

# Sunshine Canyon Landfill Community Advisory Committee

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South Coast Air Quality Management District

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## *What is South Coast Air Quality Management District?*

- Local Air Pollution Control Agency in Southern California (All of Orange & Portions of LA, Riverside & San Bernardino Counties)
- Population of 16.4 million (about half of California State's population)
- Area of 10,743 mi<sup>2</sup>
- Regulate over 27,000 Stationary Sources
- Worst air quality in the U.S. (Ozone & PM 2.5)





### Sunshine Canyon Landfill

- Opened in 1958
- Operated within both the City and County of Los Angeles
- Owned and operated by Browning-Ferris Industries (Allied Waste/Republic)
- Sunshine Canyon Landfill has a gas collection system and control equipment

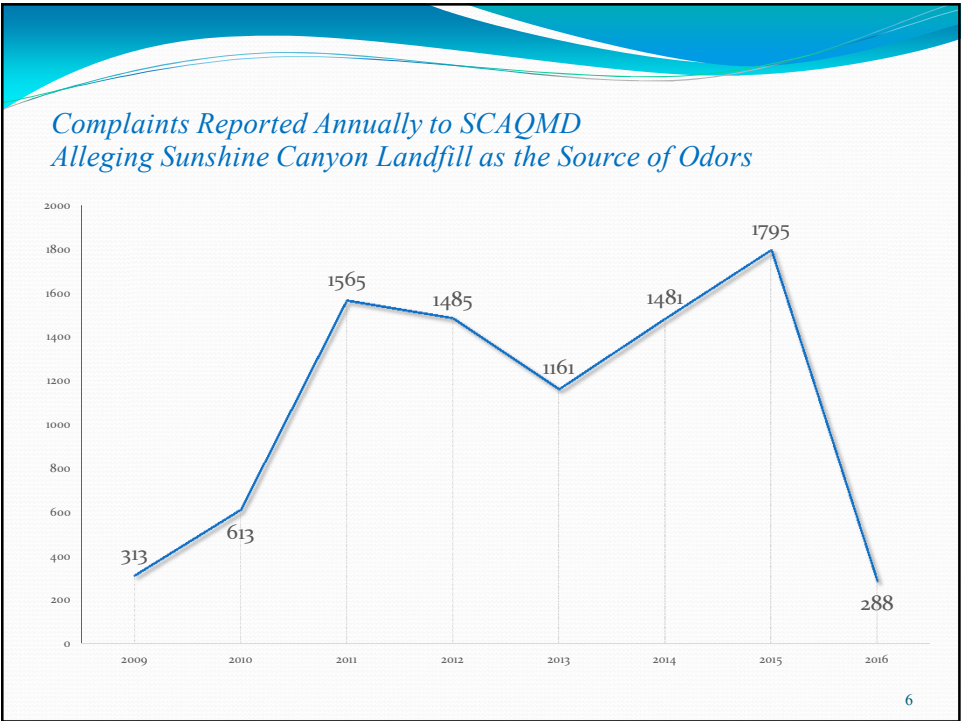
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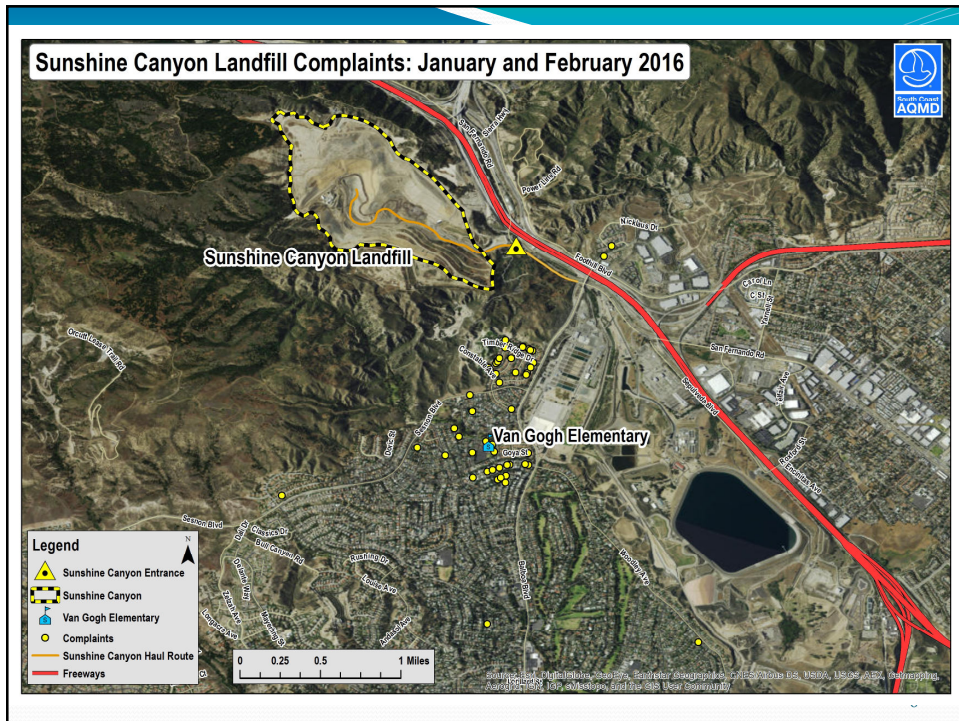
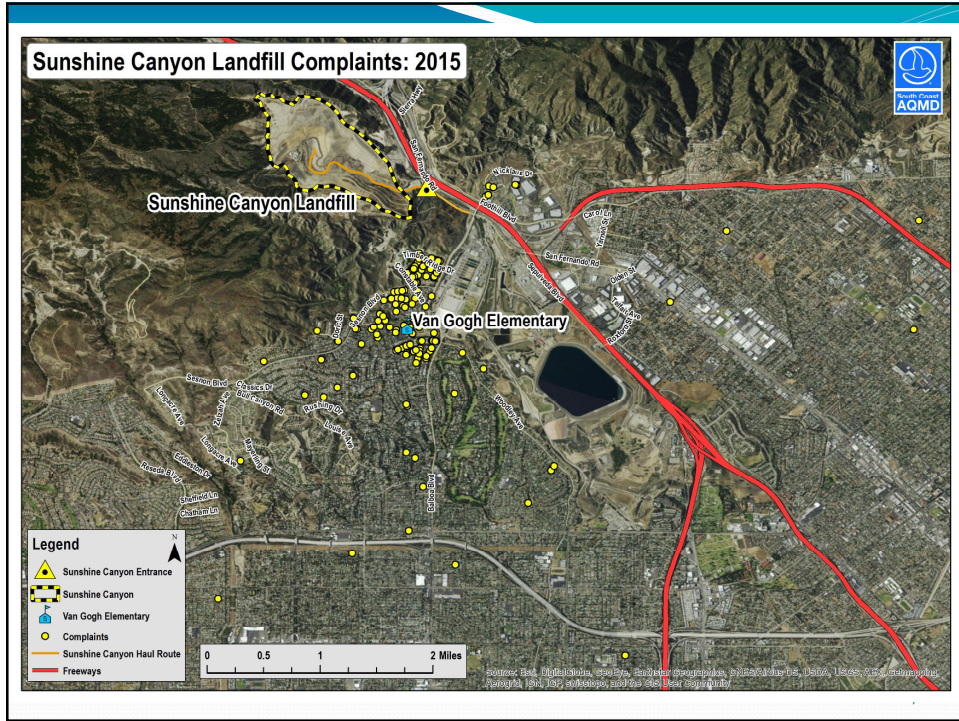


