

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

RESOLUTION NO. 2015- 11

**A Resolution of the Board of Directors of the
Bay Area Air Quality Management District
Amending District Regulation 6, Rule 5: Particulate Emissions from Refinery
Fluidized Catalytic Cracking Units; and Adopting a CEQA Negative Declaration for
the Project**

WHEREAS, public hearings have been properly noticed in accordance with the provisions of Health & Safety Code § 40725;

WHEREAS, the Board of Directors of the Bay Area Air Quality Management District (“Air District”) has determined that a need exists to amend District rules and regulations by adopting Regulation 6, Rule 5: Particulate Emissions from Fluidized Catalytic Cracking Units; as set forth in Attachment A hereto (“Proposed Amendments”);

WHEREAS, the Board of Directors of the Air District obtains its authority to adopt, amend or repeal rules and regulations from Sections 40000, 40001, 40702, and 40725 through 40728.5, of the California Health & Safety Code;

WHEREAS, the Board of Directors of the Air District has determined that the Proposed Amendments are written and displayed so that their meaning can be easily understood by the persons directly affected by the rule;

WHEREAS, the Board of Directors of the Air District has determined that the Proposed Amendments are in harmony with and not in conflict with or contradictory to existing statutes, court decisions, and state and federal regulations;

WHEREAS, the Board of Directors of the Air District has determined that the Proposed Amendments do not impose the same requirements as any existing state or federal regulation, and are necessary and proper to execute the power and duties granted to, and imposed upon, the Air District;

WHEREAS, the Board of Directors of the Air District, by adopting the Proposed Amendments, is implementing, interpreting or making specific the provisions of Health & Safety Code § 40001 (rules to achieve ambient air quality standards), and § 40702 (rulemaking actions that are necessary and proper to execute the powers and duties granted to it);

WHEREAS, the Board of Directors of the Air District adopted Resolution 2014-17 in October 2014, instructing District staff to develop a regulatory strategy that would further reduce emissions from petroleum refineries;

WHEREAS, Air District staff released an Advanced Call for Comments on May 26, 2015, which included a concept paper, draft rule language, and a draft staff report for Regulation 6, Rule 5;

WHEREAS, the Air District prepared initial draft amendments, published them for comment, and held a series of public workshops in locations near refineries that would be affected by the rule on September 15, 17, and 28, 2015, to discuss the draft amendments with interested parties and the public;

WHEREAS, on September 21, 2015, Air District staff discussed the draft amendments with the Stationary Source Committee of the Board of Directors of the Air District;

WHEREAS, on October 7, 2015, District staff discussed the draft amendments with the Board of Directors of the Air District;

WHEREAS, subsequent to the public workshops, on October 23, 2015, Air District staff revised the draft amendments based on comments received and published the revised draft amendments for comment in advance of the public hearing to consider adoption of Regulation 6, Rule 5;

WHEREAS, on November 13, 2015, the Air District transmitted the text of the draft amendments to California Air Resources Board;

WHEREAS, on or before October 23, 2015, Air District staff published in newspapers and distributed and published on the District's website a notice of a public hearing to be held on December 16, 2015 to consider adoption of the draft amendments, and the notice included a request for public comments and input on the draft amendments;

WHEREAS, the Board of Directors of the Air District held a public hearing on December 16, 2015 to consider the Proposed Amendments in accordance with all provisions of law ("Public Hearing");

WHEREAS, at the Public Hearing, the subject matter of the Proposed Amendments was discussed with interested persons in accordance with all provisions of law;

WHEREAS, Air District staff has prepared and presented to the Board of Directors a detailed Staff Report regarding the Proposed Amendments, which Staff Report has been considered by this Board and is incorporated herein by reference;

WHEREAS, the Board of Directors finds and determines that the Proposed Amendments are considered a "project" pursuant to the California Environmental Quality Act ("CEQA") (Public Resources Code § 21000 *et seq.*);

WHEREAS, the Air District is the CEQA lead agency for this project pursuant to CEQA Guidelines § 15050 (14 California Code of Regulations ("CCR") § 15050);

WHEREAS, Air District staff contracted with Environmental Audit, Inc., of Placentia, California to prepare an assessment of the potential environmental effects from the adoption and implementation of the Proposed Amendments;

