

# SNAPS

## Baldwin Hills

---

Knox Presbyterian Church: February 11<sup>th</sup>, 2020

Culver City Senior Center: February 12<sup>th</sup>, 2020

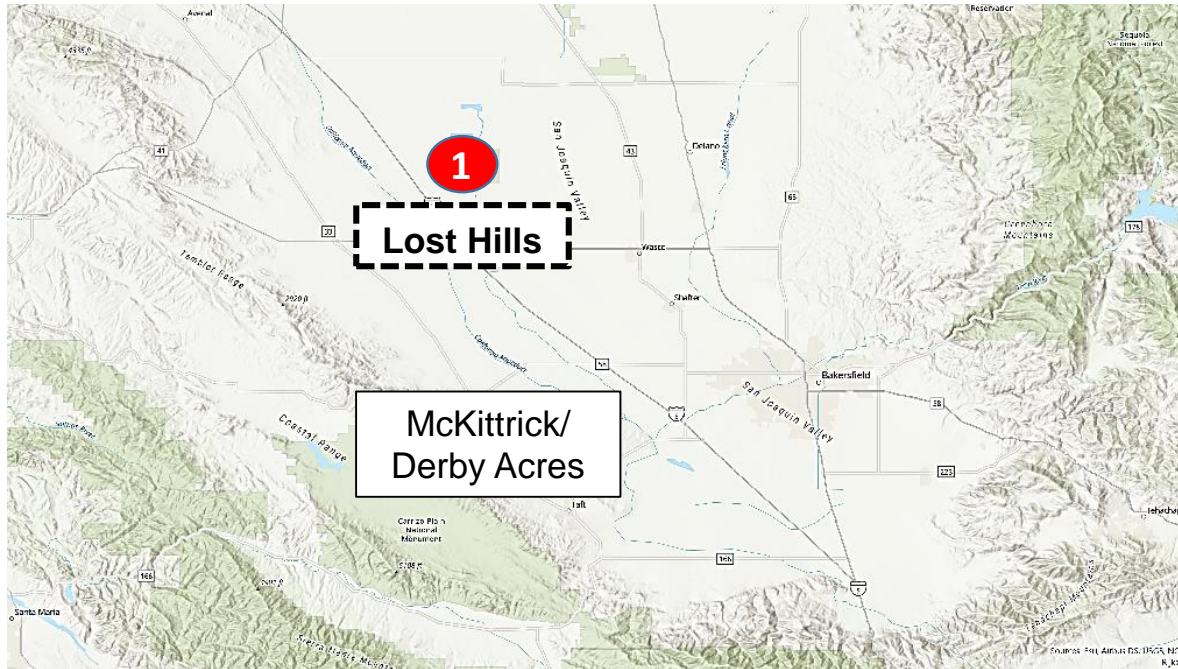
- Background and Scope
- Stationary Monitoring and Potential Monitoring Sites
- Mobile Monitoring
- Health Analysis

- **Background and Scope**
- **Stationary Monitoring and Potential Monitoring Sites**
- **Mobile Monitoring**
- **Health Analysis**

- Study air quality in neighborhoods
- Select neighborhoods close to oil and gas extraction facilities
- Characterize cumulative impact from surrounding sources



# First Round Communities



- Exposure concerns raised by communities
- California Council on Science and Technology (CCST) recommendations
- Aliso Canyon underground natural gas storage leak
- Part of broader CARB effort to understand impacts of oil and gas operations

## Program Goals

**Characterize air quality**  
in communities near oil and  
gas operations

**Identify emission sources** as  
feasible

Analyze data for  
**possible health risks**

## Major Pollutants

**Toxic Air Contaminants (TACs)**

**Criteria Pollutants**

Particulate Matter (PM<sub>2.5</sub>)  
Carbon Monoxide (CO), Ozone(O<sub>3</sub>)

**Volatile Organic Compounds (VOCs)**

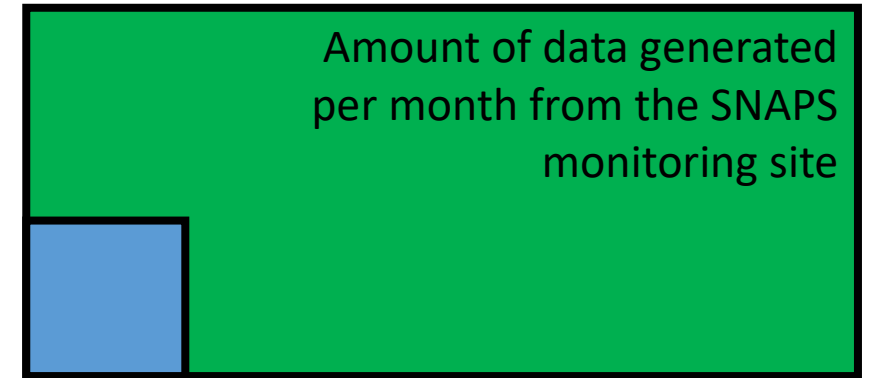
**Methane (CH<sub>4</sub>)**

**Hydrogen Sulfide (H<sub>2</sub>S)**

**Metals**

**Glycols**

Measurement	Pollutants	Time to Public Posting of Data
On-site Instrumentation	CH <sub>4</sub> , H <sub>2</sub> S, O <sub>3</sub> , CO, PM <sub>2.5</sub> , black carbon (BC)	Hourly
Discrete Samples	Toxic air contaminants (TACs), non-TAC VOCs and metals	With published report



