

City of Riverside

**WASTEWATER COLLECTION AND TREATMENT
FACILITIES INTEGRATED MASTER PLAN**

**VOLUME 5: AIR QUALITY AND EMISSIONS CONTROL
CHAPTER 2: REVIEW OF APPLICABLE
REGULATORY REQUIREMENTS**

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CHAPTER 2: REVIEW OF APPLICABLE REGULATORY REQUIREMENTS**

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REVIEW OF APPLICABLE REGULATORY REQUIREMENTS

2.1 PURPOSE

The purpose of this chapter is to review applicable regulatory requirements and describe how they can influence air quality planning for the City of Riverside (City) Regional Water Quality Control Plant (RWQCP). The following procedure was followed in determining applicable regulatory requirements:

- Identification of existing and future air emission sources and air emission control facilities.
- Identification of emitted pollutants and quantification of emissions.
- Identification of applicable regulatory requirements.
- Determination of the methods to achieve compliance.

2.2 EXISTING AIR EMISSION SOURCES AND AIR EMISSION CONTROL FACILITIES

A list of the existing air emission sources and air emission control facilities is as follows:

- Wastewater treatment and solids handling facilities. Complete descriptions of existing wastewater treatment facilities can be found in Volume 4, Chapter 1 - Existing Facilities. Complete descriptions of existing solids facilities can be found in Volume 8, Chapter 1 - Existing Facilities.
- The in-ground Headworks Biofilter. The biofilter media consists of bark, soil, compost, sand, scoria, and lime. The biofilter treats foul air from the Headworks channels, screw conveyors, and bin room.
- A carbon adsorber for digester gas, containing at least 400 lbs of granular activated carbon.
- A digester/natural gas compression, blending, and treatment system, consisting of: gas compressors; gas dryers; a gas mixer; a gas surge tank; and a blended gas storage tank.
- A standby 24 million BTU per hour (MMBTU/hr) digester/natural gas-fired flare, with a maximum allowable gas-burning rate of 667 cubic feet per minute.
- Three cogeneration systems (Cogeneration Systems Nos. 1 through 3), each consisting of a digester/natural gas-fueled 1,599-hp internal combustion engine and a 1.1-MW electric generator.

- Two standby 4.2 MMBTU/hr digester/natural gas-fired boilers with low Nitrogen Oxide (NO_x) burners and flue gas recirculation.
- Two non-road portable internal combustion engines diesel-fueled and rated at 71 break horsepower (bhp).
- A resident portable internal combustion engine, diesel fueled and rated at 71 bhp, equipped with 4-degree timing retard.
- A resident portable internal combustion engine, diesel fueled and rated at 102 bhp, equipped with turbocharger. Engine operation is restricted to 8,111 hours per year.
- A resident portable internal combustion engine, diesel fueled and rated at 368 bhp, equipped with turbocharger and aftercooler. Engine operation is restricted to 4,868 hours per year.
- A fuel storage and dispensing facility, consisting of a 2,000-gallon aboveground dual-compartment gasoline/diesel storage tank, a gasoline-dispensing nozzle, and a diesel-dispensing nozzle.

2.3 PROPOSED AIR EMISSION SOURCES AND AIR EMISSION CONTROL FACILITIES

The following proposed facilities are potential sources of regulated air pollutants. These facilities are discussed in detail in other volumes of the Master Plan.

- New headworks facility and biofilter (Volume 4, Chapter 5 - Preliminary Treatment).
- New primary clarifiers and biofilters for all primary clarifiers (Volume 4, Chapter 6 - Primary Treatment).
- Membrane Bioreactor (MBR) facility (Volume 4, Chapter 7 - Secondary Treatment).
- New primary effluent equalization basins (Volume 4, Chapter 12 - Primary Effluent Equalization).
- New solids thickening facilities (Volume 8, Chapter 4 - Solids Production and Thickening Options).
- New fuel cells to produce electricity from digester and/or natural gas (Volume 9, Chapter 5 - Power Supply Alternatives).
- New solids dewatering centrifuges (Volume 8, Chapter 6 - Solids Dewatering).

