



CERTIFICATION COURSE

SCAQMD RULE 1176

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COURSE OUTLINE

Goals and Objectives of this course

Definition of Terms

Waste Water Systems Equipment

Rule Requirements

Inspection Protocols

Sampling Method

Questions and Discussion

EXAM

COURSE GOALS & OBJECTIVES

Review operations of Wastewater Systems and associated equipment
Increase understanding of Compliance Requirements for AQMD Rules
Limit emissions of Volatile Organic Compounds (VOC) from Wastewater Systems
Inspector Certification

R1176(f)(2): all inspections and monitoring required under paragraph (f)(1) shall be done by a certified inspector.

DEFINITIONS

HTTP://WWW.AQMD.GOV/HOME/REGULATIONS/RULES

Volatile Organic Compound

R102: VOLATILE ORGANIC COMPOUND (VOC) is any volatile compound of carbon

excluding:

methane,
carbon monoxide,
carbon dioxide,
carbonic acid,

metallic carbides or carbonates ammonium carbonate and exempt compounds*.

*exempt compounds defined in R102

Wastewater (WW)

R1176(c)(24): WASTEWATER is a water stream or other liquid waste stream generated in a manner which may contain petroleum liquid, emulsified oil, VOC, or other hydrocarbons.

Wastewater (WW) System

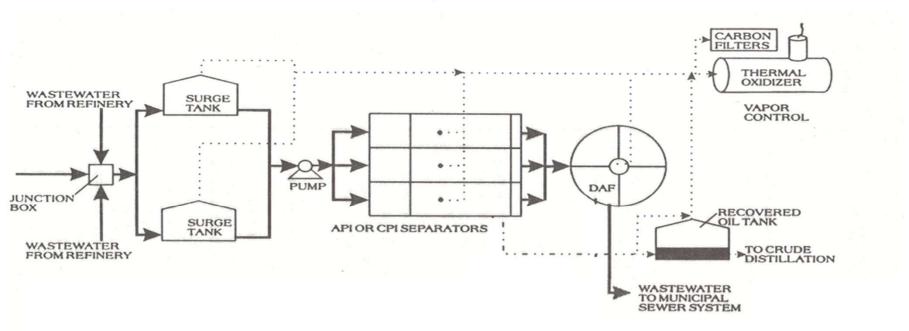
R1176(c)(26): Wastewater System consists of one or more:

- process drains*
- sewer lines*
- junction boxes*
- manholes*
- sumps*
- wastewater separators & associated components*

*Specific component definitions are listed in R1176(c)

The Wastewater System

The Wastewater System



Drain System Component (DSC)

R1176(c)(8): Drain System Components consist of:

process drain*

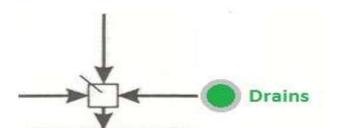
manhole cover*

junction box vent*

excludes closed vent systems*

Process Drains

R1176(c)(19): PROCESS DRAIN is any opening (including covered or controlled openings) which is installed or used to receive or convey wastewater into the wastewater system.





Types of Refinery Drains

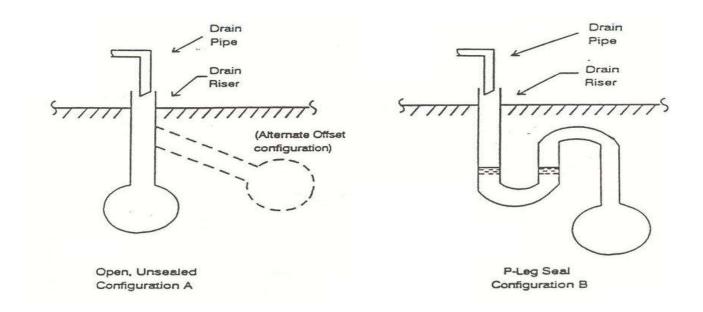
Open

P- leg seal

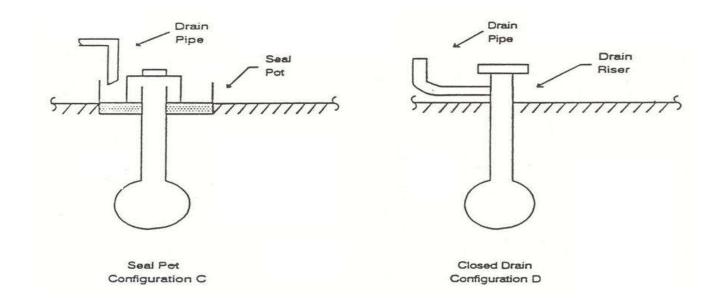
Seal Pot

Closed Drain

Refinery Drain Types



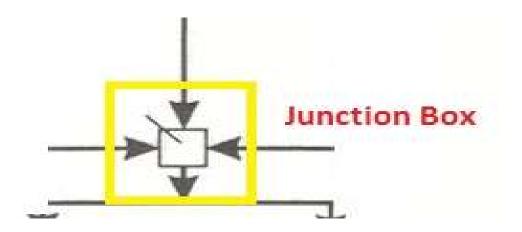
Refinery Drain Types





Junction Box

R1176(c)(15): JUNCTION BOX is a structure with a manhole or access point to a wastewater sewer system lines.