Amount of data generated per month from a typical regulatory monitoring site

- Results streamed hourly on project website
- Report published following the completion of monitoring



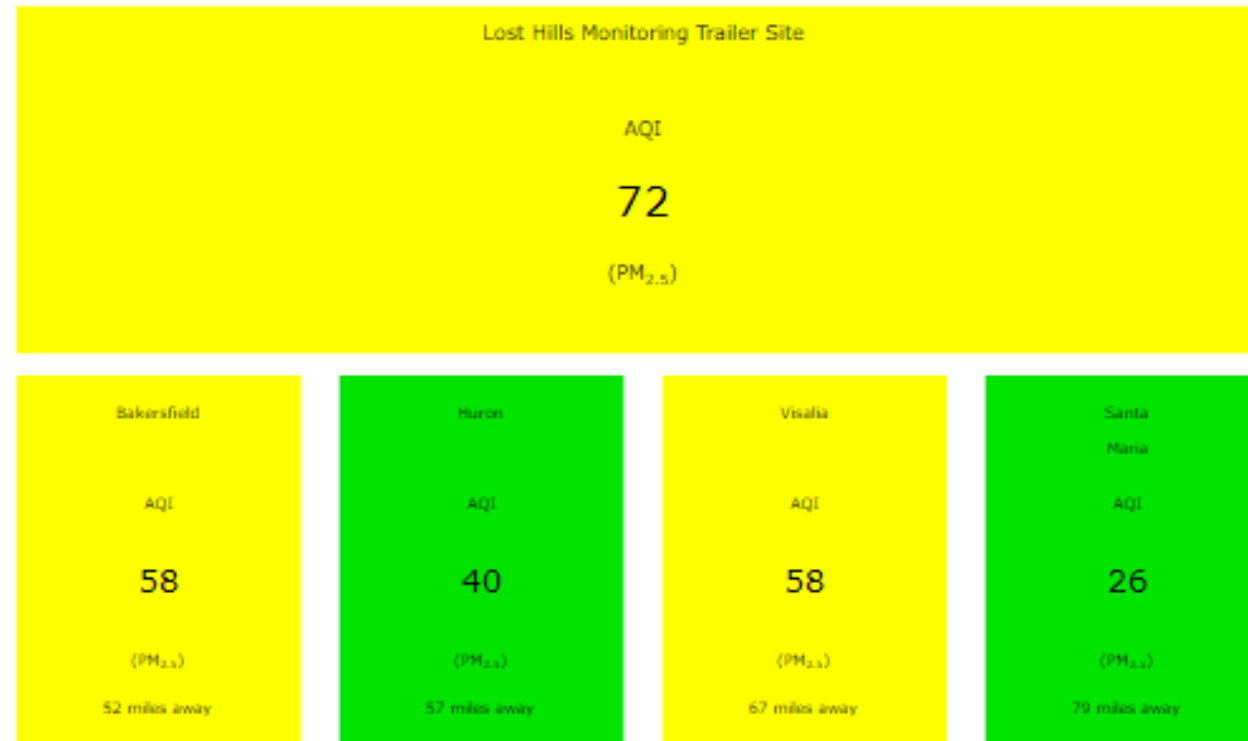
# Website Real-time Data Display



## Air Monitoring Snapshot

### Air Quality Index (AQI)

Hourly AQI (combined  $PM_{2.5}$  and  $O_3$ ) for the SNAPS measurement site(s) and nearby regional air monitoring stations are shown below (AQI, see AirNow for more information and full calculation methods). A description of AQI colors and values are shown in the table.



