

Benicia Refinery
Benicia, California



CAP HSE Presentation

Fenceline Open Path 4 update - 8/27/24

Background / History

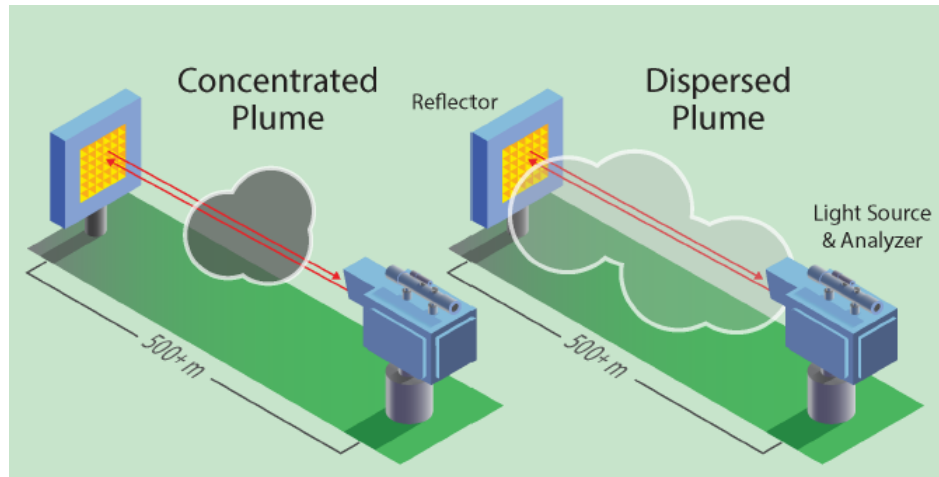
- BAAQMD requires open air fenceline monitoring for all Bay Area refineries. (Regulation 12, Rule 15) Regulation was issued 2016. Fenceline measurement to include BTEX (benzene, toluene, ethylbenzene, xylene) and H₂S (hydrogen sulfide)
- Rule 12-15 required fenceline monitoring for BTEX by 6/8/2019 and H₂S by 6/8/2020. Pathways 1-3 were accelerated and installed late 2018 due to City of Benicia's expectation to complete project
- Paths 1-3 installed 2018. Website in place. BTEX 100% compliance. H₂S passed SAT 2022. Online and optimized since late 2018-present (5+ years)
- Path 4 was not mandated by BAAQMD rule 12-15 due to wind conditions based on annual and seasonal mean wind direction (<<10% of time)
- Path 4 is the final expectation to comply with Good Neighbor Steering Committee (GNSC) agreement (2nd Amendment, Section V)

H₂S Open Path Technology

- Measuring H₂S uses a special instrument called a H₂S Tunable Diode Laser Absorption Spectroscopy (TDL) to accurately measure H₂S
 - Light absorption of H₂S is similar to that of common atmospheric compounds H₂O and CO₂
 - The TDL distinguishes H₂S from H₂O and CO₂
 - Small light absorption range for H₂S
 - The TDL uses infrared to measure a small range of wavelengths
- Maintenance to ensure accurate data
 - Monthly:
 - Inspection of system and optics. Optics cleaning if necessary
 - Bump tests
 - Quarterly:
 - 3-point calibrations
 - Review and test light and signal levels

Open Path Background

- Broadband UV, IR light source, Tunable Diode Laser (TDL)
 - Light-absorbing compounds within the path are detected and quantified using proprietary analysis routines
 - UV monitors multiple compounds simultaneously



- The minimum detection limit (MDL)
 - The lowest concentration a substance can accurately be measured
 - Path length and atmospheric conditions (fog, smoke, etc.) affect detection limits



