

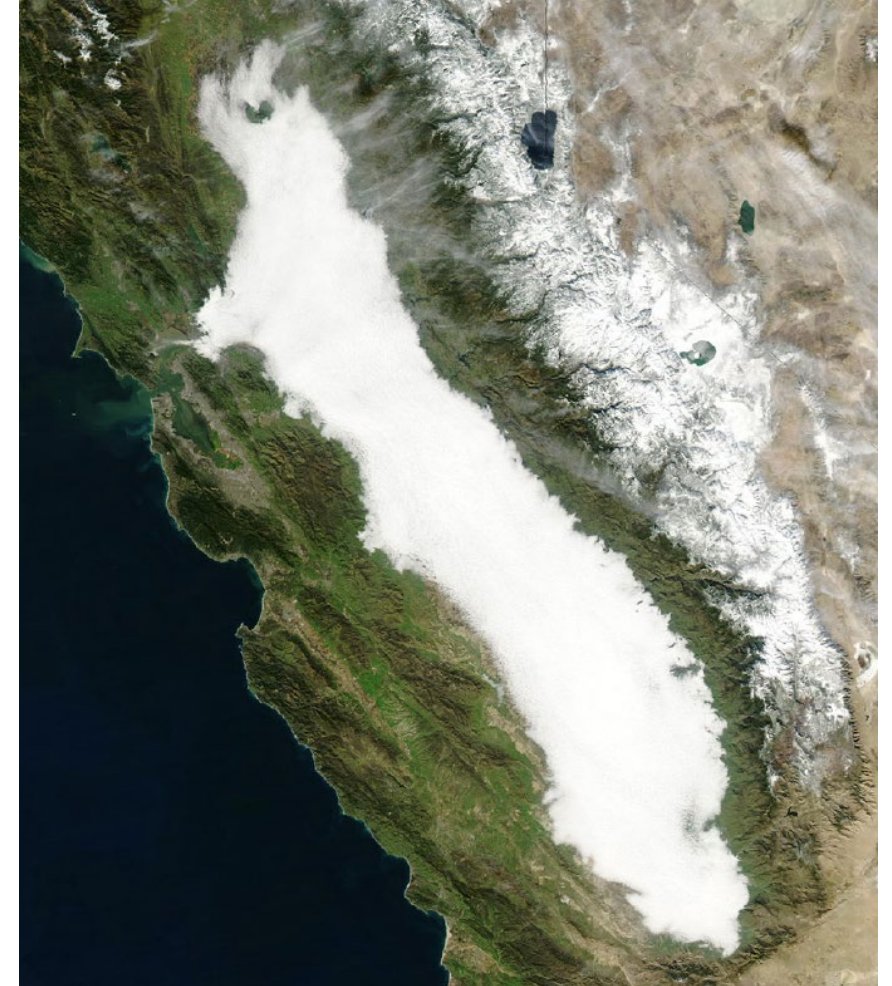
# Adopt Proposed Amendments to District Leak Detection and Repair Rules