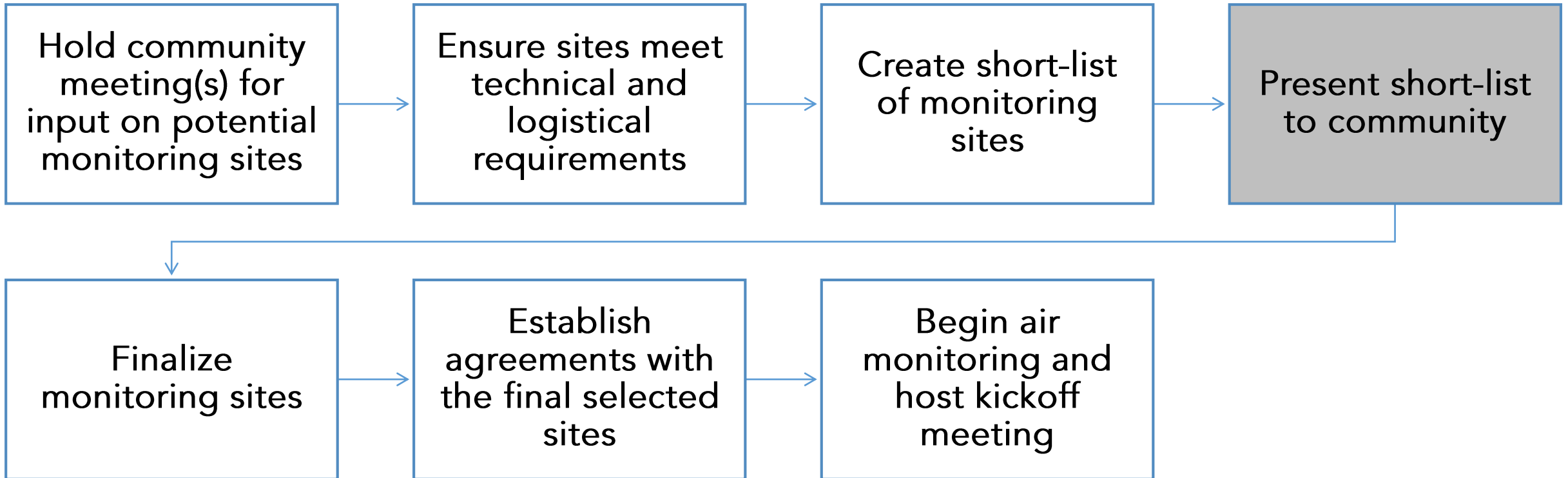
- Background and Scope
- **Stationary Monitoring and Potential Monitoring Sites**
- Mobile Monitoring
- Health Analysis

