

Study of Neighborhood Air near Petroleum Sources (SNAPS)

Scientific Review Panel
October 9, 2020



Overview

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



- Exposure concerns raised by communities
- Aliso Canyon underground natural gas storage leak
- California Council on Science and Technology (CCST) recommendations
- 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_{2.5})
Carbon Monoxide (CO), Ozone(O₃)

Volatile Organic Compounds (VOCs)

Methane (CH₄)

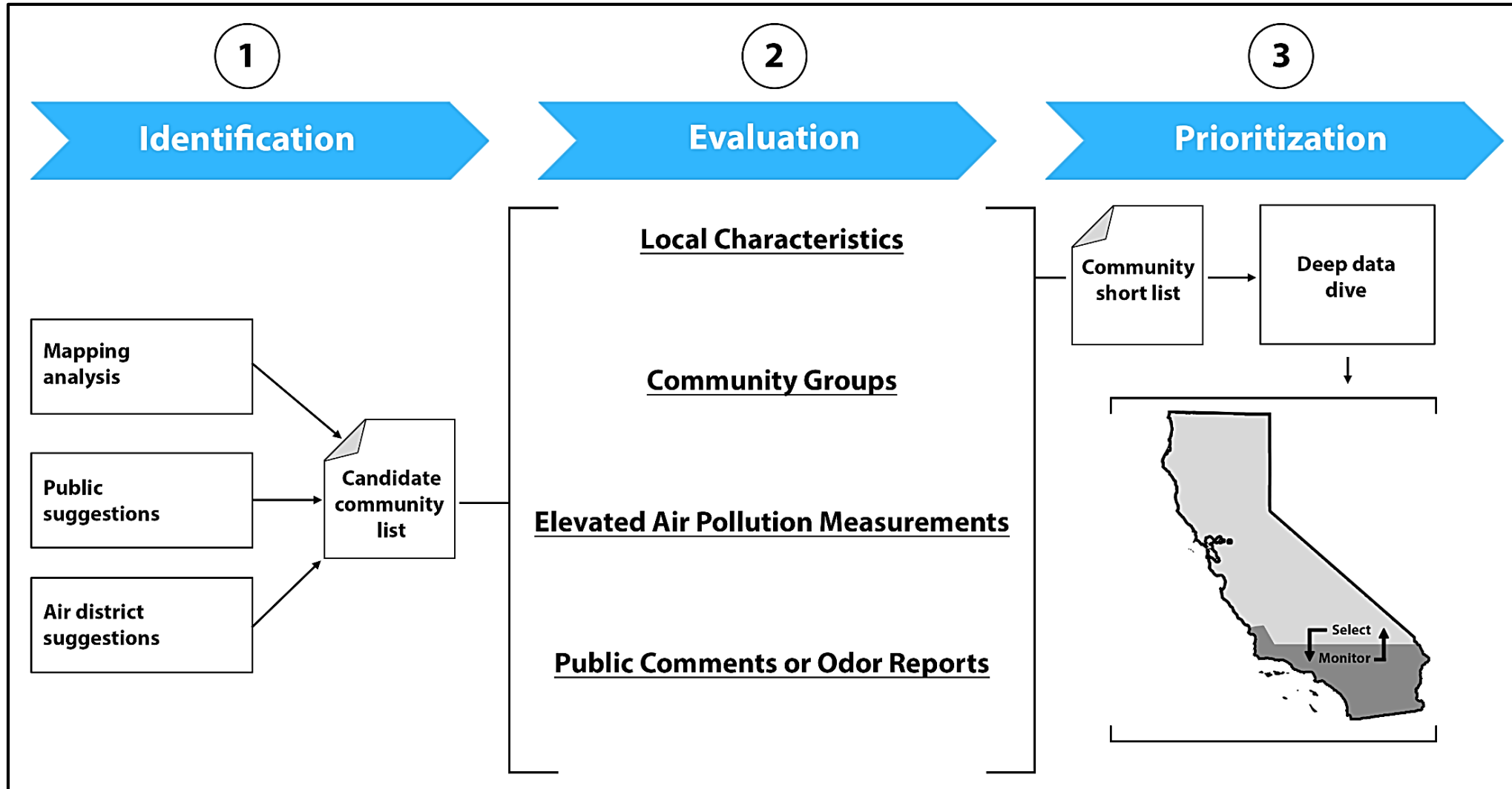
Hydrogen Sulfide (H₂S)

