

**Potential Amendments to District
Requirements for Leak Detection and Repair (LDAR)
at Oil and Gas Production Facilities
(Rules 4401, 4409, 4455, 4623, 4624)**

April 17, 2023

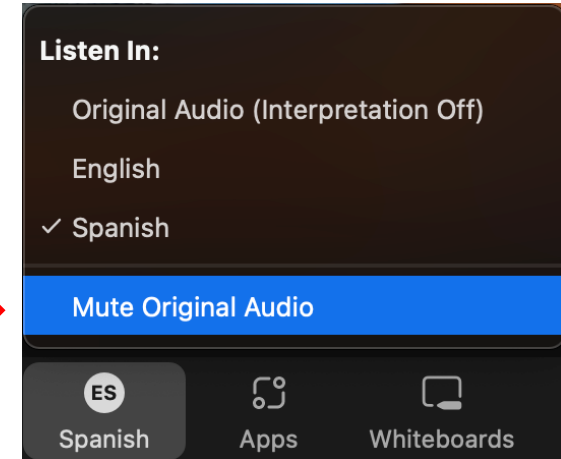
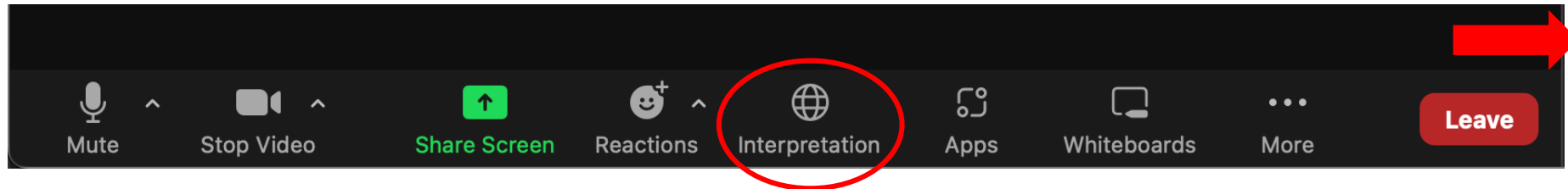
webcast@valleyair.org

How to Listen to the Webinar in Spanish

Cómo Escuchar la Interpretación Español

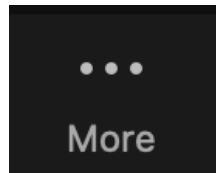
En Una Computadora

1. En los controles de la reunión o el seminario web, seleccione el **icono de interpretación**, que parece a un mundo en la parte debajo de la pantalla.
2. Seleccione español y silencie el audio original.



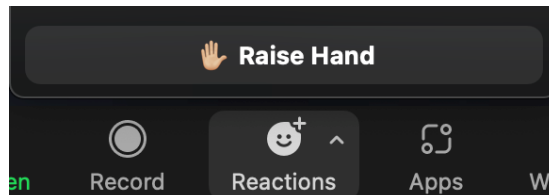
En Un Teléfono o Tableta

1. Seleccione los tres puntos para ver más opciones, seleccione interpretación y siga las mismas instrucciones de arriba.



Para Hacer una Pregunta o un Comentario

1. Seleccione el icono de reacciones para levantar su mano



Decades of Stringent Air Quality Regulations

- District has long evaluated and implemented stringent control measures across all sources under its jurisdiction to attain federal standards
 - Adopted over 650 rules and rule amendments in order to control emissions from stationary sources and other local sources
 - District's New Source Review permitting regulation requires the use of the Best Available Control Technology (BACT)
- District stationary sources subject to Best Available Retrofit Control Technology (BARCT) since 1980s
- Robust and ongoing analysis necessary to demonstrate that District's rules continue to meet state and federal requirements, including BARCT
 - Increasingly stringent air quality standards
 - Control technologies continually evolving

BARCT Assessment for Rules 4401, 4409, 4455, 4623, and 4624 Under AB617

- AB 617 requires expedited BARCT review and implementation schedule for facilities in CARB's Cap-and-Trade Program
- BARCT is an air emission limit for existing sources and is maximum degree of reduction achievable, taking into account environmental, energy and economic impacts
- Based on results of comprehensive analysis, District proposing more stringent Leak Detection and Repair (LDAR) requirements for sources subject to Rules 4401, 4409, 4455, 4623, and 4624
- Current control technology requirements found to meet or exceed BARCT levels of control
 - No further requirements proposed

