

**PROPOSED RULE 1445 CONTROL OF TOXIC AIR CONTAMINANT EMISSIONS  
FROM LASER AND PLASMA ARC METAL CUTTING**

*[Rule Index to be provided after rule adoption]*

(a) Purpose

The purpose of this rule is to reduce toxic air contaminant emissions from laser and plasma arc cutting equipment used for Metal Cutting.

(b) Applicability

This rule applies to any owner or operator that has been issued or is required to obtain a South Coast AQMD permit for any laser and plasma arc cutting equipment used for Metal Cutting.

(c) Definitions

For the purpose of this rule, the following definitions shall apply:

- (1) AIR POLLUTION CONTROL DEVICE (APCD) means equipment installed for the purpose of collecting and containing emissions from Metal Cutting.
- (2) APPROVED CLEANING METHOD means cleaning using a wet mop, damp cloth, wet wash, low pressure spray nozzle, HEPA Vacuum, or a combination of the above methods that minimizes Fugitive Dust emissions.
- (3) BUILDING means a type of enclosure that is a permanent structure, with a floor, walls surrounding the Unit, and a roof to prevent exposure to the elements (e.g., precipitation, wind, run-off).
- (4) CAPTURE HOOD means a shaped inlet designed to capture and direct emissions to an APCD.
- (5) CAPTURE VELOCITY means the induced air velocity necessary to capture and convey all air contaminants into an Air Pollution Control Device.
- (6) CONTROL EFFICIENCY means the difference between uncontrolled and the controlled total mass emissions divided by the total uncontrolled mass emissions expressed as a percent.
- (7) DUST COLLECTOR means a Filter-Based APCD designed to remove particulates from a gas stream using fabric filters, or other air filters that are built into a frame or cartridge.
- (8) EXISTING means any Unit or APCD with an active South Coast AQMD permit and a Permit Date before *[date of rule adoption]*.
- (9) FACE VELOCITY means the induced air velocity at the face plane of a Capture Hood.

- (10) FACILITY means any source or group of sources or other air contaminant-emitting activities that are located on one or more contiguous properties within the South Coast AQMD, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control), or an outer continental shelf (OCS) source as determined in 40 CFR Section 55.2. Such above-described groups, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one facility. Sources or installations involved in crude oil and gas production in Southern California Coastal or OCS Waters and transport of such crude oil and gas in Southern California Coastal or OCS Waters shall be included in the same facility that is under the same ownership or use entitlement as the crude oil and gas production facility on-shore.
- (11) FILTER-BASED means use of filter media in an APCD to collect and contain particulate from an airstream.
- (12) FIXED means any Unit that is installed in a Building, structure or Facility and is not considered Portable.
- (13) FUGITIVE DUST means any particulate matter that has the potential to become airborne.
- (14) FULLY SUBMERGED means Metal Cutting that is conducted on a Water Table where the Metal and entire electrical arc are fully or completely under water.
- (15) HEPA VACUUM means a vacuum that is both designed for the use of and used with a HEPA Filter.
- (16) HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER means a filter that is both individually tested and certified by the manufacturer to have a control efficiency of not less than 99.97 percent on 0.3 micron particles.
- (17) LEAK-TIGHT means the condition whereby any contained solids or liquids are prevented from escaping or spilling out.
- (18) METAL means any ferrous (iron-based) Metal and alloys and non-ferrous (non-iron-based) Metals and alloys.
- (19) METAL CUTTING means use of a Unit to cut, etch, or engrave Metal.
- (20) NEW means any Unit or APCD with a Permit Date on or after [*date of rule adoption*].
- (21) NICKEL ALLOY means a steel alloy with 10.5 percent or greater nickel content by mass as determined by the precise value or the upper range on an applicable Safety Data Sheet, mill certification, or certified testing.

- (22) PERMANENT TOTAL ENCLOSURE means a permanent building or permanent containment structure, enclosed with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation, wind, run-off) that has limited openings to allow access for people and vehicles, that is free of breaks or deterioration that could cause or result in fugitive emissions, and has been evaluated to meet the design requirements set forth in U.S. EPA Method 204, or other design approved by the Executive Officer.
- (23) PERMIT DATE means the earliest date that a permit was issued.
- (24) PORTABLE means a Unit that can be moved to conduct Metal Cutting within a Facility, such as an intra-Facility Unit or is listed as handheld or portable in the equipment description section, or as various locations in the equipment location section of a South Coast AQMD permit.
- (25) SCHOOL means any public or private school, including juvenile detention facilities with classrooms, used for the education of more than 12 children at the school in kindergarten through grade 12. A School also includes an Early Learning and Developmental Program by the U.S. Department of Education or any state or local early learning and development programs such as preschools, Early Head Start, Head Start, First Five, and Child Development Centers. A School does not include any private school in which education is primarily conducted in private homes. The term School includes any building or structure, playground, athletic field, or other area of School property.
- (26) SENSITIVE RECEPTOR means any residence including private homes, condominiums, apartments, and living quarters. A Sensitive Receptor also includes Schools, daycare centers, health care facilities such as hospitals or retirement and nursing homes, long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.
- (27) STAINLESS STEEL means a steel alloy with 10.5 percent or greater chromium content by mass as determined by the precise value or the upper range on an applicable Safety Data Sheet, mill certification, or certified testing.
- (28) UNIT means laser or plasma arc cutting equipment used to conduct Metal Cutting that uses a focused, high-powered laser beam or uses a high temperature and high velocity jet of plasma.
- (29) UNKNOWN METAL means a Metal or a Metal alloy for which the composition has not been determined by a Safety Data Sheet, mill certification, or certified testing.

