



<http://blogs.dailybreeze.com/history/files/import/27572-chevronaerial-thumb-400x262.jpg>



<https://media.gettyimages.com/videos/oil-refinery-at-dusk-drone-shot-video-id1058837302?s=640x640>

Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities

WORKING GROUP MEETING 8
JULY 6, 2023

JOIN ZOOM MEETING
[HTTPS://SCAQMD.ZOOM.US/J/93814044899](https://scaqmd.zoom.us/j/93814044899)
MEETING ID: 938 1404 4899
TELECONFERENCE DIAL-IN: 1-669-900-6833

Agenda

Public Workshop Summary

Updated Cost-Effectiveness

Updated Rule Language

Next Steps

Public Workshop Summary

- Presented rule language at Public Workshop held March 1, 2023
 - Key amendments:
 - Optical gas imaging (OGI) inspections
 - Doming for crude tanks
 - Seal requirements
 - Vapor recovery efficiency
 - Reporting and recordkeeping
- Received 7 comment letters¹ in response to Public Workshop
 - Key comments:
 - Doming (inclusion of O&M costs, compliance schedules/demonstration)
 - OGI Inspections (weekly demonstrations, timelines for compliance demonstration/repairs, reporting, recordkeeping, exemptions)
- Revised rule language based on stakeholder comments and additional information received

Subdivision (c) – Definitions (continued)

(c)(4)	COMPONENT INSPECTION is monitoring of a Storage Tank roof and individual components, including but not limited to Roof Openings and Rim Seal Systems, with an Optical Gas Imaging Device and where the person conducting the inspection can clearly view each component through the Optical Gas Imaging Device.
(c)(22)	OPTICAL GAS IMAGING DEVICE (OGI) is an infrared camera with a detector capable of visualizing gases in the 3.2-3.4 micrometer waveband.
(c)(42)	TANK FARM INSPECTION is monitoring of all applicable Storage Tanks at a Facility with an Optical Gas Imaging Device and where the person conducting the inspection can clearly view the top of the tank shell, and fixed roof or dome, if applicable. Tank Farm Inspections may be conducted at an elevated position, at ground level, or a combination of both.
(c)(47)	VISIBLE VAPORS is any vapors detected with an Optical Gas Imaging Device during a Component or Tank Farm Inspection, when operated and maintained in accordance with manufacturer training, certification, user manuals, specifications, and recommendations.

“Component Inspection”

- Defines type of inspection required in subdivision (g) – Inspections and Monitoring

“Optical Gas Imaging Device”

- Define requirements for device used in OGI inspections

“Tank Farm Inspection”

- Defines type of inspection required in subdivision (g) – Inspections and Monitoring

“Visible Vapors”

- Provides clarity for tank condition requirements of subdivision (d) – Requirements

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Subdivision (d) – Requirements

- Contains more stringent control requirements, requirements for tank condition, and implementation schedules
- Requirements with implementation passed dates were removed

(d)(1)(C)(iii)	Gaps between the tank shell and the Primary Seal shall not exceed 1.3 centimeters (1/2 inch) for a cumulative length of 10 percent of the circumference of the tank, and 0.32 centimeter (1/8 inch) for 20 percent of the circumference of the tank. No gap between the tank shell and the Primary Seal shall exceed 3.8 centimeters (1-1/2 inches). No continuous gap between the tank shell and the Primary Seal greater than 0.32 centimeter (1/8 inch) shall exceed 10 percent of the circumference of the tank.
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Primary Seal Gap Requirements

Clause (d)(1)(C)(iii)

- Contains more stringent gap requirements Primary seal gaps >1/2 inch cannot exceed 10% of tank circumference
- Primary seal gaps >1/8 inch cannot exceed 30% of tank circumference
- Applies to all floating roof tanks

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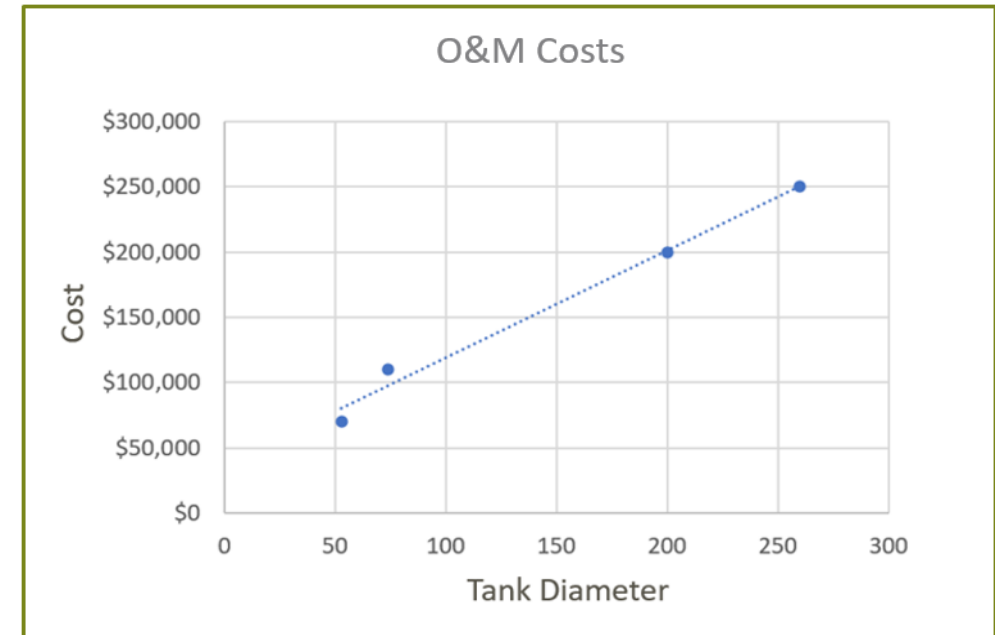
¹ <http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1178/comment-letters>