2.4 EMITTED AIR POLLUTANTS AND ANNUAL EMISSIONS SUMMARY

Table 2.1 presents a summary of the most recent Annual Emissions Report (AER) submitted to the South Coast Air Quality Management District (SCAQMD). The table contains air pollutants other than Toxic Air Contaminants (TAC) and Ozone Depleting Compounds (ODC). Emissions of the latter are reported in Table A.1 of Appendix A.

Table 2.1 Summary of 2005-2006 Emissions for Select Air Pollutants⁽¹⁾⁽²⁾ Wastewater Collection and Treatment Facilities Integrated Master Plan City of Riverside	
Air Pollutant	Annual Plant Emissions (tons)
Organic Gases	4.80
Methane	0.09
NO _x	5.65
Sulfur Oxides	0.97
Carbon Monoxide	18.9
Particulate Matter	0.45

Notes:
 (1) Based on the 2005-2006 AER.
 (2) A summary of the 2005-2006 emissions TAC and ODC is presented in Appendix A.

2.5 REVIEW OF APPLICABLE SCAQMD REGULATIONS

The SCAQMD has jurisdiction over air quality programs in Riverside County, where the RWQCP is located. The following paragraphs provide a review of applicable SCAQMD air quality regulations and rules.

2.5.1 SCAQMD Regulation II: Permits

2.5.1.1 Rule 201: Permit to Construct

According to Rule 201, a facility must not build, install, alter, or replace any equipment emitting air pollutants or controlling emissions of air pollutants without first obtaining a Permit to Construct from the SCAQMD. A Permit to Construct remains in effect until a Permit to Operate is granted or denied, or the application for the Permit to Construct is cancelled. The supporting information required with an application for a Permit to Construct is described in detail in Regulation II of the SCAQMD.

2.5.1.2 Rule 203: Permit to Operate

In connection to Rule 201, Rule 203 states that a facility must not operate or use any equipment emitting air pollutants or controlling emissions of air pollutants without first obtaining a Permit to Operate from the SCAQMD. The equipment must be operated according to the conditions specified in the Permit to Operate.

2.5.1.3 Rule 219: Equipment Not Requiring a Written Permit Pursuant to Regulation II

Pieces of equipment included in Rule 219, unless exempted, do not require written permits. Among others, they include:

- Mobile equipment (e.g., motor vehicles).
- Piston-type internal combustion engines with a rating of 50 bhp or less.
- Gas turbine engines with a maximum heat input rate of 2.975 MMBTU/hr or less.
- Boilers, process heaters, and combustion equipment with a maximum heat input rate of less than 2.000 MMBTU/hr.
- Fuel cells using phosphoric acid, molten carbonate, proton exchange membrane, or solid oxide technologies.
- Modifications to structures and equipment, including maintenance, repairs, and identical replacement, that cannot change the quality, nature, or quantity of air contaminant emissions.
- Listed utility equipment, including: equipment used exclusively to generate ozone and associated ozone destruction equipment for water treatment processes; passive carbon adsorbers with a volume of 55 gallons or less, used exclusively for foul air odor control from sanitary sewer systems.

2.5.1.4 Implications of Regulation II for the RWQCP

Regulation II of the SCAQMD requires application for a Permit to Construct and a Permit to Operate with any RWQCP expansion or modification, unless Regulation II specifically exempts the activity.

2.5.2 SCAQMD Regulation IV: Prohibitions

2.5.2.1 Rule 402: Nuisance

Rule 402 prohibits the discharge of air pollutants or other material that can cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or have the potential to cause injury or damage to business or property.