# On-site Measurements

Comprehensive instrumentation  
Capability to monitor over 200 pollutants



# Site Selection Process - Baldwin Hills

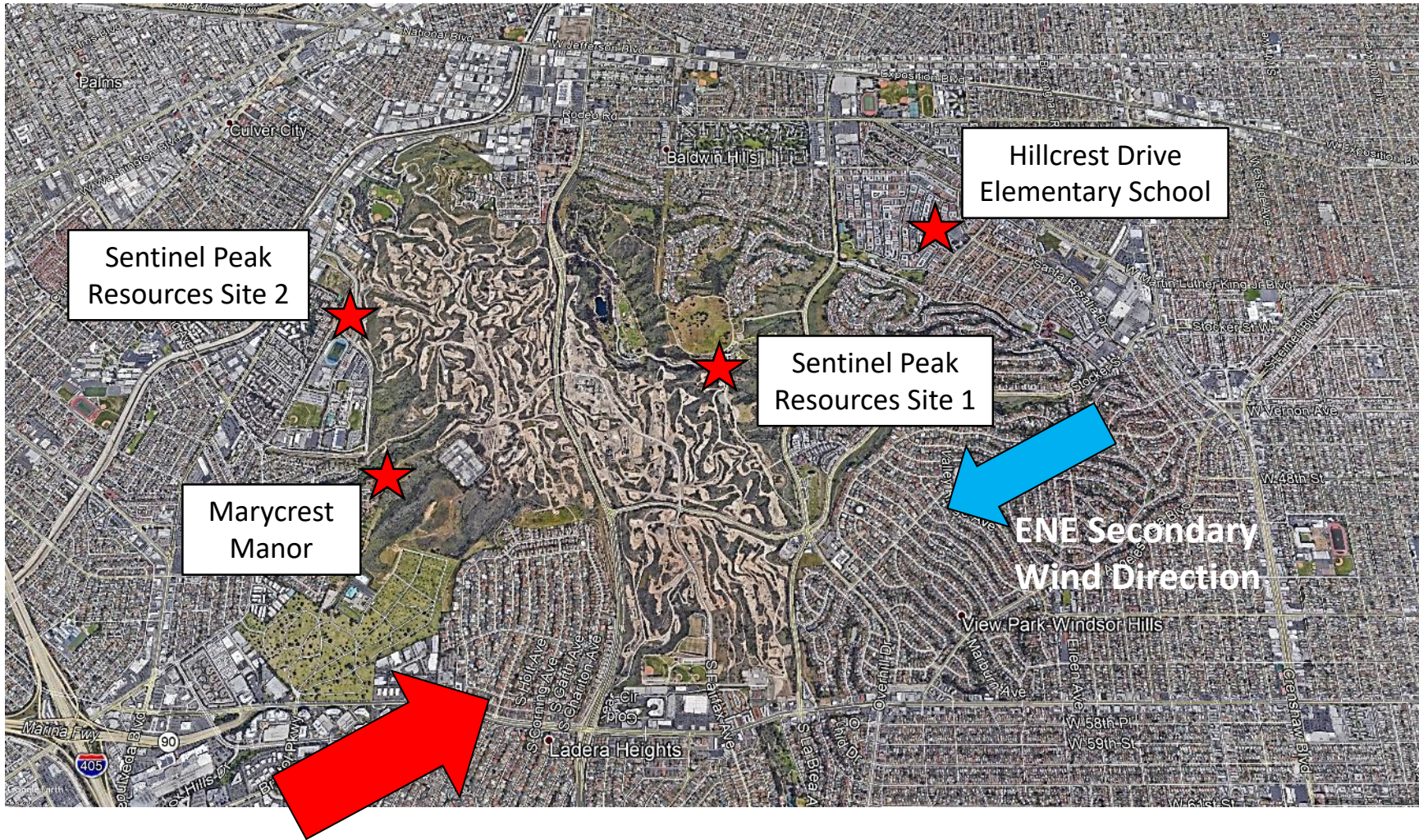


# Stationary Site Logistical Requirements

- Power
  - (1) dedicated 220 v/50 Amp circuit & (2) dedicated 120v/20 Amp circuits
- Security
  - Examples include: built-in fencing, security cameras, locked gate
- Space
  - Approximate flat footprint area of the trailer is 24' x 36'
  - Potential height of meteorological equipment mast up to 30'
- Site Access
  - Regular access during business hours for maintenance and operations



# Potential Monitoring Sites



**WSW Prevailing Wind Direction**

- CARB is planning to locate monitoring equipment at 2 sites
- Prospective site on edge of oilfield (near Kenneth Hahn State Recreation Area)
  - Sentinel Peak Site 1
- Prospective site east of oilfield
  - Hillcrest Drive Elementary School
- Potential sites west of oilfield
  - Marycrest Manor
  - Sentinel Peak Site 2 (western edge of oilfield)

# Potential Site On Edge of Oilfield



**WSW Prevailing Wind Direction**

## Sentinel Peak Resources Site 1

- Can assess community exposure for Kenneth Hahn State Recreation Area users
- East-northeast of gas processing plant and several tank farms
- Will help gather ambient air quality data near pollution sources
- Meets technical and logistical requirements

