PROPOSED RULE 1430

CONTROL OF EMISSIONS FROM METAL GRINDING OPERATIONS AT METAL FORGING FACILITIES

(a) Purpose

The purpose of this rule is to reduce toxic emissions, particulate matter emissions, and odors from metal grinding and metal cutting operations at metal forging facilities.

(b) Applicability

This rule applies to all persons who own or operate a metal forging facility where metal grinding or metal cutting operations are conducted. This rule does not apply to metal grinding or metal cutting conducted under a continuous flood of metal removal fluid, or grinding activities conducted to maintain or repair equipment at the facility.

(c) Definitions

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

(1) BAG LEAK DETECTION SYSTEM means a system that monitors electrical charge transfer based on triboelectric or electrostatic induction to continuously monitor bag leakage and similar failures by detecting changes in particle mass loading in the exhaust.

(2) BILLET GRINDING means metal grinding using (a) travelling grinder(s) designed for billets, which are metal bars, before and after forging.

(3) BUILDING means a type of enclosure that is a permanent structure, completely enclosed with a floor, four walls, and a roof to prevent exposure to the elements, (e.g., precipitation, wind, run-off), with openings to allow ingress and egress for people and vehicles, but is not free of breaks, cracks, gaps, or deterioration that could cause or result in fugitive metal dust.

(4) CAPTURE VELOCITY means the minimum hood induced air velocity necessary to capture and convey air contaminants into an emission collection system.

(5) DUCT SECTION means a length of duct including angles and bends which is contiguous between two or more process devices (e.g., between a furnace and heat exchanger; baghouse and scrubber; scrubber and stack; etc.).

(6) EFFECTIVE ZONE means the region in front of the hood that is adequately controlled by the flow of air into the hood.

(7) EMISSION COLLECTION SYSTEM means any equipment installed for the purpose of directing, taking in, confining, and conveying an air contaminant, and which at minimum conforms to design and operation specifications given in the most current edition of *Industrial Ventilation, Guidelines and Recommended Practices,* published by the American Conference of Governmental Industrial Hygienists, at the time the permit application is deemed complete with the SCAQMD.

(8) EMISSION CONTROL DEVICE means any equipment after the emission collection system for the purposes of collecting and reducing metal-dust emissions from metal grinding and metal cutting activities.

(9) FUGITIVE METAL DUST means any solid particulate matter containing metal that has the potential to become airborne.

(10) HAND GRINDING means metal grinding using a hand tool, including hand powered tools, that prepares, cuts, grinds and polishes or finishes forgings with a disc greater than 1-inch diameter. Examples include angle grinders, internal diameter "I.D." grinders, disc grinders, and side grinders. Hand grinding excludes small hand grinding as defined in paragraph (c)(22).

(11) HIGH EFFICIENCY PARTICULATE ARRESTORS (HEPA) means filter(s) rated at 99.97% or more efficient in collecting particle sizes 0.3 microns or greater in size.

(12) MAINTENANCE AND REPAIR ACTIVITY means any of the following activities conducted outside of a total enclosure that generates or has the potential to generate fugitive metal-dust:

(A) maintenance or repair activities on any emission control device that vents metal grinding or metal cutting operations; or

(B) replacement or removal of any duct section used to vent metal grinding or metal cutting operations.

(13) METAL means ferrous (iron-based) metals and alloys and non-ferrous (non-iron-based) metals and alloys. Examples of metals include, but are not limited to, iron, stainless steel, and their iron-based alloys, stainless steel, aluminum, copper, brass, bronze, gold, silver, zinc, tin, lead, platinum, nickel, chromium, cadmium, manganese, tungsten, and titanium and their non-ferrous alloys.

(14) METAL CUTTING means a process used to abrasively cut starting ingot, log, or billet stock to length in preparation for the forging process. This does not include plasma cutting or laser cutting.