Benicia Refinery Overview

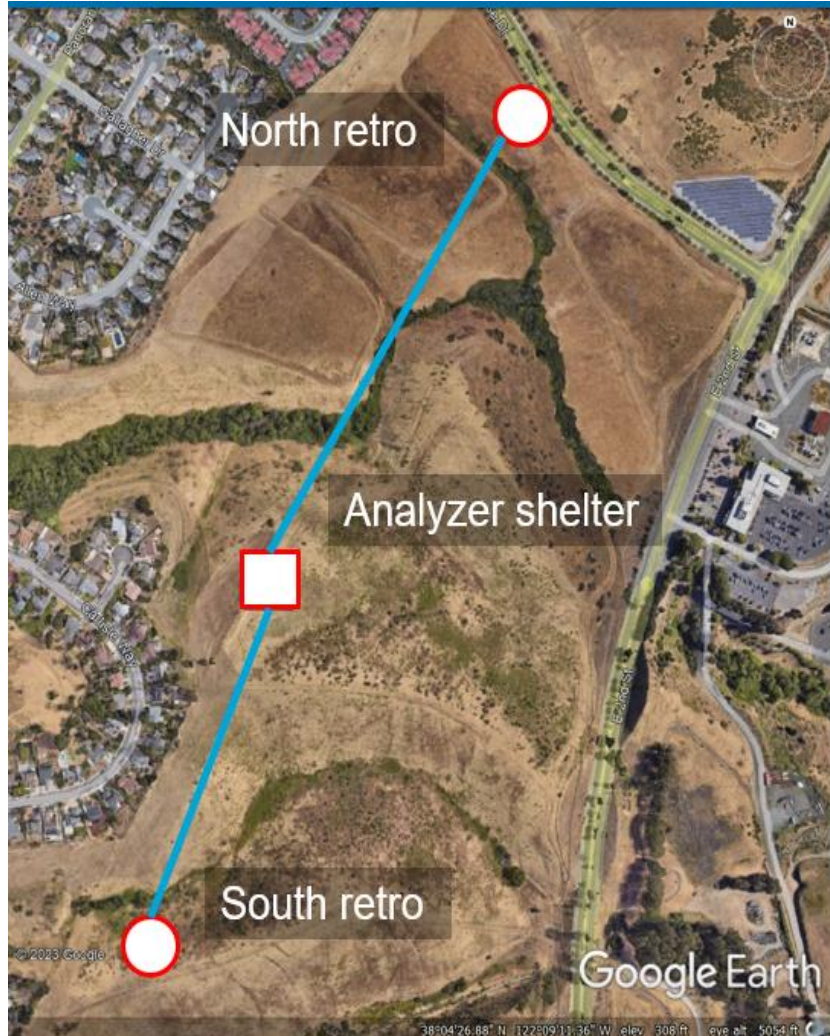
Capital Improvements underway– Pathway 4

- Valero submitted the building permit request documentation (B-24-57) for Path 4 to City of Benicia on 1/4/24
- Valero and City of Benicia had a pre-planning meeting in March 2024 to review the requests and questions from each of the City of Benicia departments: Planning Division, Engineering Division, Fire Department, Building Safety, Wastewater Treatment review, City Arborist, and Public Safety.
- Public Works Department updated Easement Agreement and Grading/Encroachment permit submitted in the system 8/26/24. Review of access agreement to be finalized and reviewed with City Legal department.
- After final review fees are paid to Building Department.