Metals

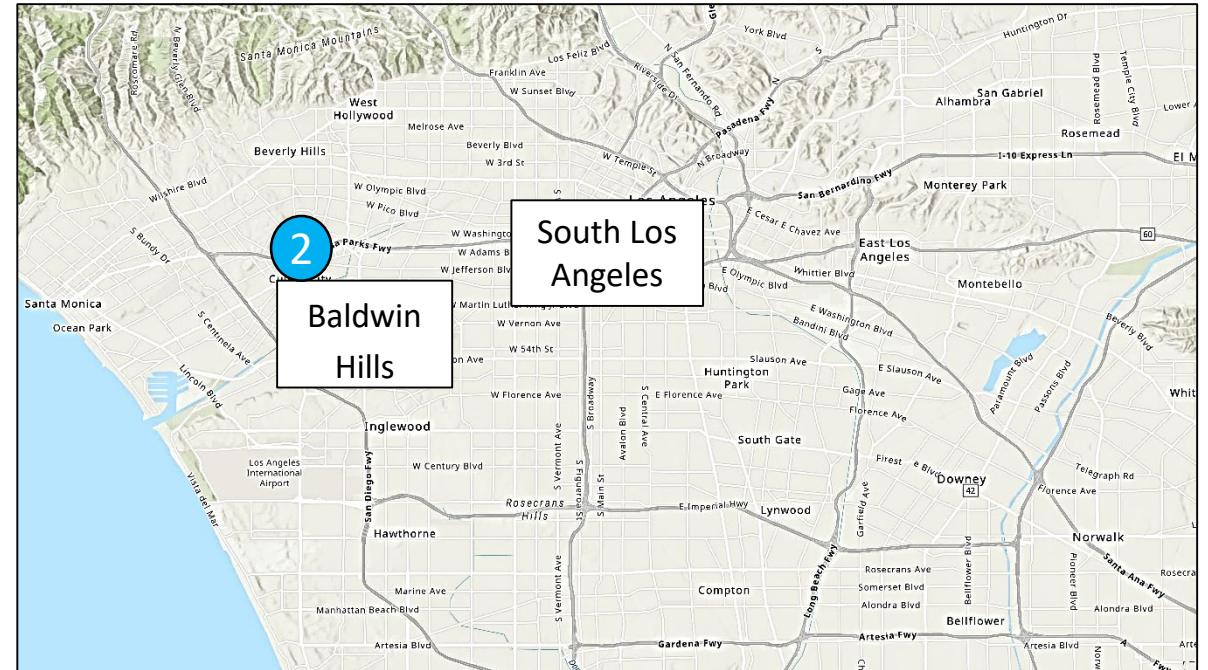
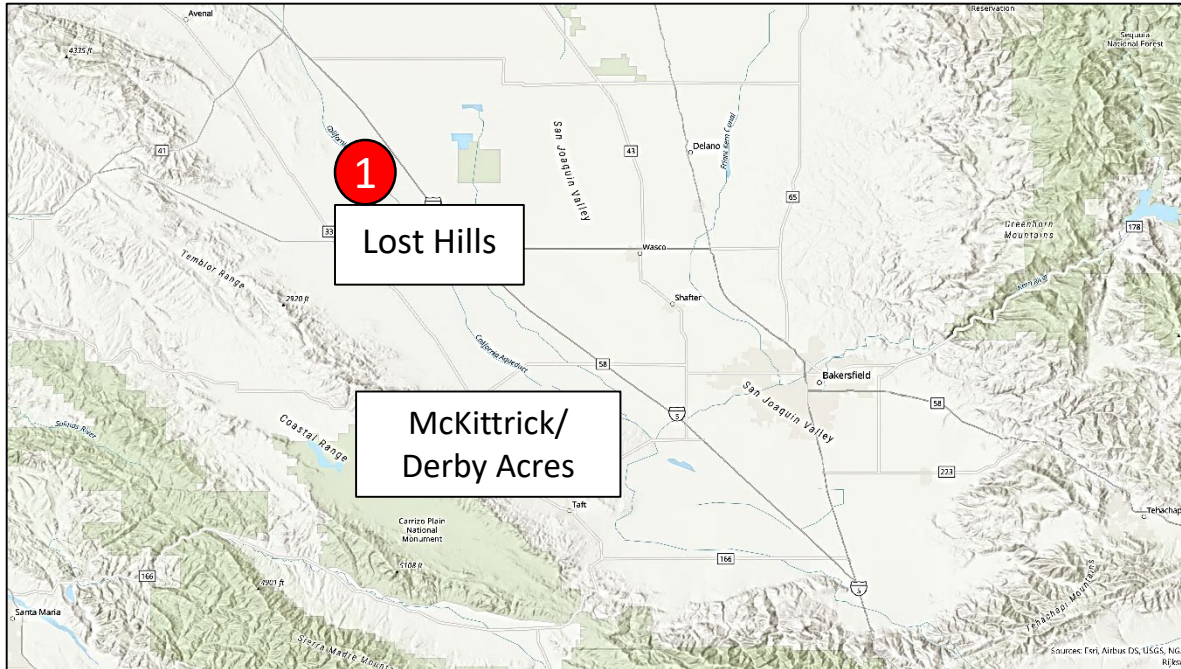
Glycols

- Compare short- and longer-term exposure levels to health-based guidance values
 - Acute, 8-hour, chronic Reference Exposure Levels (REs)
 - Cancer potencies
- Characterize potential health risks
- Follow up on measured chemicals without existing guidance levels