WHEREAS, Environmental Audit, Inc., prepared an Initial Study as required by CEQA, in which the potential environmental effects from the adoption and implementation of the Proposed Amendments were analyzed, and subsequently prepared a Draft Negative Declaration for the proposed rulemaking project because the Initial Study identified no potentially significant effects on the environment and because there is no evidence in the record before the District that there could be a significant effect on the environment from the adoption and implementation of this rulemaking project;

WHEREAS, that Draft Negative Declaration and Initial Study were offered for and subjected to public review and comment (Public Resources Code §§ 21082.1, 21091, 21092; California Code of Regulations, title 14, § 15070 *et seq.*);

WHEREAS, public notice was provided and copies of the Draft Negative Declaration were made available to all interested persons and provided an adequate comment period of at least 20 days pursuant to CEQA Guidelines § 15105, subdivision (b);

WHEREAS, comments on the CEQA document were received from interested persons and responses to those comments were included in the final Staff Report;

WHEREAS, Air District staff, in exercising its independent judgment, has determined that there is no substantial evidence, in light of the whole record before the Air District, that the adoption and implementation of the Proposed Amendments could have a significant effect on the environment;

WHEREAS, it is necessary that the adequacy of the Draft Negative Declaration be determined by the Board of Directors prior to its adoption;

WHEREAS, the members of the Board of Directors voting on this Resolution have reviewed and considered the Draft Negative Declaration;

WHEREAS, the Board of Directors finds and determines that in light of the whole record before it (which specifically includes the Initial Study and the Draft Negative Declaration), the Proposed Amendments will not have any significant effect on the environment, and the Negative Declaration reflects the Air District's independent judgment and analysis;

WHEREAS, the Board of Directors, pursuant to the requirements of Health & Safety Code § 40728.5, has actively considered the socioeconomic impacts of Proposed Amendments and has reviewed and considered the "Socio-Economic Analysis: Proposed Amendments to Regulation 8, Rule 18 ("Equipment Leaks"), Regulation 11, Rule 10 ("Hexavalent Chromium Emissions and Total Hydrocarbon Emissions From Petroleum Refinery Cooling Towers"), and Draft New Regulation 6, Rule 5 ("Particulate Emissions from Refinery Fluidized Catalytic Cracking Units")," prepared for the Air District by

Applied Development Economics of Walnut Creek, California, which concludes that the Proposed Amendments will have a less than significant economic impact and will not disproportionately impact small businesses;

WHEREAS, the Board of Directors, pursuant to the requirements of Health & Safety Code § 40920.6, has actively considered the incremental cost-effectiveness of the Proposed Amendments in meeting emission reduction goals under the California Clean Air Act as set forth in Appendix A of the Staff Report, and finds and determines that there are no incrementally more cost-effective potential control options that would achieve the emission reduction objectives of the Proposed Amendments;

WHEREAS, the Air District has prepared, pursuant to the requirements of Health & Safety Code § 40727.2, a written analysis of federal, state, and District requirements applicable to this source category and has found that the Proposed Amendments would not be conflict with any federal, state, or other Air District rules, and the Board of Directors has agreed with these findings;

WHEREAS, the documents and other materials that constitute the record of proceedings on which this rulemaking project is based are located at the Bay Area Air Quality Management District, 939 Ellis Street, San Francisco, 94109, and the custodian for these documents is Maricela Martinez, Clerk of the Boards;

WHEREAS, Air District staff recommends adoption of the Proposed Amendments and adoption of the Negative Declaration for this rulemaking project;

WHEREAS, the Board of Directors concurs with Air District staff's recommendations and desires to adopt the Proposed Amendments and to adopt the Negative Declaration for the Proposed Amendments to comply with CEQA;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Bay Area Air Quality Management District does hereby adopt the Proposed Amendments, pursuant to the authority granted by law, as set forth in Attachment A hereto, and discussed in the Staff Report (including Appendices) with instructions to Air District staff to correct any typographical or formatting errors before final publication of the Proposed Amendments.

BE IT FURTHER RESOLVED that the Board of Directors of the Bay Area Air Quality Management District does hereby adopt the Negative Declaration pursuant to CEQA for the Proposed Amendments.