UPDATED COST-EFFECTIVENESS

Updated Costs for Doming – Inclusion of O&M Costs

- Public comments received to include operating and maintenance (O&M) costs in cost-effectiveness analysis
- O&M costs added based on information from dome manufacturers, dome maintenance service providers and facilities
 - Dome maintenance typically needed after approximately 20 years in service
 - Maintenance requires sealing of seams and hubcaps (caulking, taping, sealant)
 - Frequency of maintenance approximately every 20 years
- Costs obtained from 2 dome maintenance service providers
- Costs added for O&M assume 1.5 sealing services required over 50-year life of dome
 - Cost-effectiveness for doming revised using discounted cash flow method




Cost-Effectiveness for Doming

- Cost-effectiveness revised:
 - Added O&M costs
 - Updated facility information for API inspection schedules
 - Additional crude tank identified – total of 54 crude tanks
 - Updated cost-effectiveness is \$36,800/ton
- 2022 Air Quality Management Plan cost-effectiveness requirements
 - Thresholds not intended to serve as hard cap on cost-effectiveness
 - If threshold exceeded, present options under threshold in public meeting and in rule package presented to Governing Board at Public Hearing

Options for Doming Under \$36,000 per ton of VOC Reduced

1. Move full implementation date to 2041 – results in cost-effectiveness of \$35,400/ton
2. Require doming for 53 out of 54 tanks and retain 2038 full implementation date – results in cost-effectiveness of \$35,300

- Staff proposing to retain doming schedule requiring full implementation in 2038



UPDATED RULE LANGUAGE

Updated Requirements

- Rule language updated in response to Public Workshop comments and additional information obtained for OGI inspections
- Conducted additional site visit for OGI demonstration
 - Visible Vapors detected from tanks in compliance with rule requirements
 - Revised OGI requirements to allow for visual inspection before requiring demonstration with rule requirements when Visible Vapors detected during Tank Farm Inspection
- Rule language updated:
 - OGI requirements (slides 9-10)
 - Reporting requirements (slide 11)
 - Maintenance requirements (slide 11)
 - Exemptions (slide 12)

Revised OGI Requirements – Tank Farm Inspection

- 1 Conduct at least once every calendar week
- 2 If Visible Vapors detected, perform additional inspection from tank platform for potential defects
 - If Visible Vapors detected from vapor tight/no visible gap components
 - Demonstrate compliance with rule requirements/make repair within 3 days
 - If Visible Vapors detected from other components
 - Conduct visual inspection for defects
 - If defect identified, repair within 3 days

Alternative Option – Establish baseline emissions from compliant tank

- 2a Record Visible Vapors detected during first inspection of month where no defect or Visible Vapors from vapor tight components were identified from platform
 - In the same calendar month, if Visible Vapors are detected from same tank and are not determined to be greater in size, density, flowrate or other indicator of an increase of emissions, inspector not required to perform additional inspection from platform



Revised OGI Requirements - Component Inspection

- 1 Conduct semi-annually for floating roof tanks – may be conducted during other semi-annual inspections
- 2 If Visible Vapors detected and are:
 - Emitted from rim seals and are detectable at top of tank shell or through vents
 - Repair or demonstration of compliance with gap requirements within 3 days
 - Emitted from other components
 - Repair or demonstration of compliance with applicable requirements within 3 days



Other Revised Requirements

Reporting

- Reporting by phone required within 24 hours of identifying Visible Vapors from vapor tight components or defective equipment during Tank Farm Inspection
- Allowance of electronic report forms and submittal electronically
 - Must contain all information contained in Appendix A compliance report form

Maintenance

- Repairs required within 3 days after identifying defect during OGI inspections
- Re-seals required for aluminum domes every 20 years



Other Revised Requirements *(continued)*

Exemptions

- Tanks storing material with TVP 0.1 psia or less remain exempt from all rule requirements – demonstration required
 - Every 5 years for refined materials meeting specifications for sale
 - Annually for other materials
- Exemption from doming for crude tanks if permit application submitted within one year from date of adoption to limit crude oil TVP to < 3 psia
 - Exemption lost if TVP 3 psia or greater as demonstrated by semi-annual test or test conducted by South Coast AQMD
 - 3 years to install dome if exemption lost
- Exemption from OGI inspections for tanks out of service
 - Empty or open to atmosphere and meeting Rule 1149 requirements

Next Steps

Release Draft Rule Language
and Draft Staff Report
On or Before August 2, 2023

Set Hearing
Currently Scheduled
for August 4, 2023

Public Hearing
Currently
Scheduled for
September 1, 2023

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To receive e-mail notifications for Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities, sign up at: www.aqmd.gov/sign-up



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