



Chevron Richmond Refinery Fence Line and Community Air Monitoring Systems

May 13, 2015

Objective of this presentation

- History & background information of the Richmond Community Air Monitoring Program (RCAMP)
- What's on the website and how to navigate it
- Present trends in data
- Conclusions and observations



Topic No. 1

History of the Richmond Community Air Monitoring Program

History of RCAMP?

- Initial planning of RCAMP began in 2008 with a study of fence line and community air sampling equipment to understand air quality around the refinery.
- The program evolved to include development of fence line and community air monitoring system at the boundary of the refinery to include North Richmond, Atchison Village, and Point Richmond.
- In 2012 the system was procured and brought into full operation in 2013.

What is RCAMP comprised of?

Three components

- Open-path Fence Line Monitors
- Community Monitors - made of point samplers
- Information System - The data is integrated into a real-time, user-friendly, public website

Open-path Fence Line Monitors

- Open-path air monitors are set up at the boundary of an industrial facility with light beams running parallel to communities downwind of the pollution source. The beam path is typically 600-800 meters.
- Beams can be different types of light sources including broadband infrared, broadband ultraviolet, or lasers.
- Advantage of broadband systems is you can look for more than one gas with the same system.

Fence Line Analyzers Specifics

The fence line systems have the following analyzers

- Open-path UV
 - Benzene
 - Carbon Disulfide
 - Sulfur Dioxide
 - Toluene
 - Xylene
 - Ozone

- Tunable Diode Lasers
 - Hydrogen Sulfide

Open-path Fence Line Monitors



Community Monitoring Systems

- Community monitoring systems are point samplers that are located inside the communities that are adjacent to the refinery.
- The systems can contain both real-time and event driven samplers.
- Real-time systems detect black carbon, particulate matter, ammonia, hydrogen sulfide, and Volatile Organic Compounds (VOCs).
- Event driven samplers are setup for VOCs, particulate matter, metals and PAHs.

Real-time Community Analyzers Specifics

Gases detected in real-time by community systems

- Single Gas Point Analyzers – Ammonia and Hydrogen Sulfide
- Gas Chromatograph – VOCs
- Black Carbon Monitor
- PM 2.5 Monitor

