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 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 VELOCITY means the minimum hood induced air velocity necessary to capture and convey air contaminants into an Air Pollution Control Device.

(5) DUST COLLECTOR means a Filter-Based Air Pollution Control Device designed to remove particulate from a gas stream using fabric filters in the shape of a tube or an envelope, or other air filters that are built into a frame or cartridge.

(6) EXISTING means any Unit or Air Pollution Control Device with an active South Coast AQMD Permit to Construct or Permit to Operate and an initial Permit Date before [*date of rule adoption*].

(7) 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.

(8) FILTER-BASED means use of filter media in an Air Pollution Control Device to collect and contain particulate from an airstream.

(9) FIXED means any Unit that is installed in a Building, structure or Facility and is not considered Portable.

(10) FUGITIVE DUST means any particulate matter that has the potential to become airborne.

(11) FULLY SUBMERGED means Metal Cutting that is conducted on a Water Table where the Metal and entire arc are fully under water. For the purposes of this rule, Metal Cutting that is conducted on a Water Table where the Metal and entire arc are completely under water is also considered Fully Submerged.

(12) GRADE LEVEL means any Metal Cutting activity conducted at a level not considered Non-Grade Level.

(13) HEPA VACUUM means a vacuum that is both designed for the use of and used with a HEPA Filter.

(14) HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER means filter(s) that are individually tested and certified by the manufacturer to have a control efficiency of not less than 99.97 percent on 0.3 micron particles.

(15) LEAK-TIGHT means the condition whereby any contained solids or liquids are prevented from escaping or spilling out.

(16) METAL means any ferrous (iron-based) Metal and alloys and non-ferrous (non-iron-based) Metals and alloys.

(17) METAL CUTTING means use of a Unit to cut, etch, or engrave Metal.

(18) NEW means any Unit or Air Pollution Control Device with a Permit Date on or after [*date of rule adoption*].

(19) NICKEL ALLOY means a steel alloy with 10.5 percent or greater nickel content by mass as determined by the precise value or the lower range on an applicable Safety Data Sheet (SDS), mill certification, or certified testing.

(20) NON-GRADE LEVEL means any Metal Cutting activity conducted below grade or at least six feet above the grade.

(21) PERMANENT TOTAL ENCLOSURE means a permanent building or 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.

(22) PERMIT DATE means the earliest date that a Permit to Construct or a Permit to Operate was issued.

(23) 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 to Construct or Permit to Operate.

(24) 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.

(25) 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.

(26) STAINLESS STEEL means a steel alloy with 10.5 percent or greater chromium content by mass as determined by the precise value or the lower range on an applicable Safety Data Sheet (SDS), mill certification, or certified testing.

(27) 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.

(28) 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.

(29) 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.

(30) 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 plane and extending two feet beyond where Metal Cutting takes place.

(d) Control Device Requirements

(1) An owner or operator of a Unit shall collect and vent emissions from any New Portable and/or New Fixed Unit to an Air Pollution Control Device 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) An owner or operator of an Existing Portable and/or Existing Fixed Unit shall:

(A) Collect and vent emissions to an Air Pollution Control Device that meets the applicable minimum Air Pollution Control Device requirement and effective date included 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); and

(B) For any Existing Unit that is not equipped with an Air Pollution Control Device that meets the applicable minimum Air Pollution Control Device requirements, submit a complete permit application by the permit application due date included in Table 1 – Requirement and Compliance Schedule for Existing Portable Unit(s) and/or Table 2 – Requirement and Compliance Schedule for Existing Fixed Units(s).

(3) An owner or operator of a Unit used to exclusively cut Metal other than Stainless Steel, Nickel Alloy, or an Unknown Metal shall operate the Unit with an Air Pollution Control Device that meets the minimum Air Pollution Control Device requirements included 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 demonstrated by either performing a source test pursuant to subdivision (k) that has been reviewed and approved by the Executive Officer with results demonstrating compliance, control technology fact sheets issued by the U.S. EPA, or manufacturers' specifications of guaranteed particulate removal efficiency.

(4) An owner or operator of a Unit used to cut Stainless Steel, Nickel Alloy, or an Unknown Metal shall operate the Unit with an Air Pollution Control Device that meets the minimum Air Pollution Control Device requirements included 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 demonstrated by either performing a source test pursuant subdivision (k) that has been reviewed and approved by the Executive Officer with results demonstrating compliance, or manufacturers' specifications for individually tested and certified filters.

