Statement of Mary D. Nichols
Chairman, California Air Resources Board

Little Hoover Commission
Public Hearing on the Salton Sea
June 25, 2015

Thank you for the opportunity to testify on behalf of the Air Resources Board on issues regarding the Salton Sea. Responding to the environmental impacts of the Quantification Settlement Agreement (QSA) water transfers will require the collaborative efforts of many public and private entities. The process for solving these challenges will depend on our collective ability to effectively and efficiently respond to the changing environment. Timely action will be essential to protect the health of residents in the region, many of whom already experience significant health and economic burdens. The Air Resources Board will play a key role in this mitigation effort through our experience in developing effective solutions to windblown dust issues in other parts of the State.

My testimony is organized according to the specific topics listed in your invitation letter focusing on the Air Resources Board's role. These topics include:

- The role of the California Air Resources Board in relation to local authorities on issues of air quality as it relates to the Salton Sea region.
- The air quality problems in the Imperial and Coachella Valleys, how those would be exacerbated by a shrinking sea and the appropriate role for the State in addressing those concerns.
- The historical process that led to the State's agreeing to be part of the mitigation and restoration solutions, and my understanding of what the state's obligation to the Salton Sea entails.
- The importance of addressing the Salton Sea as more than an environmental problem, but also a social and economic problem.
- What the State could learn from incremental solutions and also, the need for a long-term solution. My assessment of what type of long-term solution could best serve the sea, particularly with respect to air quality concerns but also addressing the broader social and economic problems. Ideas on potential funding mechanisms for interim and long-term solutions.

- My experience with conservancies as an effective form of governance of environmental resources, and whether such a governance structure could be beneficial for the Salton Sea.

A. Role of the Air Resources Board

The Air Resources Board (ARB) is responsible for coordinating efforts to attain and maintain federal and State ambient air quality standards in California. At the State level, ARB has primary responsibility for the control of mobile sources and fuels, while local air quality control districts have responsibility for the control of stationary and area sources of pollution such as windblown dust. ARB works closely with local air districts to develop plans that enable regions to meet air quality standards through a combination of State and local control efforts. Further information on the specific role that ARB plays with respect to addressing the air quality impacts in the Salton Sea region is provided in the response below.