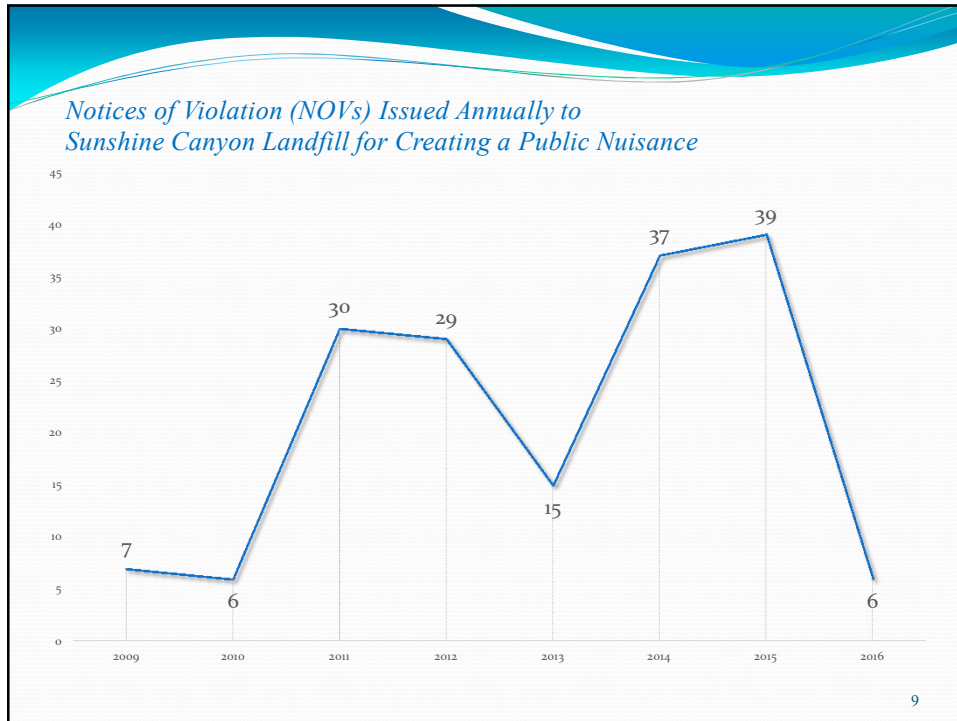
### Air Quality Regulatory Activities at SCL