(15) METAL FORGING FACILITY means any facility that processes metal to a desired shape by impact or pressure, using forging machines (upsetters), presses, rolls, and related forming equipment, that conducts metal grinding operations, metal cutting, or small hand grinding onsite.

(16) METAL GRINDING means any material removal and surface preparation process, pre and post forging operations.

(17) METAL GRINDING OPERATION means billet grinding, hand grinding, stand grinding, swing grinding, and torch cutting. Metal grinding operation does not include small hand grinding as defined in paragraph (c)(22).

(18) METAL REMOVAL FLUID means a fluid used at the tool and workpiece interface to facilitate the removal of metal from the part, cool the part and tool, extend the life of the tool, and to flush away metal chips and debris.

(19) SCHOOL means any public or private school, including juvenile detention facilities with classrooms, used for purposes of the education of more than 12 children at the school, including kindergarten and grades 1 through 12, inclusive, but does not include any private school in which education is primarily conducted in private homes. The term includes any building or structure, playground, athletic field, or other area of school property, but does not include unimproved school property.

(20) SENSITIVE RECEPTOR means any residence including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade twelve (K-12) schools; daycare centers; and health care facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long-term care hospitals, hospices, prisons, and dormitories or similar live-in housing.

(22) SMALL HAND GRINDING means metal grinding using a hand tool, including hand powered tools with a disc greater than 1-inch diameter that is used to prepare, cut, grind and polish or finish forging parts with a total surface area less than 25 square inches. Examples include angle grinders, internal diameter "I.D." grinders, disc grinders, and side grinders.

(23) STAND GRINDING means metal grinding using a stand grinder that is usually single speed and used for small castings and light metal removal.

(24) SWING GRINDING means metal grinding using a swing grinder designed with full lateral movement typically used to prepare medium and large billets.

(25) TEMPORARY ENCLOSURE means a structure comprised of a floor, roof, walls and or partitions on at least three sides or three-quarters of the perimeter that

surrounds areas where metal grinding operations are conducted, that is free of breaks, cracks, gaps, or deterioration that could cause or result in fugitive metal dust.

(26) TORCH CUTTING means metal grinding using a blowpipe by which metal is preheated with a flame and then oxidized rapidly and removed by a jet of oxygen issuing centrally through the preheating flame.

(27) TOTAL ENCLOSURE means a permanent containment structure, completely enclosed with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation, wind, run-off), with limited openings to allow access and egress for people and vehicles, that is free of breaks, cracks, gaps, or deterioration that could cause or result in fugitive metal dust.

(d) Total Enclosures

(1) An owner or operator of a metal forging facility is prohibited from conducting any metal grinding or metal cutting operations, or small hand grinding outside of a temporary enclosure, building, or total enclosure.

(2) An owner or operator of a metal forging facility that is conducting metal grinding or metal cutting operations in a building as defined by paragraph (c)(3), that is existing as of [Date of Rule Adoption] shall continue conducting all metal grinding or metal cutting operations in the building until all the requirements specified in paragraph (d)(3) are met.

(3) No later than [6 months after Date of Rule Adoption], an owner or operator of a metal forging facility subject to paragraph (d)(2) shall:

(A) Conduct all metal grinding and metal cutting operations in a total enclosure; and

(B) Minimize release of fugitive metal dust emissions from passages, doorways, and bay doors by installing automatic roll-up doors, plastic strip curtains, or vestibules for doors and openings in the total enclosure. Alternative methods to minimize release of fugitive metal dust from the total enclosure may be used if the owner or operator can demonstrate to the Executive Officer (an) equivalent or more effective method(s).

(4) No later than [12 months after Date of Rule Adoption], an owner or operator of a metal forging facility that is not conducting metal grinding or metal cutting operations in a building as defined by paragraph (c)(3) existing as of [Date of Rule Adoption], shall conduct metal grinding and metal cutting operations in a total enclosure that meets the requirements of paragraph (d)(3). Until the total

enclosure requirements are met, the owner or operator of a metal forging facility shall:

(A) Conduct metal grinding and metal cutting operations in a temporary enclosure or a building as defined by paragraph (c)(3).