Community Selection Process



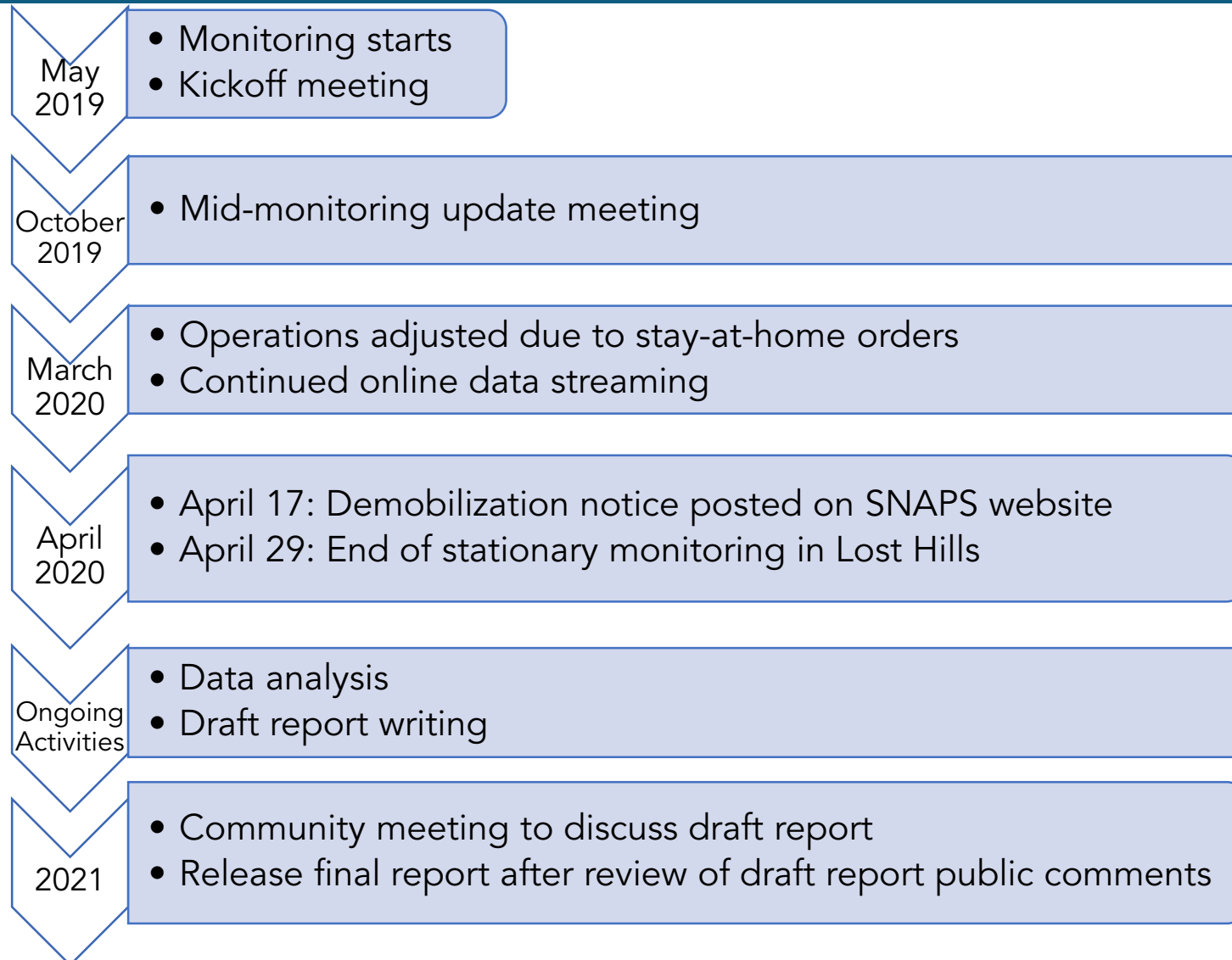
First Round Communities





Lost Hills

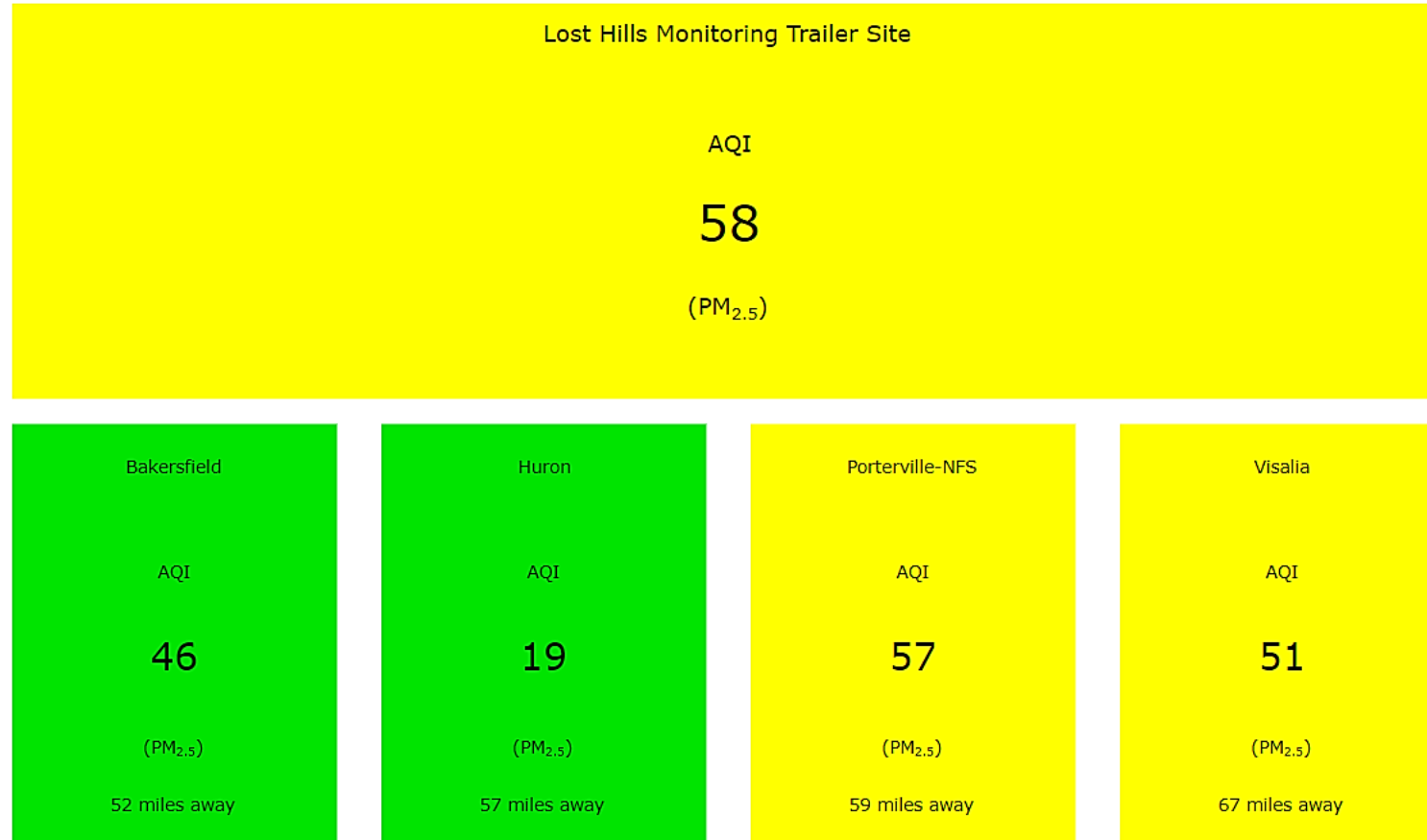
Lost Hills Timeline



On-site Measurements



Website Real-time Data Display