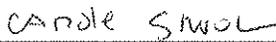
BE IT FURTHER RESOLVED that the Board of Directors of the Bay Area Air Quality Management District directs staff to modify the publicly-noticed regulatory language to delay the compliance dates for certain ammonia optimization actions by replacing the date "December 31, 2016" with the date "June 30, 2017" in Section 6-5-403.3, and by replacing the date "February 28, 2017" with the date "August 31, 2017" in Section 6-5-403.4.

The foregoing Resolution was duly and regularly introduced, passed and adopted at a regular meeting of the Board of Directors of the Bay Area Air Quality Management District on the Motion of Director GIOIA, seconded by Director MITCHOFF, on the 16th day of December, 2015 by the following vote of the Board:

AYES: AVALOS, BARRETT, CANEPA, CHAVEZ, GIOIA, GROOM, HUDSON, KIM, KNISS, MAR, MITCHOFF, RICE, ROSS, SPERING, WAGENKNECHT, ZANE

NOES: NONE.

ABSENT: BATES, FUJIOKA, HAGGERTY, MILEY, PEPPER, SINKS



Carole Groom
Chairperson of the Board of Directors

ATTEST:



Liz Kniss
Secretary of the Board of Directors

ATTACHMENT A

[PROPOSED AMENDMENTS]

**Amended Regulation 6, Rule 5: Particulate Emissions from
Refinery Fluidized Catalytic Crackers**

**REGULATION 6
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RULE 5
PARTICULATE EMISSIONS FROM REFINERY FLUIDIZED CATALYTIC
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**REGULATION 6
PARTICULATE MATTER
RULE 5
PARTICULATE EMISSIONS FROM REFINERY FLUIDIZED CATALYTIC
CRACKING UNITS**

(Adopted [Adoption Date])

6-5-100 GENERAL

6-5-101 Description: This rule limits the emissions of condensable particulate matter emissions from petroleum refinery fluidized catalytic cracking units (FCCUs) as well as emissions of precursors of secondary particulate matter. Regulation 6, Rule 1 addresses filterable particulate emissions from FCCUs. For the purposes of this rule, commingled ammonia, condensable particulate and sulfur dioxide emissions from an FCCU and one or more other sources from a single exhaust point shall all be considered to be FCCU emissions.

6-5-110 EXEMPTIONS

6-5-111 Exemption, Emissions Abated by Wet Scrubber: The emission limits in Section 6-5-301 shall not apply to emissions that are abated by a wet scrubber that is required to be operated by a District permit and that constitutes best available control technology (BACT) for any pollutant.

6-5-112 Limited Exemption, Emissions during Startup or Shutdown Periods: The requirements of Section 6-5-301 shall not apply to emissions during an FCCU startup or shutdown period. FCCU startup and shutdown periods shall be as defined in this rule, unless a different period is specified in a District Permit to Operate for an FCCU, in which case the Permit to Operate shall take precedence. This exemption is also applicable to a non-FCCU source with startup or shutdown provisions specified in a Permit to Operate, if that source is subject to the requirements of Section 6-5-301 because the source emissions are commingled with those of an FCCU at a single exhaust point; the startup or shutdown provisions specified in the Permit to Operate shall be the basis for this exemption. Whenever this exemption applies to any source, it shall apply to all sources with commingled emissions.

6-5-113 Limited Exemption, Installation of Wet Scrubber: The emission limit effective date for ammonia in Section 6-5-301 may be extended to a later date specified in a District Authority to Construct for an existing FCCU to be controlled with a new wet scrubber, but may not be extended by more than 36 months.

6-5-114 Limited Exemption, FCCU without Nitrogen-Based Additives: The emission limit for ammonia in Section 6-5-301 shall not apply to an FCCU where ammonia, urea or any other nitrogen-based additive is not used in a way that contributes to ammonia or condensable particulate FCCU emissions.

6-5-115 Limited Exemption, Ammonia Optimization: The ammonia emission limit in Section 6-5-301 shall not apply to the owner/operator of a refinery that implements an optimization of ammonia and/or urea injection in accordance with Section 6-5-403.