(B) In addition to housekeeping provisions specified under subdivision (f), conduct the following cleanings by wet cleaning or HEPA vacuum after or at the end of each operating shift:

(i) Floors within 30 feet of metal grinding and metal cutting work station(s); and

(ii) Floors within 40 feet of any entrance/exit point for the temporary enclosure; and

(iii) Floors of temporary enclosure areas where metal grinding or metal cutting operations occur.

(5) All enclosure types shall be designed in a manner that does not conflict with requirements set forth by the federal Occupational Safety and Health Administration (OSHA) or the California Division of Occupational Safety and Health (CAL-OSHA) regarding worker safety.

(6) The owner or operator of a metal forging facility shall inspect any temporary enclosure or total enclosure at least once a calendar month for breaks, cracks, gaps, or deterioration that could cause or result in fugitive metal dust.

(7) The owner or operator of a metal forging facility shall repair any breaks, cracks, gaps, or deterioration from any temporary enclosure or total enclosure within 72-hours of discovery. The Executive Officer may approve a request for an extension beyond the 72-hour limit if the request is submitted before the 72-hour time limit has expired, and the owner or operator can provide information to substantiate that either:

(A) the repair will take longer than 72 hours; or

(B) the equipment, parts or materials needed for the repair cannot be obtained within 72 hours.

(8) Total Enclosures with Negative Air

The owner or operator of a metal forging facility that conducts metal grinding or metal cutting operations within 300 feet of a sensitive receptor, or within 1,000 feet of a school, as measured from the edge of the total enclosure to the property line of the nearest sensitive receptor or school, shall:

(A) Vent the total enclosure to an emission control device that meets the requirements of subdivision (e) no later than 6 months after a Permit to

Construct for the emission control device is issued by the Executive Officer.

(B) Continuously meet an in-draft velocity of the total enclosure at > 200 feet per minute at any opening including, but not limited to, vents, windows, passages, doorways, bay doors, and roll-ups no later than 6 months after a Permit to Construct for the emission control device venting the total enclosure is issued by the Executive Officer. In-draft velocities for each total enclosure shall be determined by placing an anemometer, or an equivalent device approved by the Executive Officer, at the center of the plane of any opening of the total enclosure.

(e) Metal Grinding and Cutting Emission Requirements

(1) The owner or operator of a metal forging facility shall vent emissions from all metal grinding and metal cutting operations to an emission control device no later than 6 months after a Permit to Construct for the emission control device is issued by the Executive Officer. The emission control device shall not exceed a PM outlet concentration of 0.01 grains of particulate matter per dry standard cubic foot [*staff is considering a PM outlet concentration of 0.002 grains of particulate matter per dry standard cubic foot*] as determined by the most recent SCAQMD-approved source test conducted on behalf of the facility or the SCAQMD pursuant to subdivision (h).

(2) The final stage of any emission control device required under paragraph (e)(1) shall be fitted with HEPA filters, or filter media rated by the manufacturer to achieve a minimum of 99.97% control efficiency for 0.3 micron particles, and designed in a manner that does not conflict with requirements or guidelines set forth by the OSHA or CAL-OSHA regarding worker safety, or the National Fire Protection Association regarding safety.

(3) The owner or operator of a metal forging facility may alternatively fit the final stage of any emission control device required under paragraph (e)(1) with filter media rated by the manufacturer to achieve a minimum of 98% control efficiency for 0.3 micron particles if:

(A) the owner or operator does not conduct billet grinding, metal cutting, swing grinding, or torch cutting; and

(B) the owner or operator operates a combination of 10 or fewer hand grinding units or stand grinding stations; and

(C) toxic emissions from the emission control device does not exceed the screening levels identified in Table I – Toxic Air Contaminants in Rule 1401 - New Source Review of Toxic Air Contaminants, or does not result in a risk of over 1 in a million using the most recent SCAQMD Risk Assessment Procedures for Rule 1401.