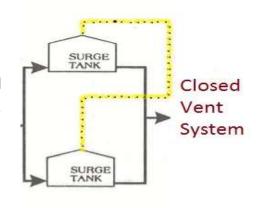




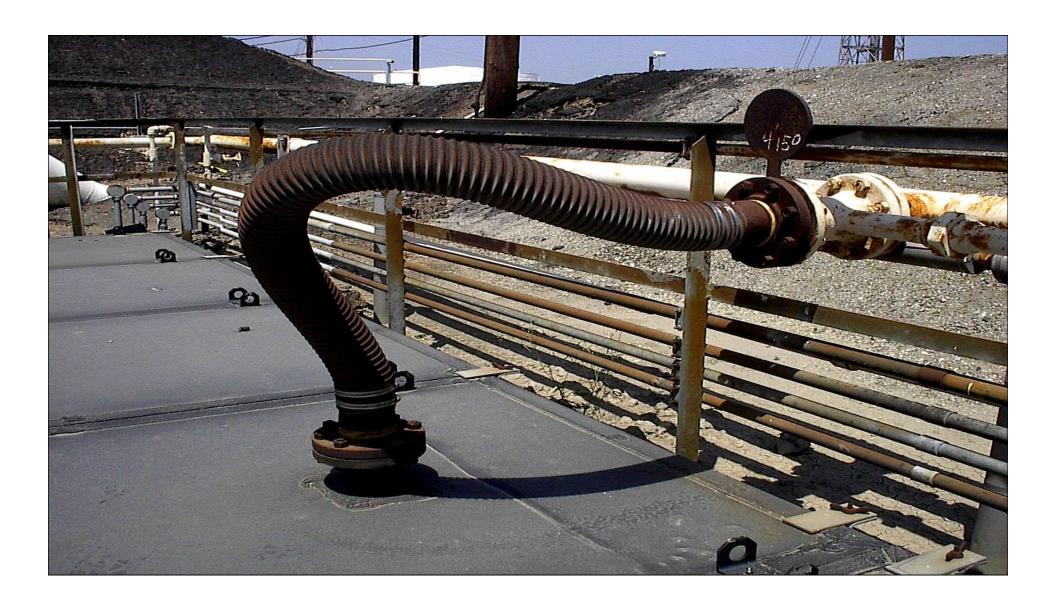
Closed Vent System (CVS)

R1176(c)(7): Closed Vent System is:

composed of piping, ductwork, connections transporting **gas or vapor** from an emission source to an APC device or into gas recovery and/or combustion equipment

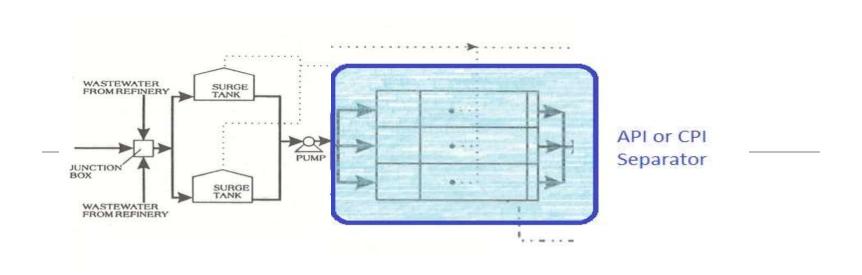


Components of the closed vent system must not be open to the atmosphere



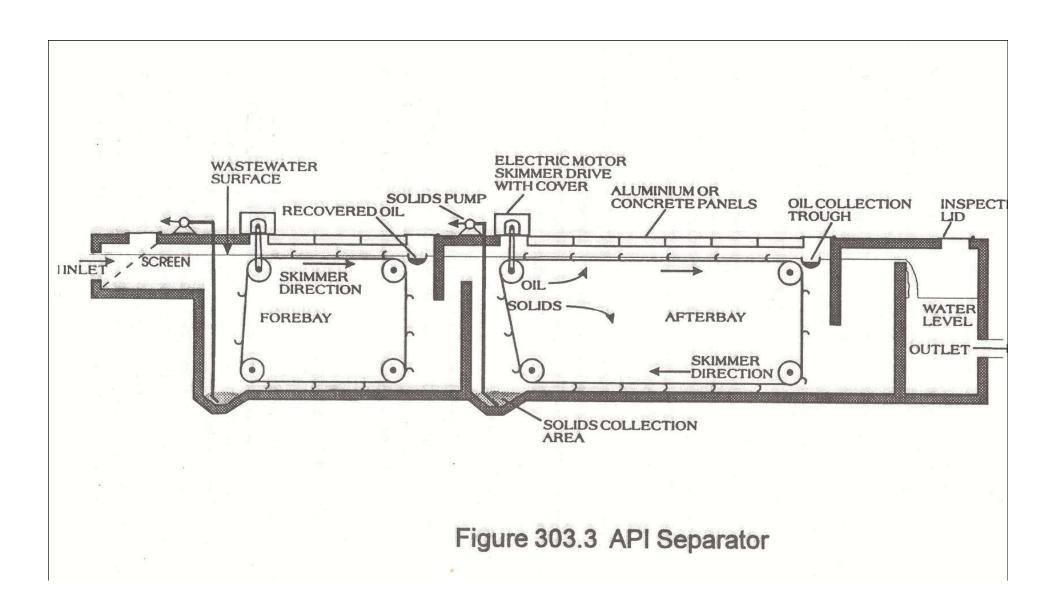


Wastewater Separators



R1176(c)(25): WASTEWATER SEPARATOR is: any device, used to separate petroleum liquids and/or VOC containing liquids from wastewater including such devices as: separator forebays*, clarifiers and tanks (including dissolved air flotation tanks, induced gas flotation tanks and induced air flotation tanks)