6-5-200 DEFINITIONS

6-5-201 Ammonia Slip: Ammonia slip is the amount of unreacted ammonia emitted to the atmosphere from the FCCU, regardless of the source of the ammonia.

6-5-202 Catalyst Regeneration Unit (CRU): A catalyst regeneration unit regenerates spent FCCU catalyst by burning off the coke that has deposited on the catalyst surface. The resulting CRU flue gas is the primary emission source addressed by this rule.

- 6-5-203 Condensable Particulate Matter:** Liquid droplets that coalesce, or gaseous emissions that condense to form liquid or solid particles. These liquid and/or solid particles are identified as condensable organic or condensable inorganic particulate matter using EPA Test Method 202.
- 6-5-204 Daily Average:** The arithmetic mean of the measured ammonia emissions subject to Section 6-5-301 on any calendar day that the FCCU operates.
- 6-5-205 FCCU Shutdown:** Unless otherwise specified in a District Permit to Operate, FCCU shutdown is a period which begins when fresh feed flow to the FCCU reactor stops and ends when the main blower for catalyst recirculation is shutdown.
- 6-5-206 FCCU Startup:** Unless otherwise specified in a District Permit to Operate, FCCU startup is a period not exceeding 120 hours which begins with the startup of the main blower for introduction of catalyst and ends after fresh feed is introduced to the FCCU reactor, when the process reaches steady state.
- 6-5-207 Fluidized Catalytic Cracking Unit (FCCU):** A fluidized catalytic cracking unit (FCCU) is a processing unit that converts heavy petroleum fractions, typically from crude oil distillation units, into lighter fuel intermediates by using a fine, powdered catalyst to promote a chemical reaction in which the heavy petroleum molecules are broken into smaller molecules. In addition to the cracking reactor, an FCCU includes a catalyst regeneration unit (CRU), ancillary equipment including blowers, and all equipment for controlling air pollutant emissions and recovering heat.
- 6-5-208 Petroleum Refinery:** An establishment that is located on one or more contiguous or adjacent properties that processes crude oil to produce more usable products such as gasoline, diesel fuel, aviation fuel, lubricating oils, asphalt or petrochemical feedstocks. Petroleum refinery processes include separation processes (e.g., atmospheric or vacuum distillation, and light ends recovery), petroleum conversion processes (e.g., cracking, reforming, alkylation, polymerization, isomerization, coking, and visbreaking) petroleum treating processes (e.g., hydrodesulfurization, hydrotreating, chemical sweetening, acid gas removal, and deasphalting), feedstock and product handling (e.g., storage, blending, loading, and unloading), auxiliary facilities (e.g., boilers, waste water treatment, hydrogen production, sulfur recovery plant, cooling towers, blowdown systems, compressor engines, and power plants).
- 6-5-209 Primary Particulate Matter:** Material emitted to the atmosphere as filterable or condensable particulate matter.
- 6-5-210 Secondary Particulate Matter:** Material emitted to the atmosphere in a gaseous form that will not coalesce or condense to a solid or liquid form at atmospheric temperature and pressure, but that may react in the atmosphere into a solid or liquid form. For the purposes of this rule, precursors of Secondary Particulate Matter shall include sulfur dioxide (SO₂) and ammonia.
- 6-5-211 Wet Scrubber:** A device that removes air pollutants from gas streams by contacting the gas stream with a scrubbing liquid.

6-5-300 STANDARDS

- 6-5-301 Fluidized Catalytic Cracking Unit (FCCU) Emission Limits:** The owner/operator of a Petroleum Refinery that includes an FCCU shall not cause emissions to the atmosphere from the FCCU that exceed the limits in Table 1 on or after the indicated effectiveness date:

Pollutant	Emission Limit	Effective Date
Ammonia	10 ppmvd at 3% O ₂ as a daily average	January 1, 2018
Condensable Particulate Matter	[future]	[future]
Sulfur Dioxide (SO ₂)	[future]	[future]

6-5-400 ADMINISTRATIVE REQUIREMENTS

6-5-401 Ammonia Control Plan and Permit Applications: No later than January 1, 2017, the owner/operator of a Petroleum Refinery subject to the ammonia emission limit in Section 6-5-301 shall submit to the APCO a control plan detailing the measures, if any, to be taken in order to meet the requirements of Section 6-5-301, and also applications for all Authorities to Construct necessary for compliance with Section 6-5-301.