B. Air Quality Problems in the Imperial and Coachella Valleys

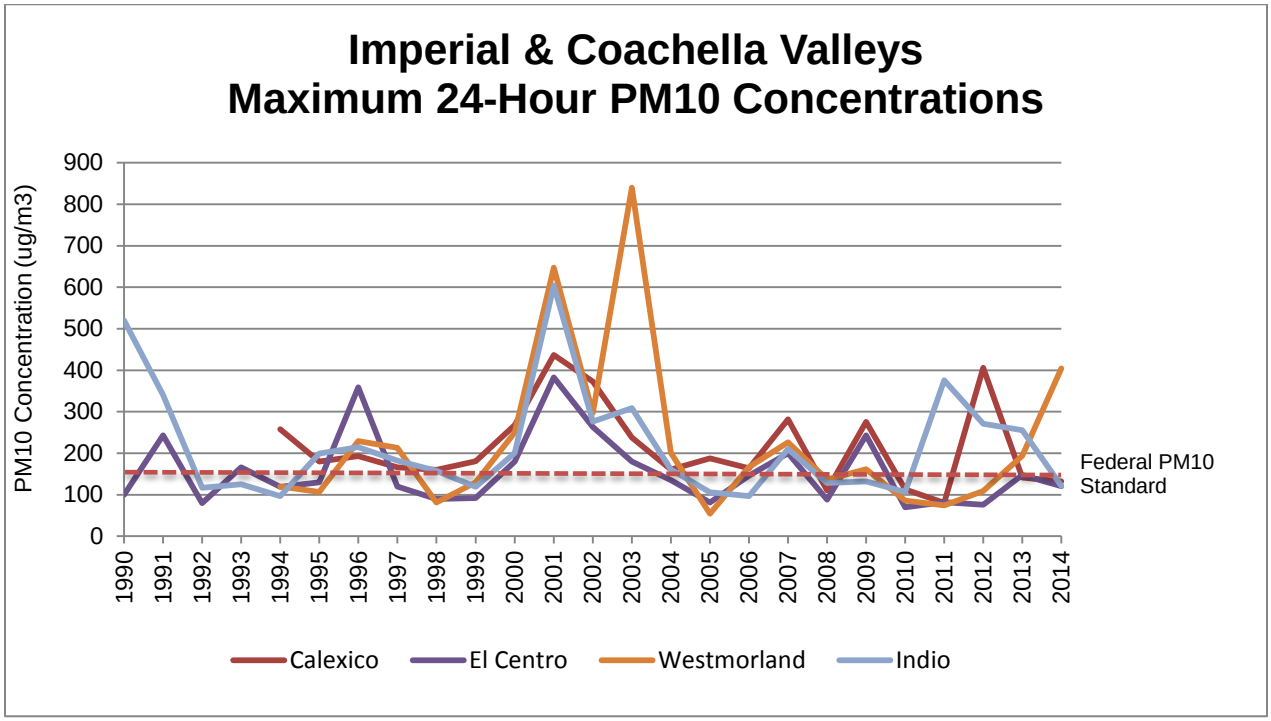
The primary air quality concern in the Salton Sea region associated with receding lake levels is coarse particulate matter (particulate matter with a nominal diameter less than or equal to 10 micrometers), known as PM10. When inhaled, these particles evade the respiratory system's natural defenses and lodge deep in the lungs. Exposure to PM10 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung and cardiovascular diseases, and reduce the body's ability to fight infections. Certain people are especially vulnerable to PM10's adverse health effects including children, the elderly, exercising adults, and those suffering from asthma or bronchitis.

Both Imperial County and the Coachella Valley are designated nonattainment for the federal 24-hour PM10 standard. High wind events, which vary in frequency and intensity from year to year, suspend dust and result in PM10 levels that can be two to four times higher than the federal PM10 standard of 150 ug/m3. . Figure 1 illustrates the highest 24-hour PM10 concentrations recorded each year at several long-term monitoring stations in the two regions since 1990. The Calexico, El Centro, and Westmorland stations are located in Imperial County, and the Indio station is located in the Coachella Valley.

In addition to these long-term monitoring stations, a network of six monitoring sites surrounding the Salton Sea began operation in 2010. Further information on air quality

levels recorded in this network can be found in the April 28, 2015 testimony of Brad Poiriez, Air Pollution Control Officer of the Imperial County Air Pollution Control District.

Figure 1



Beyond current air quality issues, a shrinking Salton Sea will expose lakebed sediments – also referred to as playa - to wind scouring and dust generation. The drawdown of the Salton Sea is currently scheduled to begin in 2017. As a result, starting in 2018, the water surface elevation will begin dropping about 1.5 feet per year, in contrast to the 0.5 foot per year drop that has occurred steadily since 2003.

The potential for dust generation has been compared to the situation at Owens Lake, which was created by the diversion of the Owens River into the Los Angeles Aqueduct beginning in 1914. The total lakebed area of Owens Lake is roughly 110 square miles, with 53 square miles to be controlled under the recent settlement agreement between the Los Angeles Department of Water and Power and the Great Basin Air Pollution Control District. In comparison, the maximum area of the exposed lakebed at the Salton Sea is projected to be approximately 97 square miles.

While similar in size to the exposed area of Owens Lake, several factors could lead to a lower emissions potential at the Salton Sea. First, the salt structures that form on the

Salton Sea may be more resistant to wind erosion than those at Owens Lake, resulting in lower dust emissions. Second, the percentage of days with winds high enough to generate dust is lower at Salton Sea. Nevertheless, the receding shoreline provides the potential for significant impacts if sufficient mitigation is not put in place. In addition, sand dunes in historic creek beds are moving toward the current waterline of the Salton Sea. As these sand dunes reach the exposed playa in the next decade, they may erode the effectiveness of many potential control measures.

