

**REGULATION 12**  
**MISCELLANEOUS STANDARDS OF PERFORMANCE**  
**RULE 16**  
**PETROLEUM REFINING EMISSIONS LIMITS ANALYSIS, THRESHOLDS AND**  
**MITIGATION AND RISK THRESHOLDS**

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**REGULATION 12**  
**MISCELLANEOUS STANDARDS OF PERFORMANCE**  
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**PETROLEUM REFINING EMISSIONS ~~ANALYSIS, THRESHOLDS AND MITIGATION~~**  
**AND RISKS LIMITS**  
**(ADOPTED [DATE])**

**12-16-100 GENERAL**

**12-16-101 Description:** The purpose of this rule is to ~~identify the cause of, and to mitigate, any significant emissions increases from petroleum refineries~~ ensure that the emissions from operation of Bay Area Refineries do not pose an unacceptable health risk on nearby communities and do not result in exceedance of the National Ambient Air Quality Standards for SO<sub>2</sub> and PM<sub>2.5</sub>.

**12-16-102 Exemption, Small Refineries:** This rule shall not apply to any refinery that is limited to a total crude oil throughput or total crude oil processing capacity of 5,000 barrels per day or less by an Air District Permit to Operate.

~~**12-16-103 Limited Exemption, Increases in Crude Oil Throughput:** This rule does not require mitigation of emission increases of criteria pollutants or greenhouse gases if such increases are caused solely by an increased volume of crude oil processed at the crude oil unit as allowed by an Air District Permit to Operate, relative to the crude oil unit throughput that was used to establish the PREP in Regulation 12, Rule 15, and those increases do not reflect an increase in the emission rate relative to the processing rate of crude oil. Therefore, the portion of the increase in emissions of a criteria pollutant or greenhouse gas above the Trigger Level that is attributable to an increase in crude oil throughput shall be addressed in the Causal Analysis in Section 12-16-401.1, but is exempt from the other requirements of Section 401 provided the refinery owner/operator satisfies the requirements of Section 12-16-405.~~

~~**12-16-104 Limited Exemption, Greenhouse Gas Emissions:** Emission increases of greenhouse gases (GHG) that exceed the Trigger Levels in Section 12-16-301 shall be addressed in the Causal Analysis in Section 12-16-401.1, but are exempt from the other requirements of Section 401.~~

**12-16-103<sup>5</sup> Limited Exemption, Emissions from Flares:** Emissions from flaring events addressed in Regulation 12, Rules 11 and 12 shall not be included in requirements for demonstrating compliance with the NAAQS under this rule. Specifically, emissions from flaring events shall be excluded from the requirements of Sections 12-16-404 through 12-16-408.

**12-16-200 DEFINITIONS**

~~**12-16-201 AB 2588 Mandatory Risk Reduction Threshold:** The significant risk level established by Air District pursuant to the Air Toxics "Hot Spots" Information and Assessment Act, Health and Safety Code (H&SC) Section 44391 et seq.~~

**12-16-201 Accidental Air Release:** An unanticipated emission of a criteria pollutant, toxic air contaminant, and/or greenhouse gas into the atmosphere required to be reported in a Risk Management Plan (RMP) under 40 CFR §68.168.

**12-16-202 Acute Hazard Quotient:** The ratio of the estimated short-term average concentration of a toxic air contaminant at a particular location to its acute reference exposure level (estimated

for inhalation exposure).

- 12-16-203 Air Emission Reduction Measures:** Equipment or practices intended to reduce or eliminate air emissions, and that may include equipment upgrades or modernization, improved emissions capture or control, process changes, operational changes, or feedstock modifications. ~~When addressing Toxic Air Contaminants, air emission reduction measures shall include risk reduction measures.~~
- 12-16-204 Chronic Hazard Quotient:** The ratio of the estimated long-term average concentration of a toxic air contaminant at a particular location to its chronic reference exposure level (estimated for inhalation and non-inhalation exposures).
- 12-16-205 Cost-Effectiveness:** The ratio of the total annualized cost of an Air Emission Reduction Measure to the annual amount of emissions reduced from its implementation.
- ~~**12-16-211 Criteria Pollutant:**~~ ~~An air pollutant for which an ambient air quality standard has been established, or that is an atmospheric precursor to such an air pollutant. For the purposes of this rule, criteria pollutants are carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), particulate matter with an aerodynamic diameter of 10 micrometers or less (PM<sub>10</sub>), particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM<sub>2.5</sub>), precursor organic compounds (POC), and sulfur dioxide (SO<sub>2</sub>).~~
- ~~**12-16-212 Crude Oil:**~~ ~~Petroleum, as it occurs after being extracted from geologic formations by an oil well, and after extraneous substances may have been removed, and which may be subsequently processed at a petroleum refinery.~~
- 12-16-206 Emissions Inventory:** A comprehensive accounting of the types and quantities of criteria pollutants, toxic air contaminants, and greenhouse gases that are released into the atmosphere based on state-of-the-art measurement technologies and estimation methodologies. For the purposes of this rule, emissions inventory data shall be collected or calculated for: (1) all continuous, intermittent, predictable, and accidental air releases resulting from petroleum refinery processes at stationary sources at a petroleum refinery, and (2) all air releases from cargo carriers (e.g., ships and trains), excluding motor vehicles, that load or unload materials at a petroleum refinery including emissions from such carriers while operating within the Air District or within California Coastal Waters as specified in Regulation 2-2-610 (adopted Dec. 19, 2012).
- 12-16-207 Emission Reduction Plan (ERP):** A document ~~intended to~~ meeting the requirements of Section 12-16-407 that lists and details the measures that will be implemented to reduce emissions of pollutants that have caused an exceedance of the National Ambient Air Quality Standards and details measures that will be implemented to attain compliance with the standards.
- ~~**12-16-213 Greenhouse Gases (GHGs):**~~ ~~The air pollutant that is defined in 40 CFR § 86.1818-12(a), which is a single air pollutant made up of a combination of the following six constituents: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHG emissions shall be expressed as CO<sub>2</sub>-equivalent emissions (CO<sub>2</sub>e) according to the methodology in 40 CFR § 52.21(b)(49)(ii).~~
- 12-16-208 Health Risk:** The potential for adverse human health effects resulting from exposure to emissions of air contaminants and ranging from relatively mild temporary conditions, such as eye or throat irritation, shortness of breath, or headaches, to permanent and serious conditions, such as birth defects, cancer or damage to lungs, nerves, liver, heart, or other organs. Measures of health risk from exposure to toxic air contaminants include cancer risk, chronic hazard index, and acute hazard index.
- 12-16-209 Maximally Exposed Individual (MEI):** As defined in Regulation 2: Permits, Rule 5: New Source Review of Toxic Air Contaminants, Section 2-5-212: [A person that may be located at the receptor location where the highest exposure to toxic air contaminants emitted from a given source or project is predicted, as shown by an APCO-approved HRSA. MEI locations are typically determined for maximum cancer risk, chronic hazard index and acute hazard