2.5.2.2 Implications of Regulation IV for the RWQCP

Rule 402 applies to odor emissions from the RWQCP. To ensure compliance with this rule, the SCAQMD may require in the future that the RWQCP meet specific fence-line odorant

concentration goals. As discussed in the 2005 Odor Control Master Plan, these concentration goals are based on the frequency of complaints received by the surrounding community. For example, the SCAQMD has established a fence-line hydrogen sulfide concentration of 10 parts per billion by volume (ppbv) for the wastewater treatment plants of the Orange County Sanitation District. Compliance with such a requirement would require emission and dispersion modeling.

2.5.3 SCAQMD Regulation XI: Source Specific Standards

2.5.3.1 Rule 1110.2 and Proposed Amendments: Emissions from Gaseous- and Liquid-Fueled Engines

Rule 1110.2 applies to all stationary and portable engines over 50 bhp. It sets concentration limits for NO_x, Volatile Organic Compounds (VOCs), and Carbon Monoxide (CO) emissions.

SCAQMD proposed amendments to Rule 1110.2 in January 2007. The proposed concentration limits for stationary engines fired by 90 percent or more of landfill or digester gas, based on the annual heat input of the fuels are presented in Table 2.2. The proposed stringent concentration limits in Table 2.2 do not apply to stationary engines used exclusively in standby mode.

Table 2.2 Proposed Concentration Limits for Digester Gas-Fired Engines Wastewater Collection and Treatment Facilities Integrated Master Plan City of Riverside	
Air Pollutant	Corrected Average Concentration (ppm)
Proposed Concentration Limits Effective before July 1, 2012	
NO _x	bhp ≥ 500: 36 x ECF ⁽¹⁾ bhp < 500: 45 x ECF ⁽¹⁾
VOC	250 x ECF ⁽¹⁾
CO	2,000
Proposed Concentration Limits Effective July 1, 2012	
NO _x	11
VOC	30
CO	70
Notes:	
(1) ECF is the efficiency correction factor. Its value is typically 1.0.	

The proposed concentration limits possibly apply to the three internal combustion engines of the cogeneration facility. To comply with the proposed limits, the RWQCP can either shut down the engines or convert them to standby; or retrofit the engines with fuel conditioning systems, Selective Catalytic Reduction (SCR) systems and CO catalysts. Installation of fuel cells that use digester/natural gas can allow conversion of the cogeneration engines to standby.

The amended Rule 1110.2 also proposes that the operator of any portable diesel engine complies with the applicable requirements of the Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater, Sections 93116 through 93116.5 of Title 17 of the California Code of Regulations. These specific sections and their implications are discussed below.

2.5.3.2 SCAQMD Rule 1179: Publicly Owned Treatment Works Operations

Rule 1179 applies to all existing Publicly Owned Treatment Works (POTWs). For large-capacity POTWs, i.e., those with a design capacity of 10 mgd or greater, the rule requires submission of an Emissions Inventory Plan for quantification and reporting of VOC and odor emissions through 2010. Although such plans and inventories have been completed in the past for the RWQCP, an amendment to Rule 1179 would possibly require updates to the Emissions Inventory Plan and the emissions projections beyond 2010.

2.5.4 SCAQMD Regulation XIII: New Source Review

This regulation defines pre-construction review requirements for new, modified, or relocated facilities, to ensure that operation of such facilities will not interfere with progress in attainment of the National Ambient Air Quality Standards (NAAQS), including state ambient air quality standards. The goal of this regulation is to achieve no net emission increases from new or modified permitted sources of nonattainment air contaminants or their precursors. In addition, this regulation limits emission increases of ammonia and ODCs from new, modified or relocated facilities by requiring the use of Best Available Control Technologies (BACT).

2.5.4.1 Rule 1302: Definitions

The following definitions are useful in understanding the New Source Review rules that affect air quality planning at the RWQCP.

