

**Northwest Clean Air Agency (NWCAA) hereby issues
Order of Approval to Construct (OAC) 1222**

Project Summary: Clean Products Upgrade Project (CPUP) designed to:

- Expand an existing process unit to reduce sulfur content of existing gasoline product (Naphtha Hydrotreater (NHT) expansion),
- Install a new process unit to increase generation of octane (new Isomerization (Isom) Unit),
- Construct a new process unit to produce a mixed xylenes product (Aromatics Recovery Unit (ARU) with three new storage tanks), and
- Install a vapor collection and control system for marine loading (Marine Vapor Emission Control (MVEC) system).

Approved Emission Units:

- One natural gas-fired boiler (F-6870) rated at 584 MMBtu/hr equipped with low NO_x burners (LNB) and Selective Catalytic Reduction (SCR) for NO_x control and catalytic oxidation for CO control
- MVEC system including the Vapor Combustion Unit (VCU) with three combustion units each rated at 40 MMBtu/hr
- Fugitive components in VOC and HAP service associated with the ARU and ARU Tankage; MVEC; catalytic reformer (CR)/NHT; and Isom Unit
- Two storage tanks storing primarily mixed xylenes product equipped with internal floating roofs (IFR) with dual seals, one with a capacity of 193,000 barrels (Tank 287) and one with a capacity of 384,000 barrels (Tank 286)
- One storage tank storing primarily medium reformatate equipped with an external floating roof (EFR) and a mechanical shoe primary seal and rim-mounted secondary seal with a capacity of 384,000 barrels (Tank 285)
- One pressurized process storage tank storing perchloroethylene with a capacity of 2,245 gallons; associated pressure relief valves routed to flare gas system
- ARU distillation unit and associated process vents routed to either the firebox of the new boiler, the refinery fuel gas system via the flare gas recovery system, or to the flare system for control

Owner/Operator	Facility Name and Location
Tesoro Refining & Marketing Company LLC P.O. Box 700 Anacortes, WA 98221 Contact: Rebecca Spurling, Lead Environmental Engineer	Tesoro Refining & Marketing Company LLC 10200 March Point Road Anacortes, WA 98221

Note that in addition to other applicable rules and regulations, one or more of the approved emission units are subject to applicable portions of the following federal regulations:

New Source Performance Standards (NSPS) – 40 CFR Part 60

- Subpart A - General Provisions
- Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
- Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984
- Subpart VVa – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI) for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006
- Subpart GGGa – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006
- Subpart NNN - Standards of Performance for VOC Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations
- Subpart QQQ - Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems

National Emission Standards for Hazardous Air Pollutants (NESHAP) – 40 CFR Part 61

- Subpart A – General Provisions
- Subpart J – National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene
- Subpart FF - National Emission Standard for Benzene Waste Operations

Maximum Achievable Control Technology Standards (MACT) – 40 CFR Part 63

- Subpart A – General Provisions
- Subparts F, G, and H – National Emission Standards for Hazardous Air Pollutants for the Synthetic Organic Chemical Manufacturing Industry
- Subpart CC - National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries
- Subpart EEEE – National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)
- Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Boilers and Process Heaters

Issuance of this Order is authorized by Northwest Clean Air Agency Regulation Section 300. The Owner/Operator must comply with the following restrictions and conditions¹:

- (1) Provide written notices to NWCAA of each of the startup dates for Boiler F-6870, the MVEC, and Tanks 285, 286, and 287. Postmark each notice no later than 15 days after the startup of each unit and include a reference to OAC 1222.

Boiler F-6870

- (2) Do not emit more than the following NO_x emission limits from Boiler F-6870:
 - (a) 9 ppm by volume dry (ppmvd) NO_x corrected to 3% oxygen, 1-hour average, at all times except during cold or hot startup.
 - (b) 40.0 lb/hr NO_x, 1-hour average, during cold and hot startup.
- (3) Demonstrate continuous compliance with Condition (2) within 180 days after initial startup using a certified continuous emission monitoring systems (CEMS) for NO_x and oxygen along with a continuous fuel flow monitor.

Install, calibrate, maintain, and operate the CEMS in accordance with NWCAA Section 367. Install, calibrate, maintain, and operate the fuel flow meter in accordance with 40 CFR Part 98, except calibrate the fuel flow monitor on a frequency that meets manufacturer's recommendations but no less often than once every five years. Calculate the hourly mass emission rates using CEMS data, fuel flow data, a higher heating value of 1,100 Btu/scf, and the F factors for natural gas in 40 CFR 60 Appendix A Method 19. If emissions calculated using the 1,100 Btu/scf exceed the limit, Tesoro may recalculate the mass emission rate using the natural gas pipeline daily higher heating value to determine compliance.

