AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

ADOPTION OF NEW RULES
67.6.1 – COLD SOLVENT CLEANING AND STRIPPING OPERATIONS,
67.6.2 – VAPOR DEGREASING OPERATIONS AND
REPEAL OF CURRENT RULE 67.6 – SOLVENT CLEANING OPERATIONS

WORKSHOP REPORT

A workshop notice was mailed to all companies in San Diego County that may be subject to proposed new Rules 67.6.1 – Cold Solvent Cleaning and Stripping Operations and 67.6.2 – Vapor Degreasing Operations. Notices were also mailed to all Economic Development Corporations and Chambers of Commerce in San Diego County, the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (ARB), and other interested parties.

The workshop was held on July 11, 2006, and was attended by 43 people. The comments and Air Pollution Control District (District) responses are as follows:

PROPOSED NEW RULE 67.6.1

1. WORKSHOP COMMENT

If solvent cleaning is conducted by applying solvent to a rag and then cleaning the part with this rag, would this type of cleaning be subject to Rule 67.6.1?

DISTRICT RESPONSE

No, this type of solvent cleaning meets the definition of wipe cleaning. Rule 67.6.1 is not applicable to cleaning with rags.

2. WORKSHOP COMMENT

Are paint spray gun cleaners subject to this regulation?

DISTRICT RESPONSE

No, this rule is not applicable to cleaning of paint spray guns in gun cleaners. Please see Subsection (a)(2) of the rule.

3. WORKSHOP COMMENT

Is cleaning conducted for aerospace component maintenance operations exempt from this rule?

DISTRICT RESPONSE

No, aerospace component maintenance cleaning operations are only exempt from the requirement to use solvents with volatile organic compound (VOC) content limit of 50 grams per liter (g/l) or less. These operations must be conducted in compliance with all equipment and operational requirements of the rule.

4. WORKSHOP COMMENT

Does this rule apply to solvent cleaning conducted in a container with a capacity less than one gallon?

DISTRICT RESPONSE

No, cold solvent cleaning or stripping operations conducted in a tank with a capacity of one gallon or less are exempt from this rule.

5. WORKSHOP COMMENT

Some air districts exempt tanks with a capacity of two gallons or less from their solvent cleaning rule requirements. The District should increase the size of small cleaners eligible for exemption from one gallon to two gallons to be consistent with other districts.

DISTRICT RESPONSE

The District disagrees. Most air districts in California exempt solvent cleaners with a capacity of one gallon or less, or with a liquid surface area of one square foot or less. Several districts exempt specialty cleaners with a capacity of two gallons or less from some parts of their rule, but none have an outright exemption for cleaners with a capacity of two gallons or less. The District will maintain the one gallon capacity exemption.

6. WORKSHOP COMMENT

The District should consider exempting solvents with very low vapor pressure (for example, with a vapor pressure < 2 mm Hg) from the VOC content limit.

DISTRICT RESPONSE

The District disagrees. While evaporation rate of low volatility cleaning solvents is lower than high volatility solvents, a large part of emissions from solvent cleaning is a result of a solvent carry-out. This solvent will eventually evaporate into the atmosphere. Therefore, providing vapor pressure limits in the rule in lieu of a VOC content limit would negatively affect the total amount of VOC emission reductions from the proposed rule. Please see District response to Comment No. 7.

7. WORKSHOP COMMENT

Rule 67.6.1 should exempt cold solvent cleaning operations that use conventional solvents in very small quantities from the VOC content limit.

DISTRICT RESPONSE

The District disagrees. Most cold solvent cleaning operations, especially those conducted in remote reservoir cleaners, have a very low solvent usage. Individually, each cold solvent cleaning operation is not a large source of VOC emissions, but the combined emissions from this equipment are over 280 tons per year in San Diego County. Exempting cleaning operations using conventional solvents in very small quantities would significantly reduce the emission reduction potential of the new rule.

8. WORKSHOP COMMENT

Subsection (c)(13)(ii), defines a freeboard height for remote reservoir cleaner. How is this freeboard height measured?

DISTRICT RESPONSE

The freeboard height for a remote reservoir cleaner is measured from the bottom of the sink or work area to the top of the sink or work area. Subsection (c)(13)(ii) has been revised to clarify this definition.

9. WORKSHOP COMMENT

If a cold solvent cleaner uses a solvent with the VOC content of 50 g/l or less, does the cleaner still require a permit from the District?

DISTRICT RESPONSE

Cold solvent cleaning operations using water-based solvents complying with the VOC content limit of 50 g/l or less are exempt from the District permit requirements. Currently, District Rule 11 (Exemptions from Permit Requirements) contains an exemption for all cold solvent cleaning operations using a water-based solvent with the VOC content not exceeding 10% by weight. Rule 11 is being revised to reduce this exemption threshold to 50 g/l or less to be consistent with proposed Rule 67.6.1.

However, cold solvent cleaning operations using solvents with a VOC content of 50 g/l or less and containing exempt compounds must still comply with operational and equipment requirements of the rule and therefore will need a permit.

10. WORKSHOP COMMENT

How much does it cost for a facility to obtain a permit for a cold solvent cleaner?

DISTRICT RESPONSE

The cost of a permit for a cold solvent cleaner depends whether the cleaner is a remote reservoir or a dip tank. The cost also depends on the size of the tank. The District charges an initial application fee for each emission unit, which includes a source category fee, a processing fee, and an emissions fee. A renewal fee per unit is charged each year after the first year of operation. For example, an initial application fee for a cold solvent degreaser with a liquid surface area of five square feet or less is $451 and an annual renewal fee is $75. District permit fees are provided in Rule 40 (Permit and Other Fees). Please see Fee Schedule 28 of Rule 40.

The District also provides a reduction in fees when a company applies for multiple permits for similar units at a single facility. Explanation of the reduced fee for similar equipment is contained in Rule 40, Subsection (d)(8).

11. WORKSHOP COMMENT

Subsection (b)(1)(vi) exempts cleaning or stripping operations using exclusively water-based solvent with a VOC content of less than 50 g/l, but then Subsection (d)(1) requires all solvents to have a VOC content of 50 g/l or less. Is there a difference between these two requirements?

DISTRICT RESPONSE

The exemption in Subsection (b)(1)(vi) only applies to cleaning operations using water-based solvents. If a facility complies with the 50 g/l VOC content limit by using a water-based solvent, then the equipment, operational, and recordkeeping requirements do not apply to that operation. The facility is only required to keep records of the VOC content of solvents used.

Conversely, if a facility conducting a cold solvent-cleaning operation complies with the VOC content requirement using solvents containing exempt compounds, such as acetone, then the equipment, operational, and recordkeeping requirements of the rule also apply to the operation.

12. WORKSHOP COMMENT

Will facilities have to replace their current cold solvent degreasers to comply with the new rule? If so, has the District considered the cost of this equipment replacement?

DISTRICT RESPONSE

If a facility chooses to comply with the VOC content requirement by replacing a high VOC content solvent with a water-based solvent, the facility will probably have to replace existing equipment. For example, existing solvent cleaners usually do not have a heating unit while most

water-based solvents have to be heated to properly clean parts. Other degreasers may have to be replaced because their material is not corrosion-resistant and will not be compatible with water-based solvents.

The District has considered the cost of replacing degreasers in its preliminary analysis of the new rule costs to industry. This analysis showed that the cost-effectiveness of the proposed Rule 67.6.1 (i.e., annual equipment and operational costs per pound of VOC emissions reduced) is within the limits used by the District as guidance in adopting rules regulating VOC emissions.

13. WORKSHOP COMMENT

The proposed Rule 67.6.1 seems very similar to South Coast Air Quality Management District (SCAQMD) Rule 1122, which requires the use of solvents with the VOC content of 25 g/l or less for cold solvent cleaning operations. Will the District accept solvents specified in the SCAQMD Clean Air Solvent list as meeting the requirements of Rule 67.6.1?

DISTRICT RESPONSE

Yes, solvents on the SCAQMD Clean Air Solvent list will meet Rule 67.6.1 VOC content requirement because these solvents are certified to have VOC content 25 g/l or below.

14. WORKSHOP COMMENT

The solvent usage in San Diego County has decreased over the past three to four years. The price of solvent has significantly risen over the past ten years, causing several facilities in San Diego County to discontinue using solvents solely due to economic constraints and without any regulatory requirements. Some facilities still use conventional solvents because waster-based solvents do not work in all situations, especially for a heavy-duty cleaning job.

DISTRICT RESPONSE

The proposed rule exempts some specialized solvent cleaning operations from the requirement to use a solvent with a VOC content of 50 g/l or less. The exemptions include cleaning of aerospace components, optical components, electrical components, and electronics. If there are other specific cleaning types where it is not feasible to use a solvent with a low VOC content, the District will consider exempting those operations. Such information must be provided in a timely manner to the District before the proposed rule is submitted to the Air Pollution Control Board for adoption in early 2007.

It should be noted that District staff has spoken to many people in a variety of industries that use water-based or exempt compound based solvents for cleaning operations. District staff visited several facilities that exclusively use water-based solvents for cleaning. The District has also reviewed technical reports prepared by and for other local air districts. Based on this information, the District has concluded that these solvents are technically feasible in most circumstances.

15. WORKSHOP COMMENT

With water-based cleaning the amount of hazardous waste generated at a facility will increase because, unlike solvents, water-based materials cannot be recycled cost-effectively.

DISTRICT RESPONSE

The District understands this concern and is aware that water-based cleaning potentially generates hazardous waste. The District considered the cost of hazardous waste disposal in assessing the cost-effectiveness of the rule.

16. WORKSHOP COMMENT

What is the VOC limit in the existing Rule 67.6?

DISTRICT RESPONSE

Current District Rule 67.6 does not have a VOC content limit for cleaning solvents. It regulates VOC emissions by providing specified equipment and operational requirements for high volatility and low volatility solvents. The new rule applies a different strategy for reducing emissions from solvent cleaning operations. It restricts the VOC content of solvents used in cleaning operations to achieve greater emission reductions.

17. WORKSHOP COMMENT

When will Rule 67.6.1 take effect?

DISTRICT RESPONSE

For new operations, Rule 67.6.1 will take effect on the date of adoption by the Air Pollution Control Board. The effective date of the rule for existing sources is one year after the date of adoption.

The District expects to submit the rule to the Board in the beginning of 2007.

18. WORKSHOP COMMENT

Subsection (d)(2)(i), requires a remote reservoir be covered when work is not being performed. Does the cover need to be closed if a remote reservoir is not in operation or does a plug covering the drain satisfy the requirement?

DISTRICT RESPONSE

The District requires the entire sink area of a remote reservoir be covered. A plug over the drain does not satisfy this requirement.

19. WORKSHOP COMMENT

Are cold solvent degreasers that use water-based solvents exempt from all the requirements of the rule?

DISTRICT RESPONSE

Cold solvent degreasers that use water-based solvents with a VOC content of 50 g/l or less are exempt from all rule requirements. However, the facility must maintain records proving that the solvent used is water-based and contains 50 g/l of VOC or less, as applied. In addition, if the waste water is considered to be a hazardous waste it must be disposed in accordance with the existing regulations. The rule has been revised to add this requirement to conform to the requirements of the California Health and Safety Code.

20. WORKSHOP COMMENT

What is the definition of cold solvent cleaning?

DISTRICT RESPONSE

Cold solvent cleaning operation is defined as any solvent cleaning that is conducted in a tank, drum, or other container and that uses non-boiling solvent to remove contaminants. Please see this definition in Subsection (c)(6) of the rule.

21. WORKSHOP COMMENT

Some shops clean automobile brakes with solvent sprayed from aerosol spray cans. Is this type of cleaning subject to this rule?

DISTRICT RESPONSE

No, solvent cleaning using an aerosol spray cans is not subject to this rule.

22. WORKSHOP COMMENT

What is the freeboard ratio requirement for a stripping operation that uses a sealing fluid?

DISTRICT RESPONSE

There is no freeboard ratio requirement for stripping operations that use a sealing fluid. Stripping operations have to either meet a freeboard ratio of 0.75 or use a sealing fluid to minimize evaporative emissions.

23. WORKSHOP COMMENT

What if a facility uses a water-based solvent with a VOC content of 75 g/l for cleaning?

DISTRICT RESPONSE

All cold solvent cleaning operations, except for those specifically exempt in Subsection (b)(2), must use a solvent with a VOC content of 50 g/l or less. This can be a water-based solvent or solvent based on exempt compounds. Using a solvent with a VOC content of 75 g/l for a cleaning operation not specifically exempt pursuant to Subsection (b)(2) will be a violation of Rule 67.6.1.

24. WORKSHOP COMMENT

Is there is list of VOC exempt compounds? If so, where is this list located?

DISTRICT RESPONSE

The list of VOC exempt compounds is contained in Table 1 of District Rule 2.

25. WORKSHOP COMMENT

What solvents can comply with Rule 67.6.1 VOC content limit?

DISTRICT RESPONSE

There are numerous solvents both water-based and exempt compounds-based that have a VOC content of 50 g/l or less. One place to find a list of complying solvents is the SCAQMD Clean Air Solvent list. This list can be found on the SCAQMD website at http://www.aqmd.gov/rules/cas/prolist.html. Also, information on the VOC content of solvents is available from solvent manufacturers or distributors that supply California, because many air districts in California already have similar requirements in their solvent cleaning rules.

26. WORKSHOP COMMENT

What records does a facility need to provide to the District to verify that the solvent used has a VOC content of 50 g/l or less?

DISTRICT RESPONSE

Facilities must keep onsite Material Safety Data Sheets or manufacturer specifications showing the VOC content of solvents, as used, including a dilution ratio. This information must be made available to District staff when requested.

27. ARB COMMENT

Subsections (b)(1)(iii) and (iv) provide an exemption from the rule for cold solvent cleaning or stripping operations conducted in any tank with a liquid surface area of one square foot or less, or a with a capacity of one gallon or less. This exemption is less stringent than similar exemptions in San Joaquin Valley Air Pollution Control District (SJVAPCD) and SCAQMD rules that also have a usage limit of 5.0 gallons per month. Rule 67.6.1 should contain a usage limit in this exemption.

DISTRICT RESPONSE

The District disagrees. It would be very unusual for such a small unit to use five gallons of solvent per month. The District believes that solvent usage in these units is not substantial and does not represent a significant source of VOC emissions.

28. ARB COMMENT

Subsection (b)(1)(v) exempts cold solvent cleaning operations used exclusively for educational purposes. This is a relaxation of current Rule 67.6, since it does not exempt these operations.

DISTRICT RESPONSE

The District disagrees. While Rule 67.6 does not currently exempt cold solvent cleaning operations used exclusively for education purposes, proposed new Rule 67.6.1, even with this exemption, will provide approximately 263 tons/year of VOC emission reductions as compared with the current rule. Therefore, exempting these insignificant sources of emissions will not result in Rule 67.6 relaxation.

29. ARB COMMENT

Subsection (b)(2) exempts cold solvent cleaning of electronic components, electrical components, medical devices, aerospace components, or precision optics components from the 50 g/l VOC content limit. This is a relaxation of Rule 67.6.

DISTRICT RESPONSE

The District disagrees. Current Rule 67.6 does not restrict a VOC content limit for solvent cleaning operations; it only contains certain equipment standards and operational requirements.

Therefore, exempting solvent cleaning of electronic components, electrical components, medical devices, aerospace components, or precision optics components from the VOC content limit is not a relaxation of Rule 67.6. These types of operations must still comply with the equipment and operational standards of the rule. See also District response to the previous comment.

30. ARB COMMENT

The rule should include a requirement that waste solvent and distillation residue should be stored in a manner that will minimize VOC emissions into the atmosphere.

DISTRICT RESPONSE

The District agrees. A requirement has been added to Rule 67.6.1 specifying that all facilities dispose of waste in a manner conforming to requirements arising from those in Division 20, Chapter 6.3, beginning with Section 25100 of the California Health and Safety Code.

31. ARB COMMENT

The rule should include a provision requiring solvent cleaner operators to maintain records of the types, amounts, and dates of solvents added to and removed from each solvent cleaner. The records should be maintained for three years and made available to District staff when requested.

DISTRICT RESPONSE

The District disagrees. The proposed rule does not have a limit for solvent usage; therefore, it is unnecessary for operators to maintain usage data. In addition, it is very difficult for operators to collect and maintain solvent consumption data because most operations use service contract providers that remove one 55-gallon drum of used solvent and replace it with a 55-gallon drum of fresh solvent. The amount of solvent remaining in the drum or the amount of sludge in the drum is not determined prior to removal of the used solvent. Therefore, the VOC emissions from solvent cleaning operations are not calculated by using the mass balance of solvent but by using a generic emission factor per cleaning unit. The District determined that keeping solvent usage records would be an unnecessary burden for the affected facilities.

32. ARB COMMENT

The freeboard ratio requirement of 0.5 for batch-loaded cold solvent cleaners in Subsection (d)(3)(i)(A) is less stringent than in similar rules in other districts. The required freeboard ratio for batch-loaded cold solvent cleaners should be increased to 1.0.

DISTRICT RESPONSE

The District disagrees. This would not provide a sizeable emission benefit. In addition, increasing the freeboard ratio from 0.5 to 1.0 for batch-loaded cold solvent cleaners would

reduce emissions by 2.3 tons per year or 0.006 tons per day with a cost-effectiveness of $8.47 per pound of VOC reduced. This is higher than the cost-effectiveness of any other VOC control rule adopted by the District.

33. ARB COMMENT

Subsection (d)(4)(x) requires that degreasers not be exposed to drafts greater than 131 feet per minute. This is less stringent than similar rules in other districts that require drafts no greater than 30 feet per minute. The District should modify Rule 67.6.1 to decrease the permissible draft exposure of degreasers to 30 feet per minute.

DISTRICT RESPONSE

The District disagrees. The standard for an air flow of 131 ft/min (40 m/min) corresponds to the flow rate of 1.5 mile/hour which is common in a cross-ventilated room and is quite low. This requirement is similar to the Reduced Room Rate limit in the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Halogenated Solvent Cleaning. Further reducing this limit will not result in any substantial emission reductions.

PROPOSED NEW RULE 67.6.2

34. WORKSHOP COMMENT

The exemption in Subsection (b)(1)(i) should apply to all vapor degreasers using solvents with a VOC content 50 g/l or less and not just to degreasers using water-based cleaning materials.

DISTRICT RESPONSE

The District disagrees. This exemption does not apply to vapor degreasing operations using solvents containing exempt compounds because the majority of exempt compounds have some photochemical reactivity, albeit low. By complying with the equipment and operational requirements of Rule 67.6.2, emissions from vapor degreasers that use exempt compound-based solvents are minimized to the maximum extent possible.

35. WORKSHOP COMMENT

In Subsection (b)(1)(iii) the term “liquid surface area” should be changed to “vapor-air interface area.” Some vapor degreasers are specifically designed to limit a vapor-air interface area, even though the liquid surface area may be larger.

DISTRICT RESPONSE

The District agrees. Subsection (b)(1)(iii) has been revised accordingly.

36. ARB COMMENT

Subsection (b)(1)(iii) provides an exemption for vapor degreasing operations conducted in any tank with a liquid surface area of one square foot or less, or a with a capacity of one gallon or less. This exemption is less stringent than similar exemptions in SJVAPCD and SCAQMD solvent degreasing rules that have a usage limit of five gallons per month. Rule 67.6.1 should include a usage limit in this exemption.

DISTRICT RESPONSE

The District disagrees. This exemption has not been changed because VOC emissions associated with such small units are insignificant. Please see also District response to Comment No. 27.

37. ARB COMMENT

Subsection (b)(1)(ii) provides a new exemption for "vapor-phase solder reflow units" that were not previously exempted in Rule 67.6. This equipment is not covered under any other District rule. ARB recommends that vapor-phase solder reflow units be included in the rule with their own specific set of requirements.

DISTRICT RESPONSE

The District disagrees. Vapor-phase solder reflow units are exempt in the proposed rule because their design is significantly different from the design and operations of vapor degreasers. Vapor phase solder reflow units are regulated by District Rule 66. New units will be also subject to New Source Review.

38. ARB COMMENT

The rule should include a provision requiring waste solvent and distillation residue to be stored in a manner that will not cause or allow solvent evaporation into the atmosphere.

DISTRICT RESPONSE

The District agrees. This provision has been added to Subsection (d)(4)(xiii) in the rule.

39. ARB COMMENT

The rule should include a provision requiring solvent cleaner operators to maintain records of the types, amounts, and dates of solvents added to and removed from each solvent cleaner. The records should be maintained for three years and made available to District staff when requested.

DISTRICT RESPONSE

The District disagrees. The proposed rule does not have a limit for solvent usage; therefore, it is unnecessary for operators to maintain usage data. See also District Response to Comment No. 31.

40. ARB COMMENT

Section (g) should include EPA Test Methods 2, 2A, 2B, 2C, and 2D for measuring ventilation rates.

DISTRICT RESPONSE

The District disagrees. These test methods are not applicable for measuring exhaust ventilation rates. These rates can be determined by standard engineering calculations based on the maximum capacity of an exhaust fan.

EPA COMMENTS

EPA had no comments regarding proposed new Rules 67.6.1 or 67.6.2.

TRW:NY:CB:ls
10/26/06

RULE 67.6 - SOLVENT CLEANING OPERATION is proposed to be deleted in its entirety.

RULE 67.6. SOLVENT CLEANING OPERATIONS (Effective 7/25/79: Rev. Effective 10/16/90)

(a) **APPLICABILITY**

This rule is applicable to all surface cleaning or stripping operations or gas-path cleaners which use solvents for the purpose of removing surface impurities or coatings, and preparing parts or products for painting, plating, repair, inspection, assembly, heat treatment, or for any other use. This rule is also applicable to operations which immerse items in solvent-rich atmospheres for heating or any other purpose, including vapor-phase solder reflow operations.

(b) **EXEMPTIONS**

(1) Cleaning Material

The provisions of Section (d) shall not apply to any solvent cleaner installed, or for which application for an Authority to Construct was received, before September 1, 1980, and which, prior to and since September 1, 1980, has continuously employed exclusively any of the following cleaning materials:

(i) 1,1,1-Trichloroethane

(ii) Trichlorotrifluoroethane

(iii) Methylene Chloride

The provisions of Section (d) shall not apply to any cold solvent cleaner with a liquid surface area less than 5 square feet and vapor solvent cleaner with a vapor-air interface less than 5 square feet installed, or for which application for an Authority to Construct was received before October 16, 1990, and that employ any of the following cleaning materials:

(i) 1,1,1-Trichloroethane

(ii) Trichlorotrifluoroethane

(iii) Methylene Chloride

(2) Wipe Cleaning

The provisions of Section (d) shall not apply to any solvent cleaning operation employing only wipe cleaning.

(3) The provisions of Section (d) shall not apply to any cold solvent cleaner dip tank with a liquid surface area of 1 square foot (0.09 square-meters) or less, or with a capacity of 1 gallon or less.

(4) Operations Subject to Rules 67.9 or 67.11.

The provisions of Section (d) shall not apply to non-immersion stripping or coating equipment cleanup operations subject to the requirements of Rule 67.9 or Rule 67.11.

(5) Dry Cleaning Operations.

The provisions of Section (d) shall not apply to the application of solvent to garments, fabrics, or leather for the purposes of cleaning when such applications are subject to the requirements of Rule 67.2 or Rule 67.8.

(c) **DEFINITIONS**

(1) **"Cold Solvent Cleaner"** means any non-boiling solvent cleaner, excluding conveyorized solvent cleaners, vapor solvent cleaners, and gas-path cleaners, and wipe cleaning operations, and including spray sinks, spray booths, strippers, remote-reservoir cleaners, and dip tanks. Solvent cleaners which employ heated but non-boiling solvents shall be considered cold solvent cleaners.

(2) **"Conveyorized Cold Solvent Cleaner"** means any continuously loaded, solvent cleaner which is not a conveyorized vapor solvent cleaner.