# Potential Site East of Oilfield



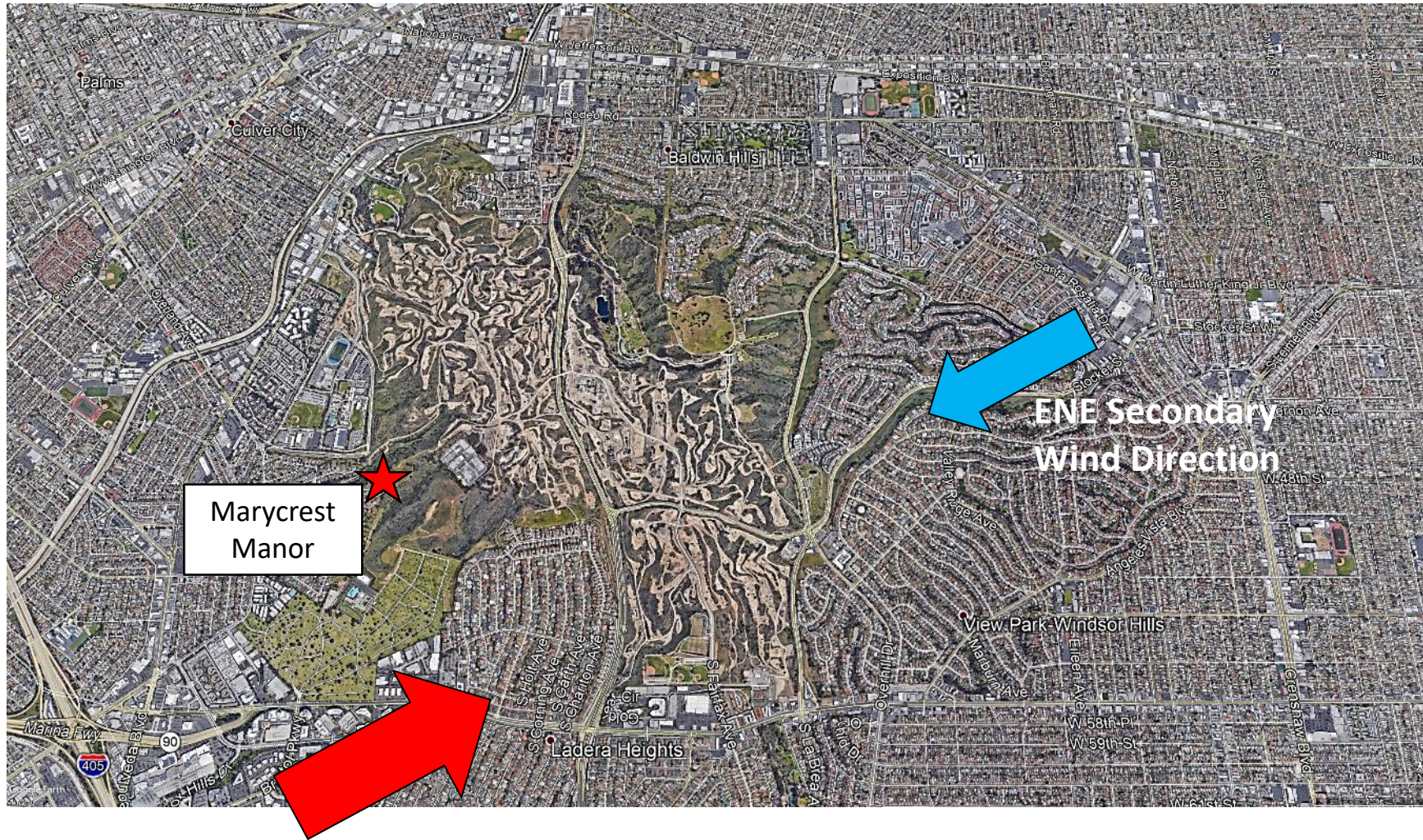
WSW Prevailing Wind Direction

## Hillcrest Drive Elementary School

- ~1 mile east-northeast of Inglewood Oil Field
- Located in community, with potential to collect data from numerous pollution sources
- Can assess community exposure
- Meets technical and logistical requirements