(5) An owner or operator electing to demonstrate a Unit only cuts a known Metal, excluding Stainless Steel or Nickel Alloy, shall either:

(A) Meet permit conditions for the Unit to exclusively cut Metal other than Stainless Steel, Nickel Alloy, or an Unknown Metal; or

(B) Maintain records that demonstrate the Unit exclusively cuts Metal other than Stainless Steel, Nickel Alloy, or an Unknown Metal.

Table 1 – Requirement and Compliance Schedule for Existing Portable Unit(s)

Metal Cut	Minimum Air Pollution Control Device Requirement	Effective Date	Permit Application Due Date
Metals Other than Stainless Steel, Nickel Alloy, or Unknown Metal	99% control efficiency or greater by weight*	January 1, 2029	January 1, 2027
Stainless Steel, Nickel Alloy or Unknown Metal	Operated with HEPA or better final filtration	July 1, 2028	July 1, 2026

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

Table 2 – Requirement and Compliance Schedule for Existing Fixed Unit(s)				
Metal Cut	**Air Pollution Control Device Type as of [*date of rule adoption*]**	**Minimum Air Pollution Control Device Requirement**	**Effective Date**	**Permit Application Due Date**
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	January 1, 2027
	Dust Collectors or Water Tables conducting Fully Submerged Cutting, or Both		January 1, 2039	January 1, 2037
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 final filtration	July 1, 2029	July 1, 2027
	Dust Collector or Water Tables conducting Fully Submerged Cutting or Both		January 1, 2039	January 1, 2037

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

(e) Performance Specifications for Unit(s) Vented to a Filter-Based Air Pollution Control Device

(1) An owner or operator of a Fixed Unit shall demonstrate compliance with the following performance specifications for the associated Filter-Based Air Pollution Control Device by conducting tests pursuant to subdivision (f):

(A) Acceptable smoke test; and

(B) Capture Velocity of at least 200 feet per minute, on average, measured at the cutting plane.

(2) An owner or operator of a Portable Unit shall demonstrate compliance with the following performance specifications for the associated Filter-Based Air Pollution Control Device by conducting tests pursuant to subdivision (f):

(A) Acceptable smoke test; and

(B) Capture Velocity of at least 150 feet per minute, on average.

(f) Testing Requirements for Unit(s) Vented to a Filter-Based Air Pollution Control Device

(1) An owner or operator of a Unit shall demonstrate compliance with subparagraph (e)(1)(A) and/or subparagraph (e)(2)(A), as applicable, by conducting an acceptable smoke test for each Existing or New Filter-Based Air Pollution Control Device 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) An owner or operator of a Unit shall demonstrate compliance with subparagraph (e)(1)(B) and/or subparagraph (e)(2)(B), as applicable, for each Existing or New Filter-Based Air Pollution Control Device by conducting Capture Velocity measurements pursuant to Appendix 2 – Capture Velocity Measurement Procedures and in accordance with the compliance schedule in Table 3 – Parametric Monitoring Compliance Schedule.

(3) An owner or operator of an Existing or New Filter-Based Air Pollution Control Device that does not demonstrate that the Air Pollution Control Device meets the requirements in paragraph (e)(1) and/or (e)(2), as applicable, shall:

(A) Not operate the Unit until a subsequent smoke test and/or subsequent Capture Velocity measurements demonstrate compliance with paragraphs (e)(1) and/or (e)(2);

(B) 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

(C) Perform necessary actions or repairs to meet the requirements of paragraphs (e)(1) and/or (e)(2).

Table 3 – Parametric Monitoring Compliance Schedule				
Requirement	**Existing Air Pollution Control Device**		**New Air Pollution Control Device**	
	Initial Test	**Subsequent Test Frequency**	**Initial Test**	**Subsequent Test Frequency**
Smoke Test	On or before July 1, 2025	At least once every 6 months after the prior test	Within 90 days after commencement of initial operation as allowed under South Coast AQMD rules	At least once every 6 months after the prior test
Capture Velocity	On or before January 1, 2027	At least once every 24 months after the prior test		At least once every 24 months after the prior test

(g) Pressure Drop Requirements for Unit(s) Vented to a Filter-Based Air Pollution Control Device

(1) Beginning July 1, 2025, for an Existing Air Pollution Control Device; and beginning with the date of commencement of initial operation for each New Air Pollution Control Device, an owner or operator of a Unit shall:

(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 Air Pollution Control Device during operation; and

(B) Ensure that the gauge:

(i) Is operated and maintained in accordance with manufacturer's specifications;

(ii) Is positioned so that it is easily readable and in clear sight; and

(C) Maintain the pressure drop across each filter stage of the Air Pollution Control Device at or below the maximum pressure drop and at or above the minimum pressure drop specified in a South Coast AQMD Permit or the manufacturer's recommended maximum pressure drop and minimum pressure drop if not specified in the Permit to Construct or Permit to Operate.