API Separator

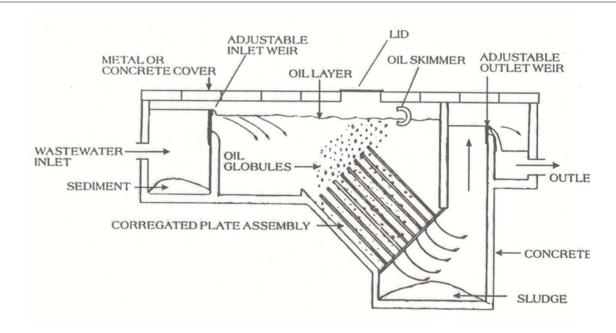






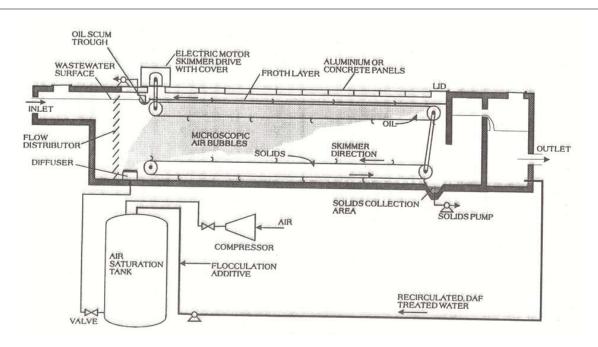
Corrugated Plate Interceptor (CPI) Separator

Corrugated Plate Interceptor (CPI) Separator



Dissolved Air Flotation (DAF) Unit

Dissolved Air Flotation (DAF) Unit





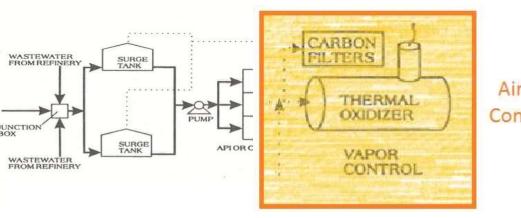


TANK SEPARATOR



Air Pollution Control Equipment

1176(c)(2) AIR POLLUTION CONTROL (APC) DEVICE: means air pollution control equipment which eliminates, reduces or controls the issuance of air contaminants.



Air Pollution Control Device

Air Pollution Control Equipment

Absorption

Carbon canisters

Combustion

- Incinerator
- Make-up Heater
- Thermal Oxidizers



RULE 1176 JURISDICTION

Jurisdiction



Non Refineries

On-shore Oil Production Fields (SIC No. 1311)

Off-shore Oil Production Platforms (SIC No. 1311)

Chemical Plants (SIC first three digits are 282)

Industrial Facilities (SIC Code Nos. 492 or 461)

AQMD

INDUSTRY

- Review and approve industry compliance plans and reports
- Conduct unannounced inspections of industry wastewater systems
- Enforcement action
- Evaluate need for new or amended rules and regulations to further reduce wastewater emissions

- o Submit compliance plans
- o Conduct inspections according to Rule 1176 requirements
- o Submit compliance reports
- o Ensure non-compliant DSCs are repaired and re-inspected within time limits required by Rule 1176

RULE REQUIREMENTS

Rule Requirements

Compliance Plan

Wastewater System Operation & Control Requirements

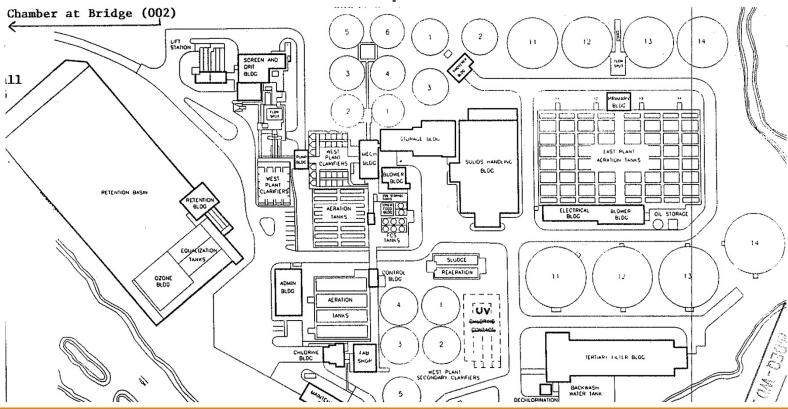
- Refinery
- Industrial Facilities

Monitoring & Repair Requirements

Reporting & Recordkeeping

Exemptions

R1176 Compliance Plan



Non-Refinery Compliance Plan

1176(d)(1): Within 60 days of written request by AQMD, submit:

- detailed schematic of the location of all
 - •WW System components
 - all associated APC devices.

Refinery Compliance Plan

R1176(d)(2):Submit Compliance Plan by 6/30/97 that includes:

- Detailed schematic of WW System and associated APC devices
- Complete DSC list, type of DSC control and DSC categorization
- DSC Emission Control option (e)(7)(A) or (e)(7)(B)

Refinery Compliance Plan continued

R1176(d)(2): Submit Compliance Plan by 6/30/97 that includes:

- Historical monitoring data used to categorize each DSC
- I.D. control methods, if necessary, for each junction box vent based on its emissions
- Description of any alternate DSC control and its specific applications



WASTE WATER SYSTEM OPERATION AND CONTROL REQUIREMENTS

Drain System Component (DSC)

R1176(c)(8): Drain System Components consist of:

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process drain*
manhole cover*
junction box vent* or
other wastewater system vent*
excludes closed vent systems*
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DSC Categorization R1176(c)(8)

Drain System Components are categorized according to their emission history:

- Non-emitting
- Low-emitting
- High-emitting
- Repeat-emitting

Non-Emitting Drain System Component

R1176(c)(8)(A): A non-emitting DSC is a DSC which:

Controlled DSC* which:

- uses gas tight barrier between sewer and atmosphere and,
- no VOC emissions above 10 ppm in past 6 months, or

Uncontrolled DSC

no VOC emissions above 10 ppm in past 24 months

LOW-EMITTING DSC

R1176(c)(8): Low-Emitting Drain System Component is a DSC which has:

No excess emissions past 6 month

Effectively controlled pursuant to R1176(e)(7)(A) - for Repeat-Emitting DSCs

R1176(e)(7)(A) Control of Repeat Emitting DSCs:

Within 60 days or longer, as approved by the Executive Officer, after a DSC becomes a repeat emitting DSC, effectively controlling the DSC by installing a DSC control, if previously uncontrolled, or a more efficient DSC control to eliminate excess emissions from the DSC.