Finally, Imperial and Coachella are also nonattainment for the federal 8-hour ozone standard. While the exposed playa at the Salton Sea will not affect ozone concentrations, the potential for further PM10 impacts from the receding shoreline would add to the total air pollution burden already borne by residents of the region.

The ARB has significant scientific expertise related to the air quality impacts of windblown dust based on our experience in areas such as Owens Lake, Imperial and Coachella, and the San Joaquin Valley. In each of these regions, ARB staff has worked with the local air pollution control districts to develop a sound scientific foundation for understanding the nature of the problem, and designing effective mitigation methods. ARB will continue to provide this scientific expertise and build on lessons learned from other areas in designing and implementing dust control strategies at the Salton Sea. Because the Salton Sea lies within both the Imperial County Air Pollution Control District and the South Coast Air Quality Management District, the ARB also facilitates multi-agency coordination amongst the air districts and other government stakeholders.

C. State's Obligations Under the QSA Agreements

In 2003 several California water service agencies entered into a Quantification Settlement Agreement (QSA), a water use agreement brokered by the State that will send some Colorado River water that has historically been used for irrigation in the Imperial Valley to San Diego for urban residential use. Creation of a Joint Powers Authority (JPA) was also signed into law in 2003. This law requires the Imperial Irrigation District, the Coachella Valley Water District, and the San Diego County Water Authority to pay into a mitigation fund through 2048. The total funding is $133 million, of which approximately $90 million remains. The JPA administers the mitigation fund. By statute the JPA is made up of representatives of the three water agencies and the California Department of Fish and Wildlife (CDFW). Under the provisions of the QSA, the State is obligated to pay for any mitigation costs beyond those provided for through the water agencies contributions to the JPA.

The ARB was not a participant in the QSA water transfer agreement and is not a member of the JPA. However, since the execution of the QSA, ARB has worked closely

with the Imperial Irrigation District, the Imperial County Air Pollution Control District, and other federal and State stakeholder agencies to advance our understanding of the dust generation potential and control effectiveness of potential dust mitigation methods. Much of this collaboration was organized through the Salton Sea Ecosystem Restoration Program, a QSA mitigation requirement given structure by SB 317 (Kuehl, 2003). As part of this collaboration, ARB designed and provided technical oversight for the installation of the baseline air quality monitoring network surrounding the Salton Sea. ARB is also providing technical review of the design of pilot dust control projects. These projects are moving forward with QSA and Imperial Irrigation District funding to guide larger scale application once inlet flows cease in 2018. As the State agency with oversight over air pollution, ARB will continue to work with the local air districts in the Salton Sea region to provide this technical support and guide development of effective mitigation strategies.

D. Addressing the Salton Sea as an Environmental Problem, but also as a Social and Economic Problem

Current air quality and meteorological data indicate that the southern portion of the Coachella Valley and most of the Imperial Valley would be impacted by increased windblown dust emissions from Salton Sea playa. The population of Imperial County is more than 80 percent Hispanic or Latino, and this area experiences some of the highest unemployment (76th percentile) and poverty rates (72nd percentile) in California. In addition, hospitalization rates for asthma are among the highest in the State, especially for children, with emergency room visits for asthma more than double that of California as a whole. Increases in exposure burdens from windblown playa dust will therefore exacerbate respiratory disease rates and health care costs among a populace least able to afford such impacts.

E. Incremental and Long-Term Solutions

The long-term solution at the Salton Sea is complex and will require a variety of mitigation methods reflecting the uniqueness of the playa at varying shoreline locations. The areal extent of playa that will be exposed over the next three decades also demands consideration of cost-effective approaches. Development of a comprehensive, long-term plan that defines both the scope of mitigation and the associated costs will be essential. ARB's experience in other areas such as Owens Lake has demonstrated the need to refine control approaches in response to changing conditions, as well as ongoing assessment of control effectiveness and consideration of emerging control methods. The situation at the Salton Sea is ideally suited to this type

of approach, as in contrast to Owens Lake the Salton Sea playa will be exposed gradually. This will enable incremental implementation of the long-term plan, and ongoing evaluation and adjustment of effective mitigation methods over time.