San Joaquin Valley Air Pollution Control District  
Governing Board Meeting

June 15, 2023

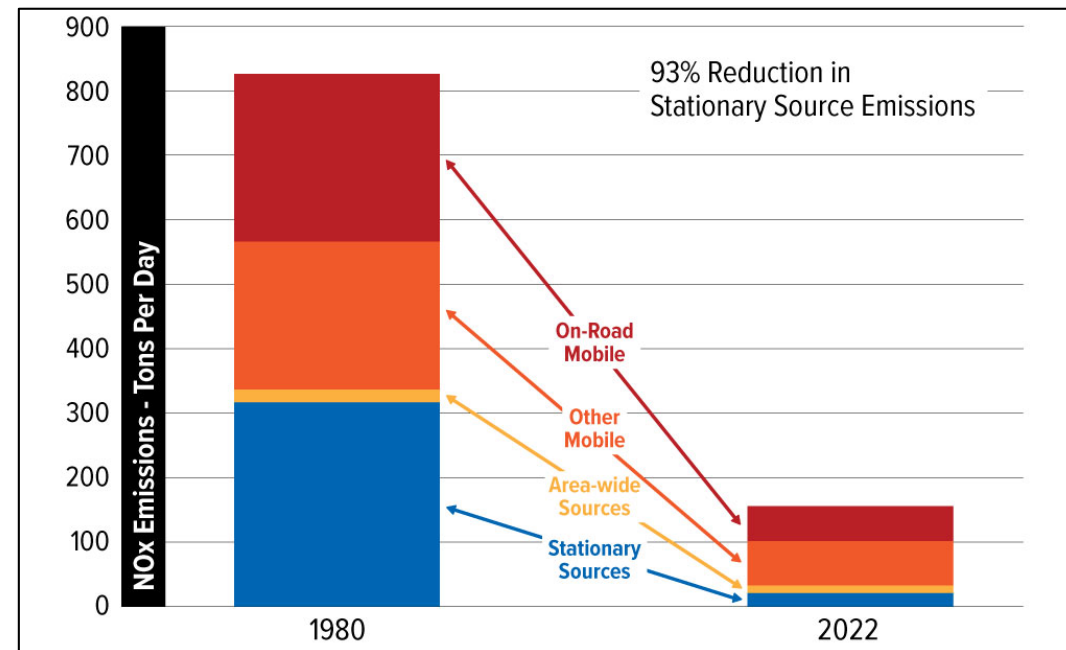
# Valley's Air Quality Challenges

- Valley's challenges in meeting federal air quality standards unmatched due to unique combination of topography and meteorology
- Valley faced with variety of challenges including role as major goods movement corridor, high population growth, pollution transport from other areas, wildfires, drought
- Conditions require substantially greater emissions reductions in Valley to meet clean air targets than other regions



# Valley Air Quality Improvement Efforts

- Governing Board has adopted numerous attainment plans and air quality control strategies to address federal standards
  - Stationary source ozone-forming NO<sub>x</sub> emissions reduced over 90% through regulatory actions
- California Air Resources Board (CARB) has adopted numerous mobile source control strategies
- District/CARB combined efforts represent nation's toughest emissions control program
- Strong incentive programs (\$5 billion in public/private investment)
- Through significant clean air investments, Valley continues to make major improvements with respect to air quality



# Leak Detection and Repair Requirements

- District has adopted generations of rules to reduce emissions from oil and gas production operations, petroleum refineries, natural gas processing plants, and organic liquid storage and transfer operations
  - Operations contain components (valves, fittings, threaded connections, pumps, compressors, pressure relief devices, pipes, polished rods, stuffing boxes, flanges, process drains, sealing mechanisms, hatches, sight glasses, meters, etc.)
  - Leaking components emit VOC emissions
- District/CARB/EPA have adopted regulations with leak detection and repair (LDAR) programs to reduce emissions from these sources
  - Programs include identification of components, leak thresholds, monitoring, repair timeframes, and recordkeeping
- District has developed proposed amendments to further reduce VOC emissions from these sources

# Reasons for Rule Development

- **2022 Ozone Plan Commitment:** Included as SIP-strengthening commitment in *2022 Ozone Plan* to further evaluate emissions reduction opportunities, and provide for improved ozone levels and public health
- **State BARCT Requirements:** Included as commitment to address state Best Available Retrofit Control Technology (BARCT) requirements in AB 617 implementation schedule adopted by your Board
- **Federal RACT Requirements:** Addresses issues identified by EPA in their limited disapproval action for CARB's Oil and Gas Regulation (COGR) with respect to Reasonably Available Control Technology (RACT) requirements
  - EPA action included some RACT issues for air district regulations throughout state
  - Proposed amendments address updated requirements included in EPA's 2016 Control Techniques Guidelines (CTG)