Benicia Refinery Overview

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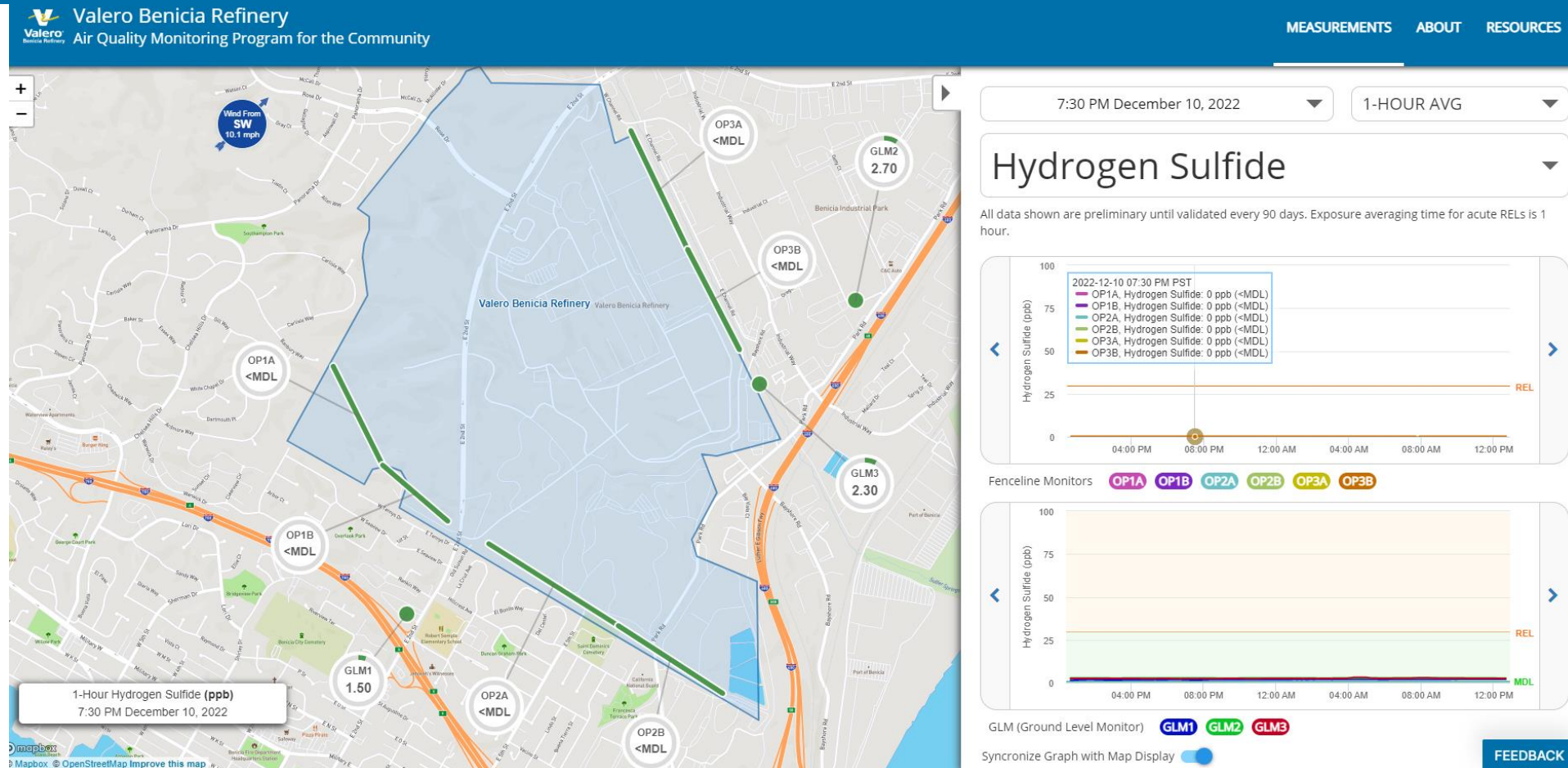
- Plan is to proceed with Path 4 civil work once City permit is received with the current H2S sensor technology

Path 4 Fenceline Scope

- Use Carlisle Way as Access Point (2800 ft) and pave road
- PG&E drop power option (Xfmr, Power pole with Meter, 700 ft of direct buried cable)
- Drill piers for shelter and retroreflectors
- Level site and install foundation for shelter
- Install and mount retroreflectors
- Set shelter, install instruments & communication
- Perform SAT (Site Acceptance Test) on Analyzers
- Collect background data, upload into website

Community Website

Will be updated with Path 4 after installation



<https://beniciarefineryairmonitors.org/>

Questions?