# Potential Site West of Oilfield: Option 1

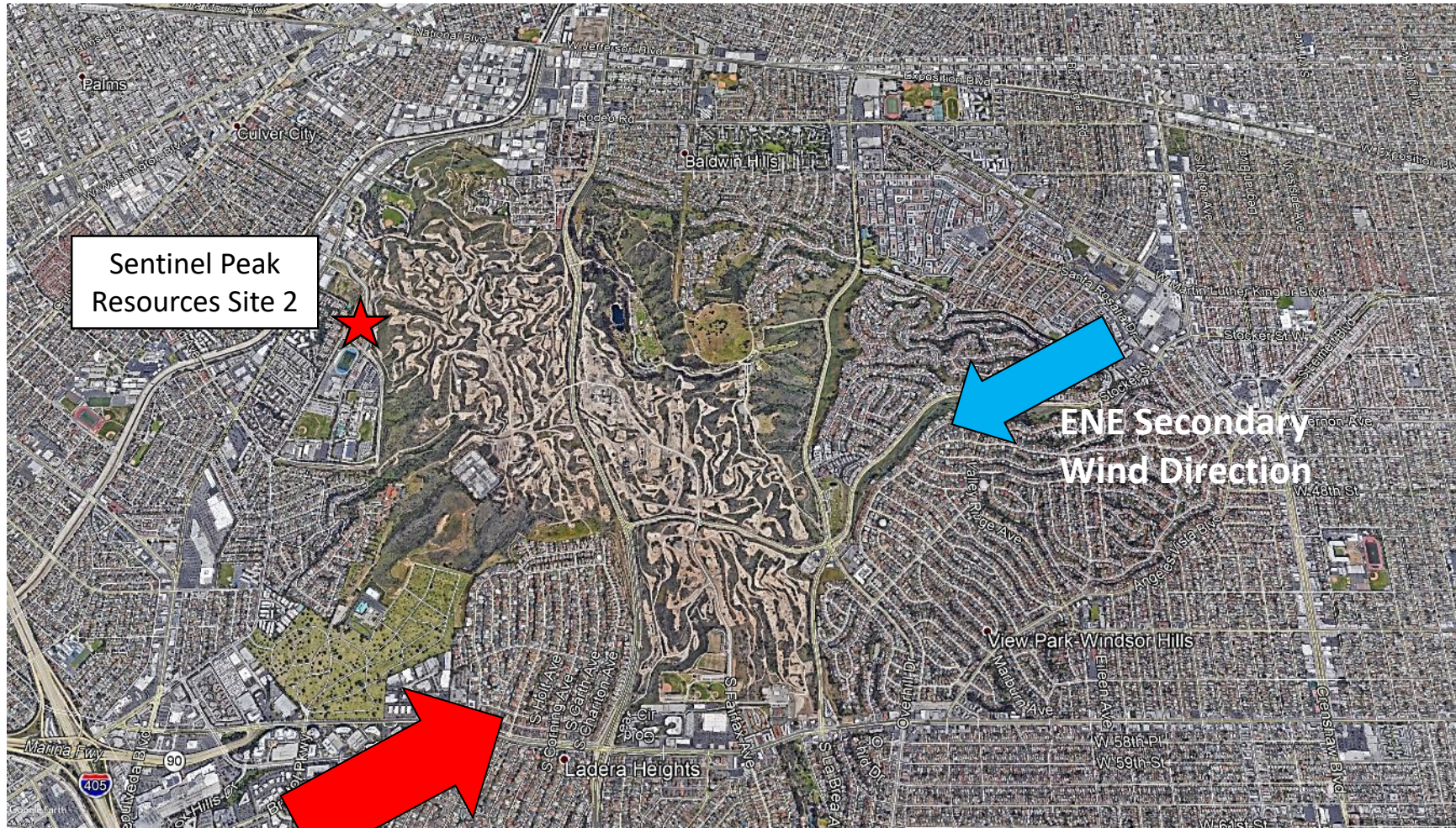


## Marycrest Manor

- Located between Culver City and the central and western portions of the Inglewood Oil Field
- West-southwest of gas processing plant and tank farms
- Will capture data near a residential area
- Meets technical and logistical requirements

**WSW Prevailing Wind Direction**

# Potential Site West of Oilfield: Option 2



## Sentinel Peak Resources Site 2

- Located on northwestern edge of the Inglewood Oil Field, adjacent to West LA College
- Will capture near-source as well as community-level data
- West-southwest of several storage tanks
- Meets technical and logistical requirements

**WSW Prevailing Wind Direction**

- Background and Scope
- Stationary Monitoring and Potential Monitoring Sites
- **Mobile Monitoring**
- Health Analysis



