

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

**RESOLUTION NO. 2015-13**

**A Resolution of the Board of Directors of the  
Bay Area Air Quality Management District  
Adopting Proposed Amendments to District Regulation 11, Rule 10: Hexavalent  
Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions  
from Petroleum Refinery Cooling Towers; 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 has determined that a need exists to adopt proposed amendments to District Regulation 11, Rule 11, currently entitled Hexavalent Chromium Emissions from Cooling Towers, and as proposed to be amended, entitled Hexavalent Chromium Emissions from all Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers; as set forth in Attachment A hereto (“Proposed Amendments”);

WHEREAS, the Board of Directors of the Bay Area Air Quality Management 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 Bay Area Air Quality Management 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 Bay Area Air Quality Management 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 Bay Area Air Quality Management 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 District;

WHEREAS, the Board of Directors of the Bay Area Air Quality Management 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 Bay Area Air Quality Management 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, the District prepared an initial concept paper and draft amendments, and published them for comment on May 26, 2015;

WHEREAS, the District held public workshops on September 15, 17, and 28, 2015, to discuss the draft amendments with interested parties and the public;

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

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

WHEREAS, subsequent to the public workshops, on October 23, 2015, District staff revised the draft amendments based on comments provided by the public and published the draft amendments for comment in advance of the public hearing;

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

WHEREAS, on or before October 23, 2015, 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 Bay Area Air Quality Management District held a public hearing on December 16, 2015 to consider the draft amendments in accordance with all provisions of law;

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

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

WHEREAS, 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, District staff, in exercising its independent judgment, has determined that there is no substantial evidence, in light of the whole record before the 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 of the Bay Area Air Quality Management District 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 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 District by Applied Development Economics, Inc. of Walnut Creek, California, and has determined that the Proposed Amendments would have no significant socioeconomic impacts;

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 C 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 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, as set forth in Appendix C of the Staff Report, and has found that the Proposed Amendments would not be conflict with any federal, state, or other 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, 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 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 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.

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  
Carole Groom  
Chairperson of the Board of Directors

ATTEST:

Liz Kniss  
Liz Kniss  
Secretary of the Board of Directors

**ATTACHMENT A**

**[PROPOSED AMENDMENTS]**

**Regulation 11, Rule 10: Hexavalent Chromium  
Emissions From Cooling Towers**

**REGULATION 11  
HAZARDOUS POLLUTANTS  
RULE 10  
HEXAVALENT CHROMIUM EMISSIONS FROM ALL COOLING TOWERS AND  
TOTAL HYDROCARBON EMISSIONS FROM PETROLEUM REFINERY COOLING  
TOWERS**

**11-10-100 GENERAL**

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- 11-10-104 Limited Exemption, Continuous Hydrocarbon Analyzers
- 11-10-105 Limited Exemption, Recirculation Rates Less Than 500 Gallons Per Minute
- 11-10-106 Limited Exemption, Recirculation Rates Less Than 2,500 Gallons Per Minute
- 11-10-107 Limited Exemption, Cooling Towers Servicing Hydrogen Production, Carbon Dioxide Recovery and Power Generation Facilities

**11-10-200 DEFINITIONS**

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**11-10-400 ADMINISTRATIVE REQUIREMENTS (Not Included)**

- 11-10-401 Petroleum Refinery Cooling Tower Reporting Requirements
- 11-10-402 Best Modern Practices

**11-10-500 MONITORING AND RECORDS**

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**11-10-600 MANUAL OF PROCEDURES**

11-10-601 Determination of Hexavalent Chromium in Circulating Water

11-10-602 Total Hydrocarbon Analyzer Location

11-10-603 Cooling Tower Water Lab Analysis Methodology

11-10-604 Cooling Tower Water Sampling Methodology



**REGULATION 11  
HAZARDOUS POLLUTANTS  
RULE 10  
HEXAVALENT CHROMIUM EMISSIONS FROM ALL COOLING TOWERS AND  
TOTAL HYDROCARBON EMISSIONS FROM PETROLEUM REFINERY COOLING TOWERS**

(Adopted November 15, 1989)

**11-10-100 GENERAL**

**11-10-101 Description:** The purpose of this Rule is to reduce emissions of hexavalent chromium from all cooling towers and reduce total hydrocarbon emissions from cooling towers at petroleum refineries by eliminating chromium-based circulating water treatment programs.