6-5-402 Ammonia Monitoring Plan: No later than January 1, 2017, the owner/operator of a Petroleum Refinery that includes an FCCU subject to the ammonia emission limit in Section 6-5-301 shall submit to the APCO a plan for the installation of an ammonia monitoring system to perform monitoring as required by Section 6-5-501. This plan shall identify the proposed monitoring technique, monitoring equipment, installation details and installation schedule.

6-5-403 Ammonia Optimization: As an alternative to compliance with the ammonia emission limit of Section 6-5-301, the owner/operator of a refinery may instead establish an enforceable ammonia emission limit for the FCCU that results in the minimization of total FCCU PM_{2.5} emissions (including all condensable particulate matter), as follows:

- 403.1 No later than March 1, 2016, the refinery owner/operator shall submit to the APCO an Optimization and Demonstration Protocol for the purpose of establishing the minimum rate of ammonia and/or urea injection necessary to minimize total PM_{2.5} FCCU emissions (including all condensable particulate matter) while complying with all existing permit requirements, excluding permit requirements that are not based on District BACT requirements, on District prohibitory rule limits or on federal consent decrees. The Optimization Protocol shall include the ammonia and/or urea injection rates to be evaluated and the criteria for selecting these rates, and also the criteria for determining the Optimized Ammonia Emissions Concentration that minimizes total FCCU PM_{2.5} emissions.
- 403.2 Within 60 days, the APCO shall either approve or disapprove the Optimization and Demonstration Protocol.
- 403.3 The refinery owner/operator shall commence and complete the Optimization and Demonstration Protocol, approved by the APCO, no later than June 30, 2017.
- 403.4 The refinery owner/operator shall report to the APCO the results of the Optimization and Demonstration Protocol and the proposed Optimized Ammonia Emissions Concentration no later than August 31, 2017. No later than this same date, the refinery owner/operator shall submit a District permit application to 1) establish the Optimized Ammonia Emissions Concentration as an enforceable permit requirement, and to 2) relax any existing permit conditions that are not based on District BACT requirements, on District prohibitory rule limits or on federal consent decrees to the extent necessary to minimize total FCCU PM_{2.5} emissions.
- 403.5 Disapproval of an Optimization and Demonstration Protocol, or a failure to meet any requirement or deadline in this section shall not constitute a violation of this rule, but shall preclude the applicability of the limited exemption in Section 6-5-115.

6-5-500 MONITORING AND RECORDS

- 6-5-501 Ammonia Monitoring:** The owner/operator of a Petroleum Refinery that includes an FCCU subject to the ammonia emission limit in Section 6-5-301 shall, no later than January 1, 2018, operate one of the following;
- 501.1 A mass-balance monitoring system that includes all of the following:
- 1.1 Parametric monitors that comply with District Regulation 1, Section 523 to continuously measure the injection or addition rate (pounds per hour) of ammonia, urea or any other nitrogen-based additive into the emission stream, and;
 - 1.2 Continuous emission monitors that comply with District Regulation 1, Section 522 to continuously measure NOx and oxygen concentrations at appropriate locations to allow a calculation of the amount of ammonia and/or urea consumed in NOx-reduction reactions, and therefore the remaining, emitted amount of non-consumed ammonia.
- 501.2 Any other ammonia emission monitoring system approved in writing by the APCO.
- 6-5-502 Ammonia Records:** The owner/operator of a Petroleum Refinery subject to the ammonia emission limit in Section 6-5-301 shall maintain records of the data required to be measured in Section 6-5-501. These records shall be kept for a period of at least five years and shall be made available to the APCO on request.
- 6-5-600 MANUAL OF PROCEDURES**
- 6-5-601 Compliance Determination:** All compliance determinations shall be made in the as-found operating condition. No compliance determinations shall be made during periods subject to the exemption in Section 6-5-112.
- 6-5-602 Determination of Ammonia and Oxygen:** Determination of ammonia shall be by Regulation 1, Section 522 NOx monitors or other APCO approved ammonia monitoring system. Determination of oxygen shall be by Regulation 1, Section 522 oxygen monitor.