EPA 2016 Control Techniques Guidelines

- In April 2022, EPA published a Technical Support Document (TSD) citing District Rules 4401 and 4623 as deficient in meeting reasonably available control technology (RACT) for the 2016 Control Technique Guidelines for Oil and Natural Gas (CTG)
- EPA's 2016 CTG applies to storage tanks with potential for VOC emissions of 6 tons per year or more used in the Oil and Natural Gas Sector
- Other deficiencies pertain to leak threshold levels and inspection frequency
- Proposed Rule amendments address EPA's TSD

Rule 4401 Overview

- District Rule 4401 first adopted April 19, 1991
 - Has been subsequently amended 5 times
- Purpose of rule is to limit VOC emissions from steam-enhanced crude oil production wells
- District Rule 4401 requirements
 - VOC emissions from wells, or tanks if wells have closed vents, reduced by 99%
 - Leak detection and repair program required for minimizing leaks with specific repair thresholds and timelines
 - Vapor control required with VOC destruction or removal efficiency of at least 99%
 - Operator Management Plan describes components subject to the rule and schedule of inspections
 - Record keeping requirements



Image credit: Anton-Paar, 2020

Rule 4409 Overview

- District Rule 4409 adopted April 20, 2005
- Purpose of rule is to limit VOC emissions from light crude oil production facilities, natural gas production facilities, and natural gas processing facilities
- District Rule 4409 requirements
 - Leak detection and repair program for minimizing leaks with specific repair thresholds and timelines
 - Operator Management Plan describes components subject to the rule and schedule of inspections
 - Record keeping requirements



Image credit: BIC Magazine, Oct 2020

Rule 4455 Overview

- District Rule 4455 adopted April 20, 2005
- Purpose of rule is to limit VOC emissions from leaking components at petroleum refineries, gas liquids processing facilities, and chemical plants
- District Rule 4455 requirements
 - Leak detection and repair program for minimizing leaks with specific repair thresholds and timelines
 - Operator Management Plan describes components subject to the rule and schedule of inspections
 - Record keeping requirements



Image credit: Corken 2020

Rule 4623 Overview

- District Rule 4623 first adopted April 11, 1991
 - Has been subsequently amended 4 times
- Purpose of rule is to limit VOC emissions from the storage of organic liquid in tanks with a capacity of 1,100 gallons or greater
- District Rule 4623 requirements
 - Control of organic liquid storage tanks by utilizing a pressure vacuum vent, installation of a vapor control system with 95% control efficiency, or use of a floating roof tank
 - Components must be maintained in a leak-free condition



Image credit: alloiltank 2020

Rule 4624 Overview

- District Rule 4624 first adopted April 11, 1991
 - Has been subsequently amended 4 times
- Purpose of rule is to limit VOC emissions from transfer of organic liquids
- District Rule 4624 requires
 - Use of a vapor control system to capture and reduce emissions by at least 95%
 - Leak detection and repair program required for minimizing leaks with specific repair thresholds and timelines



Image credit: Schneider 2020

Current Vapor Control Requirements in District Rules

District Rules	Current Vapor Control Requirements
Rule 4623 – Organic Liquid Storage	Pressure Vacuum Relief Valve, Internal Floating Roofs (IFR), External Floating Roofs (EFR), or Vapor Recovery System (VRS) with control efficiency of 95%
Rule 4624 – Transfer of Organic Liquids	Bottom loading, closed VOC emission control system, Vapor Collection and Control System (VCCS), or containers and VRS that meet Rule 4623
Rule 4401 – Steam Enhanced Wells	VOC collection and control system with 99% VOC destruction or removal
Rule 4409 – Light Oil/Gas Plants Rule 4455 – Petroleum Refineries, Gas Processing Facilities, and Chemical Plants	These are LDAR rules only

Control technology requirements found to meet or exceed BARCT levels of control and no further requirements being proposed