R1176(c)(10):

EXCESS EMISSIONS =

greater than 500 PPM

HIGH-EMITTING Drain System Component (DSC)

R1176(c)(8)(C): A High-Emitting Drain System Component is a DSC which:

has at least **one** excess emission in the most recent 6 months

REPEAT-EMITTING Drain System Component

R1176(c)(8)(D): A repeat-emitting DSC is a petroleum refinery DSC that:

emitted excess emissions at least 3 times in any consecutive 12 months, unless effectively controlled pursuant to subparagraph R1176(e)(7)(A).

R1176(e)(7)(A) Control of Repeat Emitting DSCs:

Within 60 days or longer, as approved by the Executive Officer, after a DSC becomes a repeat emitting DSC, effectively controlling the DSC by installing a DSC control, if previously uncontrolled, or a more efficient DSC control to eliminate excess emissions from the DSC.

DSC Categorization R1176(c)(8)

Non-emitting

Readings <10ppm Per 6 MO **Low Emitting**

One<10<500

Per 6 MO

High emitting

One <500 ppm

Per 6 Mo

Repeat Emitting

Three<500ppm

Per 12 Mo

Drain System Component Emission Controls

R1176(c)(9): A DSC control is:

any DSC control measure which utilizes:

- Water seal controls*
- Air Pollution Control (APC) devices*
- Hard piping, or
- Complete capping, plugging, or source elimination
- Alternate control approved in writing by the Executive Officer

*Specific component definitions are listed in R1176(c)



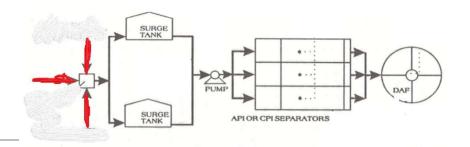
Refinery Drain System

SURGE TANK PUMP API OR CPI SEPARATORS

Process Drains

R1176(e)(4): Any new process drain installed after September 13, 1996, shall be equipped with water seal controls or any other alternative control measure which is demonstrated by the applicant to be equivalent, or more effective than water seal controls in reducing VOC emissions, as approved in writing by the Executive Officer.





Sewer Lines

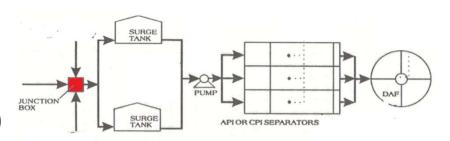
R1176(c)(21):SEWER LINE is a lateral trunk line, branch line, ditch, channel, or other conduit used to convey wastewater.

R1176(e)(3)(A): Sewer lines **must be completely enclosed** so that no liquid service is exposed to the atmosphere, including manhole covers except for:

- Maintenance,
- Active inspection,
- Repair,
- Sampling







Junction Boxes* R1176(c)(15)

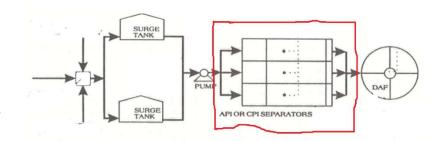
R1176(e)(5)(A): Junction boxes shall be **totally enclosed with a solid, gasketed, fixed cover or a manhole cover**.

Each fixed cover shall be allowed to have an open vent pipe no more than four inches in diameter and at least three feet in length.

Each manhole cover on junction boxes shall be allowed to have openings totaling no more than 12 square inches. **The manhole cover shall remain fully closed**, except when opened for active inspection, maintenance, sampling, or repair.







Sump & WW Separator Covers

R1176(e)(2)(B):Sump and Wastewater Separator Covers, both fixed and floating, shall meet all of the following requirements:

Cover material shall be impermeable to VOCs

Cover material shall be free of holes, tears, openings

Drains need slotted membrane cover

90% coverage

Gauging or sampling openings covered

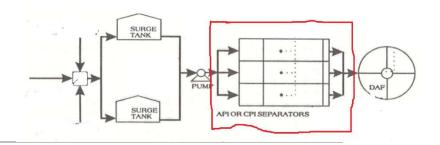
Hatches closed and free of gaps

Fixed covers sealed with no gaps





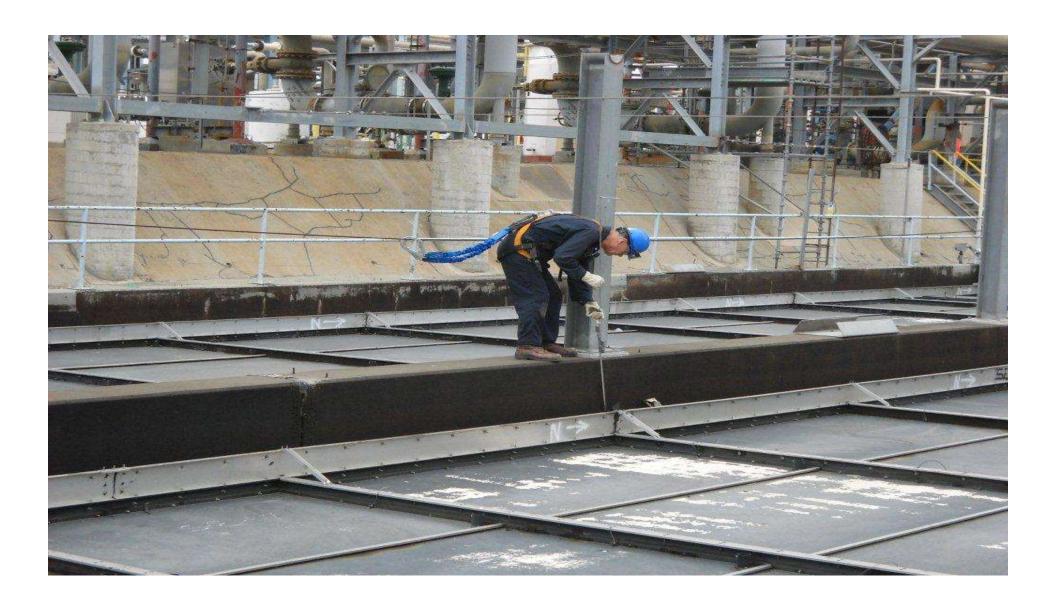




Sump & WW Separator Covers

Floating covers: R1176(e)(2)(B)(vi):

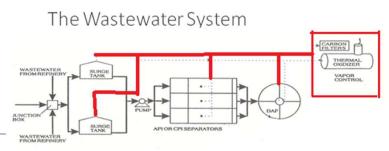
- •Gap between wall and seal not to exceed 1/8 inch for cumulative length of 97 percent of perimeter and,
- No gaps between wall and seal to exceed 1/2 inch





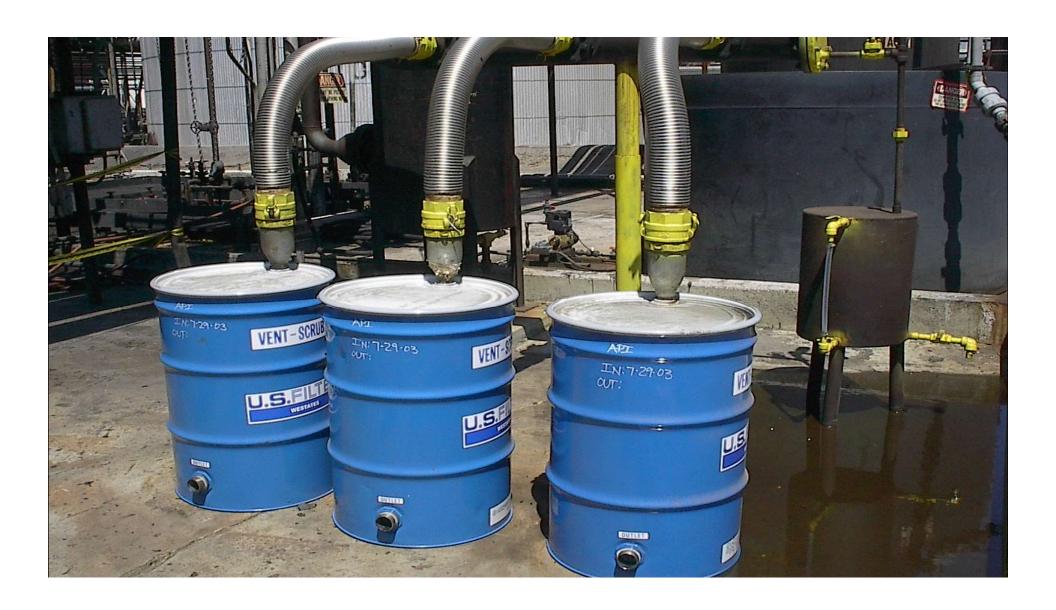


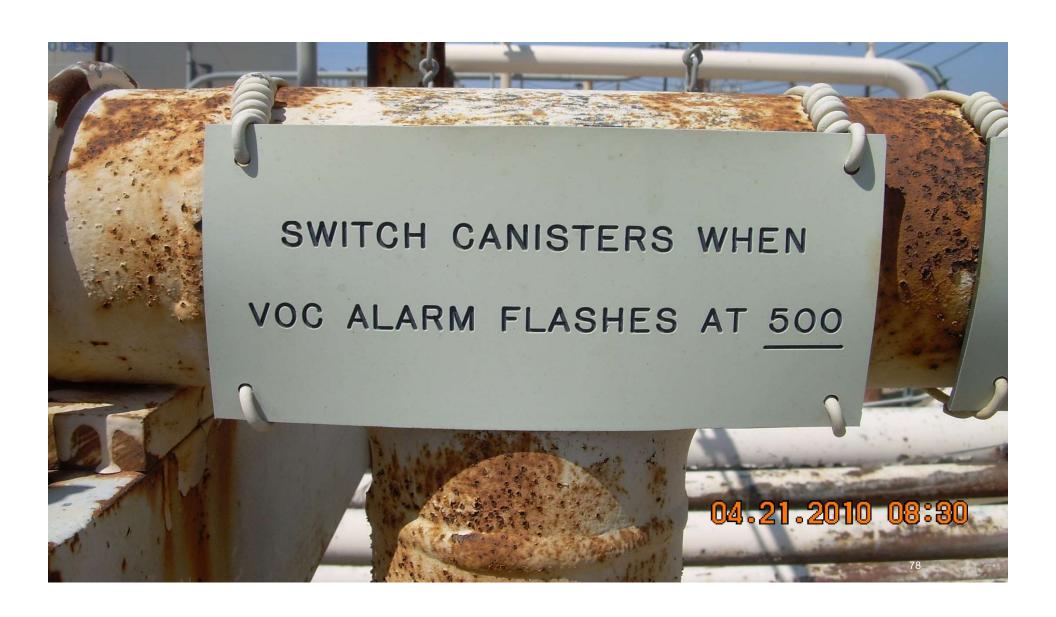
Air Pollution Control (APC) Device performance requirements

