Managing a SDS Source as an Air Pollution Hazard:
Owens Lake and Great Basin Air Pollution Control District

The Owens Valley California lies on the east side of the Sierra Nevada. While the Sierra Nevada mountains can be snow-covered during the winter, the bottom of the valley tends to dry much of the year. The Owens River and the streams which feed it from the Sierra Nevada are a major source of water used by humans in the valley from pre-historic times to the present.

Keeler Dunes, Owens Lake in the middle ground and snow-covered Sierra Nevada Mountains. Source: City of LA and Great Basin Unified Air Pollution Control District Reach Historic Comprehensive Agreement on Owens Lake Dust Mitigation, https://empowerla.org/city-of-la-and-great-basin-unified-air-pollution-control-district-reach-historic-comprehensive-agreement-on-owens-lake-dust-mitigation/.

More than a hundred years ago, the City of Los Angeles began looking for sources of water to meet the needs of a growing city. Attention turned to Owens Valley and Los Angeles eventually acquired rights to many of the water sources in Owens Valley. In 1913, the Los Angeles Department of Water and Power began drawing water from Owens Valley to supply Los Angeles.

Diverting water to Los Angeles led to Owens Lake, at the south end of the valley, to basically dry up. The current lakebed is a remnant of a much larger lake which existed during the last glacial period. As a result, the lakebed contains depths of silt, sand and salts washed down the valley over thousands of years.

While the size of Owens Lake would naturally fluctuate with changes in amount of water coming down the valley, the complete cut off of water led to the lake becoming a large source of sand and dust storms, affecting communities up and down the valley, and beyond.

A dust storm off Owens Lake in 2010. Source: Owens Valley PM10 Planning Area Report, Great Basin Air Pollution Control District.

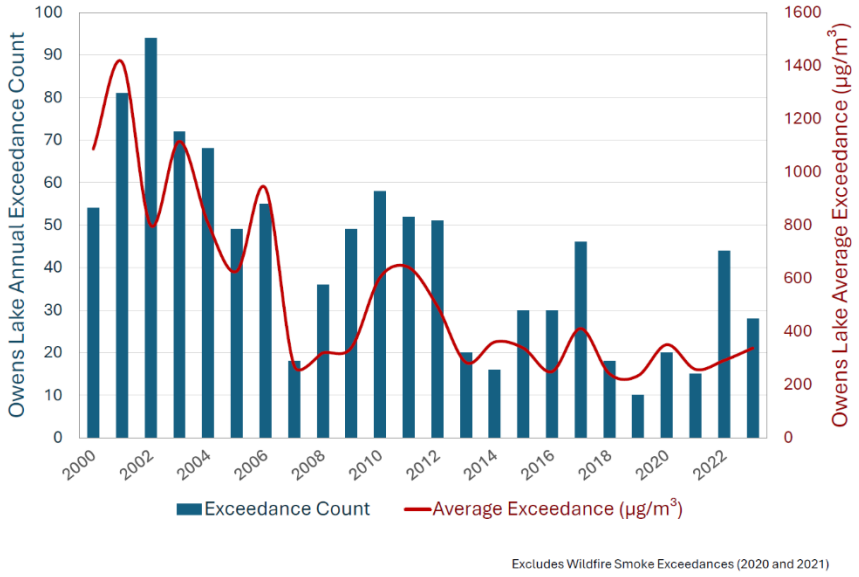
Owen Valley residents had been concerned about the draw-off of water from the valley since it began. But the drying of Owens Lake presented another, immediate and direct, threat to health and well-being, as winds blowing across the dry lakebed leading to dust storms and air pollution exceeding Federal limits.

As part of broader concerns about air pollution, the Great Basin Air Pollution Control District (GBAPCD) was established in 1974. To address the air pollution created when winds blew across the dry Owens Lake, the GBAPCD entered into negotiations with the Los Angeles

Department of Water and Power with the objective of implementing dust control measures on Owens Lake.

The process of getting the Los Angeles Department of Water and Power to implement dust control measures on Owens Lake has not always been quick but two results are clear over time. First, dust control work on Owens Lake, funded by the Los Angeles Department of Water and Power, has led to the development dust management technologies with demonstrated effectiveness, providing examples which can be used in similar situations globally. These technologies are documented in the **Effectiveness and Impacts of Dust Control Measures for Owens Lake** report.

Second, and more importantly, the dust control efforts on Owens Lake have led to a dramatic reduction in dust events and average quantities of dust in the air during these events (see chart below). This has resulted in improvements in the quality of lives of people downwind from the lake.



"The figure shows the decrease in the frequency and magnitude of PM10 emissions at Owens Lake. "Exceedance Count" refers to the number of times in a year particulate (PM10) levels exceed federal air quality standards. "Average Exceedance" refers to the average quantity of pollutants in a cubic meter of air over all the exceedance events that year. Source: Owens Valley PM10 Planning Area Report, Great Basin Unified Air Pollution Control District.

Dust events still take place at Ownes Lake as winds and dust are part of the natural environment. As a result, control measures are continually being adapted and improved.

The work of the Great Basin Air Pollution Control District is an example of where locally driven efforts to address air pollution and reduce dust events can lead to significant improvement in air quality.

What is also interesting is that Owens Lake dust control efforts have led to a number of other benefits. For instance, Ownes Lake is a major migratory bird transit site and nature reserve. Visitors can take advantage of several facilities developed on the lake by the Los Angeles Department of Water and Power, for viewing birds or other wildlife and understanding the geology and history area. There are commercial camping and caravan sites to the west and south of the lake and a regional visitor's center just north of the lake.

*Los Angeles Department of Water and Power interpretive site, Owens Lake. Source: **Owens Lake Trails**, Los Angeles Department of Water and Power, https://www.ladwp.com/sites/default/files/documents/OwensLakeTrailsBrochureWider_Rolling2019V2.pdf.*

As recently as 2010, Owens Lake was clearly a natural hazard producing dust which polluted the air and affected people's lives. Today, Owens Lake has become nature amenity rather than a natural hazard thanks to efforts to control and mange the dust which can originate from the lake.

Additional information available from:

- Great Basin Air Pollution Control District - https://www.gbuapcd.org/.
- Los Angeles Department of Water and Power:
    - https://www.ladwp.com/who-we-are/water-system/los-angeles-aqueduct/owens-lake.
    - https://www.ladwp.com/who-we-are/water-system/los-angeles-aqueduct/owens-lake-trails#230548828-1531765948.
    - https://www.ladwp.com/sites/default/files/documents/OwensLakeTrailsBrochureWider_Rolling2019V2.pdf.