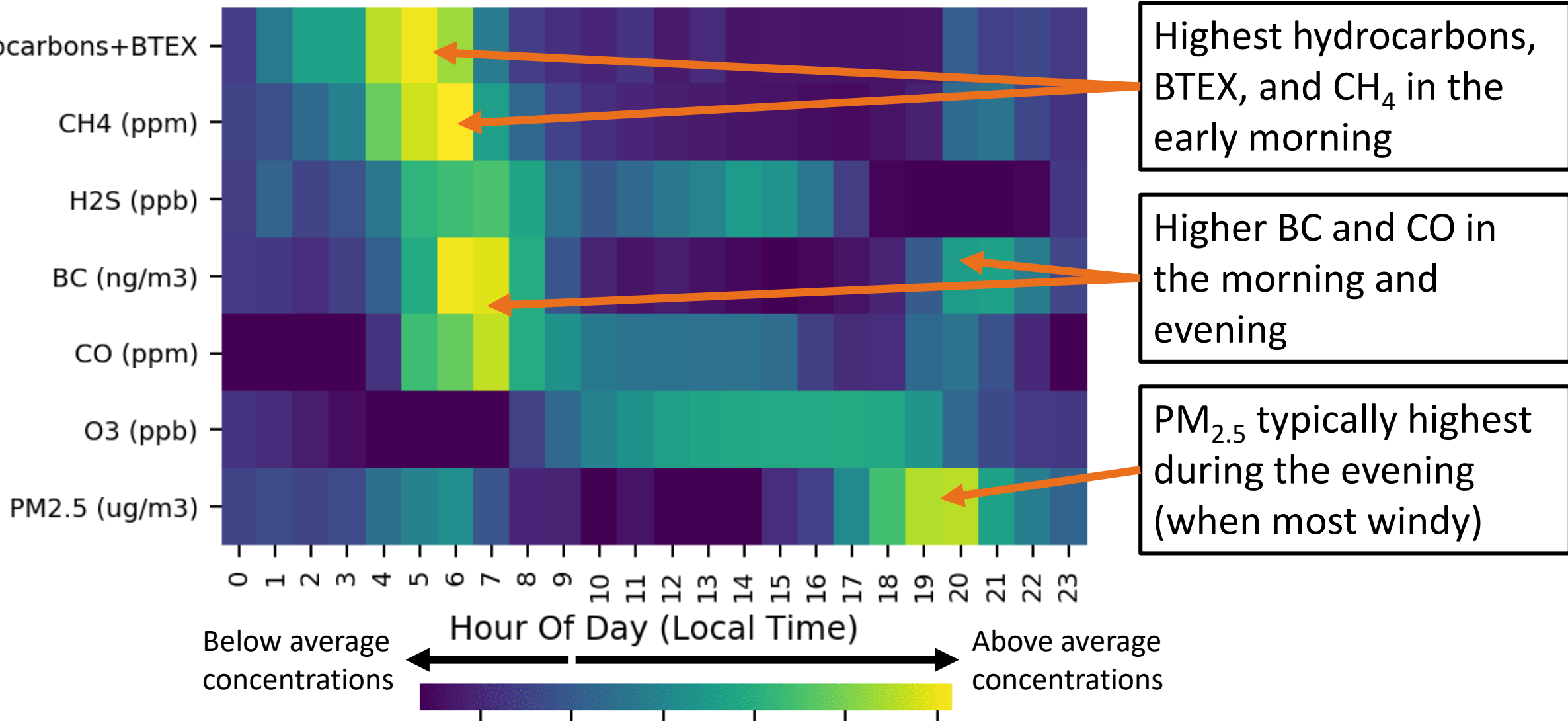
Concentrations Relative to Standards

	PM _{2.5} (ug/m ³)	O ₃ (ppb)	CO (ppm)	H ₂ S (ppb)
Standard or Acute REL	35.0	70.0	9.0	30.0
Maximum Concentration	23.5	57.6	0.16	8.13
Average Concentration	12.5	33.9	0.12	0.29