[index based on exposure to residential, worker, and student receptors.\]](#)

- 12-16-210 National Ambient Air Quality Standard (NAAQS):** [Ambient air standards for air pollutants considered harmful to public health and the environment established by the United States Environmental Protection Agency under authority of the Clean Air Act \(42 U.S.C. 7401 et seq.\) that apply for outdoor air throughout the United States.](#)
- 12-16-211 Non-Cancer Acute Hazard Index:** A measure of short-term non-cancer health risks, which is the sum of the individual acute hazard quotients for toxic air contaminants identified as affecting the same target organ or organ system. [The Air District will determine the Non-Cancer Acute Hazard Index pursuant to the Air Toxics “Hot Spots” Information and Assessment Act, H&SC Sections 44300, et seq.](#)
- 12-16-212 Non-Cancer Chronic Hazard Index:** A measure of long-term non-cancer health risks, which is the sum of the individual chronic hazard quotients for toxic air contaminants identified as affecting the same target organ or organ system. [The Air District will determine the Non-Cancer Chronic Hazard Index pursuant to the Air Toxics “Hot Spots” Information and Assessment Act, H&SC Sections 44300, et seq.](#)
- 12-16-213 Notification Risk Threshold:** [A set of Refinery-Wide Health Risk levels at which a refinery will be required to notify the impacted public of the refinery’s health risks pursuant to the Air Toxics “Hot Spots” Information and Assessment Act, California Health and Safety Code H&SC Section 44300 et seq.](#)
- ~~**12-16-216 On-Going Petroleum Refinery Emissions Inventory:** [An emissions inventory at a petroleum refinery covering a calendar year period. For the purposes of this rule, On-Going Emissions Inventories are required to be compiled for the calendar year 2016, and for each subsequent calendar year. The On-Going Petroleum Refinery Emissions Inventory is described more fully in Regulation 12, Rule 15.](#)~~
- 12-16-214 Petroleum Refinery:** An establishment that is located on one or more contiguous or adjacent properties, and under common control, and 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), and auxiliary facilities (e.g., boilers, waste water treatment, hydrogen production, sulfur recovery plant, cooling towers, blowdown systems, compressor engines, and power plants).
- ~~**12-16-218 Petroleum Refinery Emissions Profile (PREP):** [An emissions inventory that is used as a reference with which to compare emissions inventories for later periods of time \(On-Going Emissions Inventories\) in order to determine changes in emissions that have occurred from a petroleum refinery. The PREP is described more fully in Regulation 12, Rule 15.](#)~~
- 12-16-215 Policy for Notification Under the Air Toxics “Hot Spots” Act:** [Air District procedures, adopted by the Air District Board of Directors, July 30, 1991, that details requirements for noticing exposed persons pursuant to Section 44362 of the California Health and Safety Code.](#)
- 12-16-216 Potential to Emit:** [The maximum capacity of a source or facility to emit a pollutant based on any physical or operational limitation on the capacity of the source or facility to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, or the capacity of any upstream or downstream process that acts as a bottleneck.](#)