Community Event Analyzers Specifics

Gases detected by Community Event systems

➤ VOCs – Summa Canister

➤ Metals – Filter Samples

➤ PAHs – Cartridges

Community Monitors





Topic No. 2

Software for Fence Line and Community Air Monitoring Systems

Software and Data Presentation

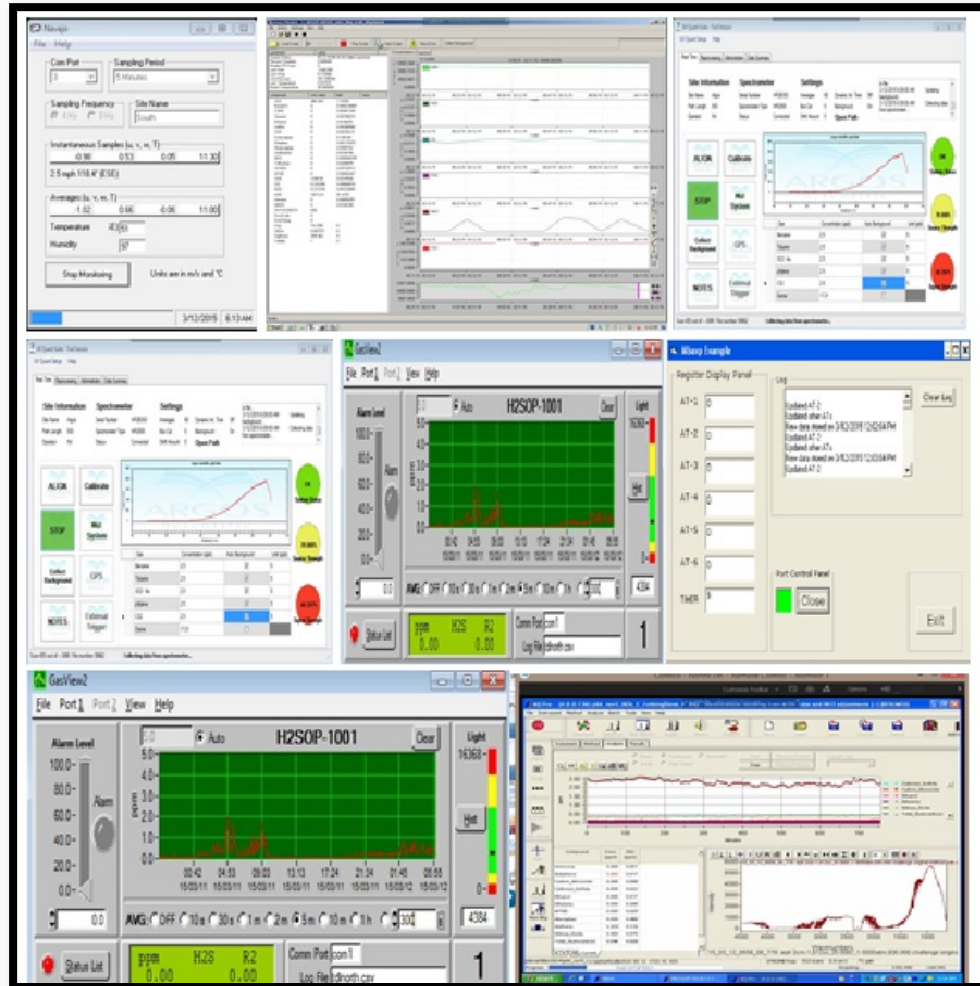
THE MOST IMPORTANT PART OF A FENCE LINE AND COMMUNITY AIR MONITORING PROGRAM

Why is this important ?



The next slide shows the output from the software operating fence line systems

Typical Data Output from a Fence Line System





The last slide has too much unnecessary information

On the right, the same information is presented on a real-time community website

The screenshot displays the Richmond Community Air Monitoring Program website. The header includes navigation links: Home, Learning Center, Resources & Contacts, Real-Time Data, and Report Archive. The system status is as of May 13, 2015, 10:20 am. A message indicates that monthly QA/QC and maintenance work for the fence line and community monitors have been completed. The latest monthly reports are available, and a message archive is provided.

The main content area is divided into two sections: Atchison Village Area and North Richmond Area. Each section shows real-time data for the Refinery Fence Line Location and Community Location. The data is presented in a table format with columns for Chemical, Concentration (PPB), and Weather Conditions.

Chemical	Concentration (PPB)	Weather Conditions	
Benzene	Nothing detected		
Carbon Disulfide	Nothing detected		
Hydrogen Sulfide	Nothing detected		
Ozone	25	Temperature (°F): 56	Wind Speed (MPH): 11
Sulfur Dioxide	Nothing detected	Humidity (%): 70	Wind Origin: SSW
Toluene	Nothing detected	Dew Point (°F): 45	Wind Direction (°): 204
Xylene	Nothing detected		

The North Richmond Area section is partially visible, showing the same table structure with the first row (Benzene) visible.



Topic No. 3

Trends in the data

Trends

➤ The fence line systems have detected many gases at levels that are lower than current health standards.

➤ These detections can sometimes be matched with odor complaints.

➤ The systems assist in identifying on-site and off-site sources of gas emissions.

Trends Continued

➤ The community stations have detected multiple gases at levels that are lower than current health standards.

➤ These detections can be attributed to local sources including mobile sources (trains/vehicles), local work shops, and other sources.

➤ None of the detections have been greater than California or Federal health standards.

Status of Air Quality in Richmond

- The fence line and community air monitoring systems trend the results seen by the Bay Area Air Quality Management District.
- The biggest issue with air quality is ozone and particulate matter. This is a regional issue that is not specific to the Richmond area.
- The air quality in Richmond is typical as compared to the rest of the Bay Area.



Conclusions and Observations

Conclusions and Observations

- The fence line and community air monitoring systems associated the RCAMP are state-of-the-art. There is no other system like it in the world.
- The system can detect and track sources of pollution at the fence line and communities.
- Based on meteorological data, many of detections are not associated with the Chevron Richmond Refinery.

Conclusions and Observations


- The air quality in Richmond is consistent with the rest of the Bay Area.
- The two pollutants of concern are ozone in the summer and particulate matter in the winter.
- The systems are ready to gather information for both odor issues and/or large scale events.



Further Information

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