# SNAPS Mobile Monitoring Platform

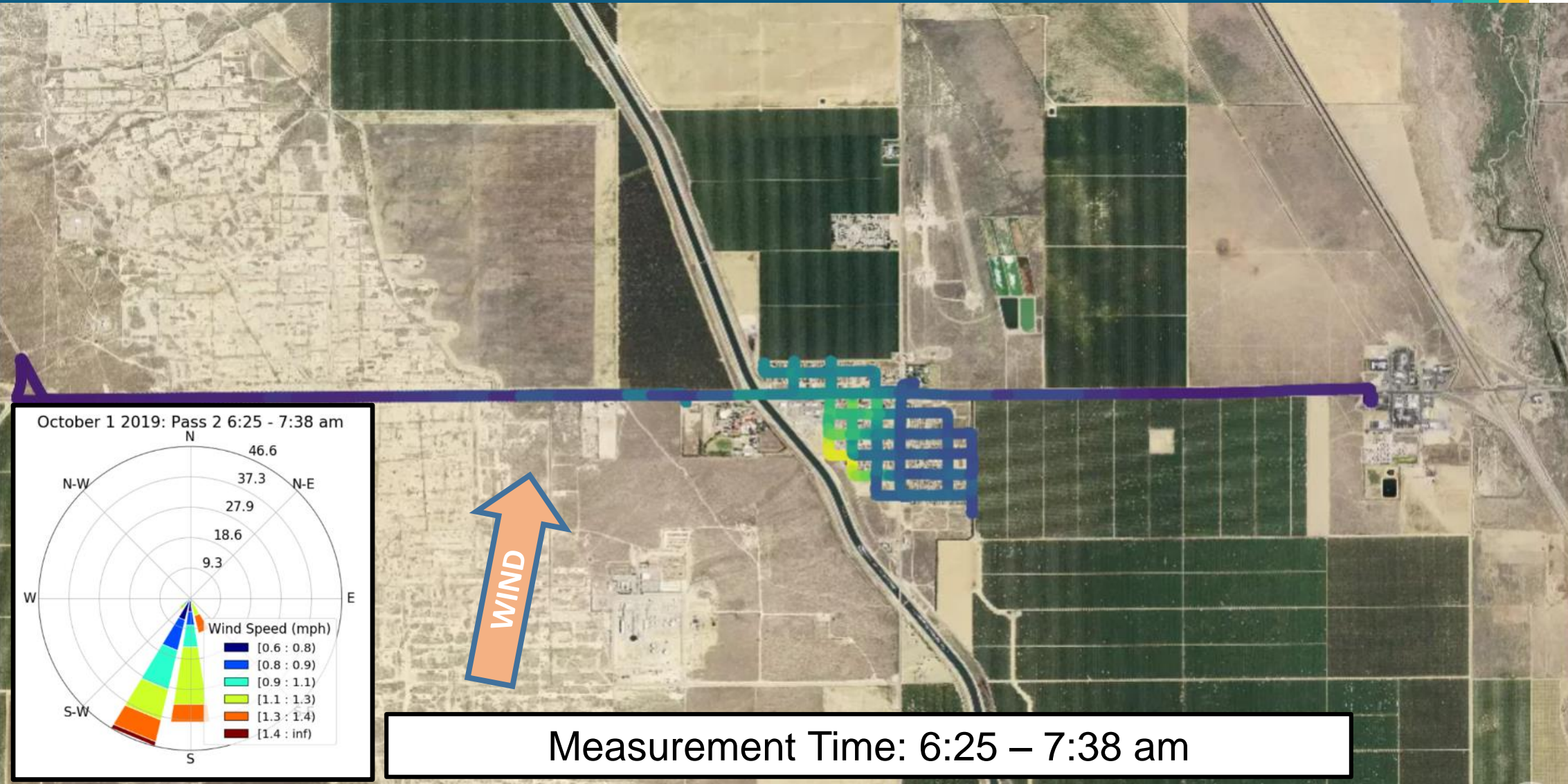


# Mobile Monitoring

- Instruments housed within a vehicle
  - Measures methane and hydrogen sulfide every second
  - BTEX (benzene, toluene, ethylbenzene, xylenes) measurements every 15 minutes
- Monitoring along public roadways in and around Baldwin Hills
- Measurements are ‘snapshots’ in time
  - Multiple passes on streets of Baldwin Hills and surrounding communities
  - Includes upwind and downwind measurement periods



# Example: Lost Hills Methane Mobile Monitoring (Oct 1<sup>st</sup>)



Methane concentrations varied around Lost Hills across space and time \*\*Data are preliminary. Final results will be published in the final report.\*\* 22

- Background and Scope
- Stationary Monitoring and Potential Monitoring Sites
- Mobile Monitoring
- **Health Analysis**

**Risk = Toxicity x Exposure**



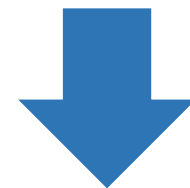
How dangerous  
is the chemical?



Health Guidance  
Values



Does chemical contact  
or enter our body?



Air monitoring data



# How do we determine the toxicity?



OEHHA develops benchmarks for toxicity called Health Guidance Values

- Noncancer Reference Exposure Levels
  - Amount of chemical in air that is not likely to cause noncancer health effects
  - For short- and long-term exposures
- Cancer Health Guidance Values
  - Describe how cancer risk increases as exposure increases
  - For long-term exposure



# What influences toxicity?



- Amount



- Length of exposure (time)



- Sensitivity



<https://www.meadindoor.com/for-physicians/>

# Toxicity depends on the duration of exposure

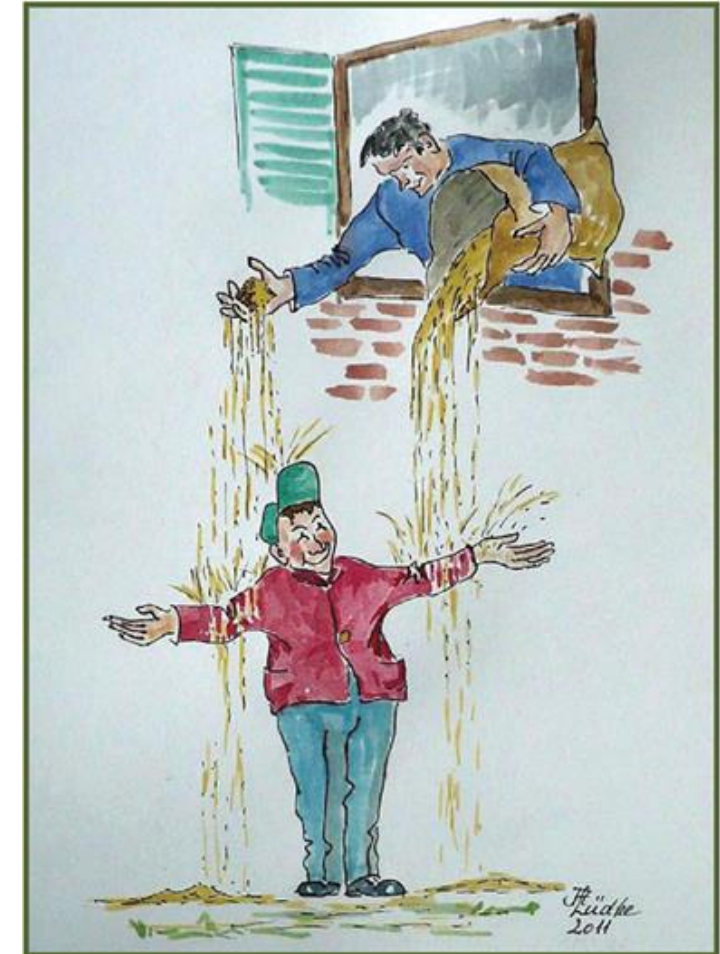
OEHHA develops Reference Exposure Levels for specific amounts of time

- Brief exposure (*acute*): occasional 1-hour exposures
- Moderate exposure: repeated 8-hour exposures over a significant fraction of a lifetime
- Constant exposure (*chronic*): continuous exposures from 1 year to a lifetime