All measurements were below established acute standards

Data are preliminary. Final results will be published in the final report. 13

Hourly Pollutant Measurements



135 chemicals measured each week

10 chemicals detected

0 above acute health thresholds

Chemicals Detected

Benzene

Benzoic Acid

Carbon Tetrachloride (R-10)

Trichlorofluoromethane (R-11)

Dichlorodifluoromethane (R-12)

Trichlorotrifluoroethane (R-113)

Hexachloroethane (R-110)

Hydrogen Sulfide

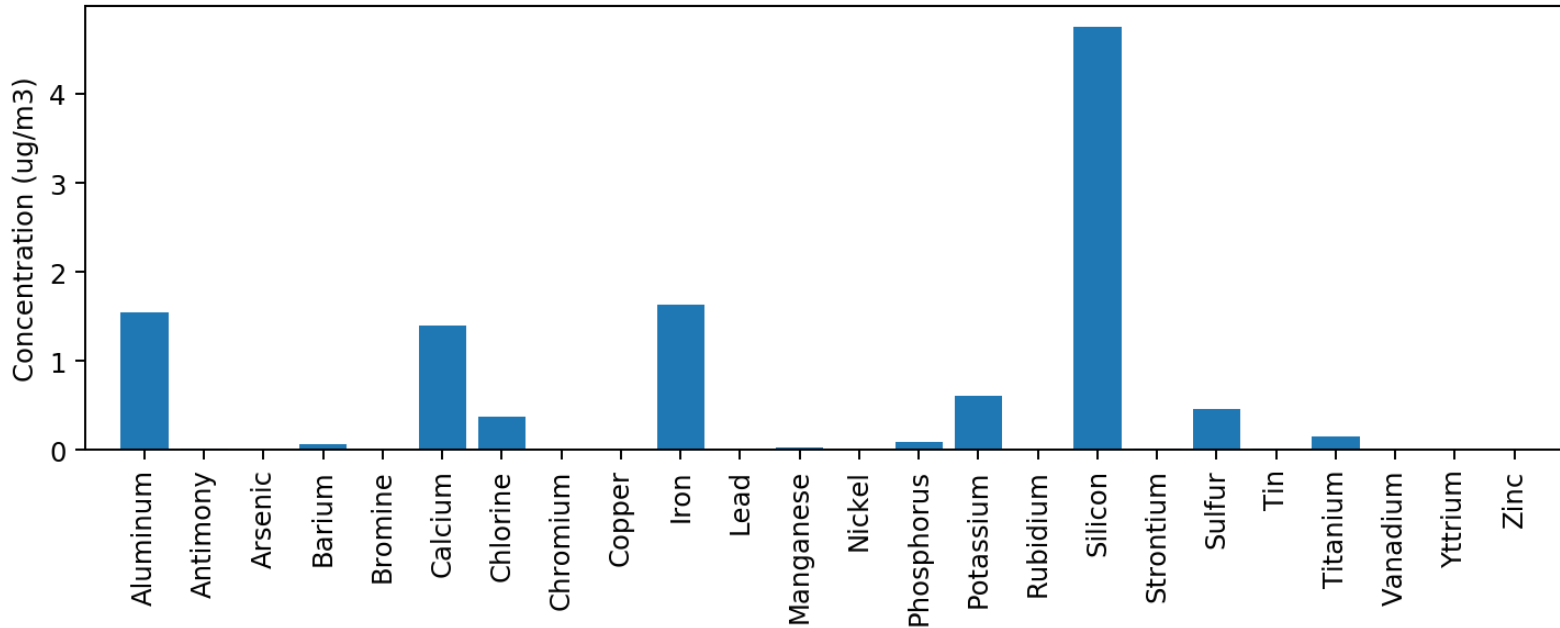
Naphthalene

Methylnaphthalene

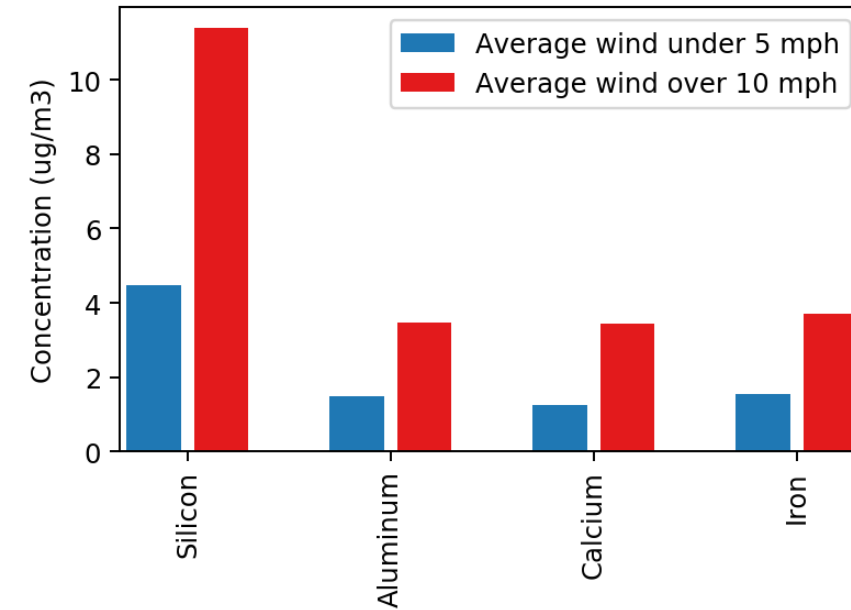
Data are preliminary. Final results will be published in the final report. 15