- BACT is the most stringent emission limitation or control technique which: has been achieved in practice for such category or class of source; or is contained in any State Implementation Plan (SIP) approved by the U.S. EPA for such category or class of source; or is found by the SCAQMD to be technologically feasible for such category or class of source, and cost-effective.
- MAJOR POLLUTING FACILITY means any facility located in the South Coast Air Basin (SOCAB) that emits or has the potential to emit the following amounts or more:
 - VOC: 10 tons per year.
 - NO_x: 10 tons per year.
 - Sulfur oxides (SO_x): 100 tons per year.
 - Particulate matter (PM₁₀): 50 tons per year.
 - CO: 70 tons per year.

- MODIFICATION involves any physical change in equipment, change in method of operation, or an addition to an existing facility, which may cause emission of air pollutants. Routine maintenance and/or repair are not considered a physical change.
- ODCs are Class I substances identified in 40 CFR, Part 82, Appendix A, Subpart A, including, but not limited to the following compounds:
 - 1,1,1-Trichloroethane (methyl chloroform).
 - Trichlorofluoromethane (CFC-11).
 - Dichlorodifluoromethane (CFC-12).
 - 1,1,2-Trichloro-1,2,2,-trifluoroethane (CFC-113).
 - 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC-114).
 - Chloropentafluoroethane (CFC-115).
- POTENTIAL TO EMIT means the estimate for the amount of air pollutants emitted from a source based on the source maximum rated capacity and the maximum daily hours of operation. The Potential to Emit includes fugitive emissions.
- PRECURSORS to secondary air pollutants include VOCs, NO_x, and SO_x.

2.5.4.2 Rule 1303: Requirements

According to Rule 1303, SCAQMD will deny a Permit to Construct for construction or modification of a source that results in an emission increase of any nonattainment air contaminant unless use of BACT is demonstrated. A modified source is exempted from this requirement when the sole purpose of the modification is to reduce emissions of air pollutants. Also, a new or modified source is exempted if its potential to emit is less than the following amounts:

- VOC: 4 tons per year.
- NO_x: 4 tons per year.
- SO_x: 4 tons per year.
- PM₁₀: 4 tons per year.
- CO: 29 tons per year.

2.5.4.3 Implications of Regulation XIII for the RWQCP

The RWQCP is considered a major polluting facility for the purposes of Regulation XIII. There are no specific BACT requirements for major polluting facilities and the requirements are determined on a case-by-case basis at the time of the application for a Permit to Construct.

2.5.5 SCAQMD Regulation XIV: Toxics and Other Non-Criteria Pollutants

2.5.5.1 Rule 1401: New Source Review of Toxic Air Contaminants

Rule 1401 specifies limits for Maximum Individual Cancer Risk (MICR), cancer burden, and non-cancer acute and chronic Hazard Index (HI) from new permit units, relocations, or modifications to existing permit units emitting toxic air contaminants. The rule also applies to new, relocated, and modified equipment not requiring a written permit, if the risk from the equipment will be greater than identified below. Within a POTW facility, each process within multi-process permit units is considered a separate permit unit for purposes of this rule.

The requirements of this rule include:

- Risk assessment based on published procedures by the SCAQMD.
- An increase in sum MICR (for all carcinogens) no greater than one in a million (1.0×10^{-6}) at any receptor location, if the permit unit is constructed without TBACT (BACT for toxics); an increase in sum MICR (for all carcinogens) no greater than ten in one million (1.0×10^{-5}) at any receptor location, if the permit unit is constructed with TBACT; and a cancer burden no greater than 0.5.
- A cumulative increase in total chronic HI for any target organ system of no greater than 1.0 at any receptor location.
- The Potential to Emit is used for the purpose of estimating MICR and cancer burden.

The above requirements do not apply in the following cases:

- Permit renewal.
- Unit modification with no increase in risk.
- Functionally identical replacement.
- Emergency internal combustion engines.
- Gasoline transfer and dispensing facilities.