- 12-16-217 ~~Petroleum~~–Refinery Owner/Operator:** Any person who owns, operates, or exercises operational control over the majority of operations at a petroleum refinery. The refinery owner/operator is responsible for compliance with this rule for the entirety of the petroleum refinery, including any refinery processes or auxiliary facilities that may be separately owned or operated. Any person who owns, operates, or exercises operational control over a portion of a petroleum refinery that is less than a majority of the total refinery operations must provide the Owner/Operator with information sufficient to allow the owner/operator to comply with this rule, and must make that information available to the APCO upon request.
- 12-16-218 Refinery-Wide Cancer Risk:** An estimate of the probability that an individual will develop cancer as a result of lifetime exposure to emissions from a Petroleum Refinery, emitted carcinogens at a particular location, and considering, where appropriate, age sensitivity factors to account for inherent increased susceptibility to carcinogens during infancy and childhood. The Air District will determine the Refinery-Wide Cancer Risk pursuant to the Air Toxics “Hot Spots” Information and Assessment Act, H&SC Sections 44300, et seq.
- 12-16-219 Risk Reduction Audit and Plan (RRAP):** A document meeting the requirements of Section 12-16-404 that identifies, among other things, sources, quantities, and causes of emissions responsible for exceedance of Significant Risk Thresholds and details measures that will be implemented to reduce risk below that threshold.
- 12-16-220 Risk Reduction Measures:** Changes to production processes, feedstocks, product formulations, emission point locations, emissions capture and dispersion mechanisms, and other practices that reduce Toxic Air Contaminant emissions or that reduce health risks at the facility being evaluated.
- 12-16-221 Significant Risk Threshold:** A set of Refinery-Wide Health Risk levels established by the Air District pursuant to the Air Toxics “Hot Spots” Information and Assessment Act, H&SC Section 44300, et seq., at which a refinery will be required to reduce health risks pursuant to a District-approved risk reduction and audit plan.
- 12-16-222 Source:** Any article, machine, equipment, operation, contrivance or related groupings of such that may produce and/or emit air pollutants.
- 12-16-223 Toxic Air Contaminant (TAC):** An air pollutant that may cause or contribute to an increase in mortality or in serious illness or that may pose a present or potential hazard to human health. For the purposes of this rule, TACs consist of the substances listed in the most recent health risk assessment guidelines adopted by the Office of Environmental Health Hazard Assessment (OEHHA).
- ~~12-16-223 Toxicity-Weighted Emissions:~~** ~~An emission calculation technique that uses the cancer potency (CP) weighting factors and chronic reference exposure level (CREL) weighting factors described in Regulation 2, Rule 5 to assess the relative carcinogenic-weighted quotient and non-carcinogenic-weighted quotient for each toxic air contaminant under evaluation. The toxicity-weighted emissions for a project or site are the sum of the individual quotients for each type of risk: the sum of all carcinogenic-weighted quotients and the sum of all non-carcinogenic-weighted quotients.~~
- ~~12-16-224 Trigger Level:~~** ~~An air emissions increase threshold measured relative to the emissions in the PREP described in Regulation 12, Rule 15, Section 12-15-402 that, if exceeded, initiates requirements under this rule. Specific Trigger Levels are defined in Section 12-16-301.~~
- 12-16-224 Unreasonable Risk Thresholds:** A set of Refinery-Wide Risk levels established by Air District pursuant to the Air Toxics “Hot Spots” Information and Assessment Act, H&SC Section 44300, et seq., that the Air District deems to be unacceptable

**12-16-300 STANDARDS**

~~**12-16-301 Emission Reduction Plan:** A refinery owner/operator shall obtain and maintain APCO approval of an Emission Reduction Plan (ERP) in accordance with Section 12-16-401 or 402 if any of the conditions described in Sections 12-16-301.1, 301.2 or 301.3 occur. Timely submittal of an ERP or Updated ERP as specified in Sections 12-16-401 or 402 and compliance with the procedures of Section 12-16-403 shall satisfy this requirement unless and until the APCO disapproves the ERP.~~

~~**301.1** An On-Going Petroleum Refinery Emissions Inventory Report required by Regulation 12, Rule 15 establishes that emissions of a criteria pollutant has increased relative to the baseline emissions inventory for that pollutant established in the PREP by more than 7.0 percent or GHGs by more than 10,000 metric tons (CO<sub>2</sub> equivalent).~~

~~**301.2** An On-Going Petroleum Refinery Emissions Inventory Report required by Regulation 12, Rule 15 establishes that emissions of TACs have increased relative to the baseline emissions inventory established in the PREP in excess of any of the Trigger Levels in Table 1.~~

<del>Chronic Trigger Level</del>	<del>Any Chronic Trigger Level in Table 2-5-1 of Regulation 2, Rule 5, unless the refinery owner/operator demonstrates prior to the time an ERP is due that the total refinery-wide carcinogenic-weighted emission rate and the total refinery-wide non-carcinogenic-weighted emission rate, whichever are applicable, have not increased.</del>
<del>Carcinogenic Trigger Level</del>	<del>Any refinery-specific Carcinogenic Trigger Level established pursuant to Section 12-16-404.1.</del>
<del>Noncarcinogenic Trigger Level</del>	<del>Any refinery-specific Noncarcinogenic Trigger Level established pursuant to Section 12-16-404.2.</del>

~~**301.3** A Health Risk Assessment (HRA) required by Regulation 12, Rule 15 establishes that a refinery-wide health impact is greater than the Air District's current AB-2588 mandatory risk reduction threshold, and an On-going Petroleum Refinery Emissions Inventory Report required by Regulation 12, Rule 15 establishes that the refinery has any increase in toxicity-weighted emissions for that health impact type.~~

~~**12-16-302 Emission Reduction Plan Implementation:** A refinery owner/operator shall implement any and all Air Emission Reduction Measures identified in an approved ERP prepared pursuant to Sections 12-16-401 or 402 in accordance with the schedule provided in that ERP.~~