Metals Measured

Average Elemental Concentrations



Low / High Wind Differences



- 24 elements detected
- Concentrations higher on windy days
- Days with higher Si, Al, Ca, Fe suggest wind-blown soil/dust

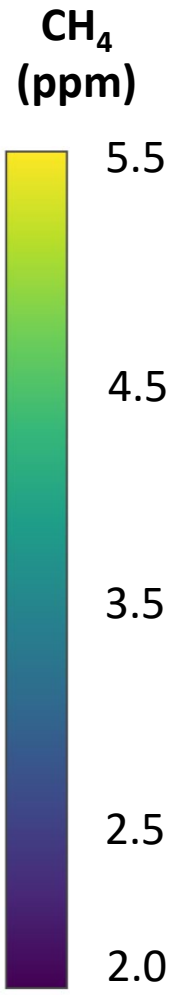
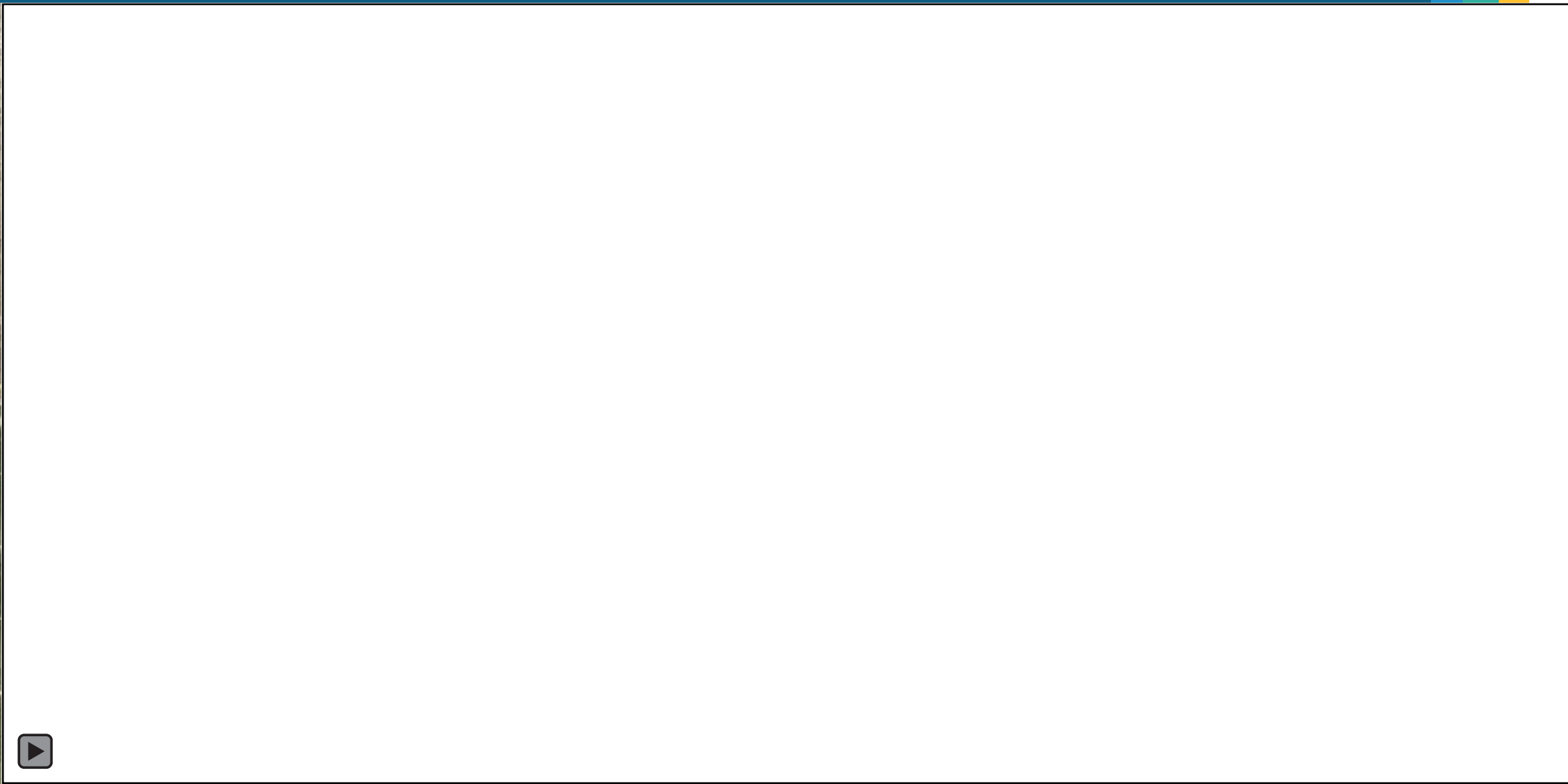
SNAPS Mobile Monitoring Platform



- Instruments housed within a vehicle
 - Measures CH₄ and H₂S every second
 - BTEX measurements every 15 minutes
- Monitoring along public roadways in and around Lost Hills
- Measurements are ‘snapshots’ in time
 - Multiple passes on streets of Lost Hills
 - Includes upwind measurement periods



Methane Mobile Monitoring (Oct 1st)