- (30) WATER TABLE means a device used to control dust and fumes from Metal Cutting that is comprised of a tank of water where slats are used to support Metal during the cutting process.
  - (31) WIND BARRIER means a barrier that extends on at least three sides around and is located within ten feet of Metal Cutting activities with each side extending from no more than six inches above grade to at least two feet above the height of Metal Cutting location and extending two feet beyond where Metal Cutting takes place.
- (d) Control Device Requirements
- (1) New Unit

An owner or operator shall not operate a New Unit unless emissions from the Unit are collected and directed to an APCD with HEPA Filters or filters individually tested and certified by the manufacturer to have a control efficiency of at least 99.97 percent on 0.3 micron or smaller particles.
  - (2) Existing Unit
    - (A) An owner or operator shall not operate an Existing Unit, except as allowed by subparagraph (d)(2)(B), unless emissions are collected and directed to an APCD that meets the applicable minimum APCD requirement by the effective date included in Table 1 – Requirement and Compliance Schedule for Existing Portable Unit(s) or Table 2 – Requirement and Compliance Schedule for Existing Fixed Unit(s).
    - (B) An owner or operator of an Existing Unit without an APCD or with an APCD that does not meet the requirements of subparagraph (d)(2)(A) shall:
      - (i) Submit a complete permit application by the permit application due dates included in Table 1 – Requirement and Compliance Schedule for Existing Portable Unit(s) or Table 2 – Requirement and Compliance Schedule for Existing Fixed Unit(s); and
      - (ii) Meet the requirements of subparagraph (d)(2)(A).

<b>Table 1 – Requirement and Compliance Schedule for Existing Portable Unit(s)</b>			
<b>Metal Processed</b>	<b>Minimum APCD Requirement</b>	<b>Permit Application Due Date</b>	<b>Effective Date</b>
Metals Other than Stainless Steel, Nickel Alloy, or Unknown Metal	99% control efficiency or greater by weight*	January 1, 2028	No later than 18 months after a South Coast AQMD permit is issued or three years after the permit application due date, whichever date is earlier
Stainless Steel, Nickel Alloy or Unknown Metal	99.97% control efficiency or greater by weight* Or Operated with HEPA or better filtration	July 1, 2027	

\*for total suspended particles or particulate matter 10 microns or less in diameter

<b>Table 2 – Requirement and Compliance Schedule for Existing Fixed Unit(s)</b>				
<b>Metal Processed</b>	<b>APCD Type</b>	<b>Minimum APCD Requirement</b>	<b>Permit Application Due Date</b>	<b>Effective Date</b>
Metals Other than Stainless Steel, Nickel Alloy, or Unknown Metal	No APCD or APCD not identified below	99% control efficiency or greater by weight*	January 1, 2029	No later than 18 months after a South Coast AQMD permit is issued or three years after the permit application due date, whichever date is earlier
	Water Tables with Permit Conditions that Require Fully Submerged Metal Cutting, or Dust Collectors, or Both		January 1, 2039	
Stainless Steel, Nickel Alloy, or Unknown Metal	No APCD or APCD not identified below	99.97% control efficiency or greater by weight* Or Operated with HEPA or better filtration	January 1, 2028	No later than 18 months after a South Coast AQMD permit is issued or three years after the permit application due date, whichever date is earlier
	Water Tables with Permit Conditions that Require Fully Submerged Metal Cutting, or Dust Collectors, or Both		January 1, 2038	

\*for total suspended particles or particulate matter 10 microns or less in diameter

- (C) An owner or operator of an Existing Unit used to perform Metal Cutting exclusively on Metals other than Stainless Steel, Nickel Alloy, or an Unknown Metal shall:
  - (i) Demonstrate compliance with the minimum APCD requirements in subparagraph (d)(2)(A) by complying with at least one of the following:
    - (A) Performing a source test pursuant to subdivision (j) that has been reviewed and approved by the Executive Officer with results demonstrating compliance;
    - (B) Maintaining control technology fact sheets issued by the U.S. EPA; or
    - (C) Maintaining manufacturers' specifications of guaranteed particulate removal efficiency; and
  - (ii) Maintain records that demonstrate the Unit exclusively performed Metal Cutting on Metals other than Stainless Steel, Nickel Alloy, or an Unknown Metal.
- (D) An owner or operator of an Existing Unit used to perform Metal Cutting on Stainless Steel, Nickel Alloy, or an Unknown Metal shall demonstrate compliance with the minimum APCD requirements in subparagraph (d)(2)(A) by complying with at least one of the following:
  - (i) Performing a source test pursuant to subdivision (j) that has been reviewed and approved by the Executive Officer with results demonstrating compliance; or
  - (ii) Maintaining manufacturers' specifications for individually tested and certified filters.
- (3) Existing Filter-Based APCD without a Capture Hood

An owner or operator of an Existing Filter-Based APCD without a Capture Hood shall not operate the Unit unless compliance with an acceptable smoke test is demonstrated pursuant to paragraph (e)(1).
- (4) Existing Filter-Based APCD with a Capture Hood
  - (A) Beginning July 1, 2028, an owner or operator of an Existing APCD with a Capture Hood shall not operate the Unit unless:
    - (i) The Capture hood is within the maximum operating distance as specified in the South Coast AQMD permit; or

