

PROPOSED RULE 1159.1

**CONTROL OF NOX EMISSIONS FROM
NITRIC ACID TANKS**

(a) Purpose

The purpose of this rule is to reduce emissions of Nitrogen Oxide (NO_x) from the use of nitric acid in Metal Finishing, Precious Metal Reclamation, and Expanded Graphite Foil Production operations.

(b) Applicability

This rule applies to an owner or operator of a facility performing Metal Finishing, Precious Metal Reclamation, or Expanded Graphite Foil Production operations using nitric acid.

(c) Definitions

For purposes of this rule the following definitions shall apply:

- (1) AIR POLLUTION CONTROL DEVICE (APCD) means equipment installed for the purpose of collecting and reducing emissions from a Nitric Acid Unit(s).
- (2) EXPANDED GRAPHITE FOIL PRODUCTION means the production of graphite products from raw graphite flakes.
- (3) METAL FINISHING means the treatment of metal surfaces to obtain desired characteristics using open process tanks.
- (4) NEW NITRIC ACID UNIT means a Nitric Acid Unit that is installed, relocated, or replaced after [Date of Rule Adoption].
- (5) NITRIC ACID UNIT means tank, reactor, vessel, or other container used for Metal Finishing, Precious Metal Reclamation, or Expanded Graphite Foil Production, that contains nitric acid (HNO₃). A Nitric Acid Unit does not include a container used exclusively to store nitric acid or a Rinse Tank.
- (6) EMISSIONS of NO_x means the sum of nitric oxides and nitrogen dioxides emitted, calculated as nitrogen dioxide.
- (7) OPERATING PARAMETER VALUE means a minimum or maximum value established to monitor the proper operation of an Air Pollution Control Device.
- (8) PRECIOUS METAL RECLAMATION means the recovery of valuable metals from scraps.
- (9) PROCESS LINE means a series of tanks, including Nitric Acid Units, necessary to conduct a specific process at the facility.

- (c) (10) RECYCLE means the reuse of solution containing nitric acid taken from a Nitric Acid Unit.
 - (11) REPLACEMENT ADJUSTMENT means the volume of new nitric acid added to a Nitric Acid Unit that replaces nitric acid from removed solution, in part or whole, that is not Recycled at the facility.
 - (12) REPLENISHMENT means the volume of nitric acid added to a Nitric Acid Unit.
 - (13) RINSE TANK means any tank where a part is partially or fully submerged into a liquid to remove any residual solution from a Nitric Acid Unit.
- (d) Requirements
- (1) An owner or operator of a facility shall not operate a Nitric Acid Unit unless it is equipped with an Air Pollution Control Device (APCD) that meets a NOx emission limit of 0.30 pounds per hour (lb/hr), as demonstrated pursuant to subdivision (h).
 - (2) An owner or operator of a facility shall comply with the requirements of paragraph (d)(1) pursuant to the applicable implementation schedule in subdivision (e).
 - (3) Beginning June 1, 2023, an owner or operator of a facility shall maintain clear labeling on each Nitric Acid Unit with the South Coast AQMD tank number or other identifier, South Coast AQMD permit number, and maximum nitric acid concentration by weight.
 - (4) Air Pollution Control Device
 - (A) An owner or operator of a facility shall not remove or render inoperable an APCD for a Nitric Acid Unit unless it is replaced by an APCD meeting the requirements of paragraph (d)(1).
 - (B) Beginning June 1, 2023, an owner or operator of a facility shall maintain clear labeling on the gauges of the APCD of all Operating Parameter Values listed on the permit to operate and include the following information:
 - (i) Flowrate of scrubber solution;
 - (ii) pH of the scrubber solution;
 - (iii) Oxidation Reduction Potential meter reading of the scrubber solution, if equipped; and
 - (iv) Pressure drop across each stage of the scrubber system.

(d) (4) (C) Beginning June 1, 2023, an owner or operator of an APCD facility shall not operate a Nitric Acid Unit subject to the requirements of paragraph (d)(1), unless all visible emissions are collected by an APCD.

(e) Implementation Schedule

(1) Nitric Acid Units in operation on or before [Date of Adoption]
No later than March 1, 2023, an owner or operator of a Nitric Acid Unit in operation on or before [Date of Adoption] shall submit a source test protocol that meets the requirements of paragraph (h)(1) to the Executive Officer. No later than 90 days after written approval of the source test protocol by the Executive Officer is electronically distributed, the owner or operator shall conduct the source test according to the approved source test protocol and no later than September 1, 2023 demonstrate compliance with the emission limit specified in paragraph (d)(1).