Proposed Amendments to Rule 4401

- Reduce minor gas leak threshold from 2,000 ppmv to 500 ppmv
 - Maintain leak threshold for Pressure Relief Devices at 400 ppmv
- Increase frequency of inspections from annual to quarterly
- Allow use of Optical Gas Imaging (OGI) as screening tool
 - OGI inspections will not replace quarterly EPA Reference Method 21 inspections
- Removal of exemption section 4.6.4 (≤ 0.5 inch stainless steel tube fittings)
 - Components will be subject to District leak and inspection requirements
- Removal of exemption section 4.7 (components exclusively handling gas/vapor or liquid with a VOC content of 10% by weight or less)
 - Components will be subject to District leak and inspection requirements

Proposed Amendments to Rule 4401 (cont'd)

- Reduce repair period times from 14 days to 5 days for minor leaks
 - Consistent with proposed State Regulation
 - Repair period times for major leaks reduced
- Allow extended repair period (up to 30 days) where rig-up operation is required to complete repair
 - Must meet specific requirements
- Update/clarify/add definitions for consistency across other District LDAR Rules

Proposed Amendments to Rule 4409

- Reduce minor gas leak threshold for Gas/Vapor and liquid service components from 1,000 ppmv to 500 ppmv
 - Maintain leak threshold for Pressure Relief Devices at 200 ppmv
- Increase frequency of inspections from annual to quarterly
- Allow extended repair period (up to 30 days) where rig-up operation is required to complete repair
 - Must meet specific requirements
- Allow use of Optical Gas Imaging (OGI) as a screening tool
 - OGI inspections will not replace quarterly EPA Reference Method 21 inspections
- Removal of exemption section 4.2.10 (≤ 0.5 inch stainless steel tube fittings)
 - Components will be subject to District leak and inspection requirements

Proposed Amendments to Rule 4409 (cont'd)

- Modify exemption 4.2.6 and 4.2.7 (components exclusively handling gas/vapor with a VOC content of <10% by weight or less)
 - Components handling gas/vapor with VOC content of <10% by weight will be subject to District leak and inspection requirements
- Reduce repair period times from 14 days to 5 days for minor leaks
 - Consistent with proposed State Regulation
 - Repair period times for major leaks reduced
- Update/clarify/add definitions for consistency across other District LDAR Rules

Proposed Amendments to Rule 4455

- Reduce minor leak thresholds for pumps, compressors, other component types from 1,000 ppmv to 500 ppmv for components in gas/vapor service
 - Maintain lower leak thresholds for other components (100 ppmv to 500 ppmv)
- Require only quarterly inspection frequency
- Removal of exemption section 4.2.8 (≤ 0.5 inch stainless steel tube fittings)
 - Components will be subject to District leak and inspection requirements
- Allow use of Optical Gas Imaging (OGI) as a screening tool
 - OGI inspections will not replace quarterly EPA Reference Method 21 inspections
- Update/clarify/add definitions for consistency across other District LDAR Rules

Proposed Amendments to Rule 4623

- Establish a new minor leak threshold at 500 ppmv
- Establish allowable number of leaks (between 500 ppmv - 10,000 ppmv)
 - 2% allowable leaks
- Establish quarterly LDAR inspection requirements
- Update Voluntary Tank Preventive Inspection & Maintenance Tank Interior Cleaning Program to be applicable only to Floating Roof Tanks
 - Fixed Roof Tanks will be required to comply with tank cleaning provisions
- Allow use of Optical Gas Imaging (OGI) as a screening tool
 - OGI inspections will not replace quarterly EPA Reference Method 21 inspections
- Lowered Tank True Vapor Pressure (TVP) from 0.5 psia to 0.1 psia, subjecting these tanks to the requirements of Rule 4623

