

Ambient Air Quality Monitoring at Sunshine Canyon Landfill and Van Gogh Elementary School

Continuous monitoring of particulate matter, black carbon, wind speed, and wind direction began at the Sunshine Canyon Landfill (Landfill Site) and at Van Gogh Elementary School (Community Site) in Granada Hills in fall 2007.

These data are used to characterize ambient air pollution concentrations on a neighborhood scale, in the context of the Los Angeles basin and to evaluate the impact of landfill operations on air quality in the community.

Particulate Matter (PM₁₀)

PM₁₀ is particulate matter less than 10 microns in diameter. A human hair is about 100 micrometers in diameter so roughly 10 PM₁₀ particles could be placed on the width of a human hair. PM₁₀ is present in dust, smoke, soot, and dirt. It can be inhaled and drawn into the lungs, causing health problems for some people.

Black Carbon (BC)

Black carbon is a sooty black material emitted from gas and diesel engines, coal-fired power plants, and other sources that burn fossil fuel. Many BC particles are too small to be visible. BC emissions can cause adverse health and climate effects.

Wind

Wind Speed and Wind Direction are measured because they can significantly effect when and how far airborne pollutants travel from their sources.



Wind-Blown
Dust



Landfill
Operations



Dirt Roads



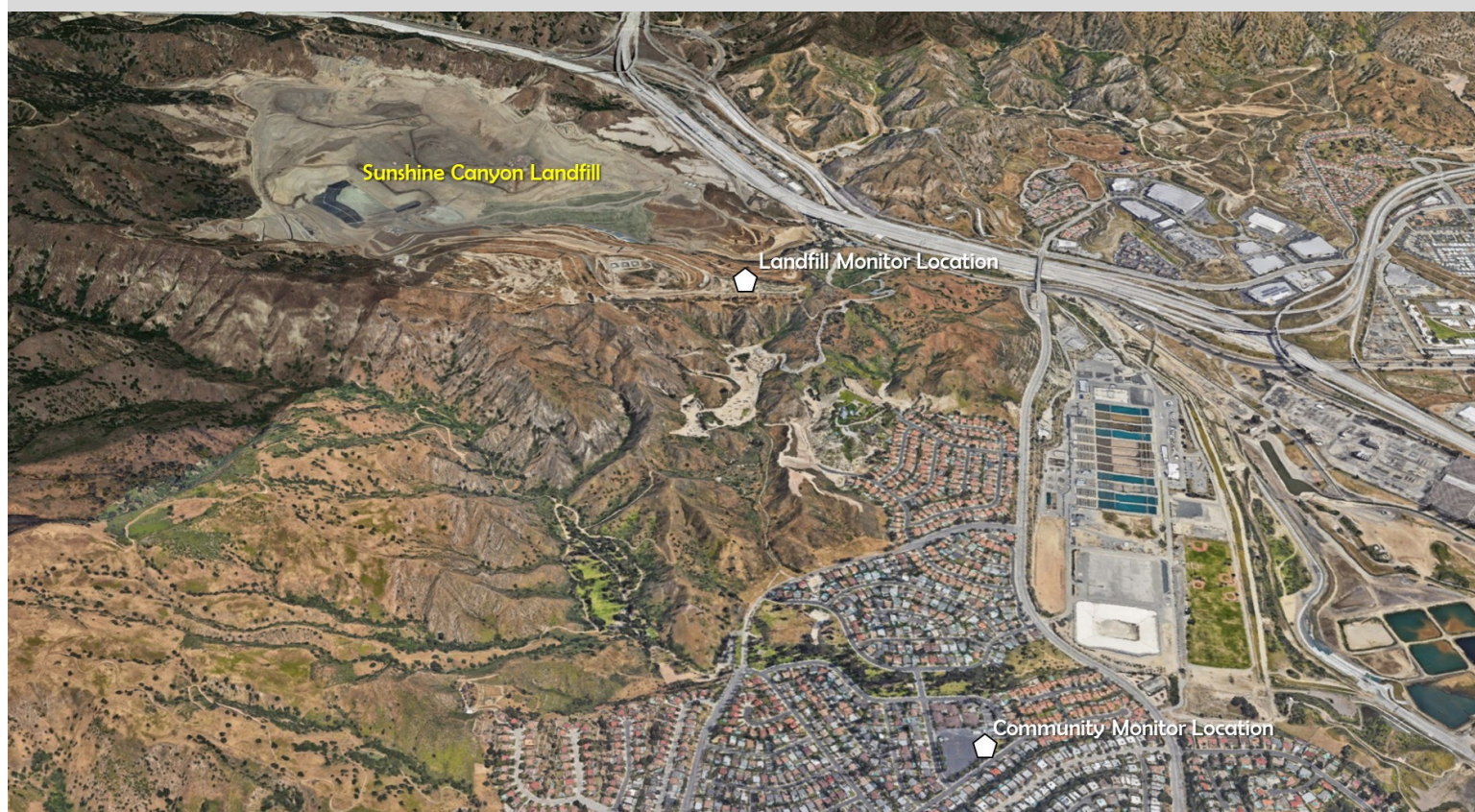
Vehicular
Traffic



Diesel
Engines



Industrial
Activities



What Have We Learned in Twelve Years of Monitoring?

Total Exceedances
over 12 Years

38 Landfill Site
Federal
Exceedances

5 Community
Site Federal