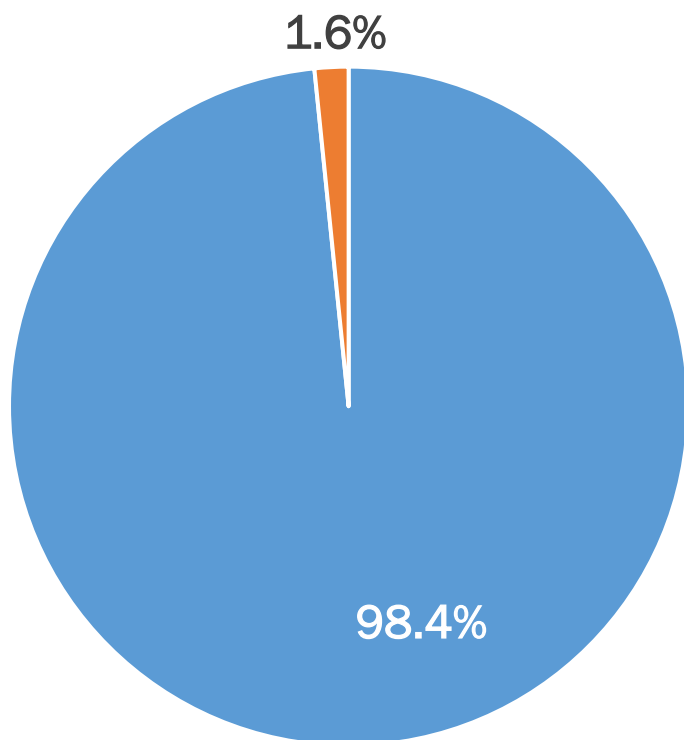
# District Leak Detection and Repair Rules

- District's LDAR program requires identification of components, leak thresholds, monitoring, repair timeframes, and recordkeeping, in addition to stringent vapor recovery and control requirements
  - **Rule 4401:** Limits VOC emissions from steam-enhanced crude oil production wells
  - **Rule 4409:** Limits VOC emissions from light crude oil production, natural gas production, and natural gas processing facilities
  - **Rule 4455:** Limits VOC emissions from components at petroleum refineries, gas liquids processing facilities, and chemical plants
  - **Rule 4623:** Limits VOC emissions from storage of organic liquid in tanks with a capacity of 1,100 gallons or greater
  - **Rule 4624:** Limits VOC emissions from transfer of organic liquids



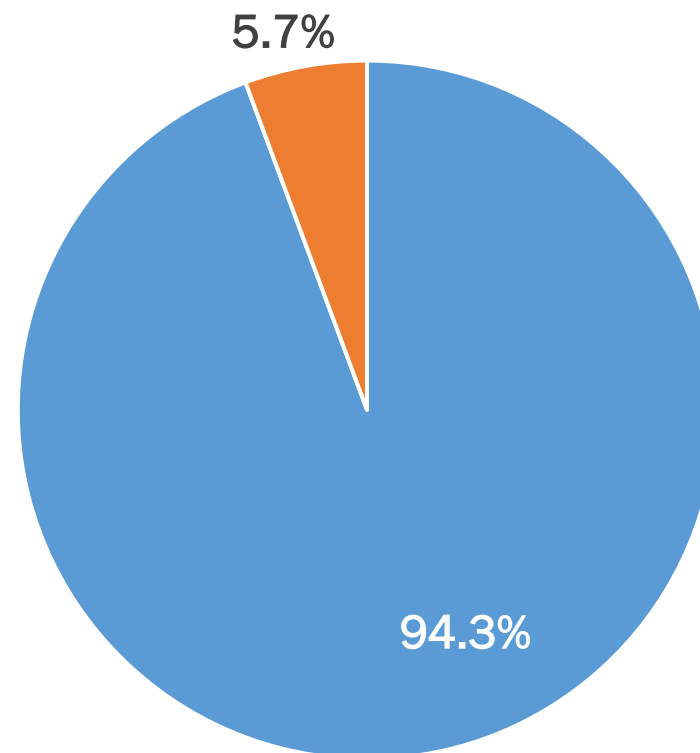
# VOC from Oil and Natural Gas Facilities

All VOC Sources in the Valley  
(Mobile, Stationary, & Area Sources)