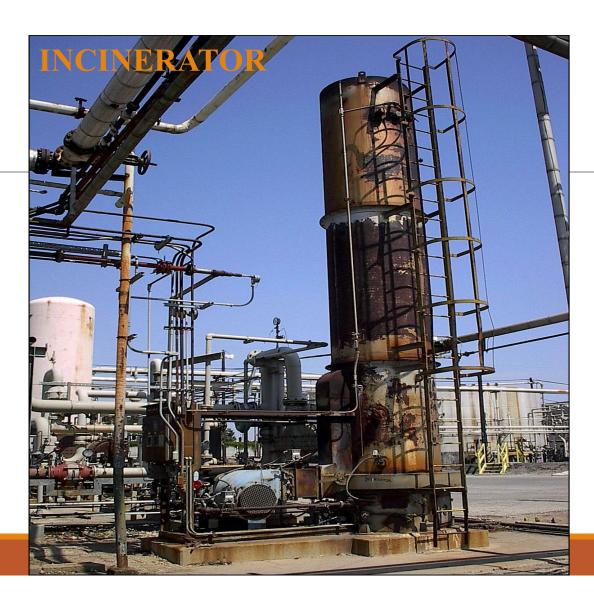


R1176(e)(6): APC operation must meet ONE of following requirements:

- Control efficiency of 95% or higher
 - annual performance source test required
- Emissions at the Outlet less than 500 ppm
- Alternate equivalent permitted system







Refinery DSC Control Requirements

The Refinery must designate which plan for controlling emitting DSCs:

- Option (e)(7)(A)
 - Control of repeat emitting DSCs
- Option (e)(7)(B)
 - Control of all DSCs

Option (e)(7)(A): Repeat Emitting DSCs

Uncontrolled DSCs:

 After a DSC becomes a repeat emitting DSC, Install DSC control within 60 days, or longer with approval of Executive Officer

Previously controlled DSCs:

 Install more efficient DSC control within 60 days or longer, with approval of Executive Officer Option (e)(7)(B): All DSCs.

100 PERCENT OF UNCONTROLLED DSCs SHOULD BE CONTROLLED BY DECEMBER 31, 2000.

INSPECTION PROTOCOLS

Non-Refinery Inspection Protocols

Non-Refinery R1176(f)(1)(C)

Quarterly – Wastewater separators,

associated Closed Vent System(s)

and Drain System Components (DSC)

Annually – non-emitting DSCs,

inaccessible DSCs* [R1176(c)(13)]

Refinery Inspection Protocols

Refineries R1176(f)(1)(A)

Controlling Repeat-Emitting DSCs per Option (e)(7)(A):

- Monthly
 - High Emitting DSCs, WW separators and associated CVS(s)
- Semi-annually
 - Non-emitting DSCs
 - Low-emitters if ≤0.5% all DSCs emitted excess emissions in last 12 months
- Annually
 - Inaccessible DSCs [R1176(c)(13)]

Refinery Inspection Protocols

Refineries R1176(f)(1)(A)

Controlling Repeat-Emitting DSCs per Option (e)(7)(B):

- Monthly
 - Wastewater separators and associated closed vent systems.
- Quarterly
 - DSCs (Excludes Non-Emitting DSCs)
- Semi-annually
 - Non-Emitting DSCs
- Annually
 - Inaccessible DSCs [R1176(c)(13)]

Inspection and Monitoring Frequency R1176(f)(1)(A)

R1176(e)(7)(A)		R1176(e)(7)(B)
Repair High Emitting DSCs		Install Controls on all DSCs
EQUIPMENT	FREQUENCY	EQUIPMENT FREQUENCY
Wastewater separator(s) and associated closed vent system(s)	Monthly	Wastewater separator(s) and Monthly associated closed vent system(s)
High-Emitting DSCs	Monthly	DSCs (Excluding Non-Emitting Quarterly DSCs)
Low-Emitting DSCs	Quarterly	
Non-Emitting DSCs	Semi-annually	Non-Emitting DSCs Semi-annually
Inaccessible DSCs	Annually	Inaccessible DSCs Annually

REPAIRS and Reinspection R1176(f)(3)

REPAIRS:

- within 3 calendar days
- [1 2- 3- 4]
- Wastewater systems with excess emissions or otherwise found in violation through either operator inspection or District inspection shall be repaired or rectified within three calendar days of detection.
- The operator shall take all feasible steps to minimize emissions during the repair or replacement period.

REPAIRS and Reinspection R1176(f)(3)

REINSPECTION R1176(f)(3):

- Refineries between 24 to 48 hours after repair
- Non-Refinery <u>between</u> 24 hours to 15 days after repair
- The repaired or rectified component shall be reinspected by the facility operator between 24 hours to 48 hours for petroleum refineries and between 24 hours to 15 calendar days for other facilities after the repair or rectification to ensure that the repaired or rectified component is in compliance with this rule. The operator shall take all feasible steps to minimize emissions during the repair or replacement period.

Exemptions R1176 (i)

Special conditions in which rule requirements are suspended.

Exemptions R1176 (i)

Partial Exemptions

Complete Exemptions

PARTIAL EXEMPTIONS R1176 (i)

Provisions of (e)(1) shall not apply to Active Draining



PARTIAL EXEMPTIONS R1176 (i)

Operator Detected Violations are exempt from provisions of (e)(1) & (e)(2)(B)



PARTIAL EXEMPTIONS R1176 (i)

Natural Gas Handling Facilities



Safety:

Components which present a safety hazard for inspection as documented and established in a previous safety manual or policy, or with the prior written approval of the Executive Officer except that these components shall be monitored for excess emissions when it is safe to do so.