- (ii) The Capture Hood is no more than 6 inches from the Metal Cutting location if a maximum operating distance is not specified by the permit; or
  - (iii) Modify the APCD permit to meet the subparagraph (d)(6)(A) airflow design criteria and corresponding Face Velocity requirements of subparagraph (d)(6)(B) and;
    - (A) Meet the Face Velocity testing requirements of paragraph (e)(3); and
    - (B) Comply with the notification requirements of paragraph (e)(4).
- (B) An owner or operator of an Existing APCD with a Capture Hood shall not operate the Unit unless the following requirements are met:
  - (i) Compliance with an acceptable smoke test is demonstrated pursuant to paragraph (e)(1); or
  - (ii) Compliance with an acceptable Face Velocity measurement is demonstrated for an owner or operator complying with the provisions of clause (d)(4)(A)(iii); or
  - (iii) The APCD has permit conditions that specify an acceptable pressure differential operating range or value across the filter(s) and pressure differential is measured, maintained and in compliance with the provisions of paragraph (f)(1) and the notification procedures of paragraph (f)(3); or
  - (iv) The owner or operator installs and maintains a static pressure gauge using the procedures set forth in Appendix 4 – Static Pressure Monitoring Requirements, and meets the following:
    - (A) No later than July 1, 2027, the minimum and maximum static pressure operating values are determined and documented pursuant to Form A in Appendix 4, and ensure Metal Cutting is conducted when the static pressure gauge is at or above the minimum and at or below the maximum static pressure operating values; and
    - (B) Beginning July 1, 2027, ensure static pressure readings are recorded for each day the APCD is used; and
    - (C) The Executive Officer is notified by calling 1-800-CUT-SMOG within 24 hours of when the owner or operator knew

- or reasonably should have known of the APCD's static pressure readings were not within an acceptable range; and
- (D) The necessary actions or repairs are performed to meet the requirements of subclause (d)(4)(B)(iv)(A) prior to conducting Metal Cutting.
- (5) New Filter-Based APCD without Capture Hood
- An owner or operator of a New Filter-Based APCD without a Capture Hood shall not operate the Unit unless:
- (A) Compliance with an acceptable smoke test is demonstrated pursuant to paragraph (e)(1).
- (B) A Capture Velocity of at least 200 feet per minute is demonstrated pursuant to paragraph (e)(2).
- (6) New or an Existing Filter-Based APCD with a Capture Hood complying with the provisions of clause (d)(4)(A)(iii)
- An owner or operator of a Filter-Based APCD with a Capture Hood shall not operate the Unit unless it can be demonstrated that the APCD meets the airflow design criteria specified in the most current edition, at the time the 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 with:
- (A) A designed Capture Velocity of at least 200 feet per minute at the maximum operating distance between the Capture Hood and the Metal Cutting location; and
- (B) A corresponding minimum Face Velocity determined by design criteria in accordance with subparagraph (d)(6)(A) and specified in the permit and as demonstrated pursuant to paragraph (e)(3).
- (e) Filter-Based APCD: Testing Requirements
- (1) New and Existing Filter-Based APCD – Smoke Test
- An owner or operator of a Unit vented to a Filter-Based APCD shall demonstrate compliance with paragraph (d)(3), clause (d)(4)(B)(i) and/or subparagraph (d)(5)(A), as applicable, by conducting an acceptable smoke test using the procedure set forth in Appendix 1 – Smoke Test Procedures and in accordance with the compliance schedule in Table 3 – Parametric Monitoring Compliance Schedule.
- (2) New Filter-Based APCD without a Capture Hood – Capture Velocity



An owner or operator of a Unit vented to a New Filter-Based APCD without a Capture Hood shall demonstrate compliance with paragraph (d)(5)(B) by conducting a Capture Velocity test using the procedure set forth in Appendix 2 – Capture Velocity Measurement Procedures and in accordance with the compliance schedule in Table 3 – Parametric Monitoring Compliance Schedule.

- (3) New or an Existing Filter-Based APCD with a Capture Hood complying with the provisions of clause (d)(4)(A)(iii) – Face Velocity

An owner or operator of a Unit vented to a Filter-Based APCD with a Capture Hood shall demonstrate compliance with subparagraph (d)(6)(B) by conducting a Face Velocity test using the procedure set forth in Appendix 3 – Face Velocity Measurement Procedures and in accordance with the compliance schedule in Table 3 – Parametric Monitoring Compliance Schedule.

<b>Table 3 – Parametric Monitoring Compliance Schedule</b>				
<b>Requirement</b>	<b>Existing APCD</b>		<b>New APCD</b>	
	<b>Initial Test*</b>	<b>Subsequent Test Frequency</b>	<b>Initial Test</b>	<b>Subsequent Test Frequency</b>
Smoke Test (e)(1)	On or before July 1, 2027	At least once every 6 months after the prior test	Within 90 days after commencement of initial operation as allowed under South Coast AQMD permit	At least once every 6 months after the prior test
Capture Velocity (e)(2)	N/A	N/A		At least once every 24 months after the prior test
Face Velocity (e)(3)	N/A	N/A		At least once every 6 months after the prior test
Face Velocity (d)(4)(A)(iii)	Within 6 months of permit modification	At least once every 6 months after the prior test	N/A	N/A

- (4) An owner or operator of a Filter-Based APCD that does not demonstrate compliance with paragraph (e)(1), (e)(2) or (e)(3) shall:

- (A) Notify the Executive Officer by calling 1-800-CUT-SMOG within 24 hours of when the owner or operator knew or reasonably should have known of the APCD's failed demonstration; and
  - (B) Prior to conducting Metal Cutting, perform necessary actions or repairs to meet the requirements of subdivision (d).
- (f) Filter-Based APCD: Pressure Drop Requirements
  - (1) Beginning July 1, 2027, for an Existing APCD; and beginning with the date of commencement of initial operation for each New APCD, an owner or operator shall not operate a Unit vented to a Filter-Based APCD unless the following conditions are met:
    - (A) Install and operate a pressure gauge to indicate and monitor, in inches of water column, the pressure drop across each filter stage of the APCD during operation;
    - (B) Ensure that the gauge:
      - (i) Is operated and maintained in accordance with manufacturer's specifications;
      - (ii) Is equipped with ports to allow for periodic calibration in accordance with manufacturer specifications. If the calibration frequency is not specified by the manufacturer, calibration shall be conducted at least once per calendar year; and
      - (iii) Is positioned so that it is easily readable and in clear sight;
    - (C) Maintain the pressure drop across each filter stage of the APCD as specified by South Coast AQMD permit conditions, or per manufacture's specifications if not specified by the permit such that the pressure drop during Metal Cutting remains:
      - (i) At or below the maximum pressure drop or at or below the maximum pressure differential; and
      - (ii) At or above the minimum pressure drop if specified in the permit or by the manufacturer; and
    - (D) Record the pressure drop required in subparagraph (f)(1)(A) at least once each calendar day when Metal Cutting is conducted.
  - (2) In lieu of meeting the requirement in paragraph (f)(1), an owner or operator of an Existing APCD with a Capture Hood associated with an Existing Portable Unit that does not include South Coast AQMD permit conditions that require installation and

operation of a pressure gauge shall not conduct Metal Cutting unless the owner or operator:

- (A) Operates the APCD per manufacturer specifications during Metal Cutting;
  - (B) Provides the manufacturer specifications for APCD operation and maintenance to the Executive Officer upon request; and
  - (C) Maintains the APCD per manufacturer specifications.
- (3) An owner or operator of an APCD that does not demonstrate compliance with subparagraph (f)(1)(C) or the manufacturer specifications of paragraph (f)(2) shall:
- (A) Notify the Executive Officer by calling 1-800-CUT-SMOG within 24 hours of when the owner or operator knew or reasonably should have known of the Unit's failed demonstration; and
  - (B) Perform necessary actions or repairs to meet the requirements of subparagraph (f)(1)(C) or paragraph (f)(2), as applicable.

(g) **Building Requirements**

- (1) Beginning July 1, 2026, an owner or operator of a Fixed Unit shall operate each Fixed Unit within a Building.
- (2) Beginning January 1, 2027, except during the passage of vehicles, equipment, or people for ingress and egress to the Building, an owner or operator of a Unit located within a Building shall, during Metal Cutting:
  - (A) Close any Building openings to the exterior within 20 feet of a Unit to prevent the passage of air through use of one or more of the following:
    - (i) A door that closes;
    - (ii) Overlapping floor-to-ceiling plastic strip curtain; or
    - (iii) A vestibule; and
  - (B) Close openings on at least one end for each pair of opposing ends of a Building through use of one or more of the methods in clauses (g)(2)(A)(i) through (g)(2)(A)(iii), if the Building contains openings to the exterior that are on opposite ends of the Building where air can pass through any area where Metal Cutting occurs.
- (3) Beginning January 1, 2027, except during the passage of vehicles, equipment, or people for ingress and egress to the Building, an owner or operator of a Fixed Unit shall close any Building opening through use of one or more of the methods listed in clauses (g)(2)(A)(i) through (g)(2)(A)(iii) for the opening that faces the nearest:

- (A) Sensitive Receptor, other than the nearest School, that is located within 1,000 feet, as measured from the property line of the Sensitive Receptor to the Building opening; and
  - (B) School that is located within 1,000 feet, as measured from the property line of the School to the Building opening.
- (4) In lieu of meeting the requirement in paragraph (g)(2) and/or (g)(3), an owner or operator of a Unit located within a Building shall install and maintain a Wind Barrier around the Unit at all times except during the passage of equipment and Metal to and from the Unit when Metal Cutting does not occur.
- (5) Beginning on the effective dates in Table 1 – Requirement and Compliance Schedule for Existing Portable Unit(s), an owner or operator of a Portable Unit that conducts Metal Cutting outside of a Building shall:
  - (A) Conduct Metal Cutting within a Wind Barrier; or
  - (B) Operate and maintain an APCD with a collection hood greater than one square foot and conduct an acceptable smoke test pursuant to the procedure in Appendix 1 – Smoke Test Procedures prior to Metal Cutting on the day of operation.
- (h) Housekeeping
  - (1) Beginning July 1, 2026, the owner or operator of a Unit shall clean the following areas using Approved Cleaning Methods:
    - (A) Floors within the Wind Barrier at least once per day if Metal Cutting is conducted within a Wind Barrier;
    - (B) Floors within 20 feet of a Unit located within a Building at least once per day if Metal Cutting is conducted outside of a Wind Barrier;
    - (C) Floors within 20 feet of an APCD associated with a Fixed Unit on a weekly basis if Metal Cutting is conducted within the calendar week.
  - (2) Beginning July 1, 2026, the owner or operator of a Unit shall store and dispose materials generated from paragraph (h)(1) in closed Leak-Tight containers that prevent the release of Fugitive Dust.
- (i) Best Management Practices
  - Beginning July 1, 2026, the owner or operator of a Unit vented to a Filter-Based APCD shall:
    - (1) Inspect and maintain in accordance with the manufacturers' recommended schedule for inspecting and maintaining any APCD for the Unit. If the inspection

frequency is not specified by the manufacturer, inspection and maintenance activities shall be conducted at least once per calendar quarter;

- (2) Ensure that air flow is not obstructed between the Unit and any APCD; and
- (3) Enclose all used filter media in Leak-Tight containers at all times.