(4) The owner or operator of a metal forging facility shall operate the emission control device required under paragraph (e)(1) at the minimum hood induced capture velocity specified in the most current edition of the *Industrial Ventilation, A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists, at the time a permit application is deemed complete with the SCAQMD.

(5) No later than [30 days after Date of Rule Adoption], the owner or operator of a metal forging facility shall:

(A) Provide permanent visual indicators or markings at all hand grinding, stand grinding, swing grinding, and torch cutting stations that identify the maximum distance metal grinding may occur from the emission control device to ensure the emission collection system meets the requirements of subdivision (e);

(B) All metal grinding activity shall be in front of the hood face and within the area identified in subparagraph (e)(5)(A); and

(C) The air flow shall not be obstructed between the metal grinding operation and the hood for the emission collection system.

(6) No later than [30 days after Date of Rule Adoption], the owner or operator of a metal forging facility shall remove any weather cap installed on any stack that is a source of metal particulate emissions or install a butterfly valve.

(f) Housekeeping Requirements

Unless otherwise specified, no later than [30 days after Date of Adoption], the owner or operator of a metal forging facility shall implement the following housekeeping practices:

(1) The owner or operator of a metal forging facility that is conducting metal grinding or metal cutting operations shall conduct semi-annual wet cleaning or HEPA vacuum, no more than 6 calendar months apart, of roof tops that house areas associated with metal grinding or metal cutting operations excluding areas associated with the storage of raw, unprocessed metal containing materials,

finished metal containing products, storage of metal grinding waste, and non-metal grinding or metal cutting activities.

(2) The owner or operator of a metal forging facility that is conducting metal grinding or metal cutting operations or small hand grinding, shall conduct daily wet cleaning or HEPA vacuum of the following:

(A) areas where metal containing wastes generated from metal grinding or metal cutting operations are stored, disposed of, recovered or recycled;

(B) floors within 20 feet of metal grinding or metal cutting work station(s);

(C) floors within 20 feet of any entrance/exit point for an existing enclosure or total enclosure; and

(D) floors within 10 feet of an emission control device dedicated to metal grinding or metal cutting operations.

(3) The owner or operator of a metal forging facility that is conducting metal grinding or metal cutting operations or small hand grinding, shall additionally conduct the following housekeeping measures:

(A) Monthly wet cleaning or HEPA vacuum of floors of a building or total enclosure areas where metal grinding or metal cutting operations occur.

(B) Store all materials capable of generating any amount of fugitive metal dust including, but not limited to, metal containing waste generated from the housekeeping requirements of this subdivision and the maintenance and repair activities of subdivision (g), in sealed containers, unless located within a total enclosure;

(C) Compressed air cleaning operations or dry sweeping shall not be conducted within 30 feet of any metal cutting or metal grinding operation, unless the compressed air cleaning operation or dry sweeping is conducted under an emission control device pursuant to subdivision (e).

(g) Maintenance and Repair Activity Requirements

On and after [30 days after Date of Rule Adoption], the owner or operator of a metal forging facility shall implement the following measures when conducting maintenance and repair activities as defined in paragraph (c)(12):

(1) No later than one hour after completion of maintenance or repair activity, the owner or operator of a metal forging facility shall wet clean or HEPA vacuum the floors within 20 feet of where the maintenance or repair activity was conducted.

(2) Maintenance and repair activity shall be stopped immediately when instantaneous wind speeds are $\geq$ 20 mph, unless the activity is being conducted within a

building, temporary enclosure, or total enclosure. Maintenance or repair activity may be continued if it is necessary to prevent the release of metal particulate emissions.