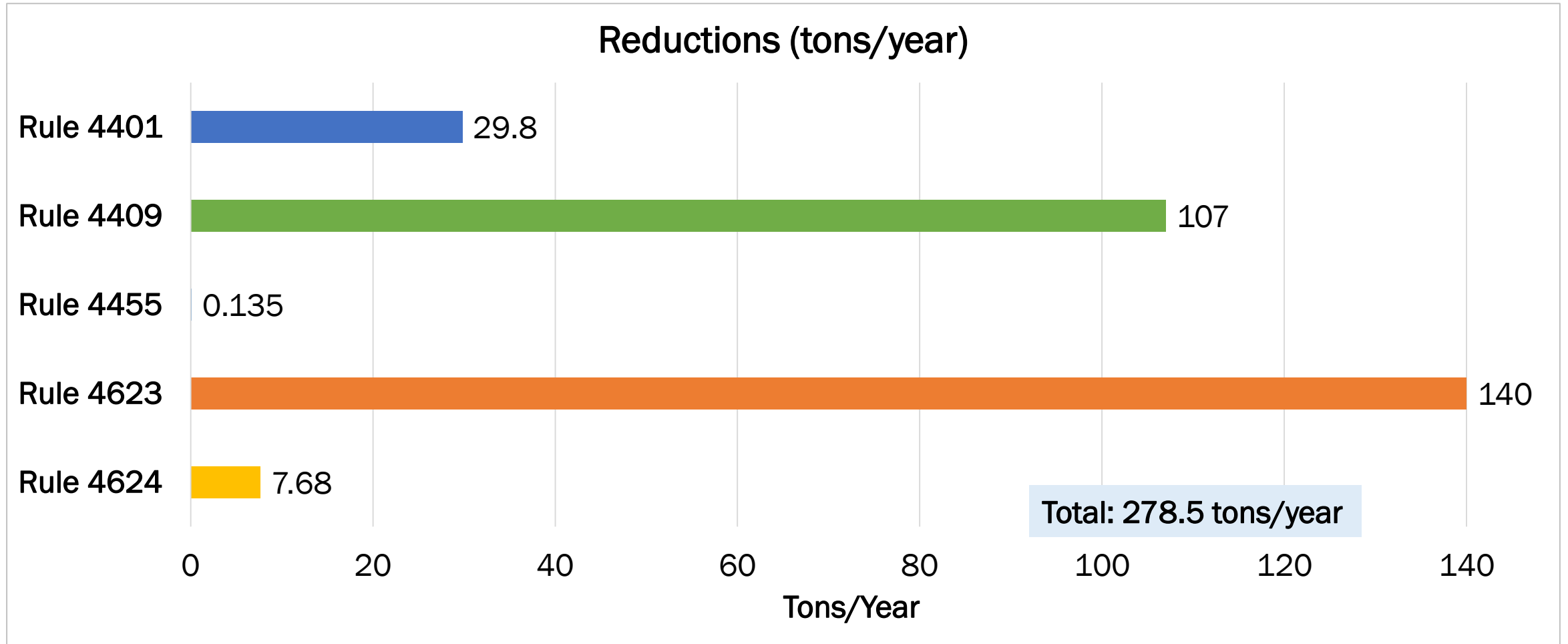
Proposed Amendments to Rule 4623 (cont'd)

- Added new rule applicability language for any tank used in crude oil or natural gas production operations with a potential to emit 6 tons of VOC per year or greater (to be consistent with EPA CTG)
 - Require vapor control systems unless actual emissions less than 4 tons per year (based on EPA 2016 CTG)
 - An operator who is demonstrating that their tank PTE emissions are below six (6) tons per year of VOC or actual emissions are below four (4) tons per year of VOC will be required to keep an accurate record of each organic liquid stored in each tank, including storage temperature, TVP, and monthly throughput
 - Section 6.2.3 (tanks only subject to PVRV requirements) removed to require TVP testing at least once every 24 months
- Update/clarify/add definitions for consistency across other District LDAR Rules

Proposed Amendments to Rule 4624

- Establish a new minor leak threshold of 500 ppmv
- Establish allowable number of leaks (between 500 ppmv > 1,000 ppmv)
 - 2% allowable leaks
- Establish quarterly LDAR inspections
- Allow use of Optical Gas Imaging (OGI) as a screening tool
 - OGI inspections will not replace quarterly EPA Reference Method 21 inspections
- Update/clarify/add definitions for consistency across other district LDAR Rules

Estimated VOC Emission Reductions



Proposed Compliance Deadlines

- Proposed new LDAR requirements effective July 1, 2024
- Vapor control system compliance by December 31, 2024 (Rule 4623 only)
 - Authority to Construct (ATC) applications required December 31, 2023

Public Engagement Process for Rule Amendments



Public Participation and Comment Invited throughout Process

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Visit <https://ww2.valleyair.org/about/sign-up/>
to sign up for the District's Oil and Gas Listserv

Comments/Questions

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