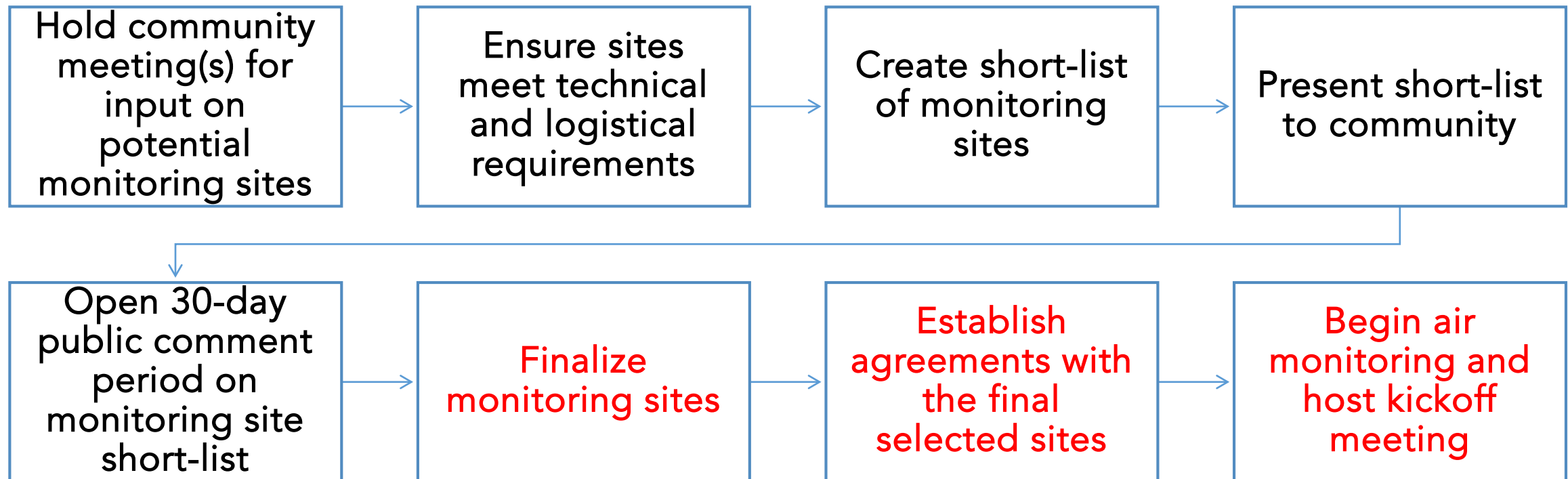
Methane concentrations vary around Lost Hills across space and time

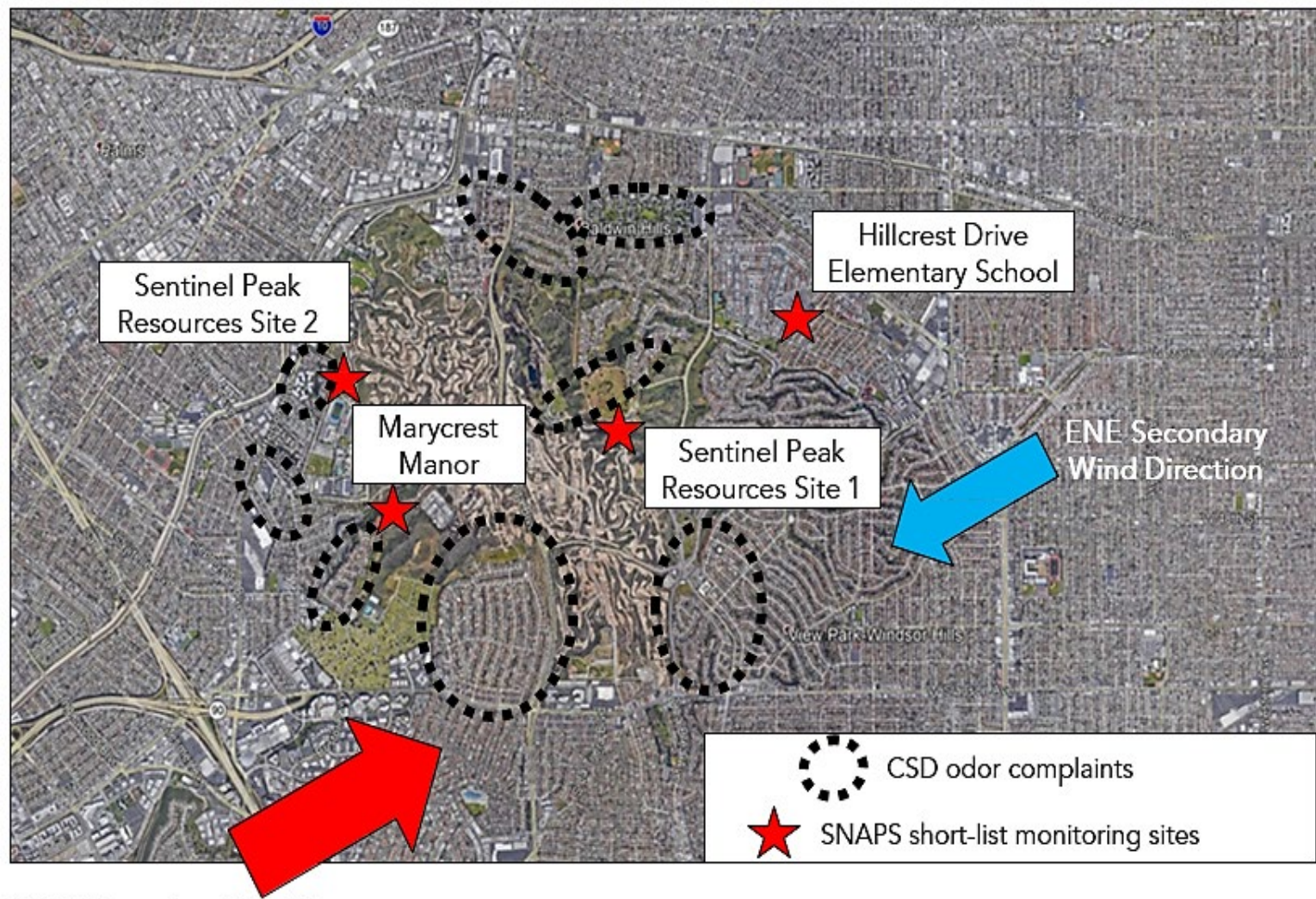
****Data are preliminary. Final results will be published in the final report.**** 19