**11-10-102 Exemption, Discontinued Chromate Treatment:** Sections 11-10-502 and 503 do not apply to cooling tower operators who have not used hexavalent chromium for water treatment since March 1, 1989.

**11-10-103 Limited Exemption, Fin-Fan Coolers and HVAC Systems:** Fin-Fan Coolers and HVAC Systems associated with petroleum refinery cooling towers are exempt from the total hydrocarbon emission requirements of this rule.

**11-10-104 Limited Exemption, Continuous Hydrocarbon Analyzers:** When a continuous hydrocarbon analyzer, as defined in Section 11-10-201, is installed pursuant to Section 11-10-602 and is used to detect total hydrocarbon concentrations in cooling tower water, the cooling tower return line (s), and/or the heat exchanger exit line(s) monitored by the analyzer(s) are exempt from the requirements of Section 11-10-402.

**11-10-105 Limited Exemption, Recirculation Rates Less Than 500 Gallons Per Minute:** Petroleum refinery cooling towers with a water recirculation rate less than 500 gallons per minute may demonstrate compliance with the requirements in Section 304 of this rule by monitoring for leaks at least once every 14 days, rather than continuously or daily as provided for in Section 11-10-304, with any of the Air District approved total hydrocarbon detection methods outlined in Section 11-10-304.

**11-10-106 Limited Exemption, Recirculation Rates Less Than 2,500 Gallons Per Minute:** Petroleum refinery cooling towers with a water recirculation rate less than 2,500 gallons per minute may demonstrate compliance with the requirements in Section 304 of this rule by monitoring for leaks at least once every seven days, rather than continuously or daily as provided for in Section 11-10-304, with any of the Air District approved total hydrocarbon detection methods outlined in Section 11-10-304.

**11-10-107 Limited Exemption, Cooling Towers Servicing Hydrogen Production, Carbon Dioxide Recovery and Power Generation Facilities:** Excluded from the total hydrocarbon emission requirements of this rule are cooling towers that are not in petroleum refining process service, including those that serve power generation operations, hydrogen production facilities and carbon dioxide recovery facilities located at petroleum refineries, provided they are not involved with the refining of crude oil and their cooling systems are separate from those used in petroleum refining operations.

**11-10-200 DEFINITIONS**

**11-10-201 Continuous Hydrocarbon Analyzer:** An Air District-approved parametric monitoring device that measures total hydrocarbon concentration to detect leaks in a heat exchanger system.

**11-10-202 Cooling Tower:** Any open water-recirculation device that uses fans or natural draft to draw or force air to contact and cool water by evaporation. A device used to remove heat from circulating cooling water systems by transferring heat to the atmosphere using either a natural or mechanical draft.

**11-10-203 Hexavalent Chromium/Chromate:** Hexavalent chromium is a cancer-causing (toxic) substance existing as part of various inorganic chromate compounds, for example, sodium dichromate or lead chromate.

**11-10-203 Water Treatment Chemicals:** Any combination of chemicals added to cooling tower water including tracers, corrosion inhibitors, antiscalants, dispersants, biocides.