- (4) Upon certification of the CEMS required in Condition (3), each cold startup must not last more than 24 hours.

Cold startup is defined as beginning when fuel flow is introduced to the main burner after the boiler has cooled to ambient temperature and ending either when the unit meets the limit in Condition (2)(a) or when 24 hours elapses, whichever occurs first.

- (5) Upon certification of the CEMS required in Condition (3), each hot startup must not last more than 4 hours.

A hot startup is considered a startup after the boiler is producing steam flow and meeting the limit in Condition (2)(a) and the equipment has not cooled to ambient temperature. A hot startup is defined as beginning upon reinitiation of fuel flow into the boiler and ending either when the unit meets the limit in Condition (2)(a) or when 4 hours elapses, whichever occurs first.

¹ Nothing in this permit is intended to, or shall, alter or waive any applicable law [including but not limited to defenses, entitlements, challenges or clarifications related to the Credible Evidence Rule, 62 FR 8315 (Feb. 27, 1997)] concerning the use of data for any purpose under the Act, generated by the reference method specified herein or otherwise.

Pursuant to Section 300.10 of the NWCAA Regulation and ch 43.21B RCW, this Order may be appealed to the Pollution Control Hearings Board (PCHB). To appeal to the PCHB, a written notice of appeal must be filed with the PCHB and a copy served upon the NWCAA within 30 days of the date the applicant receives this Order. Additional information regarding appeal procedures can be found at: <http://www.eluho.wa.gov/> under PCHB.

- (6) Upon certification of the CEMS required in Condition (3), do not exceed 192 hours/year on a 12-month rolling sum basis total hours spent in cold and hot startup combined.
- (7) Keep records of the date, begin and end time, and duration of each startup. For each startup hour, keep records of the fuel flow, NO_x concentrations, and mass emissions on a minute basis.
- (8) Do not emit more than 0.0074 lb/MMBtu CO, 1-hour average, from Boiler F-6870.
Demonstrate compliance using the average of three 1-hour runs during an initial source test conducted no more than 180 days after startup. Thereafter, demonstrate compliance annually by conducting source testing at least once every 4 calendar quarters.
Unless otherwise approved in advance by NWCAA in writing, all testing shall be conducted while operating at representative operating conditions and in accordance with NWCAA Section 367 and 40 CFR 60 Appendix A Methods 10 and 19. Use natural gas data (e.g., higher heating value) from the day of the test in the Method 19 calculation.
- (9) Do not emit more than 10 ppmvd ammonia corrected to 3% oxygen, 1-hour average, from Boiler F-6870.
Demonstrate compliance using the average of three runs during an initial source test conducted no more than 180 days after startup. Thereafter, demonstrate compliance annually by conducting source testing at least once every 4 calendar quarters.
Unless otherwise approved in advance by NWCAA in writing, all testing shall be conducted while operating at representative operating conditions and in accordance with NWCAA Section 367 and Bay Area Air Quality Management District (BAAQMD) test ST-1B modified to use 60-minute test runs rather than 30-minute test runs.
- (10) Route Boiler F-6870 exhaust through the SCR and CO catalytic oxidizer at all times during boiler operation.
- (11) Develop, maintain, and operate the SCR and the CO catalytic oxidizer in accordance with a catalyst monitoring plan, which shall include at a minimum a description of the catalyst maintenance strategy, a schedule for catalyst sampling, and the criteria for when the catalyst needs replacing. Keep a copy of this plan onsite and available for inspection.

Marine Vapor Emission Control (MVEC) / Vapor Combustion Unit (VCU)

- (12) Do not emit more than the following SO₂ emission limits from the VCU:
 - (a) 51.4 lb/hr SO₂ on a 1-hour basis.
 - (b) 32.6 tons/year SO₂ on a 12-month rolling sum basis.
- (13) Demonstrate continuous compliance with Condition (12) within 180 days after initial startup using a certified continuous monitoring system (CMS) for total sulfur along with a continuous flow monitor installed on the inlet of the VCU measuring the stream of marine loading gas and enrichment gas. In addition, within 180 days after initial startup, install and maintain a continuous flow monitor on the support gas line to the VCU.

Calculate SO₂ emissions on an hourly basis assuming that all total sulfur is converted to SO₂. Use the maximum daily total sulfur content for the past calendar year from the natural gas pipeline data as the sulfur content of the support gas. Sum the emissions from the combined marine gas and enrichment gas with the support gas line to determine compliance with the short-term emission rate. Sum the hourly values to determine compliance with the long-term emission rate.

Install, calibrate, maintain, and operate the CMS in accordance with NWCAA Section 367. Install, calibrate, maintain, and operate the continuous flow monitors in accordance with 40 CFR Part 98 except calibrate the flow monitors on a frequency that meets manufacturer's recommendations but no less often than once every five years.