Baldwin Hills

Baldwin Hills: Site Selection



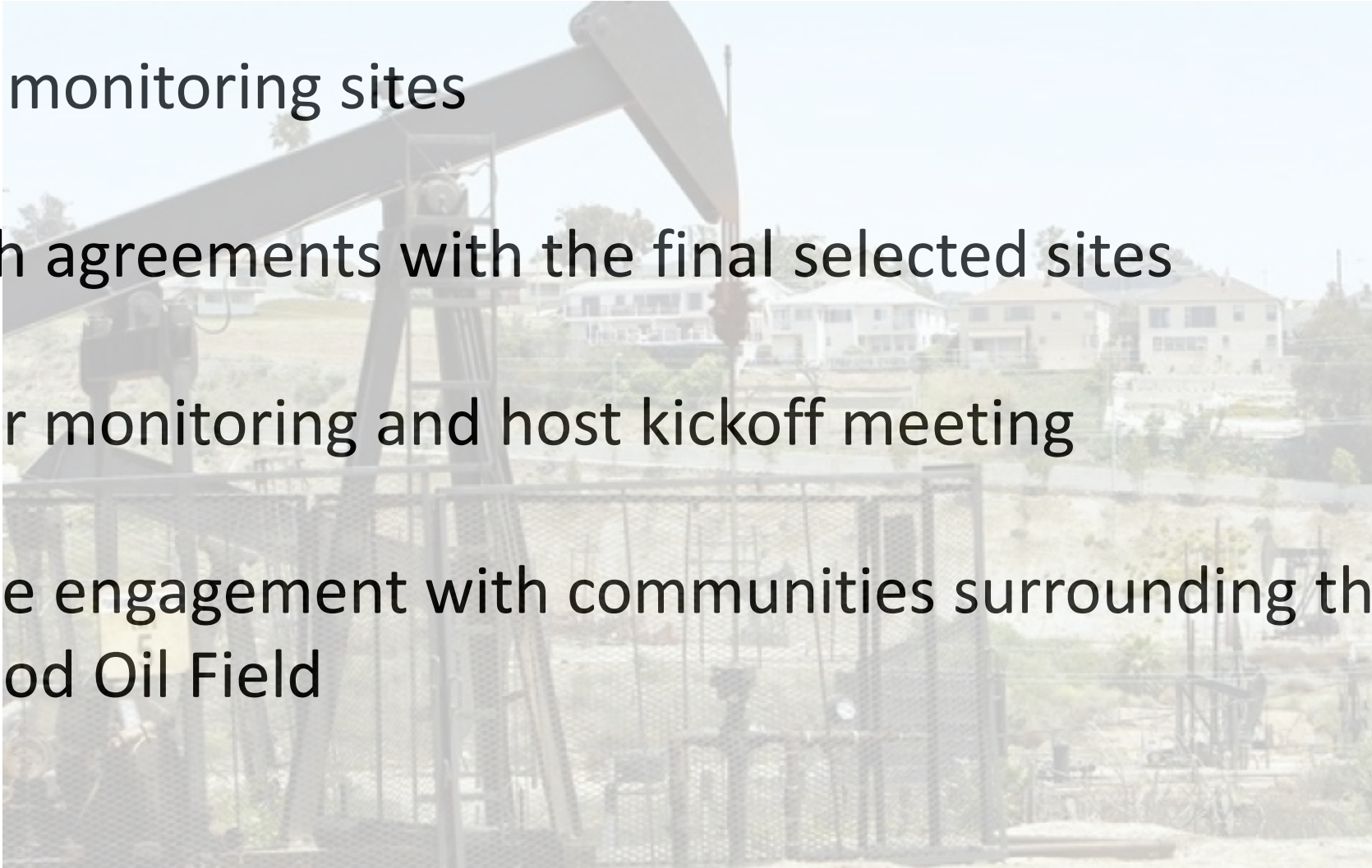


WSW Prevailing Wind Direction

Potential Monitoring Site Short-List

- Sentinel Peak Resources Sites 1 and 2 (on Inglewood Oil Field)
- Marycrest Manor
- Hillcrest Drive Elementary School

- Finalize monitoring sites
- Establish agreements with the final selected sites
- Begin air monitoring and host kickoff meeting
- Continue engagement with communities surrounding the Inglewood Oil Field



- Project webpage: <https://ww2.arb.ca.gov/our-work/programs/study-neighborhood-air-near-petroleum-sources>
- Visit project webpage to Subscribe and receive email updates
- Email us at SNAPS@arb.ca.gov
- Carolyn Lozo, Chief
Oil and Gas and Greenhouse Gas Mitigation Branch
California Air Resources Board
clozo@arb.ca.gov
(916) 445-1104

Questions?

Scientific Review Panel Meeting
October 9, 2020