- 11-10-204 Leak Action Level:** A total hydrocarbon concentration greater than any one of the following:
- 204.1** 84 ppbw (as methane) as measured in cooling tower water prior to exposure to air for cooling towers in operation prior to July 1, 2016, or 42 ppbw (as methane) as measured in cooling tower water prior to exposure to air for new or modified cooling towers operating on or after July 1, 2016.
  - 204.2** 6 ppmv (as methane) as measured in stripped air by a continuous hydrocarbon analyzer or an APCO approved alternative method.
- 11-10-205 Leak Repair:** A leak repair shall reduce the concentration of total hydrocarbon in cooling tower water to comply with the applicable leak action level and may include but not be limited to the following actions:
- 205.1** Permanent physical repair of leaking equipment, replacement of equipment, and/or blocking or plugging equipment.
  - 205.2** Replacing the leaking heat exchanger or heat exchanger bundle; or permanently isolating, bypassing, or otherwise removing the leaking heat exchanger from service until it is repaired.
- 11-10-206 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), and auxiliary facilities (e.g., boilers, waste water treatment, hydrogen production, sulfur recovery plant, cooling towers, blowdown systems, compressor engines, and power plants).
- 11-10-207 Heat Exchange System:** A device or series of devices used to transfer heat from process fluids to water without intentional direct contact of the process fluid with the water (i.e., non-contact heat exchanger) and to transport and/or cool the water in a closed-loop recirculation system (cooling tower system). For closed-loop recirculation systems, the heat exchange system consists of a cooling tower, all petroleum refinery process unit heat exchangers that are serviced by that cooling tower, and all water lines to and from the petroleum refinery process unit heat exchanger(s).
- 11-10-208 Heat Exchanger:** A device consisting of fins and/or tubes used to transfer heat from process equipment or process fluid streams to cooling water.
- 11-10-209 Total Hydrocarbon:** Any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate.
- 11-10-210 Cooling Tower Return Line:** The main water trunk lines at the inlet to the cooling tower before exposure to the atmosphere.
- 11-10-211 Heat Exchanger Exit Line:** A cooling water line from the exit of one or more heat exchangers (where cooling water leaves the heat exchangers) to the entrance of the cooling tower return line.

## **11-10-300 STANDARDS**

- 11-10-301 Hexavalent Chromium Removal:** Effective March 1, 1990, a person shall not operate any cooling tower in the District that uses hexavalent chromium chemicals.
- ~~**11-10-302 Circulating Water Concentration-Wooden Cooling Towers:** Effective March 1, 1990, a person shall not operate a wooden cooling tower in the District unless the following requirements are met:~~
- ~~302.1~~ March 1, 1990 to September 1, 1990: Hexavalent chromium levels in the circulating water are not to exceed 8 milligrams/liter of circulating water
  - ~~302.2~~ After September 1, 1990: Hexavalent chromium levels in the circulating water are not to exceed 0.15 milligrams/liter of circulating water.
- ~~**11-10-303 Circulating Water Concentration-Non-Wooden Cooling Towers:** Effective March 1, 1990, a person shall not operate a non-wooden cooling tower unless the hexavalent chromium levels do not exceed 0.15 milligrams/liter of circulating water.~~

**11-10-304 Total Hydrocarbon Leak Monitoring Requirement:** Effective July 1, 2016, the owner/operator of a cooling tower located at a petroleum refinery shall use one of three options to monitor for total hydrocarbon leaks from cooling towers:

**304.1** Sample and analyze cooling tower water at each cooling tower return line(s), and/or at each heat exchanger exit line(s) prior to exposure to air to demonstrate compliance with the leak action level in Subsection 11-10-204.1 (84 ppbw in the cooling water for existing units and 42 ppbw for new/modified units) at least once every calendar day (365 samples per year) pursuant to the requirements of Sections 11-10-603, 11-10-604 and the BAAQMD Manual of Procedures; or

**304.2** Install a continuous hydrocarbon analyzer(s) at each cooling tower return line(s), and/or at each heat exchanger exit line(s) prior to exposure to air to demonstrate compliance with the leak action level in Subsection 11-10-204.2 (6 ppmv in the stripped air). The owner/operator shall ensure that the continuous hydrocarbon analyzer(s) is capable of taking at least 4 measurements every hour (96 measurements per day); or

**304.3** Employ an alternative APCO-approved method to monitor each cooling tower return line(s), and/or each heat exchanger exit line(s) prior to exposure to air daily to demonstrate compliance with the leak action level in Subsection 11-10-204.2 (6 ppmv in the stripped air). Cooling tower owner/operators must receive prior approval from the APCO to use an alternative monitoring method.