Experience gained from deploying a number of mitigation methods at Owens Lake provides real world examples of potential approaches for the Salton Sea. Windblown dust mitigation measures being assessed range from simple surface modification techniques, such as tillage or moat and row, to surface stabilization methods.

- Surface modification measures include those that reshape soil surface profiles to increase "surface roughness," a factor critical to reducing the potential of an unprotected soil surface to contribute to windblown dust emissions.
- Tillage is designed to create furrows several feet deep in exposed playa surfaces. The practice of deep tilling also disrupts pathways that can bring salt-laden groundwater to the surface. This reduces the formation of salt structures on playa surfaces, and thereby limits wind erosion
- Moat and row technology operates under the same principles as tillage to control windblown dust but disturbs only a fraction of total playa area. In this design, long linear ditches (moats) spaced several hundred yards apart are excavated in the playa with the spoils deposited on the downwind sides in the form of low, wide berms (rows). The goals of a moat and row system are to capture sand particles in the wide moats and to shelter downwind areas within the natural fetch length.
- Surface stabilizers include several families of chemicals designed specifically to produce artificial crusts through strong inter-particle binding forces, or increase moisture retention properties in exposed soil surfaces. These stabilizers are applied topically and can include water, salts and brines, organic non-petroleum products, synthetic polymers, organic petroleum products, or mulch and fiber mixtures.
- The establishment of vegetative cover, application of gravel, and shallow flooding are also effective methods to mitigate dust.

The Imperial Irrigation District, on behalf of the QSA Joint Powers Agency, has been assessing playa characteristics and pilot testing controls for windblown dust at the Salton Sea for the past few years. ARB staff has offered technical assistance in the design and monitoring of dust control pilot projects to ensure mitigation occurs concurrently with playa exposure.

In addition to addressing air quality impacts, restoration of the Salton Sea can provide additional social and economic benefits that will be important to consider in developing overall mitigation plans. The long-term construction and implementation of the mitigation measures, including potential geothermal energy production, will provide jobs for the

region. The QSA requires that any habitat loss is mitigated. The specific species conservation habitat along the shoreline will provide recreation and also serve as an effective dust mitigation method. Further, some exposed playa may be reclaimed for agriculture production. Overall, the Salton Sea mitigation offers the potential to improve quality of life in the region by reducing air quality impacts, creating new jobs and providing accessible wildlife habitat.

With respect to funding mechanisms, the cost of comprehensive solutions for mitigating the impacts of declining water levels at the Salton Sea is substantial. Current cost estimates for treating all of the shoreline expected to be exposed by 2046 range from $700 million to $2.4 billion.

Identifying an appropriate funding source and governance structure will require mechanisms that bring both public and private entities to the table, including agencies that will benefit from the water transfers. With the water drawdown scheduled to begin in 2017, it is imperative that work begin now to define these mechanisms through a public process to ensure that restoration of the Salton Sea moves forward.

F. Conservancies

Conservancies perform valuable services as organizations leveraging public and private funds to protect lands possessing unique attributes and resources valued by society. Because private contributions to these organizations are entirely voluntary, however, the land acquisitions and stewardship programs undertaken by these groups are typically limited in number and size. Neither the construction nor operational costs of Salton Sea restoration or mitigation projects, by virtue of their very size, are within the capability of a conceivable conservancy created expressly for this purpose. The largest conservancy project budgets in California reach into the millions of dollars, not the billions required of the situation at hand at the Salton Sea. A Salton Sea restoration and mitigation project will require administration by a public agency managing a dedicated and adequate source of funding.