2.5.5.2 Implications of Regulation XIII for the RWQCP

A risk assessment study will likely be required with an application for a Permit to Construct for expansion facilities at the RWQCP. Coordination with the SCAQMD will be required at the time of application to define the scope and extent of the risk assessment study.

2.5.6 SCAQMD Regulation XXX: Title V Permits

The Title V Permit is the air pollution control permit system required to implement the federal Operating Permit Program as mandated by Title V of the federal Clean Air Act (CAA).

2.5.6.1 Rule 3001: Applicability

According to Rule 3001, facilities with the potential to emit equal to or exceeding the threshold amounts shown below must submit an application to SCAQMD for an initial Title V Permit.

- VOC: 10 tons per year.
- NO_x: 10 tons per year.
- SO_x: 100 tons per year.
- CO: 50 tons per year.
- PM₁₀: 70 tons per year.
- A single Hazardous Air Pollutant (HAP): 10 tons per year.
- Combination of HAPs: 25 tons per year.

Facilities demonstrating to SCAQMD that their potential to emit has been reduced, either through a facility modification or by accepting an enforceable condition in the District facility permit, to less than the thresholds presented above, are exempted from Title V permit requirements. Unless renewed, a Title V Permit expires five years from the date of issuance.

2.5.6.2 Rule 3004: Permit Types and Content

Rule 3004 describes the contents of a Title V Permit. Among others, a permit includes:

- Emissions limitations and operational requirements that assure compliance with all regulatory requirements at the time of permit issuance.
- The origin and authority of each permit term or condition.
- Monitoring, recordkeeping, and reporting requirements.
- Provisions for alternative operating scenarios consistent with regulatory requirements.
- If requested by the applicant, terms and conditions for trading of emissions increases and decreases, provided that regulatory requirements allow such trading.
- Compliance requirements, including: compliance certification, testing, monitoring, reporting, and recordkeeping requirements; inspection requirements; progress reports.

The rule also describes the Permit Shield provision. If requested by the applicant, SCAQMD may expressly include in a Title V permit, a provision stating that compliance with the conditions of the permit is considered compliance with any regulatory requirements as of the date of issuance.

2.5.6.3 Implications of Regulation XXX for the RWQCP

The RWQCP submitted a Title V Permit application to the SCAQMD in November 2001. The application was triggered by the Potential to Emit exceeding 10 tons per year for NO_x and VOCs, and 50 tons per year for CO, due to the engines of the cogeneration facility. As of June 2007, SCAQMD has not issued a Title V Permit for the RWQCP. A Permit Shield was requested for the three internal combustion engines of the cogeneration facility. If the RWQCP demonstrates to SCAQMD that its potential to emit has been reduced to less than the thresholds presented above (e.g., through the installation of fuel cells and conversion of the cogeneration engines to standby) there will be no obligation for a Title V renewal.

2.5.7 SCAQMD Best Available Control Technology Guidelines

As discussed above, the SCAQMD Regulation XIII: New Source Review requires applicants to use BACT for new, relocated, and modified sources that may result in an emission increase of any nonattainment air contaminant, ODC, or ammonia.

BACT standards apply to both major and non-major polluting facilities. Major polluting facilities, such as the RWQCP, are required by the Clean Air Act to exhibit the Lowest Achievable Emission Rate (LAER). LAER is determined at the time a permit is issued. SCAQMD staff determines LAER requirements on a permit-by-permit basis. In essence, LAER is the most stringent emission limit or control technology that is:

- Found in a SIP.
- Achieved in Practice (AIP).
- Technologically feasible and cost effective.

For practical purposes, nearly all SCAQMD LAER determinations are based on the AIP criterion because it is generally more stringent than the SIP criterion, and because state law constrains use of the third criterion.

An emission limit or control technology may be considered as AIP for a source category or class if it exists in any BACT or LAER guideline document or clearinghouse issued by the U.S. EPA or any of the states or air quality districts. A control technology or emission limit may also be considered as AIP if it meets all of the following criteria:

- Commercial availability: At least one vendor offers the equipment in the United States.
- Reliability: All control technologies have been installed and operated reliably for at least 6 months.
- Effectiveness: The equipment is verified to perform effectively over the range of operation expected for that type of equipment.