- Other VOC Sources
- VOC from LDAR Components

VOC Emissions from Stationary Sources



- Other Stationary Sources
- VOC from LDAR Components

# District Enforcement

- Enforcement program conducts range of inspection and compliance assistance activities to ensure compliance with District, state, and federal rules and regulations (including state oil methane rule on behalf of CARB)
- Utilize latest technologies and equipment to conduct inspections (e.g. FLIR cameras, toxic vapor analyzers)
- Work with communities on understanding and responding to concerns
- Partner with other agencies to support enforcement efforts and provide technical expertise/in-field training
- Continue to enhance/enforce leak/repair/inspection and other requirements in coordination with state and federal agencies





# Proposed Amendments

- Based on in-depth review of local, state, and federal regulations, proposing the following leak thresholds and inspection frequencies:

| Rules     | Current Minor Leak Limit (ppmv) | Proposed Minor Leak Limit (ppmv) | Current Major Leak Limit (ppmv) | Proposed Major Leak Limit (ppmv) | Current Inspection Frequency | Proposed Inspection Frequency |
|-----------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|------------------------------|-------------------------------|
| Rule 4401 | >2,000                          | >500                             | >10,000                         | >10,000                          | Annually                     | Quarterly                     |
| Rule 4409 | >1,000                          | >500                             | >10,000                         | >10,000                          | Quarterly/<br>Annually       | Quarterly                     |
| Rule 4455 | >1,000*                         | >500*                            | >10,000                         | >10,000                          | Quarterly/<br>Annually       | Quarterly                     |
| Rule 4623 | >10,000                         | >500                             | >10,000                         | >10,000                          | Annually                     | Quarterly                     |
| Rule 4624 | ≥1,000                          | >500                             | ≥1,000                          | ≥1,000                           | Quarterly/<br>Annually       | Quarterly                     |

*\*Applies to pumps, compressors, and other components*

# Proposed Repair Periods

| Category                     | Current Repair<br>(days) | Proposed Repair<br>(days) | Current Extended<br>Repair (days) | Proposed Extended<br>Repair (days) |
|------------------------------|--------------------------|---------------------------|-----------------------------------|------------------------------------|
| <b>Rule 4401</b>             |                          |                           |                                   |                                    |
| Gas Leak > 50,000 ppmv       | 2                        | 1                         | -                                 | -                                  |
| Major Liquid Leak            | 2                        | 1                         | -                                 | -                                  |
| <b>Rule 4409</b>             |                          |                           |                                   |                                    |
| Minor Gas Leak               | 7                        | 7                         | 7                                 | 0                                  |
| Major Gas Leak > 50,000 ppmv | 2                        | 1                         | 2                                 | 2                                  |
| Minor Liquid Leak            | 3                        | 1                         | 0                                 | 0                                  |
| Major Liquid Leak            | 2                        | 1                         | 0                                 | 0                                  |
| <b>Rule 4455</b>             |                          |                           |                                   |                                    |
| Major Gas Leak > 50,000 ppmv | 2                        | 1                         | 0                                 | 0                                  |
| Minor Liquid Leak            | 3                        | 1                         | 0                                 | 0                                  |
| Major Liquid Leak            | 2                        | 1                         | 0                                 | 0                                  |
| <b>Rule 4623</b>             |                          |                           |                                   |                                    |
| Minor Leak                   | -                        | 14                        | -                                 | -                                  |
| Major and Liquid Leak        | -                        | 2                         | -                                 | -                                  |
| <b>Rule 4624</b>             |                          |                           |                                   |                                    |
| All Leaks                    | 3                        | 3                         | -                                 | -                                  |

# Other Proposed Amendments

- In addition to more stringent leak limits, monitoring, and repair period requirements, proposed amendments include:
  - Require vapor control systems for crude oil storage tanks with potential to emit 6 tons of VOC or greater/year or actual emissions greater than 4 tons/year (Rule 4623)
  - Amend True Vapor Pressure (TVP) for tank applicability from 0.5 to 0.1 psia (Rule 4623)
  - Eliminated exemption for one-half inch nominal or less stainless steel tube fittings (Rules 4401, 4409, and 4455)
- Other amendments to language to clarify/provide consistency for definitions, remove expired language, establish compliance timelines
  - LDAR Compliance: July 1, 2024
  - Vapor Control Systems: March 31, 2024 to submit an Authority to Construct (ATC), compliance required 12 months of ATC issuance
- Proposed amendments meet or exceed requirements for RACT, BARCT, and fulfill commitments within the *2022 Ozone Plan*