(j) **Source Testing**

The owner or operator of a Unit that elects to conduct a source test to demonstrate compliance with subdivision (d) shall:

- (1) Prior to conducting a source test, submit a source test protocol for approval to the Executive Officer no later than the applicable permit application due date in Table 1 – Requirement and Compliance Schedule for Existing Portable Unit(s) and/or Table 2 - Requirement and Compliance Schedule for Existing Fixed Unit(s), as applicable;
- (2) Report to the Executive Officer in writing by electronic mail to [sourcetesting@aqmd.gov](mailto:sourcetesting@aqmd.gov) or a South Coast AQMD web portal or verbally by telephone to 1-800-CUT-SMOG:
  - (A) The source test schedule at least 10 days prior to the start of any source test; and
  - (B) Any changes to the source test schedule 24 hours prior to the start of source testing or within one (1) hour of discovery of a change;
- (3) Conduct a source test:
  - (A) Pursuant to the most recent source test protocol approved by the Executive Officer;
  - (B) With at least one 60-minute run at either typical operating conditions or maximum operating parameters, as specified in the source test protocol;
  - (C) Pursuant to South Coast AQMD Method V – Methods for Measurement of Criteria Pollutants Determination of Particulate Matter Emissions or an acceptable source testing method as approved by the Executive Officer;
  - (D) That includes a demonstration that an acceptable smoke test has been conducted;
  - (E) When assessing the efficiency of controlling emissions, determine:
    - (i) The total inlet mass emissions in lbs. of particulate entering the APCD for any Unit; and
    - (ii) The total outlet mass emissions in lbs. of particulate exhausted from the APCD; and

- (4) Submit the source test report to the Executive Officer within 120 days of completing all sampling for the source test and prior to the applicable effective date in Table 1 – Requirement and Compliance Schedule for Existing Portable Unit(s) or Table 2 - Requirement and Compliance Schedule for Existing Fixed Unit(s).
- (k) Recordkeeping Requirements
  - (1) The owner or operator of a Unit shall maintain records demonstrating compliance with:
    - (A) APCD requirements of subdivision (d), including filter technical specification sheets with filter control efficiency and the dates when filters are replaced for all filter stages installed in a Filter-Based APCD subject to this rule.
    - (B) APCD static pressure readings as required in subclause (d)(4)(B)(iv)(B) and notifications as required in subclause (d)(4)(B)(iv)(C).
    - (C) Testing requirements of subdivision (e) and subparagraph (g)(5)(B) including:
      - (i) Name of the person(s) conducting the demonstration;
      - (ii) Identification of each APCD, including the permit number or device identification number;
      - (iii) Date and time the demonstrations were conducted;
      - (iv) Description of the equipment used to conduct the demonstration;
      - (v) Results of the demonstration conducted for each APCD as a video and as specified in Appendix 1, section 6.1; and
      - (vi) Description of any maintenance and repair activities conducted for each APCD.
    - (D) APCD pressure drop readings as required in subparagraph (f)(1)(D) and notifications as required in paragraph (f)(3).
    - (E) Housekeeping requirements specified in subdivision (h).
    - (F) Inspections, maintenance and repair activities to any APCD conducted pursuant to the requirements of subdivision (i), including:
      - (i) Name of the person(s) performing the inspection and maintenance activities for each APCD;
      - (ii) Identification of each APCD, including the permit number or device identification number;
      - (iii) Date and time of the inspection;

- (iv) Documentation of filter media found to have any leaks, breaks, or tears, or found to be improperly installed; and
    - (v) Description of any maintenance and repair activities conducted for any APCD.
  - (2) An owner or operator of a Unit demonstrating compliance with subparagraph (d)(2)(C) shall maintain Safety Data Sheets to document the composition of Metals processed.
  - (3) An owner or operator of a New Filter-Based APCD shall maintain records to document the permit number and initial operation date of the APCD, and a list of Unit(s) vented to the APCD, including permit numbers.
  - (4) The owner or operator of a Unit shall maintain all records required under this rule for at least five years and the records shall be made available to South Coast AQMD personnel upon request with at least the two most recent years kept onsite.
- (l) Exemptions
  - (1) Subdivisions (d) through (j), and paragraphs (k)(1) through (k)(3) shall not apply to a Unit(s) provided:
    - (A) The Unit is subject to permit conditions that prohibit the Metal Cutting of any Metal that contains more than 0.1 % by weight of any toxic air contaminant identified in:
      - (i) Table 1 of Rule 1401 – New Source Review of Toxic Air Contaminants with an effective date of September 1, 2017 for permits issued before *[date of rule adoption]*; or
      - (ii) Table 1 of Rule 1401 – New Source Review of Toxic Air Contaminants with an effective date at the time the permit application is deemed complete for permits issued on or after *[date of rule adoption]*;
    - (B) The Unit does not process Metals that contain more than 0.1 % of chromium by weight; and
    - (C) The owner or operator maintains records, including manufacturer-supplied Safety Data Sheet(s) to demonstrate compliance with subparagraphs (l)(1)(A) and (l)(1)(B).
  - (2) Paragraphs (g)(2), (g)(3), and (g)(4) shall not apply to a Building provided all Units within the Building are within a Permanent Total Enclosure(s) vented to APCD(s) that meet(s) the requirements in subdivision (d). For the purposes of this rule, strip curtains are not acceptable for use as a Permanent Total Enclosure.

- (3) Subdivisions (g) and (h) and subparagraph (k)(1)(E) shall not apply to a Portable Unit and the corresponding APCD with a Capture Hood used for maintenance and repair activities provided:
  - (A) A fixed physical obstruction is within ten feet of the workpiece that prevents use of a Wind Barrier or the workpiece to be cut is located more than six feet above grade level; and
  - (B) The workpiece to be cut is connected to a fixed structure or pipes that are unable to be moved to be within a Building.
- (4) Subdivision (d), and for an Existing Unit operating without an APCD, subdivisions (d) through (j), and paragraphs (k)(1) through (k)(3), shall not apply to an Existing Unit provided:
  - (A) The permit application for the Unit was deemed complete on or after September 1, 2017;
  - (B) Health risk resulting from the Unit, determined based on the South Coast AQMD Risk Assessment Procedures for Rule 1401, 1401.1 and 212 adopted on or after September 1, 2017, and reviewed and approved by the Executive Officer under the permit application described in subparagraph (l)(4)(A) prior to *[date of rule adoption]*, do not exceed the thresholds in paragraphs (d)(1) through (d)(3) of Rule 1401 – New Source Review of Toxic Air Contaminants; and
  - (C) No later than one year before the applicable permit application due date listed in Table 1 – Requirement and Compliance Schedule for Existing Portable Unit(s) or Table 2 – Requirement and Compliance Schedule for Existing Fixed Unit(s), the owner or operator of an Existing Unit submits a complete permit application to modify the permit to include conditions to:
    - (i) Limit toxic emissions at or below the amount evaluated in the approved health risk assessment described in subparagraph (l)(4)(B); and
    - (ii) Specify the Unit shall be operated in compliance with the applicable provisions of Rule 1445.
- (5) Subdivision (d) shall not apply to an Existing Unit provided:
  - (A) No later than one year before the applicable permit application due date listed in Table 1 – Requirement and Compliance Schedule for Existing Portable Unit(s) or Table 2 – Requirement and Compliance Schedule for Existing Fixed Unit(s), the owner or operator of the Existing Unit submits a complete permit application to demonstrate, using Tier 1 or Tier 2 health



risk assessment from the most recent South Coast AQMD Risk Assessment Procedures for Rule 1401, 1401.1 and 212 when the application is deemed complete, that the health risk resulting from the Unit do not exceed the thresholds in paragraphs (d)(1) through (d)(3) of Rule 1401 – New Source Review of Toxic Air Contaminants;

- (B) The permit application is approved by the Executive Officer; and
- (C) The permit includes conditions to limit toxic emissions at or below the amount evaluated in the approved health risk assessment described in subparagraph (l)(5)(A).

**Appendix 1 – Smoke Test Procedures**

**1. Applicability and Principle**

- 1.1 Applicability. This method applies to an owner or operator of a Unit or APCD that is required to conduct a smoke test pursuant to subdivision (e) or subparagraph (g)(5)(B).
- 1.2 Principle. A smoke device placed within the area where collection of emissions by the ventilation system occurs reveals if acceptable capture efficiency is achieved.

**2. Apparatus**

- 2.1 Smoke Generator. The smoke generator shall be adequate to produce a persistent stream of visible smoke (e.g., smoke sticks). The smoke generating device shall not provide excessive momentum to the smoke stream that may create a bias in the determination of capture efficiency. If the device provides slight momentum to the smoke stream, it shall be released perpendicular to the direction of the capture velocity. The smoke generator must be at full generation during the entire test and operated according to manufacturer's suggested use.

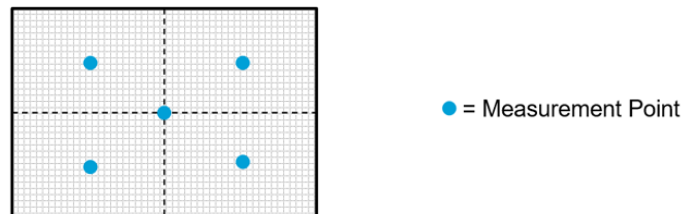
**3. Testing Conditions**

- 3.1 Equipment Operation. Operating parameters of the equipment during the smoke test shall be recorded. Metal Cutting is not required to be conducted during the smoke test evaluation. The smoke test shall be conducted while the APCD is in normal operation, including any limits on the size of a downdraft table vent area included in a permit condition. The position of any adjustable dampers that can affect air flow shall be documented. Precautions should be taken by the Facility to evaluate any potential physical hazards to ensure the smoke test is conducted in a safe manner.
- 3.2 Cross Draft. The smoke test shall be conducted while the APCD is in normal operation and under typical draft conditions representative of the Facility's Metal Cutting operations. This includes cooling fans and openings affecting draft conditions around the Metal Cutting area including, but not limited to, vents, windows, doorways, bay doors, and roll-ups, as well as the operation of other workstations and traffic.
- 3.3 Operating Distance for APCDs operating with a Capture Hood. The smoke test for APCDs operating with a Capture Hood shall be conducted at the operating distance based on the following:

- 3.3.1 For APCD with a maximum operating distance specified in the permit, the test shall be conducted no closer than the maximum distance as specified in the permit.
- 3.3.2 For APCD with no maximum operating distance specified in the permit, the test shall be conducted at an operating distance of six inches.

#### 4. Procedure

- 4.1 Fixed APCD: For Metal Cutting equipment equipped with collection slots or Capture Hoods, or other dust collection systems, the smoke shall be released at the Metal Cutting location (i.e., the point where Metal Cutting occurs) of the laser or plasma arc Metal Cutting equipment over a five-point grid pattern (see below). Smoke tests can be conducted with a workpiece on the Metal Cutting table to represent typical operating conditions provided that a total area greater than one (1) square foot remains available for testing. For zoned down draft tables, separate smoke tests will be required for each zone where the grid pattern described previously will be used.



For enclosed Units (where emissions are generated within an enclosure and inward airflow is maintained to prevent the escape of process emissions), the enclosure door will be open to allow smoke tests to be conducted at the Metal Cutting location using the grid pattern described above in the accessible zone(s).

Using the applicable above procedures, observe the inward movement of the smoke to the collection location(s) of the ventilation system. Record these observations at each of the points providing a qualitative assessment of the collection of smoke to the ventilation system.

- 4.2 APCDs for a Portable APCD with a Capture Hood: The smoke test shall be conducted at the location where the Unit is most frequently used for Metal Cutting (i.e., inside or outside a Building) on ground level
  - 4.2.1 For Portable dust collection systems that use a Capture Hood, the Capture Hood shall be located consistent with normal operating conditions with smoke released at the Metal Cutting location (i.e., the point where Metal Cutting occurs) using the five-point grid pattern described in section 4.1. For a capture hood one (1) square foot or less in diameter, a single center

point may be used in lieu of the five-point grid pattern. The smoke shall be released at operating distance specified in section 3.3. For APCDs permitted to collect emissions from multiple Portable Units, the smoke shall be released at the Metal Cutting location and no less than the identified maximum distance for the maximum number of Units that can be operated as specified in permit conditions.

- 4.2.2 For dust collection systems that include a downdraft table or a ventilation system with collection slots, the smoke shall be released at the Metal Cutting location (i.e., the point where Metal Cutting occurs) over a five-point grid pattern (see Section 4.1).

Using the above procedures, observe the collection of the smoke to the collection location(s) of the ventilation system. Record a video of these observations at each release point(s) to provide a qualitative assessment of the collection of smoke to the ventilation system.

5. Demonstration of an Acceptable Smoke Test

- 5.1 An acceptable smoke test shall demonstrate that all smoke released from point(s) described under section 4 is completely captured by the ventilation system.

6. Documentation

- 6.1 The smoke test shall be documented by video at each point that clearly shows the path of the smoke. Documentation shall also include a list of equipment tested and any repairs that were performed in order to pass the smoke test. As previously discussed, the documentation shall include the position of adjustable dampers, and cross draft conditions. The documentation shall be signed and dated by the person performing the test. The records shall be maintained for at least five years and the records shall be made available to the South Coast AQMD personnel upon request with at least the two most recent years kept onsite.

## Appendix 2 – Capture Velocity Measurement Procedures

### 1. Applicability

- 1.1 Applicability. This method applies to an owner or operator of a New APCD that is required to measure air velocity to demonstrate that APCD meets the Capture Velocity requirements in subdivision (e).

### 2. Apparatus

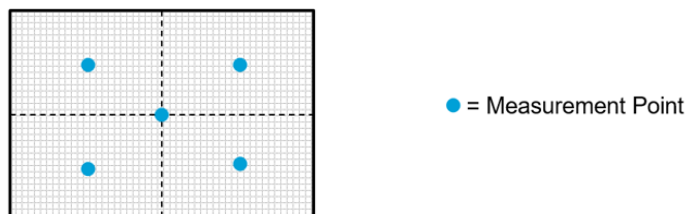
- 2.1 Anemometer. The anemometer shall be capable of measuring the inward face air velocity in feet per minute (fpm) within an appropriate velocity range with an accuracy within  $\pm 10\%$  of full scale. The anemometer shall be operated and calibrated per the manufacturer's recommendations.

### 3. Testing Conditions

- 3.1 Equipment Operation. The test shall be conducted while the APCD is in normal operation and under typical conditions representative of the Facility's Metal Cutting operation, including any limits on the size of a downdraft table vent area included in a permit condition. Metal Cutting is not required to be conducted during the capture velocity evaluation. Precautions should be taken by the Facility to evaluate any potential physical hazards to ensure the Capture Velocity air measurement test is conducted in a safe manner.
- 3.2 Cross Draft. The test shall be conducted under typical draft conditions representative of the Facility's Metal Cutting operations. This includes cooling fans and openings affecting draft conditions around the Metal Cutting area including, but not limited to, vents, windows, doorways, bay doors, and roll-ups, as well as the operation of other work stations and traffic.

### 4. Procedure

- 4.1 Fixed APCD: The Capture Velocity measurements shall be conducted at the Metal Cutting location (i.e., the point where Metal Cutting occurs) of the Metal Cutting equipment over a five-point grid pattern (see below). Capture Velocity tests can be conducted with a workpiece on the Metal Cutting table to represent typical operating conditions provided that a total area greater than one (1) square foot remains available for testing.



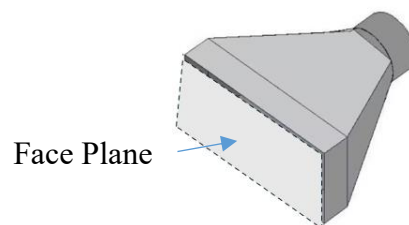
For zoned down draft tables, one set of grid pattern measurements will be required for each zone where the grid pattern described previously will be used. For enclosed Units (where emissions are generated within an enclosure and inward airflow is maintained to prevent the escape of process emissions), the enclosure door will be open to allow Capture Velocity measurements to be conducted at the Metal Cutting location using the grid pattern described above. Enclosed systems with zoned downdraft table will conduct one-set of representative Capture Velocity measurements using the grid pattern above in the most accessible zone. For dust collection systems that use a capture hood, one set of grid measurements within the dimensions of the capture hood is acceptable.