2.6 REVIEW OF APPLICABLE CARB REGULATIONS

2.6.1 California Code of Regulations, Title 17, Section 93116: Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater

The purpose of this Airborne Toxic Control Measure (ATCM) is to reduce diesel Particulate Matter (PM) emissions from portable diesel-fueled engines.

2.6.1.1 Section 93116.1: Applicability

The regulation applies to portable diesel-fueled engines with rated brake horsepower of 50 and greater (> 50 bhp). The regulation does not apply to portable engines using alternative fuels.

2.6.1.2 Section 93116.2: Definitions

The following definitions are useful in understanding the implications of Section 93116 for air quality planning at the RWQCP.

ALTERNATIVE FUEL means gasoline, natural gas, propane, Liquid Petroleum Gas (LPG), hydrogen, ethanol, or methanol.

EMERGENCY means any of the following situations or conditions:

- Failure of all or part of normal electrical power service or natural gas supply to the facility.
- Failure of an internal power distribution system.
- Pumping of water or sewage to prevent or mitigate a flood or sewage overflow.
- Pumping of water for fire suppression or protection.
- Pumping of water to maintain pressure in the water distribution system.
- Breakdown of electric-powered pumping equipment at sewage treatment facilities or water delivery facilities.
- Training of personnel in the use of portable equipment for emergency purposes.

FLEET refers to a portable engine or group of portable engines that are owned and managed by an individual operational entity.

LEVEL-3 VERIFIED TECHNOLOGY means a technology that has demonstrated a reduction in diesel particulate matter of 85 percent or greater.

LOW-USE ENGINES refers to portable diesel-fueled engines that operate 80 hours or less in a calendar year.

SCR SYSTEM refers to an air pollution emissions control system that reduces NO_x emissions through the catalytic reduction of NO_x by injecting nitrogen-containing compounds into the exhaust stream, such as ammonia or urea.

TIER 4 EMISSION STANDARDS refers to the final emission standards adopted by the U.S. EPA for newly manufactured non-road engines.

2.6.1.3 Section 93116.2: Requirements

Owners of portable diesel-fueled engines used exclusively in emergency applications or as low-use engines must satisfy one of the following requirements by January 1, 2020:

- Replace portable diesel-fueled engines with engines certified to meet Tier 4 emission standards.
- Equip existing portable diesel-fueled engines with properly functioning level-3 verified technologies.
- Equip existing portable diesel-fueled engines with a combination of verified emission control strategies that have been verified together to achieve at least 85 percent reduction in diesel PM emissions.

Apart from equipment requirements, specific PM emission rate requirements apply to portable diesel-fueled engines. For engines less than 175 bhp, the following weighted fleet average PM emissions must be met: 0.30 g/bhp-hr by January 1, 2013; 0.18 g/bhp-hr by January 1, 2017; 0.04 g/bhp-hr by January 1, 2020. For engines equal to or greater than 175 bhp but less than 750 bhp, the following weighted fleet average PM emissions must be met: 0.15 g/bhp-hr by January 1, 2013; 0.08 g/bhp-hr by January 1, 2017; 0.02 g/bhp-hr by January 1, 2020. Incentives to meet fleet average emissions include use of alternative fuels and addition of Tier 4 non-road engines prior to January 1, 2015.

The above emission requirements do not apply to portable diesel-fueled engines used in emergency applications or as low-use engines that do not exceed the allowed hours of operation in a calendar year. In addition, the emission requirements do not apply to engines equipped with properly operating SCR systems. Finally, changes in the fleet, including engine additions or deletions, cannot result in noncompliance with the above emission limits.