~~**12-16-303 Updated Health Risk Assessment:** A refinery owner/operator shall obtain and maintain approval of an Updated Health Risk Assessment if each of the conditions of Sections 303.1 through 303.4 are met.~~

~~**303.1** An APCO-approved HRA indicates that the refinery has a refinery-wide health impact that is greater than the Air District's current AB-2588 mandatory risk reduction threshold; and~~

~~**303.2** The APCO has approved an On-Going Emissions Inventory that shows an increase in refinery-wide toxicity-weighted emissions relative to the baseline emissions inventory established in the PREP; and~~

~~**303.3** The refinery is not implementing an approved risk reduction and audit plan developed pursuant to California Health & Safety Code § 44391 that addresses the increase described in Section 303.2; and~~

~~**303.4** The most recent APCO-approved refinery-wide HRA is based on an inventory year that is more than five years prior to the inventory year showing the increase described in Section 303.2.~~

~~303.5~~ If the conditions of Sections 303.1 through 303.3 are met but the most recent APCO-approved refinery-wide HRA is based on an inventory year that is less than five years prior to the inventory year showing the increase described in Section 303.2, then the refinery owner/operator must comply with Section 12-16-301.3 by submitting a causal analysis pursuant to Section 12-16-401.1 addressing the increased described in Section 302.2.

~~303.6~~ An Updated Health Risk Assessment required pursuant to this Section shall be submitted in accordance with 12-15-405 and shall be reviewed by the APCO in accordance with 12-16-406.

**12-16-301 Health Risk Thresholds:** For each petroleum refinery, the health impact thresholds that trigger further action are established as the following values for cancer risks and non-cancer acute and chronic hazard indices:

	<u>Health Risk Thresholds</u>	<u>Refinery-Wide Cancer Risk</u>	<u>Refinery-Wide Non-Cancer Acute and Chronic Hazard Indices</u>
<b>301.1</b>	<b>Notification Risk</b>	10 in a million ( $10 \times 10^{-6}$ )	1.0
<b>301.2</b>	<b>Significant Risk</b>	25 in a million ( $25 \times 10^{-6}$ )	2.5
<b>301.3</b>	<b>Unreasonable Risk</b>	100 in a million ( $100 \times 10^{-6}$ )	10

**12-16-302 Risk Reduction Audit and Plan:** A refinery owner/operator shall obtain and maintain an APCO approval of a Risk Reduction Audit and Plan (RRAP) in accordance with Sections 12-16-403 and 404 if the APCO-approved HRA required pursuant to Section 12-15-405 or 12-16-401 establishes that a Refinery-Wide Health Risk exceeds a Significant Risk Threshold set forth in Subsection 12-16-301.2.

**12-16-303 Risk Reduction Plan Implementation:** A refinery owner/operator shall implement all Risk Reduction Measures identified in an approved RRAP prepared in accordance with Sections 12-16-403 and 404.

**12-16-304 Source-Specific and Refinery-wide SO<sub>2</sub> and PM<sub>2.5</sub> Emission Limits:** A refinery owner/operator shall not exceed the refinery-wide potential to emit (PTE) limits for SO<sub>2</sub> and PM<sub>2.5</sub> established in accordance with Section 12-16-405.

**12-16-305 SO<sub>2</sub> and PM<sub>2.5</sub> NAAQS Compliance:** A Refinery Owner/Operator shall either:

**305.1** Demonstrate compliance with SO<sub>2</sub> and PM<sub>2.5</sub> NAAQS in accordance with Section 12-16-406; or,

**305.2** Obtain approval of an Emissions Reduction Plan in accordance with Section 12-16-407.

**12-16-400 ADMINISTRATIVE REQUIREMENTS**

~~12-16-401 Emission Reduction Plan:~~ A refinery owner/operator shall submit the Emission Reduction Plan (ERP) required by Section 12-16-301 to the APCO within 60 days of APCO approval of an On-Going Refinery Emissions Inventory Report that establishes that a Trigger Level of Section 12-16-301 has been exceeded. The ERP shall include the elements described in Sections 12-16-401.1, 401.2, and 401.3. APCO disapproval of any of these elements or failure to implement an APCO-approved schedule described in Sections 12-16-401.2 or 401.3, shall constitute a violation of Section 12-16-301.

~~401.1 Causal Analysis:~~ The ERP shall include a Causal Analysis that includes the following:

~~1.1~~ Identification of the source(s) of emissions that contributed to the refinery-wide emissions increase that exceeded a Trigger Level and a quantification of the