(3) Wet clean or a HEPA vacuum all metal-contaminated equipment and materials used for maintenance and repair activity immediately after completion of work in a manner that does not generate fugitive metal dust.

(h) Source Tests

(1) Beginning [Date of Adoption], the owner or operator shall conduct the following source tests for any emission control device venting metal grinding or metal cutting operations:

(A) a source test for PM emissions once every 12 months to demonstrate compliance with the emission standard specified in subdivision (e), including confirmation of the capture velocity referenced in paragraph (e)(4); and

(B) a source test for hexavalent chromium and multiple metal emissions once every 48 months.

(C) If an annual source test demonstrates no more than 50% of the PM emissions standard of subdivision (e), the next test for PM emissions from that emission control device may be performed no later than 24 months after the date of the most recent test.

(2) The owner or operator of a metal forging facility with an existing, permitted metal grinding or metal cutting emission control device in operation before [Date of Adoption], shall submit a source test protocol for the initial source test to demonstrate compliance with paragraph (h)(1) to the Executive Officer no later than [60 days after Date of Rule Adoption]. Subsequent source test protocols for source tests conducted after the initial source test shall be submitted to the Executive Officer no later than 90 days prior to the compliance deadline to conduct the next source test to demonstrate compliance with (h)(1). The initial source test protocol may be used for subsequent source tests if there are no changes.

(3) The owner or operator of a metal forging facility with a new or modified metal grinding or metal cutting emission control device with initial start-up on or after [Date of Rule Adoption], shall submit a source test protocol for the initial source to demonstrate compliance with paragraph (h)(1) to the Executive Officer no later than 30 days after initial start-up. Subsequent source test protocols for source

tests conducted after the initial source test shall be submitted to the Executive Officer no later than 90 days prior to the compliance deadline to conduct the next source test to demonstrate compliance with (h)(1). The initial source test protocol may be used for subsequent source tests if there are no changes.

(4) The source test protocol required under paragraphs (h)(2) and (h)(3) shall include the source test criteria of the end user and all assumptions, required data, and calculated targets for testing the following:

(A) Target particulate mass emission standard;

(B) Preliminary target pollutant analytical data;

(C) Planned sampling parameters; and

(D) Information on equipment, logistics, personnel, and other resources necessary for an efficient and coordinated test.

(5) The owner or operator of a metal forging facility shall conduct the source test for an emission control device no later than 60 days from approval of the source test protocol, unless otherwise approved in writing by the Executive Officer.

(6) The owner or operator shall notify the Executive Officer in writing 10 calendar days prior to conducting any source test required by this subdivision.

(7) The owner or operator shall notify the Executive Officer within three business days (Monday through Friday) of when the facility knew or should have known of any source test result that exceeds the emission standard specified in subdivision (e). Notifications shall be made to 1-800-CUT-SMOG and followed up in writing to the Executive Officer with the results of the source tests within seven business days of notification.

(8) Source tests shall be conducted representative of typical operating conditions and in accordance with any of the following applicable test methods:

(A) SCAQMD Method 5.1 – *Determination of Particulate Matter Emissions from Stationary Sources Using a Wet Impingement Train*

(B) SCAQMD Method 5.2 – *Determination of Particulate Matter Emissions from Stationary Sources Using Heated Probe and Filter*

(C) SCAQMD Method 5.3 – *Determination of Particulate Matter Emissions from Stationary Sources Using an In-Stack Filter*

(D) CARB Test Method 425 – *Determination of Total Chromium and Hexavalent Chromium Emissions from Stationary Sources*

(E) CARB Method 436 – *Determination of Multiple Metal Emissions from Stationary Sources*

(F) U.S. EPA Method 306 – *Determination of Chromium Emissions from Decorative and Hard Chromium Electroplating and Chromium Anodizing Operations – Isokinetic Method*

(9) The owner or operator may use alternative or equivalent source test methods as defined in 40 CFR 60.2, if approved in writing by the Executive Officer, in addition to the Air Resources Board, or the U.S. EPA, as applicable.