# Emission Reductions and Cost-Effectiveness

- Proposed amendments estimated to achieve 1.09 tpd VOC reductions (23%)
- Total cost-effectiveness of proposed amendments of \$59,170 per ton of VOC
  - Costs provided by facilities, vendors, CARB Oil and Gas Industry Survey Results, and various sources for replacement parts
  - Cost factors from EPA's Office of Air Quality Planning and Standards

| Rules         | Percent of Emissions Reduced | VOC Reduced (tons/day) |
|---------------|------------------------------|------------------------|
| 4401 and 4409 | 19.9%                        | 0.20                   |
| 4455          | 12.8%                        | 0.02                   |
| 4623          | 28.7%                        | 0.69                   |
| 4624          | 15.6%                        | 0.18                   |
| <b>Total</b>  | <b>23%</b>                   | <b>1.09</b>            |

*Rules 4401 and 4409 share the same Emission Inventory Codes (EICs)*

# Socioeconomic Impact Analysis

- Socioeconomic Impact Analysis conducted by third-party consultant, Eastern Research Group, as included in Appendix D of the Final Draft Staff Report
- Impact projected to be less than significant using Board and CARB-approved methodology



# Health Benefits of Emissions Reductions

- Exposure to ozone has been linked to a variety of health issues, including, chest pain, coughing, throat irritation, congestion, reduced lung function, and inflammation of the lining of the lungs
  - People with asthma, children, older adults, people active outdoors, and outdoor workers at higher risk from exposure to high levels of ozone
- District has worked with CARB and EPA to lower ozone precursor emissions throughout Valley
  - NOx and VOC emissions key precursors to ozone formation
  - Fugitive VOC emissions may also contain hazardous air pollutants, such as benzene and other carcinogens known to cause adverse health impacts
- Further reducing VOC emissions through proposed amendments contributes to additional public health benefits in San Joaquin Valley



# Public Process

- Proposed amendments were developed through an involved public process with multiple opportunities for public comment
- Public meetings held over three years on proposed amendments:
  - AB 617 expedited BARCT schedule adopted December 2018 through public process, followed by multiple public workshops
  - Public Scoping Meeting held December 2020
  - Public Workshops held in October 2021, March 2022, and April 2023
- Draft rules and Staff Report sections published for review April 2023
- Proposed rules posted for public review and comment on May 16, 2023
- District worked closely with CARB and EPA in developing amendments
- Updates at Governing Board meetings, Citizen Advisory Committee meetings, and Environmental Justice Advisory Group meetings

# Significant Comments and Responses

## Comments

- Requirements are too stringent
- Requirements should be more stringent
- Has there been coordination between the District and CARB in developing proposed local and state regulations?

## Responses

- Proposed limits are necessary to address BARCT, RACT, and Plan commitment and have been determined to be feasible, cost-effective, and most stringent
- District worked closely with CARB staff in developing proposed amendments to maximize consistencies as feasible

# Ongoing Coordination with Local, State, and Federal Agencies

- District will continue to evaluate opportunities for this source category, in coordination with CARB, EPA, and other air districts
  - Evaluate ongoing regulatory actions on state/federal level
  - Efforts from EPA to strengthen their New Source Performance Standards and Emissions Guidelines for the oil and gas industry
  - Efforts from CARB to further amend state methane regulation for oil and gas operations
  - Continue to engage in ongoing regulatory efforts at other local air districts to support continued evaluation

# Recommendations

1. Adopt proposed amendments to LDAR Rules 4401, 4409, 4455, 4623, and 4624
2. Authorize the Chair to sign the attached Resolution