- ~~contribution of each source to this increase.~~
- ~~1.2 An analysis that identifies the factor(s) that resulted in the emissions increase. The analysis shall address, in addition to other factors involved, the degree to which changes in crude oil characteristics at the refinery may have caused or contributed to the emissions increase.~~
  - ~~1.3 If accidental air releases are identified as causing or contributing to an emissions increase at the refinery, identification of the accident's initiating event and any contributing factors, and a description of the investigation that led to these findings.~~
  - ~~1.4 Any requests for exemption based on Section 12-16-103, including the demonstrations described in Section 12-16-405.~~
- ~~**401.2 Air Emission Reduction Measures:** The ERP shall identify any Air Emission Reduction Measures planned for implementation that will, within two (2) years of submission of a complete ERP, reduce emissions that have exceeded a Trigger Level. This part of the ERP shall include the following:~~
- ~~2.1 A quantification of the emission reductions expected from each Air Emission Reduction Measure.~~
  - ~~2.2 A schedule for the permitting and implementation of each Air Emission Reduction Measure.~~
- ~~**401.3 Emission Reduction Audit:** If the planned Air Emission Reduction Measures in Section 401.2 are not projected to fully mitigate, within two years of submission of the complete ERP, each emissions increase that has exceeded a Trigger Level, then the ERP must include an Emission Reduction Audit. The Emission Reduction Audit shall include the following:~~
- ~~3.1 Identification of all technically feasible Air Emission Reduction Measures that would mitigate to any extent emissions that have exceeded a Trigger Level and a quantification of the emission reductions that would be achieved by each measure.~~
  - ~~3.2 An estimate of the cost-effectiveness of each technically feasible Air Emission Reduction Measure and a description of the basis for the estimate.~~
  - ~~3.3 A schedule for the permitting and implementation of technically feasible Air Emission Reduction Measures sufficient to fully mitigate emissions that have exceeded a Trigger Level. A refinery owner/operator is not required to implement Air Emission Reduction Measures that exceed maximum cost-effectiveness as described in Table 2.~~

<del>Pollutant</del>	<del>Maximum Cost Effectiveness (\$/ton of emissions reduced)</del>
<del>NO<sub>x</sub></del>	<del>\$35,000</del>
<del>SO<sub>2</sub></del>	<del>\$35,000</del>
<del>PM<sub>10</sub></del>	<del>\$15,000</del>
<del>PM<sub>2.5</sub></del>	<del>\$50,000</del>
<del>CO</del>	<del>\$500</del>
<del>POC</del>	<del>\$35,000</del>

~~Notes:~~

- ~~1. Maximum cost-effectiveness values are in 2015 dollars and shall be adjusted for inflation using the Bay Area Consumer Price Index in other years.~~
- ~~2. The PM<sub>2.5</sub> cost-effectiveness value shall be applied only to combustion emissions including process units that regenerate catalyst, such as Fluidized Catalytic Cracking Units and Catalytic Reformer Units. Non-combustion particulate emissions are subject to the PM<sub>10</sub> value.~~

~~**12-16-402 Updated Emission Reduction Plan:** If implementation of an APCO-approved Emission~~

~~Reduction Plan (ERP) described in Section 12-16-401 fails to fully mitigate emissions that have exceeded Trigger Levels, a refinery owner/operator shall submit an Updated ERP to the APCO that satisfies the following requirements:~~

~~402.1 The Updated ERP shall be submitted to the APCO within 120 days of the final compliance date in the APCO-approved ERP.~~

~~402.2 The Updated ERP shall include an Emission Reduction Audit as described in Section 12-16-401.3.~~

**12-16-401 Updated Health Risk Assessment Requirement:** A refinery owner/operator shall submit to the APCO for approval an updated health risk assessment (HRA) within 150 days of notification by the APCO that an updated HRA is required. The refinery owner/operator shall follow the procedures in Section 12-15.405.3 and 405.4 regarding the timely submittal of the modeling protocol.

**12-16-402 Risk Notification Requirements:** A Refinery Owner/Operator notified by the APCO that an HRA or Updated HRA indicates that the Refinery-Wide Cancer Risk or Refinery-Wide Non-Cancer Acute or Chronic Hazard Index exceeds the Notification or Significant Risk Threshold shall notify all exposed persons regarding the results of the HRA in accordance with the Air District Policy for Notification Under the Air Toxics "Hot Spot Act."

**12-16-403 Risk Reduction Audit and Plan Submission Requirements:** Within 180 days of notification from the APCO that an approved HRA indicates a Refinery-Wide Health Risk exceeds the Significant Risk Threshold set forth in Subsection 12-16-301.2, the notified Refinery Owner/Operator shall submit a RRAP to the APCO in accordance with Section 12-16-404 that details Risk Reduction Measures that will reduce emissions or health risk from the refinery to a level below the Significant Risk Threshold as soon as feasible, but by no later than five years from the date of submission:

**403.1** The APCO may extend this time period up to five additional years if the Refinery Owner/Operator demonstrates to the APCO that requiring implementation of the plan within five years places an unreasonable economic burden on the facility operator or is not technically feasible;

**403.2** The APCO may shorten the time period proposed by the Refinery Owner/Operator for RRAP implementation to less than five years if the APCO finds that:

**2.1** It is technically feasible and economically practicable to implement the plan to reduce emissions below the significant risk level more quickly; or

**2.2** The Unreasonable Risk threshold set forth in 12-16-301.3 is exceeded.

**403.3 Progress on Emissions Reductions:** The Refinery Owner/Operator shall report to the APCO progress on the emission reductions achieved by the plan in the emissions inventory updates required pursuant to Regulation 12, Rule 15, Section 12-15-401.