- Compliance Activities
  - Inspections
  - Complaint Response
  - Notices of Violation
  - Orders for Abatement
  - Others
- Annual Emissions Reporting to SCAQMD
- Air Quality Monitoring required per:
  - SCAQMD Rule 1150.1
  - SCAQMD Order for Abatement
  - City/County of Los Angeles - Conditions of Approval

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- SCAQMD Compliance Activities*  
*Order for Abatement (OA)*
- November 2009      SCAQMD petitioned its Hearing Board for an OA for Sunshine Canyon to cease operating the landfill in violation of SCAQMD Rule 402.
  - March 2010         Sunshine Canyon entered into Stipulated OA with SCAQMD.
  - January 2011        OA modified
  - December 2011     OA modified
  - July 2012            OA modified
  - December 2013     OA expired

### *LFG Collection System Improvements (2011 to present)*

- Installed 553 vertical extraction wells
- Installed 27,845 linear feet of 12” to 36” header pipes
- Installed 77 horizontal wells
- Installed 68 LFG collectors
- Installed 38,900 linear feet of 4” to 6” lateral piping



### *Alternative Daily Cover Pilot Project*

- Plastic (EnviroCover) material over daily waste instead of soil
- Designed to reduce odors and improve LFG collection
- Stipulated Agreement between Republic and SCL LEA in Sept 2015
- TAC Approved in Sept 2015
- Pilot Began Oct 2015



### *LFG Control System (2011 to present)*

- Blowers on existing flares replaced with higher capacity blowers (200 HP)
- Temp flare installed and operated to maintain flaring capacity until new permanent flares installed (2012)
- Flare 9 installed (2012)
- Flare 10 installed (2013)
- Permit application for Flare 11 submitted to SCAQMD In December 2014 (Identical to Flares 9 and 10)
- Temp Flare removed

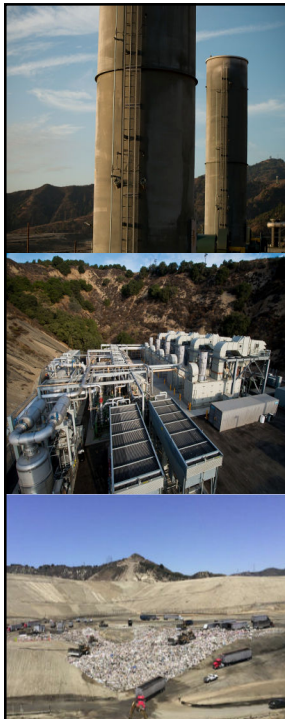


### *SCAQMD Consultant Evaluations and Reports*

- HydroGeoChem (HGC, 2015) conducted field testing, performed computer modeling to evaluation effectiveness of LFG collection system and soil cover
- Dr. Yazdani (2015) performed an independent review of HGC report and made supplemental recommendations