(10) The operator shall use a test laboratory approved under the SCAQMD Laboratory Approval Program for the source test methods cited in this subdivision. If there is no approved laboratory, then approval of the testing procedures used by the laboratory shall be granted by the Executive Officer on a case-by-case basis based on SCAQMD protocols and procedures.

(11) When more than one source test method or set of source test methods are specified for any testing, the application of these source test methods to a specific set of test conditions is subject to approval by the Executive Officer. In addition, a violation established by any one of the specified source test methods or set of source test methods shall constitute a violation of the rule.

(12) Testing conducted by the facility, by the SCAQMD, or by a contractor acting on behalf of the SCAQMD or the facility to determine compliance with this rule shall be performed according to the most recent SCAQMD-approved test protocol for the same purpose or compounds.

(13) Reports from source testing conducted pursuant to subdivision (h) shall be submitted to the SCAQMD in 60 days or less after completion of testing.

(14) The Executive Officer may approve a request for an extension of the compliance deadline date specified in paragraph (h)(1) if the facility can demonstrate that it timely filed a complete source test protocol and associated information, and is unable to meet the deadline due to reasons beyond the facility's control. The request shall be submitted to the Executive Officer no later than 30 days before the compliance deadline date.

(i) Monitoring

(1) Bag Leak Detection System

The owner and operator of a metal forging facility shall install, operate, calibrate and maintain a Bag Leak Detection System pursuant to SCAQMD Rule 1155.

(2) The minimum hood induced capture velocity specified in paragraph (e)(3) shall be accurately measured by static pressure once per operating shift using the measurement procedures specified in the most current edition of the *Industrial*

Ventilation, A Manual of Recommended Practice for Operation and Maintenance, published by the American Conference of Governmental Industrial Hygienists, at the time a permit application is deemed complete with the SCAQMD, or any more stringent methods required by OSHA or CAL-OSHA.

(3) The owner or operator of a metal forging facility shall continuously monitor the pressure drop across the HEPA filter of an emission control device for metal grinding or metal cutting operations with a mechanical gauge. The gauge shall be located so that it is easily visible and in clear sight of the operator or maintenance personnel. The pressure drop across the HEPA filter shall be maintained within -1/2 times to +2 times the inches of water of the value established during the performance test to demonstrate compliance with the emission limitation for the emission control device.

(4) For each emission collection system subject to this subdivision, confirmation of the capture velocity referenced in paragraph (e)(4) and a periodic smoke test shall be conducted, unless performing such test presents an unreasonable risk to safety, at least once every 3 months using the procedure set forth in Appendix 1 of this rule.

(j) Recordkeeping

(1) The owner or operator of a metal forging facility shall keep records of the following, as applicable:

(A) Monthly records indicating the weight of metal processed by the facility;

(B) Monthly records of weight of metal waste collected by the baghouse catch;

(C) Monthly records of weight of metal waste collected by housekeeping activities required by subdivision (f);

(D) Records of dates when bags for baghouses, cartridges, or HEPA filters are replaced;

(E) Records of periodic smoke tests required by paragraph (i)(4), emission control device inspection and maintenance required by paragraph (e)(5), housekeeping activities required by subdivision (f), maintenance and repair activities required by subdivision (g), including the name of the person performing the activity, and the dates and times at which specific activities were completed.

(F) Log of reports to the facility regarding odors or other air quality related issues that includes the date, time, name and contact information for the

person reporting the issue, source of the issue, and how the issue was resolved.

(2) For the purposes of subdivision (i), the owner or operator shall keep records for Bag Leak Detection Systems pursuant to SCAQMD Rule 1155.

(3) The owner or operator shall maintain all records for five years, with at least the two most recent years kept onsite and shall be made available to the SCAQMD personnel upon request.