Acute



Chronic



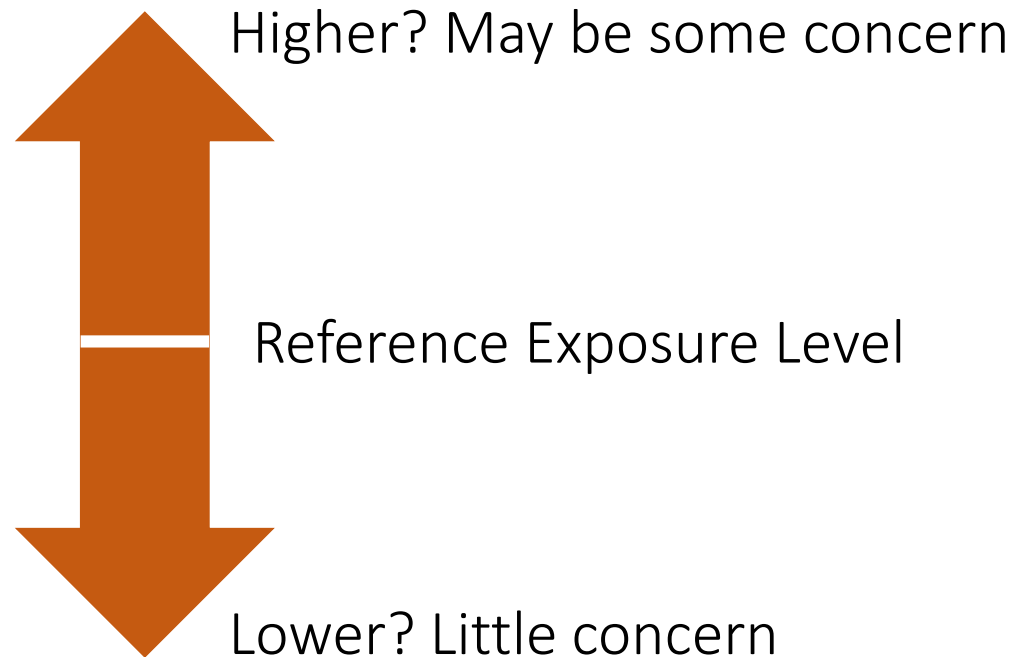
<https://accesspharmacy.mhmedical.com/content.aspx?bookid=2462&sectionid=194918140>

# How do we determine risk from a chemical in air?



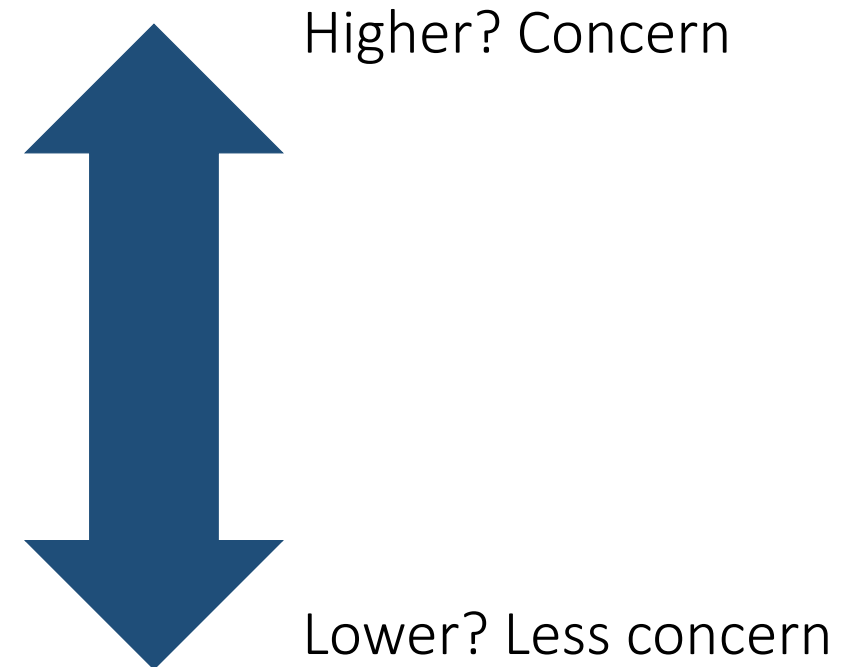
## Noncancer

How does the amount in air compare to the Reference Exposure Level?



## Cancer

How much does the amount in air increase cancer risk by?



# Moving Forward

- Continue monitoring in Lost Hills while site lease is active
- Finalize Baldwin Hills monitoring site selection
- Locate monitoring equipment in Baldwin Hills, currently anticipated for Summer 2020
- Hold kickoff meeting once monitoring begins near Inglewood Oil Field
- Monitor air quality for approximately six months-one year