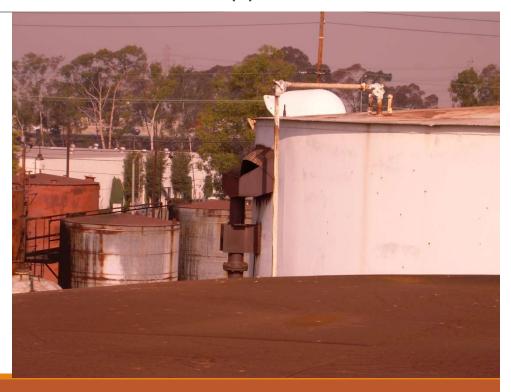
Pressure-vacuum valves
when open, due to a vacuum
produced within the
wastewater system.



Spill containment for tanks



Open pipe channels designed for spill containment



Rule 463 tanks organic Liquid Storage



Equipment subject to Rule 1173

Rule 1173 – Control of VOC Leaks and releases from components at petroleum facilities and chemical plants



Equipment, including catch basins, **exclusively** handling rain water, storm water, and non-contact water*.

Well cellars used in emergencies at oil production fields, if clean-up procedures are implemented within 24 hours after each emergency occurrence and completed within ten (10) calendar days.

Sampling junction boxes of the wastewater system prior to discharge into the municipal sewer lines and which are designated as the legal sample point on the facility's industrial wastewater permit.

Wastewater system(s), if the VOC content of each liquid stream entering each sump and/or wastewater separator does not exceed at all times 5 mg per liter

Biological Wastewater systems if VOC samples measure less than or equal to 5 mg per liter when entering secondary treatment

Sanitary Sewers not processing wastewater

Rule 430

Breakdown Provisions

 This rule applies to any breakdown which results in a violation of any rule or permit condition

Relief from permit conditions due to breakdown can be granted by:

- 1) Notification within one hour of such breakdown
- 2) Cause of breakdown not due to operator error or neglect
- 3) Mitigation of emissions

Equipment breakdowns covered by Rule 430 are not exempt from Rule 402

Rule 402

Public Nuisance

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public

- The facility may be operating compliant to Rule 1176 and to permit conditions, however, the facility can be found in violation of Rule 402.
- Notice of Violation issuance for Rule 402 for a single event based on multiple confirmed complaints received over a given period of time
- Equipment breakdowns covered by Rule 430 are not exempt from Rule 402

Key points for an inspection

Key Points for an Inspection

High Traffic Areas Moving Parts

Aged Equipment Previous Repairs

Dirt, Stains and Grime High Background

Repeat Emitting DSCs Odors

Rule 1176

OIL PRODUCTION FIELDS, CHEMICAL PLANTS, AND INDUSTRIAL SOURCES

Non-Refinery Definitions

Oil Production Field is a facility at which crude petroleum production and handling are conducted.

Chemical Plant is defined as any facility engaged in producing chemicals and/or manufacturing products by chemical processes.

Industrial Facilities are those engaged in the production and distribution of natural gas, pipeline distribution or wholesale distribution of crude petroleum and petroleum products.

Non-Refinery Compliance Comparison

Quarterly inspections for wastewater separators, closed vent systems, and DSCs.

Extended time for re-inspection of repaired components, between 24 hrs to 15 calendar days.

Some Common Areas of Concern

Drainage of process fluids from stock tanks
WEMCO DAF units
Sumps
Hatches on Clarifiers
Sampling points

Some Common Areas of Concern

Leaks and Spills



Some Common Areas of Concern

Stock Tank Drainage



Some Common Areas of Concern

Stock Tank Drainage

Correction: Flow rerouted



Some Common Areas of Concern

WEMCO DAF Units



Some Common Areas of Concern

WEMCO DAF Units

Worn seals



Some Common Areas of Concern

WEMCO DAF Units

Uneven surfaces

Holes



Some Common Areas of Concern

Tanks

Roof and Hatches In Poor Condition



Some Common Areas of Concern

Tanks

Roof and Hatches In replaced and repaired



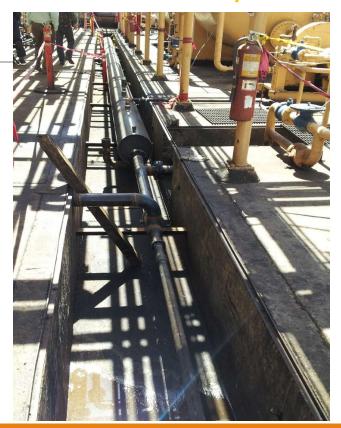
Some Common Areas of Concern

Open Wastewater Sluiceway



Some Common Areas of Concern

Wastewater Sluiceway hard piped



Preventative Maintenance

Grease hatches on a regular basis

Replaces seals and gaskets on a regular basis

Leak Inspection conducted quarterly or more frequently as needed

Exemptions

WW System(s), if the VOC content of each liquid stream does not exceed at all times 5 mg per liter, as determined by EPA Method 8240 or equivalent method

All VOC tests should be sampled and tested by an independent lab

The sample must be taken at the inlet of the liquid stream, prior to the entrance of the WW System(s)

Change in production may change equipment exemption status

Permitting Issues

Some equipment (i.e. clarifiers, tanks) may be exempt from permitting per Rule 219

Equipment exempt from permit requirements per Rule 219 may still be subject to Rule 1176

Clarifier Exempt From Permitting



Recap

Process fluids may not drain to open storage basins or tanks unless the fluid has less than 5 mg/L VOC

Moveable parts, hatches, and old equipment are more likely to leak

REPORTING & RECORD KEEPING

Inspection records for the wastewater system shall be made and documented as follows:

Document all written or machine recorded operator inspections

Inspection records for the wastewater system shall be made and documented as follows:

Document all VOC measurements including corresponding background levels,

Inspection records for the wastewater system shall be made and documented as follows:

Document all

source tests, repairs,

replacements, and reinspections

R1176(g)(1)(C) Inspection records for the wastewater system shall be made and documented as follows:

(ii) include the date(s) they were taken.