- (14) Do not emit more than 3.1 tons/year NO_x on a 12-month rolling sum basis from the VCU.

To demonstrate compliance, determine an emission factor for NO_x in lb/inlet scf based on the average of three 1-hour runs during an initial source test on one VCU unit conducted no more than 180 days after startup. Thereafter, conduct a source test on one VCU unit at least once every 4 calendar quarters to determine a new emission factor such that each VCU unit is tested at least once every 12 quarters. Calculate emissions using the emission factor from the last source test and the measurements from the continuous flow monitor required under Condition (13).

Unless otherwise approved in advance by NWCAA in writing, conduct the source test of each VCU unit while operating that VCU unit at full loading capacity and in accordance with NWCAA Section 367 and 40 CFR 60 Appendix A Method 7E. Determine exhaust flow during the stack test either by measurement using 40 CFR 60 Methods 2, 3A and 4 or by calculation based on an inlet gas analysis taken during the test on an HHV basis using 40 CFR 60 Method 19. Full loading capacity means loading at no less than 90% capacity while loading gasoline during the last 20% of loading of a tank or compartment.

- (15) Maintain and operate the MVEC and VCU using a program meeting the standards, monitoring, recordkeeping, and reporting requirements of 40 CFR 63 Subpart Y except as described in Conditions (16) through (22). The referenced 40 CFR 63 Subpart Y program is that for facilities subject to both MACT and RACT (i.e., new facilities with emissions less than 10 tpy individual HAP and 25 tpy combined HAPs and throughput greater than 10 MMbbl gasoline or 200 MMbbl crude oil annually).
- (16) Initial notification under 40 CFR 63.567(b)(3) is not required. The leak detection and repair for the vapor collection systems and control devices required under 40 CFR 63.563(c) is not required.
- (17) All loading of mixed xylenes product, crude, and products with a vapor pressure greater than 1.5 psia at standard conditions, 20°C and 760 mm Hg, at the dock must be controlled by the MVEC system. Keep records of the loading schedule, all materials loaded at each berthing dock, associated vapor pressure, and whether the MVEC system was operating.
- (18) To demonstrate compliance that each vessel's vapor collection equipment is compatible with onshore equipment and that the vessel is connected to the onshore vapor collection system during loading pursuant to 40 CFR 63.562(b)(1)(ii), continuously monitor the operating pressure of the vessel during loading.

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- (19) To demonstrate compliance that only vessels that are vapor-tight and tested using methods specified in 40 CFR 63.565(c)(1) are loaded, keep records documenting that each vessel loaded was tested and determined to be vapor-tight no more than 12 months prior to loading. The documentation shall include the test title, vessel name, number and owner, test date and location, tester name, and signature.
- (20) Meet a 99% by weight control efficiency instead of the 98% by weight control efficiency under 40 CFR 63.562(b)(3).
- (21) Subsequent to the initial source test mandated under 40 CFR 63 Subpart Y to demonstrate compliance with Condition (20), conduct a source test (i.e., three 1-hour runs) on one VCU unit at least once every 4 calendar quarters such that each VCU unit is tested at least once every 12 quarters.

Unless otherwise approved in advance by NWCAA in writing, conduct the source test of each VCU unit while operating that VCU unit at full loading capacity and in accordance with NWCAA Section 367 and 40 CFR 63 Subpart Y for the initial testing. Full loading capacity means loading at no less than 90% capacity while loading gasoline during the last 20% of loading of a tank or compartment.

- (22) Instead of the monitoring under 40 CFR 63.563(b)(4), determine compliance with Condition (20) by continuously monitoring and maintaining the vapor combustor operating temperature at or above 1,800°F on a 5-minute block average during loading operations. The VCU unit must be preheated to at least 1,800°F prior to the introduction of vapors. Operating temperature shall be continuously monitored whenever loading is taking place.

Fugitive Components

- (23) Maintain all fugitive components associated with the Isom Unit, MVEC, and CR/NHT process units using a leak detection and repair (LDAR) program meeting the standards, monitoring, recordkeeping, and reporting requirements of 40 CFR Part 60 Subpart GGGa.
- (24) Maintain all fugitive components associated with the ARU and ARU Tankage process unit using a leak detection and repair (LDAR) program meeting the standards, monitoring, recordkeeping, and reporting requirements of 40 CFR Part 63 Subpart H.

Storage Tanks

- (25) When Tanks 285, 286, or 287 are in gasoline service immediately prior to degassing, use a control device that meets 99% VOC control or better to control degassing emissions. Keep records of storage tank service and when degassing took place.

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