _{2.5}	PM ₁₀	PM ₁₀
	Annual Average	24-Hr Average	Annual Average	24-Hr Average
Federal Standard	12 µg/m ³	35 µg/m ³	None	150 µg/m ³
California Standard	12 µg/m ³	None	20 µg/m ³	50 µg/m ³

Ambient air quality standards represent the minimum acceptable threshold level, above which the ambient air quality is considered harmful to the public. The US EPA initially established air quality standards for the entire United States under the requirements of the 1970 Clean Air Act. After the establishment of these standards, the State of California petitioned the US EPA to allow California to establish their own air quality standards. Depending upon the specific pollutant and the averaging period, California's air quality standards can be more stringent than Federal standards.

²³ US EPA and CARB <https://www.arb.ca.gov/research/aaqs/common-pollutants/pm/pm.htm>

ATTACHMENT 3 **LOCATION OF LA GRANDE TRACT IN** **Oceano Dunes State Vehicular Recreation Area (ODSVRA)²⁴**

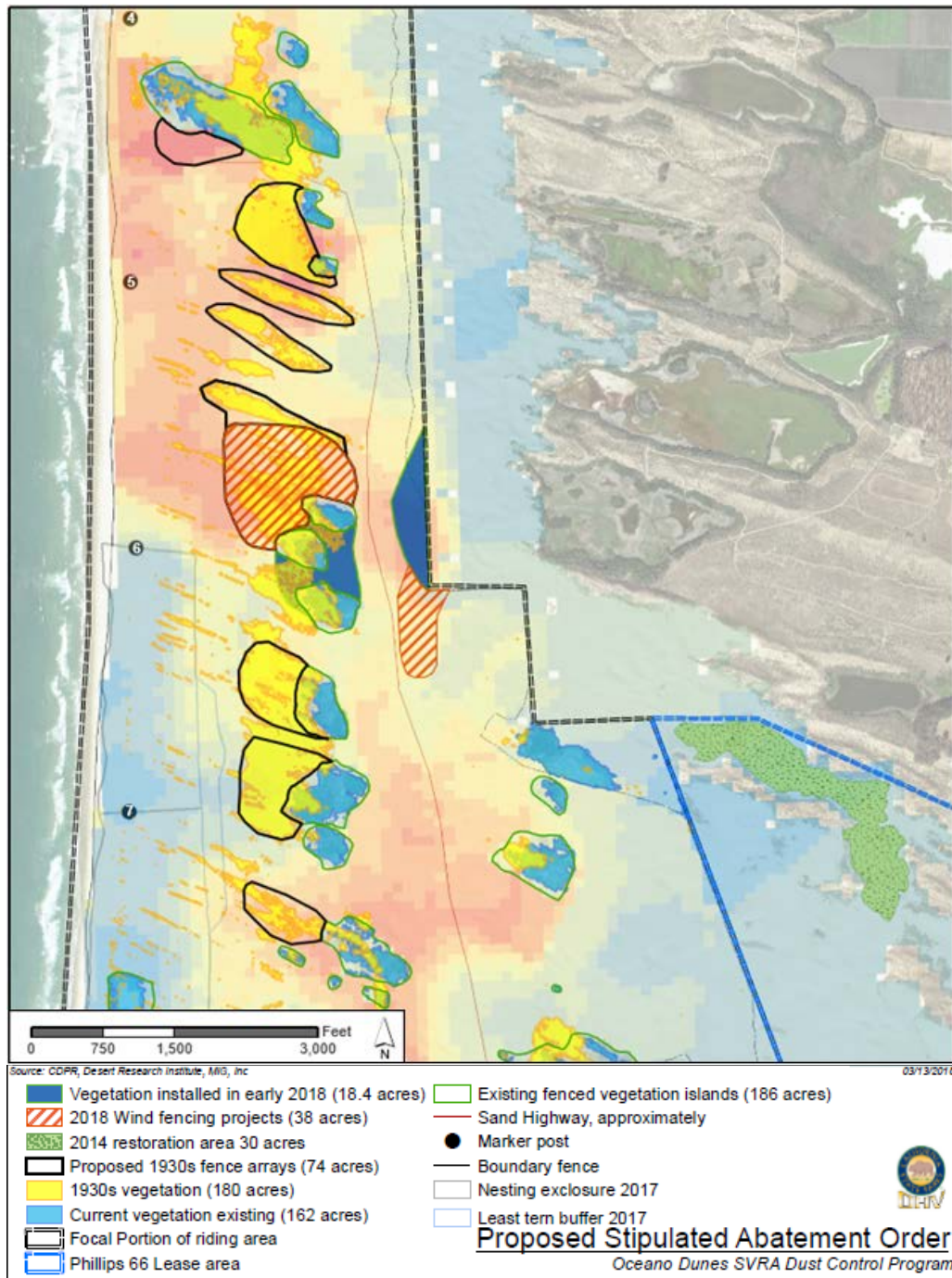


²⁴ California Coastal Commission, CDP 3-12-050 (ODSVRA DUST CONTROL), (2017), 3.
<https://documents.coastal.ca.gov/reports/2017/9/Th23b/Th23b-9-2017-exhibits.pdf>

ATTACHMENT 4

MAP OF PROPOSED REMEDIATION AREAS²⁵

Oceano Dune State Vehicular Recreation Area (ODSVRA)



²⁵ Proposed Stipulated Order of Abatement

ATTACHMENT 5
NUMBER OF EXCEEDANCES²⁶
STATE AND FEDERAL PM₁₀ AIR QUALITY STANDARDS
MAY 1, 2012 THROUGH MAR 31, 2017

CDF Monitoring Station at 2391 Willow Rd., Arroyo Grande, CA		
Year	State PM₁₀ Standard 24 Hr Exceedances	Federal PM₁₀ Standard 24 Hr Exceedances
2012	44	3
2013	93	2
2014	79	2
2015	62	0
2016	71	0
2017	11	0
Totals	356	7

Mesa 2 Monitoring Station at 1300 Guadalupe Rd., Nipomo, CA		
Year	State PM₁₀ Standard 24 Hr Exceedances	Federal PM₁₀ Standard 24 Hr Exceedances
2012	20	0
2013	55	0
2014	39	0
2015	30	0
2016	43	0
2017	3	0
Totals	190	0

NRP Monitoring Station at Nipomo Regional Park, Nipomo, CA		
Year	State PM₁₀ Standard 24 Hr Exceedances	Federal PM₁₀ Standard 24 Hr Exceedances
2012	9	0
2013	20	0
2014	9	0
2015	8	0
2016	13	0
2017	0	0
Totals	59	0
Totals	605	7

²⁶ <http://www.slocleanair.org/images/cms/upload/files/APCD%20Exhibit%208%20-%20PM%20Std%20Violations%202012-2017.pdf>

ATTACHMENT 6

AIR QUALITY INDEX (AQI) CHART²⁷

The following chart illustrates the US EPA Air Quality Index (AQI). Each color represents a level of public health concern:

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: everyone may experience more serious health effects.
Hazardous	301 to 500	Health warnings of emergency conditions. The entire population is more likely to be affected.

²⁷ US EPA, <https://airnow.gov/index.cfm?action=aqibasics.aqi>