**12-16-404 Risk Reduction Audit and Plan Requirements:** A Refinery Owner/Operator subject to Subsection 12-16-403 shall submit to the APCO a RRAP that shall include all of the following:

**404.1** The name and address of the facility.

**404.2** The North American Industry Classification System (NAICS) code for the facility.

**404.3** A source characterization including:

**3.1** Summary data from the applicable APCO-approved air toxic emission inventory.

**3.2** Summary data from the related health risk assessment.

**3.3** Identification of the processes/emission points contributing to risks over the Significant Risk Threshold(s).

**404.4** An evaluation of the risk reduction measures to be implemented including:

**4.1** Identification of Risk Reduction Measure(s).

**4.2** Anticipated emission reductions.

**4.3** Anticipated health risk reduction.

**404.5** A schedule for implementing the Risk Reduction Measures as expeditiously as

feasible, but no later than the timeframes established in Section 12-16-403, including:

5.1 Dates for filing applications for permits to construct.

5.2 Dates equipment will be installed (if applicable).

5.3 Dates process changes will be completed (if applicable).

5.4 Dates for demonstrating the effectiveness of Risk Reduction Measures.

**404.6** An estimate of residual risk following implementation of the risk reduction measure(s) specified in the plan. If risk cannot be reduced to below the Significant Risk Threshold within five years, the plan shall also include the following:

6.1 A request to the district for an extension of time to comply.

6.2 An evaluation of all Risk Reduction Measures available.

6.3 A demonstration of technical infeasibility or unreasonable economic burden associated with reducing risk below the Significant Risk Threshold within five years.

6.4 Identification of activities to identify or develop additional Risk Reduction Measures to enable the operator to comply by the specified date.

**404.7** A certification that the RRAP meets all requirements. The person who makes this certification shall be one of the following:

7.1 An engineer who is registered as a professional engineer pursuant to Section 6762 of the Business and Professions Code;

7.2 An individual who is responsible for the operations of the source; or

7.3 An environmental assessor registered pursuant to Section 25570.3 of the Health and Safety Code.

**12-16-405** **Source-Specific and Refinery-wide SO<sub>2</sub> and PM<sub>2.5</sub> Emission Limits:** No later than June 30, 2017, the APCO shall determine the Potential to Emit (PTE) of each source of SO<sub>2</sub> and PM<sub>2.5</sub> subject to a District Permit to Operate, and shall establish enforceable, refinery-wide emission limits for SO<sub>2</sub> and PM<sub>2.5</sub> equivalent to the sum of the PTE values for all sources. For sources that have a combined limit where the combined limit is lower than the summation of the PTEs of the individual sources, the PTE for those sources shall be the combined limit. The APCO shall establish annual limits that will be summed to set the refinery-wide emission limits. The APCO shall also set source-specific hourly limits for SO<sub>2</sub> and daily limits for PM<sub>2.5</sub> to facilitate comparison with the National Ambient Air Quality Standard (NAAQS) for SO<sub>2</sub> and PM<sub>2.5</sub>. The APCO may group smaller sources, multiple sources, with single emissions points and multiple sources with existing enforceable limits into categories and determine the PTE for the category as a whole. Source-specific PTE values and refinery-wide limits shall be established as follows:

**405.1** Before determining PTE values, the APCO shall publish and accept public comment on a protocol for determining and translating to a NAAQS-consistent metric PTE for individual sources and categories of smaller sources.

**405.2** Within 60 days of a written request by the APCO, the Refinery Owner/Operator shall submit any information needed by the APCO to establish the PTE of any source or group of sources.

**405.3** The APCO shall publish and accept public comment on the proposed PTE values for each individual source or source category and on proposed refinery-wide PTE limits.

**405.4** The refinery-wide SO<sub>2</sub> and PM<sub>2.5</sub> PTE limits shall be rendered enforceable through a revision to the Major Facility Review permit for each refinery.

**12-16-406** **Refinery-Wide Demonstration of Compliance with SO<sub>2</sub> and PM<sub>2.5</sub> NAAQS:** A refinery owner/operator shall either demonstrate compliance with the SO<sub>2</sub> or PM<sub>2.5</sub> NAAQS prior to January 1, 2018, by one or more of the following methods, or shall submit an emission reduction plan as required under 12-16-407:

**406.1** **Modelling Demonstration:** A dispersion modeling attempt at demonstration of compliance with the SO<sub>2</sub> or PM<sub>2.5</sub> NAAQS shall be made as follows:

1.1 The refinery owner/operator shall submit to the APCO a proposed dispersion modeling protocol. The protocol may include proposed enforceable reductions

to source-specific values established in Section 12-16-405 and a schedule for adjusting these values through permitting or another enforceable mechanism.

1.2 The refinery owner/operator shall submit to the APCO for review dispersion modelling results obtained in accordance with the approved protocol.

**406.2 Air Monitoring Demonstration:** An attempt to demonstrate compliance with the SO<sub>2</sub> or PM<sub>2.5</sub> NAAQS through air monitoring shall proceed as follows:

2.1 The refinery owner/operator shall submit to the APCO a proposed air monitoring study protocol. The protocol must account for the expected points of maximum concentration as indicated by dispersion modelling results. The protocol must account for background concentrations in the Bay Area so as to accurately account for the influence of local sources. The protocol shall conform with any guidance promulgated by the United States Environmental Protection Agency for implementing air quality monitoring for the purposes of characterizing pollutant concentrations relative to the NAAQS.

2.2 The refinery owner/operator shall install and operate the monitoring devices in accordance with the approved protocol.