(iii) include the name and signature of the certified inspector (s). An electronic identification code may be used instead of a signature provided that the certified inspector verifies, in writing, that he or she has conducted the inspection and monitoring.

Example Report for Refineries Complying with R1176(e)(7)(A) – DSCs with Excess Emissions

DSC I.D.	Туре	Inspect Date	PPM Level	Corrective Actions	Re- Inspect Date	PPM Level
1	Drain	9/25/19	10000	Flushed with water (9/25/19)	9/26/19	15
2	Sump	9/25/19	7500	Sealed w/caulking (9/25/19)	9/26/19	50
3	Hatch	10/31/19	2200	Sealed w/caulking (10/31/19)	11/1/19	5
4	M.H.C.	10/31/19	25000	Sealed w/caulking (10/31/19)	11/1/19	0

Reporting Requirements for Refineries

Additionally.....

R1176(e)(7)(A) (Repeat Emitters 12 mo. Report):

Quarterly Report : Must be **submitted** 30 Days after the end of each quarter listing:

- all DSCs with excess emissions and ppm levels
- Component ID of repeat emitting drains, including ppm levels and repairs within last 12 months
- corrective actions taken pursuant to (e)(7(A)
- each monitoring record after corrective action until report submitted

Example Report for Refineries Complying with R1176(e)(7)(A) – Repeat Emitting DSCs

DSC I.D.	Type	Inspect Date	PPM Level	Corrective Actions	Re-Inspect Date	PPM Level
1	Drain	9/25/11	150			
		1/14/12	1500	Flushed with water (1/14/12)	1/15/12	25
		4/1/12	200			
		6/15/12	800	Flushed with water (6/15/12)	6/16/12	100
		9/25/12	10000	Flushed with water (9/25/12)	9/26/12	15

R1176 RECORD KEEPING REQUIREMENTS

R1176(g)(1)(B): maintain records of system operation or maintenance which will demonstrate proper operation and compliance of the APC device during periods of emission producing activities.

Reporting Requirements for Refineries

R1176(e)(7)(B) (Control All DSCs):

Semi Annual Report:

Must be **submitted** 30 days after the end of each six month period listing:

all DSCs having excess emissions

Reporting Requirements for Refineries

Example Report for Refineries Complying with R1176(e)(7)(B)

DSC I.D.	Туре	Inspect Date	PPM Level
1	Drain	10/25/12	10000
2	Sump	10/25/12	7500
3	Hatch	10/31/12	2200
4	M.H.C.	10/31/12	25000

R1176 RECORD KEEPING REQUIREMENTS Refinery and Non-Refinery

R1176(g)(1)(A): All records shall be maintained at the facility for a period of **two years** and made available to District staff upon request.

R3004(a)(4)(E): **Facilities under Title V** requirements must retain records for **FIVE years** and made available to District staff upon request.

Reporting Requirements for Refineries

R1176(g)(2)(A): Refineries

Any change to the wastewater system or any other component required to be identified by paragraph R1176(d)(2) [WW Compliance Plan], shall be **submitted** to the District within 60 calendar days after construction is completed.

Reporting Requirements for Non-Refineries

R1176(g)(1)(A): Non-Refineries

All records shall be maintained at the facility for a period of two years and made available to District staff upon request.

Reporting Requirements for Refineries

R1176(e)(7)(A)	R1176(e)(7)(B)	
Repair High Emitting DSCs	Install Controls on all DSCs	
Quarterly	Semi-Annual	

Reporting Requirements for Refineries

R1176(e)(7)(A) R1176(e)(7)(B)

N1170(e)(7)(A)	K1170(e)(7)(b)
Repair High Emitting DSCs	Install Controls on all DSCs
All DSCs with recordings of excess emissions and levels of emissions in ppm	All DSCs identified to have an excess emission.
Repeat emitting drains including each record of excess emissions	
and repairs within the last 12 months	
The corrective actions taken numerical to subname month (a)(7)(A)	
The corrective actions taken pursuant to subparagraph (e)(7)(A)	
Each monitoring record after corrective actions until the report is submitted.	146

Requirements for Non-Refineries

Reporting: Semi-Annual

Inspection:

- Quarterly Waste Water separators, associated Closed Vent System(s) and Drain System Components
- Annually non-emitting DSCs, inaccessible DSC

Recordkeeping:

APC device for a wastewater system:

System operation, maintenance during periods of emission producing activities.

Wastewater system:

Operator inspections, VOC measurements including corresponding background levels, source tests, repairs, replacements, and reinspection records.

Verification of Records

R1176(g)(3): Verification of Records:

All inspection records and reports submitted to the District, shall be signed by the facility official with responsibility for operation of the equipment subject to this rule, to verify that the inspection(s) have been conducted by certified inspectors consistent with the requirements of this rule.

Verification of Records

R1176(g)(4) Any inaccurate verification of inspection records shall constitute a **violation** of this rule.

TEST METHODS

Screening Method:

• EPA Reference Method 21

District Grab Sample Method to determine quantity of Exempt Compounds

Sample Analysis

- EPA Method 25, or
- District Test Method 25.1

DISTRICT GRAB SAMPLE METHOD

EXAM