- 4.2 Portable Unit venting to an APCD without a Capture Hood: Refer to Section 4.1 above.
- 4.3 Units Venting to New APCD with Capture Hood: Refer to Face Velocity measurement procedures in Appendix 3.
- 4.4 The measurement with the anemometer shall be performed with a minimum of 20 second readings taken for each measurement point or the time necessary to ensure that a steady reading is obtained and recorded at each measurement point.
5. Documentation
- 5.1 The following information shall be recorded for each measurement.
- Air Pollution Control Device permit number:
- Anemometer Make Model:
- Anemometer Calibration Factor:
- Anemometer Calibration Date:
- Air Velocity Measurements:
- |                       |                        |
|-----------------------|------------------------|
| Upper Left: _____ fpm | Upper Right: _____ fpm |
| Center: _____ fpm     |                        |
| Lower Left: _____ fpm | Lower Right: _____ fpm |
- Measurement conducted by:
- Measurement date:

### Appendix 3 – Face Velocity Measurement Procedures

1. Applicability
  - 1.1 Applicability. This method applies to an owner or operator of a New APCD with a Capture Hood that is required to measure air velocity to demonstrate that the APCD meets the Face Velocity requirements in paragraph (e)(3).
2. Apparatus
  - 2.1 Anemometer. The anemometer shall be capable of measuring air velocity in feet per minute (fpm) within an appropriate velocity range with an accuracy within +/- 10% of full scale. The anemometer shall be operated and calibrated per the manufacturer's recommendations.
3. Testing Conditions
  - 3.1 Equipment Operation. The test shall be conducted while the APCD is in normal operation and under typical conditions representative of the Facility's Metal Cutting operation. Metal Cutting is not required to be conducted during the smoke test evaluation. Precautions should be taken by the Facility to evaluate any potential physical hazards to ensure the Face Velocity test is conducted in a safe manner.
  - 3.2 Cross Draft. The test shall be conducted under typical draft conditions representative of the Facility's Metal Cutting operations. This includes cooling fans and openings affecting draft conditions around the Metal Cutting area including, but not limited to, Wind Barriers, vents, windows, doorways, bay doors, and roll-ups, as well as the operation of other workstations and traffic.
4. Procedures
  - 4.1 The Face Velocity measurements shall be conducted at the center of the Capture Hood face plane (i.e., open face of Capture Hood where air flow is directed inward to the APCD – see Figure 1). The Face Velocity measurements shall be conducted at the location where the Unit is most frequently used for Metal Cutting (i.e., inside or outside a Building) on ground level.

**Figure 1 – Capture Hood**



- 4.2 For APCDs with multiple Capture hoods permitted to collect emissions from multiple Units, the Face Velocity measurement shall be conducted and recorded for each Capture Hood.
- 4.3 The measurement with the anemometer shall be performed with a minimum of 20 second readings taken for each measurement point or the time necessary to ensure that a steady reading is obtained and recorded at each measurement point.
- 5. Documentation
  - 5.1 The following information shall be recorded for each measurement.  
  
Air Pollution Control Device permit number:  
Face velocity included in permit conditions:  
Anemometer Make Model:  
Anemometer Calibration Factor:  
Anemometer Calibration Date:  
Air Velocity Measurement:  

Center:\_\_\_\_\_ fpm

  
  
Measurement conducted by:  
Measurement date:



**Appendix 4 – Static Pressure Monitoring Requirements**

Applicability

- 1.1 Applicability. The following procedures applies to an owner or operator of an Existing Portable APCD with a Capture Hood that is seeking an alternative to performing smoke tests under the provisions of clause (d)(4)(B)(iv).

2. Apparatus

- 2.1 Static Pressure Gauge. The gauge shall be capable of measuring static pressure upstream of the filter. It shall have an appropriate measurement range to capture expected pressure values accurately.
- 2.2 The gauge shall be operated and calibrated per the manufacturer's recommendations.

3. Gauge Installation

- 3.1 The static pressure gauge shall be affixed to the portable APCD. It should be installed at a location that avoids airflow disturbances, such as bends, valves, or other obstructions, and should include pressure tap fittings that minimize pressure loss or distortion. The system shall be airtight to prevent leaks that could affect readings, and the gauge should be protected from mechanical vibration and thermal extremes that might compromise measurement integrity.
- 3.2 The sampling port for the static pressure gauge shall be located upstream of the filter, at a sufficient distance to ensure a stable and representative pressure reading, away from any flow disturbances such as bends, fittings, or dampers. The port shall be positioned on the side of the duct to avoid debris accumulation and shall be aligned perpendicular to the airflow to accurately capture static pressure.

4. Establishment of Acceptable Static Pressure Range

- 4.1 The minimum value of the acceptable range shall be based on the static pressure reading after installation of unused filter(s).
- 4.2 The maximum value of the acceptable range shall be based on the filter manufacturers' recommendations.
- 4.3 The minimum and maximum values for each APCD shall be documented by the owner or operator using Form A. A separate Form A shall be used each time the filter(s) is replaced to establish an updated minimum value of the acceptable range.

5. Procedures

- 5.1 If the APCD has multiple power settings, the APCD shall be in a typical setting for Metal Cutting.
- 5.2 The pressure gauge reading shall be conducted each day prior to conducting Metal Cutting.
- 6. Documentation - The following information shall be recorded for each measurement following the format in Form A.

## Form A – South Coast AQMD Rule 1445 Static Pressure Recordkeeping Form

Facility ID: _____		APCD Permit Number: _____	
Facility Name: _____			
<b>Acceptable Range</b>	<b>Minimum Value:</b> _____ <i>inches water column</i>		<b>Maximum Value:</b> _____ <i>inches water column</i>
	<b>Date Tested:</b> _____		<b>Filter Type:</b> _____
	<b>Staff Name:</b> _____		<b>Filter Manufacturer:</b> _____

Metal Cutting date	Staff Name	Static Pressure Reading ( <i>in inches water column</i> )	Within Acceptable Range
<i>Example: 07/17/2025</i>	<i>Jane Doe</i>	<i>2</i>	<i>Yes</i>

\*The owner or operator that utilizes static pressure measurements in lieu of conducting smoke tests pursuant to clause (d)(4)(B)(iv) shall use Form A for each APCD with a collection hood.