2.3 The refinery owner/operator shall report air monitoring results to the APCO on a monthly basis.

2.4 If at the end of the first year, the monitoring study shows maximum concentrations exceed the background by less than or equal to 20 percent of the applicable NAAQS, the refinery owner/operator may discontinue the study. If at the end of the third year of the study, the monitoring study shows maximum concentrations exceed the background by less than 50 percent of the applicable NAAQS, then the refinery owner/operator may discontinue the study.

2.5 If at any point during the air monitoring demonstration, results indicate an exceedance of the SO<sub>2</sub> or PM<sub>2.5</sub> NAAQS, the APCO will determine the contribution to the exceedance by the refinery.

2.6 At the completion of the air monitoring study, the refinery owner/operator shall submit to the APCO for review monitoring results obtained in accordance with the approved protocol.

**406.3 APCO Determination of NAAQS Compliance:** If the APCO is satisfied that compliance with the SO<sub>2</sub> and PM<sub>2.5</sub> NAAQS has been demonstrated for a Refinery, then the APCO shall notify the Refinery Owner/Operator in writing and publish the finding on the Air District website. If the APCO determines that a refinery with an approved air monitoring study protocol cannot reasonably be expected to demonstrate NAAQS compliance through air monitoring, then the APCO shall notify the Refinery Owner/Operator in writing and publish the finding on the Air District website. Unless the APCO has given notice and published a finding of compliance, a Refinery will be deemed not to have demonstrated compliance with the SO<sub>2</sub> and PM<sub>2.5</sub> NAAQS.

**12-16-407 Emissions Reduction Plan:** Unless a Refinery Owner/Operator has, in accordance with Section 12-16-406, previously demonstrated compliance with the NAAQS for SO<sub>2</sub> and PM<sub>2.5</sub> the Refinery Owner/Operator shall, no later than January 1, 2019, submit to the APCO for approval a draft Emissions Reduction Plan that will achieve compliance with the NAAQS for SO<sub>2</sub> and PM<sub>2.5</sub>. The draft ERP shall be developed in accordance with the following:

**407.1 Air Emission Reduction Measures:** The ERP shall identify any Air Emission Reduction Measures planned for implementation that will, within two years of submission of a complete ERP, result in compliance with the SO<sub>2</sub> and PM<sub>2.5</sub> NAAQS. This part of the ERP shall include the following:

1.1 The name and address of the facility.

1.2 The North American Industry Classification System (NAICS) code for the facility.

1.3 A quantification of the emission reductions expected from each Air Emission

- Reduction Measure.
- 1.4 A schedule for the permitting and implementation of each Air Emission Reduction Measure as expeditiously as feasible.
- 1.5 Dates for filing applications for permits to construct.
- 1.6 Dates equipment will be installed (if applicable).
- 1.7 Dates process changes will be completed (if applicable).

**407.2 Emission Reduction Audit:** If the planned Air Emission Reduction Measures in Section 407.1 are not projected to achieve compliance with the SO<sub>2</sub> and PM<sub>2.5</sub> NAAQS within two years of submission of the complete ERP, then the ERP must include an Emission Reduction Audit. The Emission Reduction Audit shall include the following:

- 2.1 Identification of all technically feasible Air Emission Reduction Measures that would mitigate to any extent emissions contributing to exceedance of either the SO<sub>2</sub> and PM<sub>2.5</sub> NAAQS and a quantification of the emission reductions that would be achieved by each measure.
- 2.2 An estimate of the cost-effectiveness of each technically feasible Air Emission Reduction Measure and a description of the basis for the estimate.
- 2.3 A schedule for the permitting and implementation of technically feasible Air Emission Reduction Measures sufficient to achieve compliance with the SO<sub>2</sub> and PM<sub>2.5</sub> NAAQS. A refinery owner/operator is not required to implement Air Emission Reduction Measures that exceed maximum cost-effectiveness in Table 1.

<u>Pollutant</u>	<u>Maximum Cost Effectiveness (\$/ton of emissions reduced)</u>
<u>SO<sub>2</sub></u>	<u>\$35,000</u>
<u>PM<sub>2.5</sub></u>	<u>\$50,000</u>

Note: Maximum cost-effectiveness values are presented in 2015 dollars and shall be adjusted for inflation using the Bay Area Consumer Price Index in other years.

**12-16-4083 Review and Approval of Risk and Emission Reduction Plans (Plan):** The procedure for determining whether a Plan submitted pursuant to Sections 12-16-403, 404 and 407, 402 or meets the applicable requirements of this rule is as follows:

**4083.1 Completeness Review:** Within 20 business days of receipt of the draft RRAP or ERP, the APCO will conduct a completeness review of the ERP draft Plan. The APCO will notify the refinery owner/operator in writing if the submitted ERPPlan is lacking information necessary to make an approval determination. The refinery owner/operator shall submit a complete ERP draft Plan within 45 days of receipt of this notification. If the APCO determines that the resubmitted ERP draft Plan is still incomplete, the APCO may disapprove the ERPPlan or may notify the refinery owner/operator that the ERP draft Plan continues to lack necessary information and provide another opportunity to submit a complete ERP draft Plan in 45 or fewer days.

**4083.2 Public Comment:** The ERP draft Plan, including any revisions made to correct deficiencies, will be made available to the public for 45 days (with exception of confidential information). The APCO will consider any written comments received during this period prior to approving or disapproving the final ERP draft Plan.