## *Sunshine Gas Producers Gas-to-Energy Plant*


- Permits to Construct granted May 2012
- Operational since Sept 2014
- Generating 24 MWs renewable energy



## Potential Emission Sources

- Odors from trash on the working portion of the landfill and from trash trucks
- Odors from landfill gas released from the surface of the landfill
- Combusted landfill gas in flares at Sunshine Canyon Landfill (SCL)
- Combusted landfill gas in turbines at Sunshine Gas Producers (SGP)
- Tailpipe emissions from trucks and off-road equipment
- Dust emissions from the landfill surface and from vehicles as they travel at the landfill





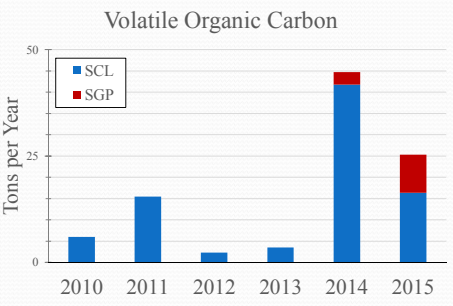
## Emissions Reporting

- SCL and Sunshine Gas Producers self-report emissions every year (‘criteria’ pollutants and some toxics)
  - Every four years they must report comprehensive list of toxics as part of AB2588 Toxic ‘Hot Spots’ program
- Reported emissions available on FIND website:
  - [www3.aqmd.gov/webappl/fim/prog/search.aspx](http://www3.aqmd.gov/webappl/fim/prog/search.aspx)
- Reported emissions based on combination of actual measurements and default calculations
- Self-reported emissions subject to audit

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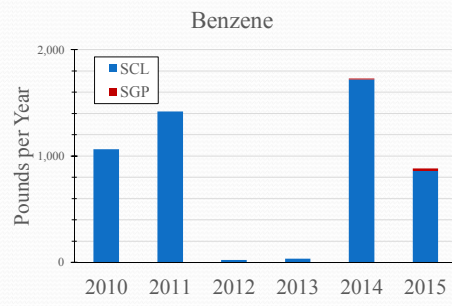
## Reported Emissions

### Volatile Organic Carbon



| Year | SCL | SGP |
|------|-----|-----|
| 2010 | ~8  | 0   |
| 2011 | ~18 | 0   |
| 2012 | ~2  | 0   |
| 2013 | ~5  | 0   |
| 2014 | ~38 | ~2  |
| 2015 | ~15 | ~10 |

### Benzene



| Year | SCL    | SGP  |
|------|--------|------|
| 2010 | ~1,050 | 0    |
| 2011 | ~1,400 | 0    |
| 2012 | ~50    | 0    |
| 2013 | ~100   | 0    |
| 2014 | ~1,750 | ~150 |
| 2015 | ~850   | ~50  |

- SCL emissions currently undergoing audit
- High emissions in 2010-2011 due to errors in calculations
- Fugitive emissions from surface of landfill first reported in 2014
  - 2014 gas collection efficiency =75% (default)
  - 2015 gas collection efficiency =88% (using actual onsite data)

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## Ambient Air Quality Monitoring

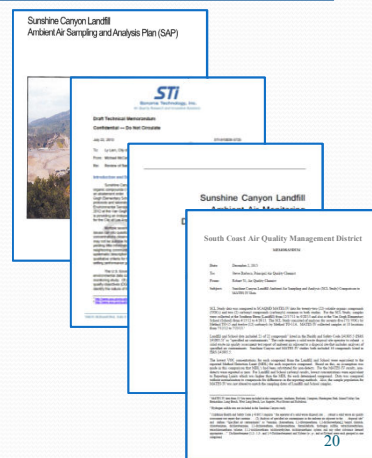
- Order for Abatement - Ambient Air Quality Toxics Study
  - Similar approach to SCAQMD MATES IV study
  - One year+ of sampling at Van Gogh ES and at the landfill (12/2011 - 4/2013)
  - Conducted by SCL contractors, SCAQMD approved protocol
- Rule 1150.1 ambient toxics and VOC monitoring
  - Samples from four onsite stations, the landfill surface, and the gas collection system collected monthly/quarterly
- City/County Monitoring at Van Gogh ES and SCL
  - PM10 and Black Carbon

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## 2012-2013 Air Monitoring Study

- **Objective:** to estimate long-term air toxic exposure in the community, and compare to levels at the landfill and in the Southern California region.