Exceedances

648 Landfill Site
State
Exceedances

292 Community
Site State
Exceedances



Air pollution from the surrounding region appears to be the main driver of high PM_{10} at the Community Site.

High pollution levels at the Landfill Site did not occur at the same times as high pollution levels at the Community Site. Typically, when regional pollution levels were relatively low and Landfill levels were high, Community levels were not significantly high.

Landfill Site

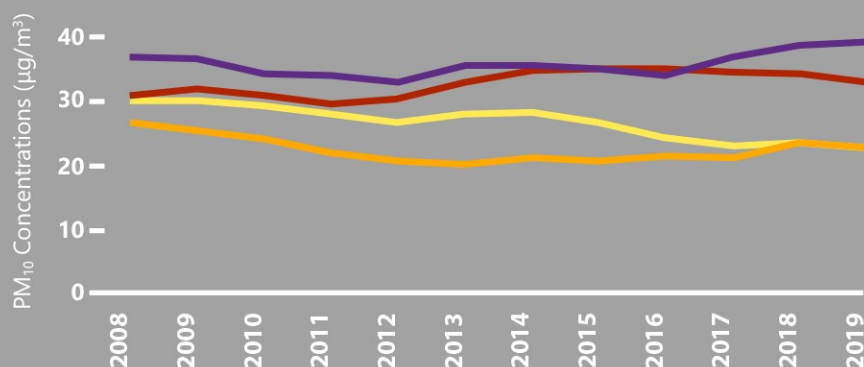
The Landfill Site's PM_{10} Federal and State exceedances are accompanied by high wind speeds, with wind direction falling within a narrow sector that encompasses the active portion of the landfill.

State exceedance days at the Landfill Site are also accompanied by low-speed winds from the Los Angeles basin (south and southeast), suggesting that the addition of elevated concentrations within the basin can push the Landfill Site's PM_{10} concentrations over the State threshold.

Community Site

On days when PM_{10} concentrations exceed the State standard at the Community Site, wind speeds are relatively low and wind direction is predominantly from the Los Angeles basin (southeast). This suggests that regional contributions are the main driver of exceedances of the State PM_{10} standard at the Community.

Monthly Average PM_{10}



Concentrations of PM_{10} are trending up at the Landfill Site, while trending down at the Community Site

Community Site measurements closely align with regional measurements

— Landfill Site
— Los Angeles Regional Site
— Community Site
— Santa Clarita Regional Site