(2) New Nitric Acid Units
No later than 60 days after completion of construction of an APCD, an owner or operator of a New Nitric Acid Unit shall submit a source test protocol that meets the requirements of paragraph (h)(1) to the Executive Officer. No later than 90 days after written approval of the source test protocol by the Executive Officer is electronically distributed, the owner or operator shall conduct the source test according to the approved source test protocol and no later than 270 days after completion of construction demonstrate compliance with the emission limit specified in paragraph (d)(1).

(3) Nitric Acid Unit(s) Exceeding the Per Nitric Acid Unit Low-Use Threshold
Beginning June 1, 2023, a Nitric Acid Unit that was initially exempt from the requirements of paragraph (d)(1) that exceeds the applicable Per Nitric Acid Unit Low-Use Threshold in Table A shall constitute a violation of this rule. In addition, the owner or operator of the facility shall:

(A) No later than 90 days from the last day of the month the Nitric Acid Unit(s) exceeded the applicable low-use threshold, submit a permit application(s) to the South Coast AQMD for an APCD(s) that meets requirements of paragraph (d)(1) for:

- (i) The Nitric Acid Unit(s) that exceeded the low-use threshold; and
- (ii) The Nitric Acid Unit(s) in the same Process Line as the Nitric Acid Unit(s) that exceeded the low-use threshold, if applicable; and

- (e) (3) (B) Complete the installation of the APCD no later than the permit to construct expiration date, including any written extension(s) issued pursuant to Rule 205; and
- (C) No later than 60 days from completion of construction of the APCD(s), submit a source test protocol pursuant to paragraph (h)(1) to the Executive Officer. No later than 90 days after written approval of the source test protocol by the Executive Officer is electronically distributed, the owner or operator shall conduct the source test according to the approved source test protocol and no later than 270 days after completion of construction and demonstrate compliance with the emission limit specified in paragraph (d)(1).
- (4) Nitric Acid Unit(s) Exceeding the Facility-Wide or Reduced Facility-Wide Threshold
Beginning June 1, 2023, Nitric Acid Units that were initially exempt from the requirements of paragraph (d)(1) that exceed the applicable Facility-Wide or Reduced Facility-Wide Low-Use Threshold in Table A shall constitute a violation of this rule. In addition:
 - (A) The owner or operator of Nitric Acid Units that exceeded the Facility-Wide Low-Use Threshold shall:
 - (i) Identify and record Nitric Acid Units in each Process Line(s) and Nitric Acid Unit(s) not in a Process Line.
 - (ii) Calculate and record the Replenishments for each Nitric Acid Unit identified in clause (e)(4)(A)(i), for the month the exceedance occurred;
 - (iii) Identify, group, and record a Nitric Acid Unit(s) not in a Process Line and Process Lines identified in clauses (e)(4)(A)(i) and (e)(4)(A)(ii) with monthly Replenishments that, when totaled together, are less than twenty percent of the applicable Facility-Wide Low-Use Threshold in Table A that was exceeded;
 - (B) No later than 90 days from the last day of the month the Nitric Acid Units exceeded the Facility-Wide Low-Use Threshold or the Reduced Facility-Wide Low-Use Threshold in Table A, the owner or operator of a facility shall submit a permit application(s) to the South Coast AQMD for an APCD(s) that meets the emission limit specified in paragraph (d)(1) for all Nitric Acid Units at the facility.

- (e) (4) (B) (i) An owner or operator of Nitric Acid Unit(s) that exceeded the Facility-Wide Low-Use Threshold may exclude the groups identified pursuant to subparagraph (e)(4)(A) provided that Nitric Acid Unit(s) not meeting the requirements of paragraph (d)(1) complies with the applicable Reduced Facility-Wide Low-Use Threshold in Table A;
 - (C) The owner or operator of a facility shall complete the installation of the APCD no later than the permit to construct expiration date, including any written extension(s) issued pursuant to Rule 205; and
 - (D) No later than 60 days from the completion of the construction of the installation of the APCD(s), the owner or operator of a facility shall submit a source test protocol that meets the requirements of paragraph (h)(1) to the Executive Officer. No later than 90 days after written approval of the source test protocol by the Executive Officer is electronically distributed, the owner or operator shall conduct the source test according to the approved source test protocol and no later than 270 days after completion of construction demonstrate compliance with the emission limit specified in paragraph (d)(1).
- (5) Source Testing Alternative to Installation of New APCD
- In lieu of complying with subparagraphs (e)(3)(A)-(e)(3)(C) or (e)(4)(A)-(e)(4)(D), an owner or operator of a facility with a Nitric Acid Unit(s) with emissions controlled by an APCD that has not previously elected to use the source testing alternative, pursuant to this paragraph, shall:
- (A) No later than 90 days from last day of the month the Nitric Acid Unit(s) exceeded the applicable low-use threshold, submit a source test protocol that meet the requirements of paragraph (h)(1) to the South Coast AQMD;
 - (B) No later than 90 days after written approval of the source test protocol by the Executive Officer is electronically distributed, the owner or operator shall conduct the source test according to the approved source test protocol and no later than 270 days from last day of the month the Nitric Acid Unit(s) exceeded the applicable low-use threshold demonstrate compliance with the emission limit specified in paragraph (d)(1); and
 - (C) Upon demonstration of compliance with paragraph (d)(1), exclude Replenishments for the Nitric Acid Unit(s) with emissions controlled by the APCD that demonstrated compliance with paragraph (d)(1), from the determination of usage in subdivision (i).

- (e) (6) **Non-Compliant Results for Source Testing Alternative**

An owner or operator of a facility that first elected to comply with paragraph (e)(5) and did not demonstrate compliance with the requirements of paragraph (d)(1) shall submit a permit application(s) to the South Coast AQMD for an APCD(s) that did not meet requirements of paragraph (d)(1) and meet the emission limit in paragraph (d)(1) no later than 270 days from:

 - (A) Receiving a source test report where the APCD did not comply with the requirements of paragraph (d)(1); or
 - (B) Receiving written notification electronically distributed by the Executive Officer that the source test report submitted is not acceptable or does not demonstrate compliance with paragraph (d)(1).

- (f) **Inspection and Maintenance of Air Pollution Control Device**
 - (1) An owner or operator of a facility with a Nitric Acid Unit equipped with an APCD shall conduct visual inspections for leaks and malfunctions on the APCD per the manufacturer's recommended schedule or at least once every quarter, whichever is more frequent.
 - (2) An owner or operator of a facility with a Nitric Acid Unit equipped with an APCD shall maintain and operate the APCD in accordance with manufacturer's specifications and recommendations.

- (g) **Monitoring, Recordkeeping, and Reporting Requirements**
 - (1) **Air Pollution Control Devices**

Beginning January 1, 2023, an owner or operator of a facility shall, on each day the APCD is required to operate, monitor and record the following Operational Parameter Values:

 - (A) Flowrate of scrubber solution;
 - (B) pH of the scrubber solution;
 - (C) Oxidation Reduction Potential meter reading of the scrubber solution, if equipped; and
 - (D) Pressure drop across each stage of the scrubber system.
 - (2) **Nitric Acid Units**

Beginning January 1, 2023 and ending December 31, 2024, an owner or operator of a Nitric Acid Unit that is not exempt pursuant to subdivision (i), and beginning January 1, 2023 an owner or operator of a unit that is exempt pursuant to subdivision (i), shall:

- (g)
 - (2)
 - (A) Record all Replenishments and nitric acid concentrations (in percent by weight (WT%)) for each Nitric Acid Unit;
 - (B) Record all Replacement Adjustments, nitric acid concentrations (in WT%), and calculations for each Nitric Acid Unit; and
 - (C) Determine a monthly nitric acid usage (in gallon) and nitric acid concentrations (in WT%) for each Nitric Acid Unit.
 - (3) No later than February 1, 2025, an owner or operator of a facility shall prepare annual reports for calendar year 2023 and 2024, that include the following information:
 - (A) Records of all nitric acid usage pursuant to paragraph (g)(2) for each nitric acid unit;
 - (B) Identify each heated Nitric Acid Unit;
 - (C) Identify all Nitric Acid Unit(s) controlled by each APCD; and
 - (D) Source test report (or source test report number if already evaluated by the South Coast AQMD) for any Nitric Acid Unit(s) where a source test was conducted in the previous five calendar years.
 - (4) No later than February 15, 2025, an owner or operator of a facility shall submit the two annual reports for calendar years 2023 and 2024 prepared pursuant to paragraph (g)(3) to the Executive Officer at [Rule1159_1_Reports@aqmd.gov].
 - (5) All records shall be maintained for at least five years with the two most current years kept on site and made available to the Executive Officer upon request.
- (h) **Source Testing Requirements and Test Methods**
 - (1) The source test protocol shall include the following information:
 - (A) Facility information;
 - (B) Description of the operations to be tested;
 - (C) Target NO_x emission rate;
 - (D) Source test methods used and shall include South Coast AQMD Method 100.1 – Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling (March 1989) and South Coast AQMD Method 7.1 – Determination of Nitrogen Oxide Emissions from Stationary Sources (March 1989) to measure NO_x emissions, and South Coast AQMD Methods 1.1-4.1 to determine stack gas flowrate;

- (h) (1) (E) Design criteria and ventilation velocities specified in *A Manual of Recommended Practice for Design* authored by the American Conference of Governmental Industrial Hygienists for the APCD;
- (F) Demonstration of 100% capture efficiency;
- (G) South Coast AQMD permits;
- (H) The number of test runs; and
- (I) Test conditions that represent normal operations of the Nitric Acid Unit(s).
- (2) Disapproval of Source Test Protocol
No later than 30 days after written notification of the disapproval of the source test protocol by the Executive Officer is electronically distributed, the owner or operator shall submit a revised source test protocol addressing deficiencies identified by South Coast AQMD.
- (3) Periodic Source Testing
No later than five years from the last source test that demonstrated compliance with the emission limit specified in paragraph (d)(1), the owner or operator of a facility shall conduct a subsequent source test, except:
 - (A) For a Nitric Acid Unit that is not in operation on the date the source test is required, conduct the source test no later than the end of seven consecutive days or 15 cumulative days of resuming operations.
- (4) Qualifications of Contractor Conducting Source Test
Source tests conducted to demonstrate compliance shall use a South Coast AQMD-approved contractor under the Laboratory Approval Program.
- (5) Source test reports shall be submitted to the Executive Officer within 60 days of completion of the source test.
- (6) Source Test Reports Unable to Demonstrate Compliance
No later than 90 days of written notification electronically distributed by the Executive Officer that the source test submitted pursuant to paragraph (h)(5) is not acceptable to demonstrate compliance, the owner or operator shall conduct the source test addressing the deficiencies identified by the Executive Officer with the following notification requirements:
 - (A) No less than seven days before the date of a scheduled retest, notify the Executive Officer at 1-800-CUT SMOG and provide the following information:
 - (i) Facility name and identification;
 - (ii) Facility address;

- (h) (6) (A) (iii) Name and contact information of facility representative; and
 (iv) Date and time of scheduled retest;
- (B) If a scheduled source test is delayed, notify the Executive Officer at 1-800-CUT SMOG within 24 hours from the time that an owner or operator knew of the delay; and
- (i) Exemptions
 - (1) A Nitric Acid Unit is exempt paragraphs (d)(1), (d)(2), (d)(4), (e)(1) and (e)(2), subdivision (f), paragraph (g)(1) and subdivision (h), provided that Replenishments do not exceed neither the Per Nitric Acid Unit nor the applicable Facility-Wide low use thresholds specified in Table A based on the concentration of the nitric acid used for Replenishments.

Table A – Low-Use Thresholds for Nitric Acid Units			
Concentration of Nitric Acid (WT%)* Stock Solution or Premixed Chemical based on Safety Data Sheet	Low-Use Thresholds (gallons per month)		
	Per Nitric Acid Unit	Facility-Wide	Reduced Facility-Wide for Units Identified in Clause (e)(4)(B)(i) without an APCD
0-50%	95	285	57
>50-68%	66	198	40
>68-100%	45	135	27

** If different nitric acid concentrations are used, the threshold for the highest concentration applies.*

- (2) Replacement Adjustments

An owner or operator of a facility may elect to exclude the amount of new nitric acid added to a Nitric Acid Unit for subparagraph (g)(2)(A) due to disposal, in part or whole, of the nitric acid unit’s solution, provided:

 - (A) The owner or operator tests and records the concentration of nitric acid in the solution immediately before removal;
 - (B) The owner or operator measures and records the volume of the solution removed;
 - (C) The owner or operator replaces and records the same volume of the solution in subparagraph (i)(2)(B) at the same concentration or less in subparagraph (i)(2)(A);

- (i) (2) (D) The owner or operator records the Replacement Adjustment for subparagraph (i)(2)(C) pursuant to subparagraph (g)(2)(B); and
- (E) The removed solution in subparagraph (i)(2)(B) is not Recycled.
- (3) Nitric Acid Units exempt pursuant to Rule 219 - Equipment Not Requiring a Written Permit Pursuant to Regulation II under subparagraph (p)(4)(H) are exempt from the provisions of this rule.