**11-10-305 Leak Action Requirement:** Effective July 1, 2016, if any of the hydrocarbon leak detection methods in Section 11-10-304 result in cooling tower water containing total hydrocarbon concentrations greater than the applicable leak action level in Section 11-10-204, the cooling tower owner/operator shall minimize the leak as soon as practicable or within 5-calendar days, whichever is sooner, and conduct a leak repair and/or remove the defective piece of equipment from service within 21-calendar days of first detecting the leak. The owner/operator shall also speciate and quantify the Toxic Air Contaminants (TACs) associated with the leak within one calendar day of discovering the leak and each day thereafter until the leak is fully repaired, using water sampling pursuant to the requirements of Sections 11-10-603, 11-10-604 and the BAAQMD Manual of Procedures. The TACs requiring speciation and quantification are defined in Regulation 2, Rule 5, Section 2-5-222 and are summarized in Table 2-5-1 of Regulation 2, Rule 5.

#### **11-10-400 ADMINISTRATIVE REQUIREMENTS**

**11-10-401: Petroleum Refinery Cooling Tower Reporting Requirements:** When the sampling of cooling tower water exceeds the applicable leak action level the cooling tower owner/operator shall:

**401.1** Within one calendar day, notify the APCO of the total hydrocarbon, pH, iron and chlorine concentration in the cooling water at time and date of leak discovery. List all of the heat exchangers that are served by this cooling tower.

**401.2** If the leak has not been repaired after 21 days, the owner/operator shall notify the APCO regarding the magnitude of the leak, the specific repairs performed to date, whether the leaking component was reinspected for leaks following the repair, the cause of the leak, whether further repair or replacement of equipment will be required at the next turnaround, whether the hydrocarbons associated with the leak were speciated and quantified, and submit mass emission calculations to demonstrate the total hydrocarbon emissions from the leak are below 15 pounds per day, and the hourly and annual (if applicable) Toxic Air Contaminant (TAC) emissions from the leak are below their corresponding Acute and/or Chronic TAC trigger levels in Table 2-5-1 of Regulation 2, Rule 5.

**11-10-402 Best Modern Practices:** Effective July 1, 2016, the owner/operator of a cooling tower located at a petroleum refinery shall minimize total hydrocarbon emissions from cooling tower equipment and operations by employing best modern practices that shall include but are not limited to:

**402.1** Visual examination and/or non-destructive testing of all heat exchangers upstream of the cooling tower during turnaround for corrosion/damage and back flushing;

**402.2** Repassivation of the steel contained in the heat exchangers during turnaround;

- 402.3 Seal tubes within the heat exchangers if there is evidence of corrosion or pitting during turnaround;
- 402.4 Perform visual observations, at least once every shift, of the cooling water to detect any changes in the appearance of the water that could indicate hydrocarbon contamination and confirm presence of microbial growth such as turbidity or algae growth below the water line;
- 402.5 Monitor cooling tower decks at least once every shift, if access to the decks is possible, to detect any unexpected odors from the water via the human olfactory system;
- 402.6 Measure the residual chlorine in the cooling tower water once every shift;
- 402.7 Use hand-held monitors, such as FIDs, once every shift, to detect the presence of total hydrocarbons in the air above the cooling tower water;
- 402.8 Measure the oxidation reduction potential in the cooling tower water with hand-held monitors a least once every shift; and,
- 402.9 At least once every shift, track and record the amount of chlorine (or biocide) added to the cooling tower water.

Data collected per the requirements in Section 11-10-402 shall be retained for at least 5-years from the date of entry and shall be analyzed in a written report by the cooling tower owner/operator once per week. The purpose of the written report is to examine for trends that could serve as an early warning/detection system for potential hydrocarbon leaks.