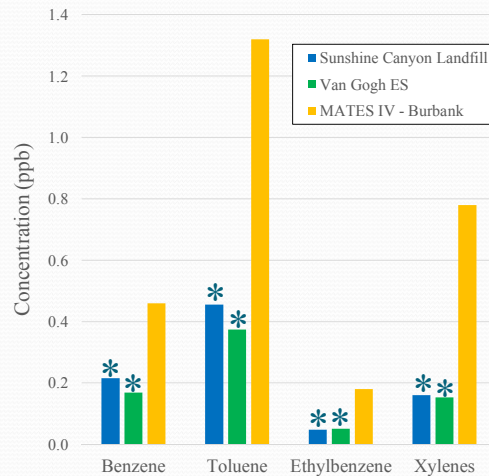
- SCAQMD Hearing Board orders the study (2011)
- Browning Ferris Industries hired Roberts Environmental Services and Columbia Analytical Services to conduct the study
- QA/QC reviews
  - Sonoma Technology
  - CH2MHill
  - SCAQMD (ongoing)



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## Air Monitoring Study Results

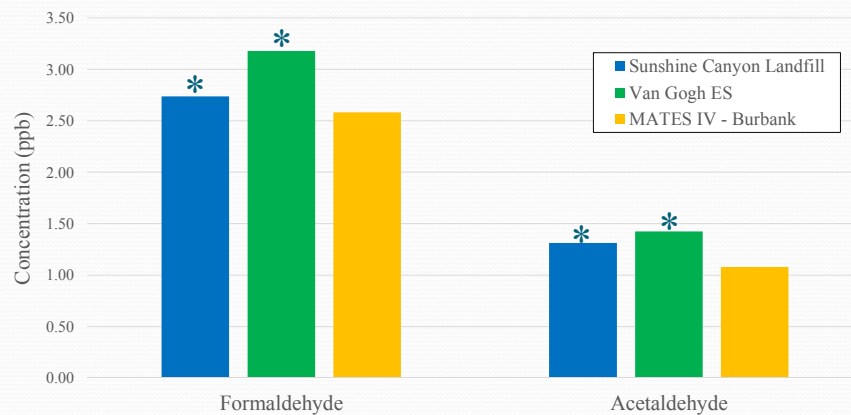
- Measured levels at the landfill are typically higher than at the school\*
- Most air toxics too low to be measured, or not higher than MATES
  - Vinyl chloride, etc.
- Formaldehyde and acetaldehyde are the only exceptions



\*Data quality review is continuing, and results will be updated

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## Air Monitoring Study Results: Formaldehyde and Acetaldehyde\*

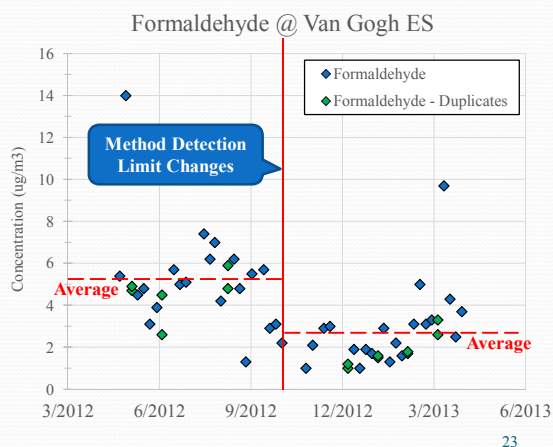


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## Study Data Quality

- Three separate peer reviews have raised concerns about data quality
- Sampling/lab errors
- Duplicate samples show high variability
- Earlier samples show higher results
  - Break point when lab method changed