(2) In lieu of meeting the requirement in paragraph (g)(1), an owner or operator of an Existing Air Pollution Control Device associated with an Existing Portable Unit that does not include permit conditions that require installation and operation of a pressure gauge may elect to operate and maintain the Air Pollution Control Device per manufacturer specifications.

(3) An owner or operator of a Unit shall record the pressure drop as measured by the gauge required in subparagraph (g)(1)(A) at least once each calendar day when Metal Cutting is conducted.

(4) An owner or operator of any Unit vented to Air Pollution Control Device that does not meet the pressure drop provisions of subparagraph (g)(1)(C) or the manufacturer specifications of paragraph (g)(2) shall:

(A) Not operate the Unit until the pressure drop readings demonstrate compliance with subparagraph (g)(1)(C) and/or the manufacturer specifications of paragraph (g)(2) are met, as applicable;

(B) 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

(C) Perform necessary actions or repairs to meet the requirements of subparagraph (g)(1)(C) and/or paragraph (g)(2), as applicable.

(h) Building Requirements

(1) Beginning July 1, 2025, an owner or operator of a Fixed Unit shall operate each Fixed Unit within a Building.

(2) Beginning January 1, 2026, except during the movement 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, 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:

(A) A door that closes;

(B) Overlapping floor-to-ceiling plastic strip curtain; or

(C) A vestibule.

(3) Beginning January 1, 2026, 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, an owner or operator of a Unit shall close openings on at least one end for each pair of opposing ends of a Building during Metal Cutting within the Building, except during the passage of vehicles, equipment, or people for ingress or egress to the Building through use of one or more of the methods in subparagraphs (h)(2)(A) through (h)(2)(C).

(4) Beginning January 1, 2026, except during the movement 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 subparagraphs (h)(2)(A) through (h)(2)(C) 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.

(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 meet the following requirements:

(A) For Grade Level operations, conduct Metal Cutting and housekeeping within a Wind Barrier during Metal Cutting; and/or

(B) For Non-Grade Level operations, either conduct Metal Cutting within a Wind Barrier during Metal Cutting or conduct an acceptable smoke test pursuant to the procedure in Appendix 1 – Smoke Test Procedures prior to and on the same day of operation.

(i) Housekeeping

(1) Beginning July 1, 2025, the owner or operator of a Unit shall clean the following areas using Approved Cleaning Methods:

(A) Floors within 20 feet of any Unit on each calendar day when Metal Cutting is conducted, except for Portable Units used for outdoor, Non-Grade Level operations;

(B) Floors within 20 feet of an Air Pollution Control Device:

(i) On a weekly basis for Fixed Metal Cutting operations when Metal Cutting is conducted within the calendar week; and

(ii) For each calendar day when Portable Metal Cutting operations are conducted, except for Portable Units used for outdoor, Non-Grade Level operations.

(2) Store and dispose materials generated from paragraph (i)(1) housekeeping requirements in closed Leak-Tight containers that prevent the release of Fugitive Dust.

(j) Best Management Practices

Beginning July 1, 2025, the owner or operator of a Unit with any Unit vented to a Filter-Based Air Pollution Control Device shall:

(1) Inspect and maintain in accordance with the manufacturers' recommended schedule for inspecting and maintaining any Air Pollution Control Device 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 Air Pollution Control Device.

(3) Enclose all used filter media in Leak-Tight containers at all times.

(k) Source Testing

The owner or operator of a Unit that conducts a source test pursuant to paragraph (d)(3) or (d)(4) shall:

(1) Prior to conducting a source test, submit a source test protocol for approval to the Executive Officer;

(2) Report the source test schedule to the Executive Officer at least 10 days prior to the start of any source test in writing by electronic mail to XXX@aqmd.gov or verbally by telephone to 1-800-CUT-SMOG;

(3) Report any changes to the source test schedule in writing by electronic mail to XXX@aqmd.gov or verbally by telephone to 1-800-CUT-SMOG 24 hours prior to the start of source testing or within one (1) hour of discovery of a change in the source testing schedule;

(4) Conduct a source test:

(A) Pursuant to the most recent source test protocol approved by the Executive Officer;

(B) With triplicate runs at either typical operating conditions or a maximum operating parameters, as specified by the in the source test protocol;

(C) With each run being a minimum of 60 minutes;

(D) 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;

(E) That includes a demonstration that the performance standards of subdivision (e) are met, or alternative design criteria and ventilation velocities approved by the Executive Officer;

(F) When assessing the efficiency of controlling emissions:

(i) Measure or determine the total inlet mass emissions in lbs of particulate entering the Air Pollution Control Device for any Unit; and

(ii) Measure or determine the total outlet mass emissions in lbs of particulate exhausted from the Air Pollution Control Device; and

(5) Submit the source test report to the Executive Officer within 60 days of completing all sampling for the source test.