## **11-10-500 MONITORING AND RECORDS**

~~11-10-501 Reporting-General: By December 1, 1989, any owner/operator of a cooling tower shall notify the District in writing regarding the following information about the cooling tower. After December 1, 1989, any operator/owner of any newly constructed cooling water tower shall provide the APCO with the following information at least 90 days before the tower is operated.~~

- ~~1) Where the cooling tower is located.~~
- ~~2) Who is the owner/operator of the tower.~~
- ~~3) Cooling tower type and materials of construction.~~
- ~~4) Whether hexavalent chromium-based treatment chemicals were used in the cooling tower.~~
- ~~5) If hexavalent chromium-based chemicals were previously used, when they were discontinued.~~
- ~~6) A description of the alternate treatment program chosen, as well as the circulating water monitoring plan.~~

~~11-10-502 Monitoring-General: Effective March 1, 1990, any person subject to Sections 11-10-302 and 303 shall test the circulating water at least once every six calendar months to determine the concentration of hexavalent chromium. The first test shall be performed during March, 1990. Testing may be discontinued when two consecutive required tests show hexavalent chromium concentrations less than 0.15 milligrams per liter of circulating water. The APCO reserves the right to require testing of the circulating water at any time, if the District has reason to believe the water may contain hexavalent chromium.~~

~~11-10-503 Monitoring-Wooden Cooling Towers:~~

- ~~503.1 March 1, 1990 until September 1, 1990: Any person subject to Section 11-10-302.1 shall test the circulating water at least once every calendar month to determine the concentration of hexavalent chromium.~~
- ~~503.2 After September 1, 1990: Any person subject to Section 11-10-302.2 shall test the circulating water at least once every six calendar months to determine the concentration of hexavalent chromium. Testing may be discontinued when two consecutive required tests show hexavalent chromium concentrations less than 0.15 milligrams per liter of circulating water. The APCO reserves the right to require testing of the circulating water at any time, if the District has reason to believe the water may contain hexavalent chromium.~~

**11-10-504 Operating Records:** Any person subject to Sections 11-10-302 and 303 shall maintain records of the results of all required tests of circulating water for two years and give them to the District when requested. Owner/operators subject to the requirements of Sections 11-10-301, 304, 305, 401, 402, 601, 602, 603 and/or 604 shall retain records of the results of all sampling and/or monitoring conducted, leak minimizations and repairs made, best modern practices employed and other required data on site for at least five years from the date of entry. Owner/operators claiming any of the limited exemptions from petroleum refinery cooling tower requirements in this rule shall keep records on site for at least five years to demonstrate qualification for exemption.

#### **11-10-600 MANUAL OF PROCEDURES**

**11-10-601 Determination of Hexavalent Chromium in Circulating Water:** Samples of circulating water shall be analyzed for hexavalent chromium as prescribed by American Public Health Method 312B or an equivalent method, as approved by the APCO.

**11-10-602 Total Hydrocarbon Analyzer Location:** Effective July 1, 2016, if the owner/operator of a cooling tower at a petroleum refinery installs one or more Air District-approved total hydrocarbon analyzers in a cooling tower to demonstrate compliance with Subsections 11-10-304.2 and 304.3, such analyzers shall be installed at: A) each cooling tower return line to continuously measure the total hydrocarbon concentration in the cooling tower water prior to exposure to air, or B) the exit line for each heat exchanger or group of heat exchangers within that heat exchanger system prior to exposure to air. Location of analyzer installations shall be subject to APCO approval. Analyzer sensitivity shall respond to the compounds being processed. Analyzers shall be maintained and operated in accordance with Regulation 1, Section 523.

**11-10-603 Cooling Tower Water Lab Analysis Methodology:** Effective July 1, 2016, when the owner/operator of a cooling tower located at a petroleum refinery performs cooling water sampling and analysis for hydrocarbon concentration in cooling tower water pursuant to Subsection 11-10-304.1, the laboratory analysis shall follow EPA Method 8015D.

**11-10-604 Cooling Tower Water Sampling Methodology:** Effective July 1, 2016, when the owner/operator of a cooling tower located at a petroleum refinery performs cooling water sampling and analysis for total hydrocarbon concentration in cooling tower water pursuant to Subsection 11-10-304.1, the cooling water shall be sampled at each cooling tower return line(s) and/or each heat exchanger exit line(s) prior to exposure to air. Sampling methodology shall follow the BAAQMD Manual of Procedures.