(k) Signage

(1) The owner or operator of a metal forging facility shall install a sign that says, "TO REPORT ODORS FROM THIS FACILITY, CALL EITHER [*FACILITY CONTACT PHONE NUMBER*] OR THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AT 1-800-CUT-SMOG" and meets the following requirements, unless otherwise approved in writing by the Executive Officer:

(A) Installed within 50 feet of each entrance of the facility that is visible to the public, and in a location on each side of the facility that is visible to the public;

(B) Measures at least 16 square feet; and

(C) Displays lettering at least 3 inches tall with text contrasting with the sign background.

(l) Permit Application Submittals for Existing Metal Grinding or Cutting Operations

For metal grinding or metal cutting operations existing prior to [Date of Rule Adoption], the owner or operator shall submit complete permit applications no later than [60 days after Date of Rule Adoption] for all construction and/or necessary equipment required under paragraph (d)(8) – Total Enclosures with Negative Air and (e)(1) – Emission Control Devices.

(m) Rule 219 Exemption

Beginning [Date of Adoption], any equipment required under this rule for metal grinding or metal cutting operations and associated emission control devices shall no longer be exempt from the requirement of a written permit pursuant to SCAQMD Rule 219.

Appendix 1 - Smoke Test to Demonstrate Capture Efficiency for Ventilation Systems of (an) Emission Control Device(s) Pursuant to Paragraph (i)(4).

1. Applicability and Principle

1.1 Applicability. This method is applicable to all point sources where an emission control device is used to capture and control emissions from metal grinding or metal cutting operations.

1.2 Principle. Collection of emissions from metal grinding or metal cutting sources is achieved by the ventilation system associated with the emission control device for metal grinding or metal cutting equipment. Emission control efficiency at the exhaust of an emission control device is related to capture efficiency at the inlet of the ventilation system. For this reason, it is imperative that 100% capture efficiency is maintained. A smoke device placed within the area where collection of emissions by the ventilation system occurs reveals this capture efficiency.

2. Apparatus

2.1 Smoke Generator. The smoke generator shall be adequate to produce a persistent stream of visible smoke (e.g., Model #15-049 Tel-Tru™ T-T Smoke Sticks from E. Vernon Hill, Incorporated). The smoke generating device should not provide excessive momentum to the smoke stream that may create a bias in the determination of collection efficiency. If the device provides slight momentum to the smoke stream, it shall be released perpendicular to the direction of the collection velocity.

3. Testing Conditions

3.1 Equipment Operation. Any equipment to be smoke tested that is capable of generating heat as part of normal operation must be smoke tested under those normal operating conditions. Operating parameters of the equipment during the smoke test shall be recorded. The smoke test shall be conducted while the emission control device is in normal operation. 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 emission control device is in normal operation and under typical draft conditions representative of the facility's metal grinding or metal cutting operations. This includes cooling fans and openings affecting draft conditions around the metal grinding 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. The smoke generator must be at full generation during the entire test and operated according to manufacturer's suggested use.

4. Procedure

4.1 Collection Slots. For work stations equipped with collection slots or hoods, the smoke shall be released at points where metal grinding or metal cutting emissions are generated (e.g. the point where welding or stacking of grids occurs). Observe the collection of the smoke to the collection location(s) of the ventilation system. 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. Smoke shall be released at points not to exceed 12 inches apart across ventilated work areas. Record these observations at each of the points providing a qualitative assessment of the collection of smoke to the ventilation system.

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. The smoke shall be released at points outside of the plane of the opening of the equipment, over an evenly spaced matrix across all openings with points not to exceed 12 inches apart. Observe the inward movement of the smoke to the collection location(s) of the ventilation system. An acceptable smoke test shall demonstrate a direct stream into the equipment without meanderings out of this direct path. Record these observations at each of the points providing a qualitative assessment of the collection of smoke to the ventilation system.

5. Documentation. 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 on site for at least two years and be made available to SCAQMD personnel upon request.