(l) Recordkeeping Requirements

(1) The owner or operator of a Unit shall:

(A) Maintain records demonstrating compliance with Air Pollution Control Device 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 Air Pollution Control Device subject to this rule.

(B) Maintain records demonstrating compliance with testing requirements of subdivision (f) and subparagraph (h)(5)(B) including:

(i) Name of the person(s) conducting the measurement or demonstration;

(ii) Identification of each Air Pollution Control Device, 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 measurement or demonstration;

(v) Calibration records for the equipment used to conduct the measurement or demonstration;

(vi) Results of the measurement or demonstration conducted for each Air Pollution Control Device; and

(vii) Description of any maintenance and repair activities conducted for each Air Pollution Control Device.

(C) Maintain records of Air Pollution Control Device pressure drop readings as required in paragraph (g)(3).

(D) Maintain records demonstrating compliance with housekeeping requirements specified in subdivision (i).

(E) Maintain records of the inspections and maintenance activities to any Air Pollution Control Device conducted pursuant to the requirements of subdivision (j), including:

(i) Name of the person(s) performing the inspection and maintenance activities for each Air Pollution Control Device;

(ii) Identification of each Air Pollution Control Device, including the permit number or the device identification number listed on a South Coast AQMD permit;

(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 Air Pollution Control Device.

(2) Beginning with the effective dates 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, an owner or operator of a Unit cutting Metals other than Stainless Steel, Nickel Alloy, or Unknown Metals that does not contain permit conditions specifying type and composition of Metals cut shall maintain Safety Data Sheets to document the composition of Metals cut by each Unit.

(3) An owner or operator of a New Filter-Based Air Pollution Control Device shall maintain records to document the permit number and initial operation date of the Air Pollution Control Device and a list of Unit(s) vented to the Air Pollution Control Device, including permit numbers.

(4) The owner or operator shall maintain all records required in this subdivision and subdivision (m) 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.

(m) Exemptions

(1) The provisions of subdivisions (d), (e), (f), (g), (h), (i) and (j) shall not apply to a Unit provided:

(A) All Units are subject to permit conditions that prohibit the cutting of any Metal that contains more than 0.1 % by weight of any toxic air contaminant identified in Table 1 of Rule 1401 – New Source Review of Toxic Air Contaminants with an effective date of September 1, 2017. This provision

does not apply to Metals that contain more than 0.1 % of chromium by weight; and

(B) The owner or operator maintains records, including manufacturer-supplied Safety Data Sheet(s) to document requirements of subparagraph (m)(1)(A).

(2) The provisions of subdivisions (d), (e), (f) and (g) shall not apply to any New Units provided:

(A) The Units are subject to permit conditions that prohibit the cutting of any Metal that contains more than 0.1 % by weight of any toxic air contaminant identified in Table 1 of Rule 1401 – New Source Review of Toxic Air Contaminants effective at the time the permit application is deemed complete. This provision does not apply to Metals that contain more than 0.1 % of chromium by weight; and

(B) The owner or operator maintains records, including manufacturer-supplied Safety Data Sheet to document requirements of subparagraph (m)(2)(A)

(3) The provisions of paragraphs (h)(2), (h)(3), and (h)(4) shall not apply to a Unit provided all Units are within a Permanent Total Enclosure(s) vented to Air Pollution Control Device(s) that meet the requirements in subdivision (d). For the purposes of this rule, strip curtains are not acceptable for use as a Permanent Total Enclosure.

(4) The provisions of subdivision (h)(5) shall not apply to a Portable Unit provided:

(A) The Unit is used exclusively for maintenance and repair activities for less than 40 hours during a calendar year; and

(B) The owner or operator maintains an activity data report each time the Unit is used that includes operating hours for:

(i) Maintenance and repair; and

(ii) Any other activity.