2.6.1.4 Implications of California Regulation Title 17, Section 93116

Title 17, Section 93116 applies to all five portable diesel-fueled engines in the RWQCP. The specific requirements for the five engines are explicitly described in the Statewide Portable Equipment document issue for each engine by the California Air Resources Board (CARB).

2.7 REVIEW OF CALIFORNIA ASSEMBLY BILL 32 (AB 32 – GLOBAL WARMING SOLUTIONS ACT OF 2006) AND RELATED REGULATIONS

California initiated the first regulatory program in the U.S. with the objective of reducing Greenhouse Gas (GHG) emissions. The following paragraphs discuss the bill and related regulations, as well as their potential impacts on air quality planning on POTWs.

On a national level, the U.S. Supreme Court ruled on April 2, 2007 that GHGs qualify as air pollutants under the Clean Air Act. While the rule was specific to the authority of U.S. EPA to regulate emissions from new motor vehicles, it opens the door for federal lawsuits and statewide regulations regarding GHG emissions from other sources, including POTWs.

2.7.1 AB 32 - Global Warming Solutions Act of 2006

California Assembly Bill 32 (AB 32), also known as the Global Warming Solutions Act of 2006, creates a comprehensive, multi-year program to reduce GHG emissions in California, with the overall goal of restoring emissions to 1990 levels by the year 2020. AB 32 targets the following six GHGs:

- Non-biogenic carbon dioxide (CO₂).
- Methane (CH₄).
- Nitrous oxide (N₂O).
- Hydrofluorocarbons (HFCs).
- Perfluorocarbons (PFCs).
- Sulfur hexafluoride (SF₆).

Under AB 32, the CARB has the primary responsibility for reducing GHG emissions. Table 2.3 provides a summary of actions CARB will take to meet the objectives of AB 32.

Table 2.3 AB 32 Implementation Schedule Wastewater Collection and Treatment Facilities Integrated Master Plan City of Riverside	
Date	Action
June 30, 2007	CARB publishes a list of early-action reduction measures for GHG emissions.
January 1, 2008	CARB adopts GHG monitoring and reporting regulations.
January 1, 2009	CARB approves plan to achieve the maximum technologically feasible and cost-effective reductions in GHG emissions by 2020.
January 1, 2010	CARB adopts regulations to implement early-action reduction measures for GHG emissions.

Table 2.3 AB 32 Implementation Schedule Wastewater Collection and Treatment Facilities Integrated Master Plan City of Riverside	
Date	Action
January 1, 2011	CARB adopts GHG emission limits and reduction measures to become operative on January 1, 2012. CARB may also establish a system of market-based declining annual aggregate emission limits for GHGs applicable from January 1, 2012 to December 31, 2020.
January 1, 2012	Adopted GHG emission limits and reduction measures become operative. Adopted market-based system becomes operative.
December 31, 2020	Statewide GHG emission levels become equivalent to 1990 levels.

2.7.1.1 California Climate Action Registry

The California Climate Action Registry (Registry) is a non-profit entity in charge of tracking voluntary reporting of GHG emissions. The Registry publishes the General Reporting Protocol that provides guidance for the estimation and reporting of GHG emissions. The Registry also offers the Climate Action Registry Reporting Online Tool (CARROT), an electronic protocol that facilitates estimation and reporting of GHG emissions. There are early indications that CARB will either adopt CARROT for mandatory reporting or will incorporate it into a statewide system.

At a minimum, participants in the Registry must report at least 95 percent of their entity-wide emissions for each of the following categories:

- Direct emissions from mobile source combustion (transportation).
- Direct emissions from stationary combustion.
- Indirect emissions from electricity use and imported steam, heating, and cooling.
- Direct process emissions.
- Direct fugitive emissions (e.g., N₂O and CH₄ emissions from wastewater).