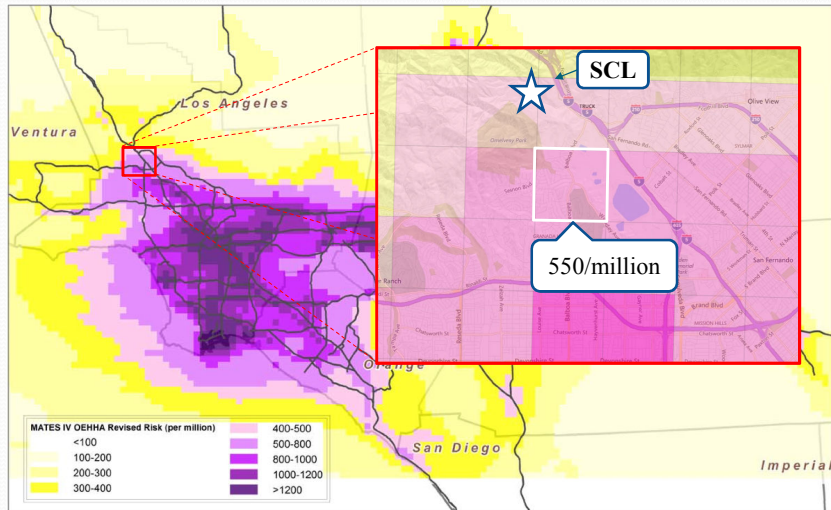


## Potential Health Impacts from Air Toxics

- Reported emissions levels have been below screening levels requiring a detailed facility-specific Health Risk Assessment
- Measured air toxics levels generally no worse than typically seen in SCAQMD region
- Formaldehyde and acetaldehyde slightly higher than MATES IV
  - Long-term non-cancer health effects not expected
  - Other sources of these chemicals are likely
    - Vehicles, building materials, other combustion sources
  - QA/QC issues under review
- MATES IV cancer risk estimates:
  - Basin average: 900 in one million
  - Neighborhood near Van Gogh ES: 400-600 in one million

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## MATES IV Modeled Air Toxics Risk



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## Rule 1150.1 Monitoring

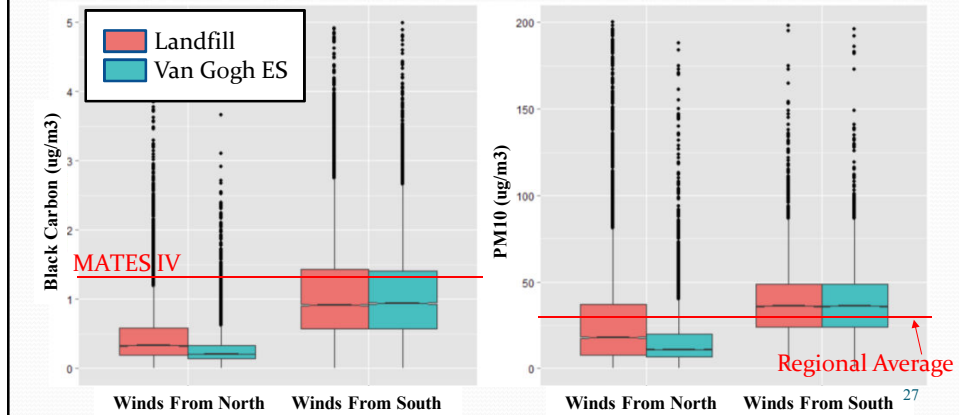


- Onsite monitoring results generally low with rare spikes
- Generally consistent with OA study
- Upwind/downwind measurements generally consistent with expected results from local wind pattern

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## City/County Monitoring

- PM10 and Black Carbon within range typically found in region
- Difference in monitored levels only found with northerly winds
  - Pollutant levels typically lower during these times



## Summary of Monitoring Results

- Pollutant levels at Van Gogh ES are generally within the range typically seen in SoCal region
  - Formaldehyde and acetaldehyde show slightly higher levels compared to background
- Data quality issues with OA study, but available results consistent with other studies
  - City is requiring new year-long toxics study

## Odors

- The human nose can often detect odors at levels lower than what can be measured using equipment
- Strong unpleasant odors can evoke physiological responses, e.g. headaches, nausea

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## Next Steps

- Continue to assess quality of 2012-13 toxics study data
- Continue to audit emissions reports
- Work with the city of LA on upcoming toxics study
- Continue complaint response and enforcement presence
- Hold a Town Hall meeting in April 2016
- Prepare fact sheets and information on SCAQMD website

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