**4083.3 Final Action:**

**3.1** The APCO will approve the ERP draft Plan if the APCO determines that the ERP draft Plan meets the requirements of Sections 12-16-403, 404 and 407, 402, and will provide written notification to the refinery owner/operator.

**3.2** If the APCO determines that the ERP draft Plan does not meet the requirements of Sections 12-16-403, 404 and 407, 402, the APCO will notify the refinery owner/operator in writing and will specify the basis for this determination. Upon

receipt of such notification, the refinery owner/operator shall correct the identified deficiencies and resubmit the [ERP draft Plan](#) within 45 days.

- 3.3 If the APCO determines that the refinery owner/operator failed to correct any deficiency identified in the notification, the APCO will determine that the refinery owner/operator has failed to meet the requirements of Sections 12-16-403, 404 and or 407, 402 and will disapprove the [ERP draft Plan](#).

**4083.4 Public Inspection:** Within 30 days of the approval of a [ERPPlan](#) under Section 12-16-408.3, the APCO shall post the [ERPPlan](#) on the Air District's website, and shall notify any member of the public, who submitted comments under Section 12-16-408.2, or who otherwise requested such notification of this action in writing. In making information available for public inspection, the confidentiality of trade secrets, as designated by the refinery owner/operator, shall be handled in accordance with Section 6254.7 of the Government Code.

**12-16-409 Updated Risk Reduction Audit and Plan:** If information becomes available after the initial APCO-approval of an RRAP regarding health risks posed by a refinery or emissions reduction technologies that may be used by a refinery that would significantly impact health risks to exposed persons, the APCO may require a refinery owner/operator to update the RRAP to reflect the information and resubmit the RRAP to the APCO for approval pursuant to 12-16-401.

~~**12-16-404 Refinery-Specific Toxic Air Contaminant Trigger Levels:** Within 45 days of taking final action to approve a health risk assessment pursuant to Regulation 12-15-406.8, the APCO shall:~~

~~**404.1** Identify one or more site-specific Carcinogenic Toxic Air Contaminant (TAC) Trigger Levels for each refinery. A Carcinogenic TAC Trigger Level shall be an increase in carcinogenic-weighted emissions for a source or group of sources that is projected to correspond to an increase in cancer risk at the maximally exposed individual of 10 in a million cancer risk;~~

~~**404.2** Identify one or more site-specific Non-carcinogenic TAC Trigger Levels for each refinery. A Non-carcinogenic TAC Trigger Level shall be an increase in non-carcinogenic weighted emissions for a source or group of sources that is projected to correspond to an increase in chronic hazard index at the maximally exposed individual of 1.0 hazard index.~~

~~**404.3** The refinery-specific increases in toxicity-weighted emissions determined pursuant to Sections 404.1 and 404.2 shall be the TAC Trigger Levels for Section 301.2. The Air District may establish the Refinery-Specific TAC Trigger Levels for a source, a group of sources, or for the entire refinery based on the most relevant predictor of maximum health impacts for a given facility. The Air District's Carcinogenic and Non-carcinogenic TAC Trigger Levels shall be determined using the results of the APCO-approved health risk assessment that was prepared pursuant to Regulation 12, Rule 15.~~

~~**404.4** If the District requires the preparation of an updated health risk assessment pursuant to Section 12-16-303, the District shall revise the Refinery-Specific TAC Trigger Levels, if necessary, after the District has approved the updated health risk assessment for the site.~~

~~**404.5** Site-specific TAC Trigger Levels shall take effect upon publication on the District's website and written notification to the affected refinery.~~

~~**12-16-405 Emission Increases Related to Increases in Crude Oil Throughput:** To qualify for the limited exemption in Section 12-16-103, the refinery owner/operator must do the following:~~

~~**405.1** Submit a causal analysis in accordance with Section 12-16-401.1 to justify exemption of the emission increase by demonstrating that it was caused solely by a permitted~~

~~increase in crude oil throughput at the crude oil unit as allowed by an Air District Permit to Operate; and~~  
405.2 ~~Include in the causal analysis a demonstration that the emission increase proposed to be exempted is the result of crude oil throughput above the crude oil unit throughput that was used to establish the PREP in Regulation 12, Rule 15, and does not represent an increase in the emission rate relative to the volume of processed crude oil by demonstrating that the following is true:~~

$$\frac{E_t}{G_t} \leq \frac{E_{BL}}{G_{BL}}$$

~~Where:~~

- ~~$E_t$  = total criteria pollutant or greenhouse gas emission increase above the baseline (tons).~~
- ~~$G_t$  = crude oil throughput increase above the baseline through the Crude Oil Unit associated with  $E_t$  (million barrels (million bbl)).~~
- ~~$E_{BL}$  = total criteria pollutant or greenhouse gas emissions during the baseline period (tons).~~
- ~~$G_{BL}$  = crude oil throughput through the Crude Oil Unit associated with  $E_{BL}$  (million bbl) during the baseline period.~~

#### **12-16-500 MONITORING AND RECORDS**

#### **12-16-600 MANUAL OF PROCEDURES**

**12-16-601 Emissions Inventory Procedures:** Each emissions inventory required under this rule shall be prepared following the District's Emission Inventory Guidelines for Petroleum Refineries established under Regulation 12, Rule 15, Section 12-15-409.