For the first three years after joining the Registry, participants must report at a minimum their CO₂ emissions. Starting with the fourth year, participants must report emissions for all six GHGs. A Registry-approved third party must certify the reported emission estimates. Participants must pay all expenses for the third party evaluation and certification, as well as a size-scaled annual Registry Fee ranging from \$400 to \$4,000. Use of the CARROT is free.

The Registry notes four key benefits to early voluntary GHG emissions reporting:

- Detection of process inefficiencies through emissions monitoring.
- Preparedness for new regulations on GHG emissions.
- Being in a position to help shape policy.
- Gaining credit for GHG emission reductions.

In 2005, 48 entities voluntarily reported GHG emissions including four POTWs: East Bay Municipal Utilities Department, the City of Palo Alto, the Los Angeles Department of Water and Power, and the San Francisco Public Utilities Commission.

2.7.1.2 California Statewide POTW Steering Committee

California Statewide POTW Steering Committee (Committee) is a statewide group of POTWs established in response to AB 32. The Bay Area Clean Water Agencies (BACWA) currently acts as the Committee coordinator. The Committee met for the first time in March 2007. The objectives of the Committee are to:

- Be a forum and go-to group for the wastewater industry.
- Work with agencies to develop wastewater specific emissions protocols and an industry strategy.
- Avoid duplication of efforts.

Membership to the Committee is open to any agency. There are currently two tiers of membership, loosely defined by the agency size and contribution amount. The annual membership fee is \$10,000 for large agencies and \$500 for small agencies. Small agencies have no voting rights.

2.7.1.3 Potential Implications of AB 32 and Related Regulations to the RWQCP

Potential implications of AB 32 for the RWQCP include:

- Reporting of GHG emissions, initially voluntary and later mandatory.
- Reduction of GHG emissions.
- A cap-and-trade program setting an overall emission cap and allowing flexibility in complying with the cap through trading and allocation schemes, such as auctioning credits, and/or offsets.
- Participation in Municipal Utility Energy Efficiency Programs to increase energy use efficiency and energy production from renewable sources (e.g., biogas, solar energy, and wind energy). These programs would be administered by the California Public Utilities Commission (CPUC) and could feature risk/reward incentive mechanisms.
- Increase in recycling requirements.

PLANT EMISSIONS OF TAC AND ODC

Table A.1 Summary of 2005-2006 Emissions for Toxic Air Contaminants (TAC) and Ozone Depleting Compounds (ODC)⁽¹⁾	
Wastewater Collection and Treatment Facilities Integrated Master Plan	
City of Riverside	
Air Pollutant⁽²⁾	Annual Plant Emissions (lb)
Benzene	15.2
1,3-Butadiene	3.97
Cadmium	0.02
Carbon Tetrachloride	0.15
Ethylene Dibromide	0.59
Ethylene Dichloride	0.10
Formaldehyde	827
Inorganic Arsenic	0.09
Lead	0.14
Methylene Chloride	1.40
Nickel	0.08
Perchloroethylene	1.94
Polycyclic Aromatic Hydrocarbons (PAHs)	3.09
Trichloroethylene	0.72
Vinyl Chloride	0.08
1,1,2,2-Tetrachloroethane	0.54
1,1,2-Trichloroethane (Vinyl Trichloride)	0.43
1,2,4-Trimethylbenzene	0.19
1,2-Dichloropropane	0.36
1,3-Dichloropropene	0.35
Acetaldehyde	118
Acrolein	70.0
Ammonia	581
Chloroform	279
Ethylbenzene	131
Hexane	17.7
Methanol	33.6
p-Dichlorobenzene	0.80

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Wastewater Collection and Treatment Facilities Integrated Master Plan City of Riverside	
Air Pollutant⁽²⁾	Annual Plant Emissions (lb)
Selenium Compounds	0.44
Styrene	0.32
Toluene	68.4
Xylenes	6.84

Notes:
(1) Based on the 2005-2006 Annual Emissions Report provided by the RWQCP.
(2) The AER does not report emissions of hydrogen sulfide, a TAC.