Appendix 1 – Smoke Test Procedures

1. Applicability and Principle

    1.1 Applicability. This method applies to an owner or operator of a Portable or Fixed Unit that is required to conduct a smoke test pursuant to subdivisions (e) and (f) or subparagraph (h)(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

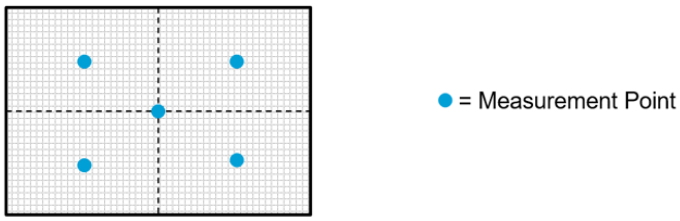
    3.1 Equipment Operation. Any equipment to be smoke tested that can generate heat as part of normal operation must be smoke tested under normal operating conditions. Operating parameters of the equipment during the smoke test shall be recorded. The smoke test shall be conducted while the Air Pollution Control Device 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 Air Pollution Control Device 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.

4. Procedure

    4.1 Air Pollution Control Devices for a Fixed Unit: For cutting equipment equipped with collection slots or hoods, the smoke shall be released at the cutting plane

(i.e., the point where cutting occurs) of the laser or plasma arc cutting equipment over a five-point grid pattern (see below).



For zoned down draft tables, separate smoke tests will be required for each zone where the grid pattern described above will be used. For dust collection systems that use a capture hood, smoke shall be released at the cutting plane directly underneath the center of the capture hood. For a capture hood one (1) square foot or less in diameter, the single center point may be used in lieu of the five-point grid.

4.2 Equipment Enclosures. Equipment enclosures include equipment where emissions are generated inside the equipment, and the equipment is intended to have inward air flow through openings to prevent the escape of process emissions. 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.

4.3 Air Pollution Control Devices for a Portable Unit. For Air Pollution Control Devices associated to Portable plasma arc cutting equipment, the smoke test shall be conducted at the location the unit is most frequently used for Metal Cutting (i.e., inside or outside a Building). The smoke shall be released at points where Metal Cutting emissions are generated and not exceed the identified maximum distance Metal Cutting can occur from the Air Pollution Control Device if the maximum distance is included in permit conditions. If the distance is not specified in permit conditions, the smoke shall be released at points no less than six inches from the collection device. Observe the collection of the smoke to the collection hood 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.

If the Air Pollution Control Device associated to Portable Unit includes a downdraft table or a ventilation system with collection slots, the smoke shall be released at points where Metal Cutting emissions are generated (i.e., the point where cutting occurs). Observe the collection 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.

5. Demonstration of an Acceptable Smoke Test

    5.1 An acceptable smoke test shall demonstrate a direct stream to the collection location(s) of the ventilation system without meanderings out of this direct path.

6. Documentation

    6.1 The smoke test shall be documented by photographs or video at each point that clearly show 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, cross draft conditions, and the heat input of the equipment, if applicable. 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 Portable or Fixed Unit that is required to measure air velocity at the cutting plane to demonstrate that Air Pollution Control Device meets the Capture Velocity requirements in subdivisions (e) and (f).

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 +/- 10% of full scale. The anemometer shall be operated and calibrated per the manufacturer's recommendations.

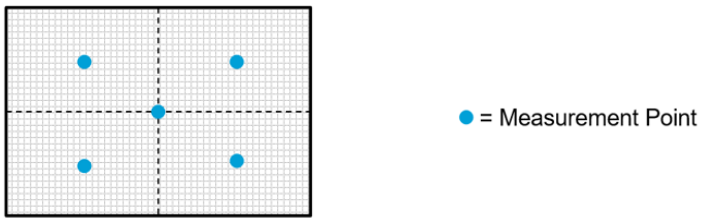
3. Testing Conditions

3.1 Equipment Operation. The test shall be conducted while the Air Pollution Control Device is in normal operation and under typical conditions representative of the Facility's laser or plasma arc cutting operation, including any limits on the size of a downdraft table vent area included in a permit condition. 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 The Capture Velocity measurements shall be conducted at the cutting plane (i.e., the point where cutting occurs) of the laser or plasma arc cutting equipment over a five-point grid pattern (see below).



For zoned down draft tables, one set of grid pattern measurements will be required for each zone. For dust collection systems that use a capture hood, one set of grid measurements within the dimensions of the capture hood is acceptable.

For portable Air Pollution Control Devices associated to portable plasma arc cutting equipment, Capture Velocity measurements shall be conducted at the location the unit is most frequently used for Metal Cutting (i.e., inside or outside a Building). For a capture hood one (1) square foot or less in diameter, the single center point may be used in lieu of the five-point grid.

4.2 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: