PROPOSED RULE 1159.1 CONTROL OF NOX EMISSIONS FROM NITRIC ACID TANKS

[Rule Index to be included after adoption]

(a) Purpose

The purpose of this rule is to reduce emissions of Nitrogen Oxide (NOx) from the chemical reaction of nitric acid with metals or decomposition of nitric acid at high temperatures.

(b) Applicability

This rule applies to an owner or operator of a facility with Nitric Acid Unit(s) used in operations including but not limited to Metal Finishing, Precious Metal Reclamation, or Expanded Graphite Foil Production.

(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) EMISSIONS OF NOx means the sum of nitric oxides and nitrogen dioxides emitted, calculated as nitrogen dioxide.

(3) EXPANDED GRAPHITE FOIL PRODUCTION means the production of graphite products from raw graphite flakes.

(4) METAL FINISHING means the treatment of metal surfaces to obtain desired characteristics using open process tanks.

(5) NEW AIR POLLUTION CONTROL DEVICE (New APCD) means an APCD installed, relocated, modified or replaced after [Date of Rule Adoption]

(6) NITRIC ACID UNIT means tank, reactor, vessel, or other container containing nitric acid (HNO_3) where nitric acid either reacts with a metal or decomposes at high temperatures. A Nitric Acid Unit does not include a container used exclusively to store nitric acid or a Rinse Tank.

(7) OPERATING PARAMETER VALUE means a minimum or maximum value established to monitor the proper operation of an Air Pollution Control Device.

(c) (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.

(10) RECYCLE means the reuse of solution containing nitric acid taken from a Nitric Acid Unit.

(11) REPLENISHMENT means the volume of nitric acid added to a Nitric Acid Unit.

(12) REPLENISHMENT ADJUSTMENT means the volume of new nitric acid added to a Nitric Acid Unit that replaces nitric acid that is evaporated, or disposed of, in part or whole, and is not Recycled at the facility.

(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 Nitric Acid Unit(s) shall not operate a Nitric Acid Unit(s) unless it is equipped with an Air Pollution Control Device (APCD).

(A) The APCD shall meet either:

(i) A NOx emission limit of 0.30 pounds per hour (lb/hr), as demonstrated pursuant to subdivision (h); or

(ii) A NOx control efficiency of 99%, as demonstrated pursuant to subdivision (h).

(B) The APCD shall meet the requirements of subparagraph (d)(1)(A) pursuant to the implementation schedule in subdivision (e).

(2) Beginning June 1, 2023, an owner or operator of a Nitric Acid Unit 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.

(3) Air Pollution Control Device

(A) An owner or operator of a Nitric Acid Unit shall not remove or render inoperable an APCD subject to requirements of subparagraph (d)(1)(A) unless it is replaced by an APCD that meets the requirements of subparagraph (d)(1)(A).

(B) Beginning June 1, 2023, an owner or operator of an APCD subject to the requirements of subparagraph (d)(1)(A) shall maintain clear

labeling on the gauges of the APCD for the following Operating Parameter Values, if listed on the permit:

(d) (3) (B) (i) Flowrate of scrubber solution;

(ii) pH of the scrubber solution;

(iii) Oxidation Reduction Potential meter reading of the scrubber solution; and

(iv) Pressure drop across stage(s) of the scrubber system.

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

(e) Implementation Schedule

(1) Nitric Acid Units Equipped with an APCD in Operation on or before [Date of Adoption]

No later than March 1, 2023, an owner or operator of a Nitric Acid Unit(s) equipped with an APCD 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 120 days after written approval of the source test protocol by the Executive Officer, the owner or operator shall conduct the source test according to the approved source test protocol and no later than December 31, 2023, demonstrate compliance with the requirements of subparagraph (d)(1)(A).

(2) New APCDs

No later than 60 days after completion of construction of an APCD, an owner or operator shall submit a source test protocol that meets the requirements of paragraph (h)(1) to the Executive Officer. No later than 120 days after written approval of the source test protocol by the Executive Officer, the owner or operator shall conduct a source test according to the approved source test protocol and no later than 270 days after completion of construction, demonstrate compliance with the requirements of subparagraph (d)(1)(A).

(3) Exceedance of Per Nitric Acid Unit or Reduced Per Nitric Acid Unit Threshold

A Nitric Acid Unit that exceeds the applicable Per Nitric Acid Unit or Reduced Per Nitric Acid Unit Threshold in Table A after June 1, 2023,

where the owner or operator has not submitted a permit application(s) for the APCD(s) for the Nitric Acid Unit(s) that exceeded the applicable low-use threshold, will not constitute a violation of the requirements of subparagraph (d)(1)(A) provided that the owner or operator of such unit:

(e) (3) (A) No later than 120 days from the last day of the month the Nitric Acid Unit(s) exceeded the applicable low-use threshold, submits a permit application(s) to the South Coast AQMD for an APCD(s) that meets requirements of subparagraph (d)(1)(A) for the Nitric Acid Unit(s) that exceeded the low-use threshold, and all Nitric Acid Units located in the same Process Line(s) as the Nitric Acid Unit(s) that exceeded the low-use threshold if applicable;

(B) Completes the construction of the APCD(s) no later than the permit expiration date, including any written extension(s) issued pursuant to Rule 205; and

(C) Complies with the requirements in paragraph (e)(2).

(4) Exceedance of the Facility-Wide or Reduced Facility-Wide Threshold

Nitric Acid Units that exceed the applicable Facility-Wide or Reduced Facility-Wide Threshold in Table A after June 1, 2023, where the owner or operator has not submitted a permit application(s) for an APCD(s) for the Nitric Acid Unit that exceeded the applicable low-use threshold, will not constitute a violation of the requirements of subparagraph (d)(1)(A) provided that the owner or operator of such units:

(A) No later than 120 days from the last day of the month the Nitric Acid Units exceeded the Facility-Wide Threshold or the Reduced Facility-Wide Threshold in Table A, submits a permit application(s) to the South Coast AQMD for an APCD(s) that meets the requirements of subparagraph (d)(1)(A) for all Nitric Acid Units at the facility.

(B) Completes the construction of the APCD(s) no later than the permit expiration date, including any written extension(s) issued pursuant to Rule 205; and

(C) Complies with requirements in paragraph (e)(2).

(5) An owner or operator of a Nitric Acid Unit(s) subject to the requirements of subparagraph (e)(3)(A) for an exceedance of the Per Nitric Acid Threshold or subparagraph (e)(4)(A) for an exceedance of the Facility-Wide Threshold may elect to exclude Nitric Acid Unit(s) from the

requirements of (e)(3)(A) or (e)(4)(A) as specified in subparagraphs (e)(5)(A) or (e)(5)(B), respectively.

(e) (5) (A) An owner or operator of a Nitric Acid Unit(s) that exceeded the Per-Nitric Acid Unit Threshold may exclude the Nitric Acid Unit(s) from the requirements of subparagraph (e)(3)(A) with monthly Replenishments less than the applicable Reduced Per Nitric Acid Unit Threshold for the month the exceedance occurred, provided that the Nitric Acid Unit(s) that is excluded then complies with the applicable Reduced Per Nitric Acid Unit Threshold in Table A.

(B) An owner or operator of Nitric Acid Units that exceeded the Facility-Wide Threshold may exclude the Nitric Acid Unit(s) from the requirements of subparagraph (e)(4)(A) with monthly Replenishments, that when totaled together, are less than the applicable Reduced Facility-Wide Threshold in Table A for the month the exceedance occurred, provided that the Nitric Acid Unit(s) that is excluded then complies with the applicable Reduced Facility-Wide Threshold in Table A.

(6) Source Testing Alternative to Installation of New APCD

For each exceedance of the applicable low-use threshold in Table A, in lieu of complying with the requirements in paragraphs (e)(3) or (e)(4), an owner or operator of a Nitric Acid Unit(s) equipped with an APCD shall comply with subparagraphs (e)(6)(A)-(D). The Source Testing Alternative provided in this paragraph that is used in lieu of paragraph (e)(4) shall only be allowed provided that the Replenishments for the Nitric Acid Unit(s) not equipped with an APCD total less than the applicable Facility-Wide Threshold for the month that the exceedance occurred.

(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 meets the requirements of paragraph (h)(1) to the Executive Officer;

(B) No later than 90 days after written approval of the source test protocol by the Executive Officer, the owner or operator shall conduct the source test according to the approved source test protocol; and

(C) No later than 270 days from the last day of the month the Nitric Acid Unit(s) exceeded the applicable low-use threshold,

demonstrate compliance with the requirements of subparagraph (d)(1)(A).

(e) (6) (D) If the source test fails to demonstrate compliance with requirements of subparagraph (d)(1)(A), the owner or operator shall submit a permit application(s) to the South Coast AQMD for an APCD(s) that meets the requirements of subparagraph (d)(1)(A) no later than 270 days from either receiving a source test report where the APCD did not comply with the requirements of subparagraph (d)(1)(A) or receiving written notification electronically distributed by the Executive Officer that the source test report submitted is not acceptable or does not demonstrate compliance with the requirements of subparagraph (d)(1)(A).

(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 an APCD subject to the requirements of subdivision (d)(1)(A) shall monitor and record the following Operational Parameter Values, on a weekly basis for weeks the APCD is in operation:

(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 Nitric Acid 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 Replenishments Adjustments, nitric acid concentrations (in WT%), and calculations for each Nitric Acid Unit; and

(C) Determine total monthly Replenishments (in gallons) and highest nitric acid concentration (in WT%) used, for each Nitric Acid Unit.

(3) No later than February 1, 2025, an owner or operator of a Nitric Acid Unit(s) shall prepare annual reports for calendar years 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) Identification of each heated Nitric Acid Unit;

(C) Identification of 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 Nitric Acid Unit(s) 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 NOx emission rate or control efficiency;

(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 NOx emissions, and South Coast AQMD Methods 1.1-4.1 to determine stack gas flowrate;

(h) (1) (E) Design criteria and ventilation requirements at or above the applicable minimum hood induced capture velocity specified in the most current edition (i.e., at the time the South Coast AQMD permit application was deemed complete by South Coast AQMD) of *Industrial Ventilation, A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists for the APCD or a permanent total enclosure as defined in U.S. EPA Method 204;

(F) South Coast AQMD permits;

(G) The number of test runs; and

(H) 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 of a Nitric Acid Unit(s) 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 requirements of subparagraph (d)(1)(A), the owner or operator of the APCD shall conduct a subsequent source test, except:

(A) For a Nitric Acid Unit(s) 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 report submitted pursuant to

paragraph (h)(5) is not acceptable to demonstrate compliance with the requirements of subparagraph (d)(1)(A), the owner or operator of the Nitric Acid Unit(s) shall conduct the source test addressing the deficiencies identified in the source test report with the following notification requirements:

(h) (6) (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;

(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.

(i) Exemptions

(1) A Nitric Acid Unit is exempt from subdivision (d), paragraphs (e)(1) and (e)(2), subdivision (f), paragraph (g)(1) and subdivision (h), provided that the Replenishments recorded pursuant to subparagraph (g)(2)(A) do not exceed neither the applicable Per Nitric Acid Unit or Reduced Per Nitric Acid Unit nor the applicable Facility-Wide or Reduced Facility-Wide Thresholds specified in Table A based on the concentration(s) of the nitric acid used for Replenishments. Replenishments to a Nitric Acids Unit(s) equipped with an APCD(s) that demonstrates compliance with requirements of subparagraph (d)(1)(A) shall not be included in the determination of usage in Table A.

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*	**Reduced Per Nitric Acid Unit***	**Facility-Wide****	**Reduced Facility-Wide ****
0-30%	385	77	1155	231
>30-60%	115	23	346	69
>60-75%	66	13	198	40
>75-100%	45	9	135	27

** If different nitric acid concentrations are used in an individual Nitric Acid Unit, the threshold for the highest concentration applies.*

*** If different nitric acid concentrations are used for different Nitric Acid Units, the threshold for the highest concentration applies for Facility-Wide and Reduced Facility-Wide Thresholds.*

(i) (2) Disposal Replenishment Adjustment

An owner or operator of a Nitric Acid Unit(s) may elect to exclude an amount of new nitric acid added to a Nitric Acid Unit recorded pursuant to subparagraph (g)(2)(A) that is equal to the amount of nitric acid that is removed for disposal provided:

(A) The owner or operator keeps records of the following:

(i) Nitric acid concentration of the solution removed;

(ii) The volume of the solution removed;

(iii) Calculations used to determine amount of nitric acid removed for disposal; and

(B) The removed nitric acid in paragraph (i)(2) is not Recycled

(3) Evaporation Replenishment Adjustment

An owner or operator of a Nitric Acid Unit(s) may elect to exclude an amount of new nitric acid added to a Nitric Acid Unit recorded pursuant to subparagraph (g)(2)(A) that is equal to the amount of nitric acid that is evaporated provided:

(A) The owner or operator conducts a test according to the following procedure under normal tank operating conditions without processing any workpieces to determine the amount of nitric acid that evaporates:

(i) Measure and record the concentration of nitric acid, temperature and volume of solution in the Nitric Acid Unit(s);

(i) (3) (A) (ii) Immediately after measuring the nitric acid concentration and volume of solution, leave the Nitric Acid Unit undisturbed for a minimum of 3 hours;

(iii) At the end of the period pursuant to clause (i)(3)(A)(ii), measure and record the concentration of nitric acid and volume of solution;

(iv) Calculate the rate of nitric acid evaporation in gallons per hour as determined in this test; and

(B) On each operating day, the owner or operator calculates and records the amount of nitric acid that is evaporated for the Nitric Acid Unit(s) operated under the same conditions that the test was conducted based on the evaporation rate as determined in clause (i)(3)(A)(iv).

(C) The owner or operator conducts the test on a quarterly basis and when operating conditions, including but not limited to nitric acid concentration and set temperature of the Nitric Acid Unit(s), are changed.

(D) The Nitric Acid Unit is heated and equipped with an APCD installed on or before [Date of Rule Adoption].

(4) A Nitric Acid Unit demonstrating compliance with the requirements of subparagraph (d)(1)(A) and with reported nitric acid usage under RECLAIM pursuant to Regulation XX is exempt from paragraphs (g)(2), (g)(3), and (g)(4).

(5) Nitric Acid Units exempt pursuant to Rule 219 - Equipment Not Requiring a Written Permit Pursuant to Regulation II are exempt from the provisions of this rule.