(3) **"Conveyorized Vapor Solvent Cleaner"** means any continuously loaded solvent cleaner which immerses parts in boiling solvent or in solvent vapors generated by boiling solvent. Conveyorized solvent cleaners which contain any vapor solvent cleaning sections shall be considered conveyorized vapor solvent cleaners.

(4) **"Existing Unit"** means, for the purposes of this rule, one which was installed and operating in San Diego County before October 16, 1990.

(5) **"Freeboard Chiller"** means a condenser placed above the primary condenser which provides a blanket of cold air above the vapor-air interface to reduce emissions.

(6) **"Freeboard Height"** means

(i) For cold solvent cleaner dip tanks, the distance from the maximum solvent level line to the top of the tank.

(ii) For open-top vapor solvent cleaners, the distance from the solvent vapor-air interface to the top of the solvent cleaner tank.

(iii) For conveyorized solvent cleaners, the distance from the top of the solvent or solvent vapor-air interface to the bottom of the lowest entrance of the solvent cleaner.

(7) **"Freeboard Ratio"** means the freeboard height divided by the smaller of the interior length or width of the solvent cleaner tank.

(8) **"Gas-Path Cleaner (Corrosion Control Cart)"** means equipment which applies solvent to the interiors of gas turbines or jet engines for removal of corrosion or combustion deposits.

(9) **"Liquid Leak"** means any visible leak of liquid solvent at a rate in excess of three drops per minute.

(10) **"Liquid Surface Area"** means the area of the interface between the liquid solvent available for dipping and the air which is contiguous with the outside of the solvent cleaner. The area of surfaces wetted by the solvent before it drains into a reservoir in a section of the solvent cleaner used for parts drainage and not used for dipping shall not be included in the liquid surface area.

(11) **"Open-top Vapor Solvent Cleaner"** means any batch loaded, vapor solvent cleaner.

(12) **"Organic Compound"** means any compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and methane) which might be emitted during use, processing, application, curing, or drying of a solvent or other material.

(13) **"Remote-Reservoir Solvent Cleaner"** means any batch-loaded cold solvent cleaner in which liquid solvent is pumped to a sink-like work area which drains back into a liquid solvent tank, which is completely enclosed except for the drain opening, while parts are being cleaned. For the purposes of this rule any cold solvent cleaner except for wipe stations, dip tanks, and gas-path cleaners shall be considered a remote-reservoir solvent cleaner.

(14) **"Solvent"** means, for the purposes of this rule, any liquid containing more than 10 percent by weight of organic compounds and which is used to dissolve, clean, strip, or remove impurities, coatings, stains, or films from surfaces.

(15) **"Solvent Cleaner"** means a device which applies solvent or in which solvent is applied to items for the purpose of removing or stripping impurities, coatings, stains, or films.

(16) **"Stripper"** means a solvent cleaner in which solvent is applied to a surface for the purpose of removing a film, coating, or stain, including, but not limited to, dip tanks and spray sinks.

(17) **"Stripping"** means applying solvent to remove a coating or film from a surface.

(18) **"Vapor-Air Interface"** means the area of contact between the solvent vapors and air which is contiguous with the air outside the solvent cleaner.

(i) The area of the vapor-air interface shall be calculated as the product of the lengths between internal solvent cleaner walls behind the condensing coils.

(ii) The perimeter of the vapor-air interface shall be calculated as the sum of the lengths of the internal solvent cleaner walls behind the condensing coils.

(19) **"Vapor-Phase Solder Reflow Unit"** means a device in which parts are immersed in an organic compound-rich vapor generated by boiling a liquid for heating to melt or soften solder connections of electronic components. For the purposes of this rule batch-loaded vapor-phase solder reflow units shall be considered open-top vapor solvent cleaners and continuously loaded vapor-phase solder reflow units shall be considered conveyorized vapor solvent cleaners.

(20) **"Vapor Solvent Cleaner"** means a solvent application device in which parts are immersed in an organic compound-rich vapor generated by boiling a liquid for cleaning. For the purposes of this rule vapor-phase solder reflow units shall be considered to be vapor solvent cleaners. For the purposes of this rule solvent cleaners which immerse parts in boiling solvent shall be considered vapor solvent cleaners.

(21) **"Wipe Cleaning"** means that method of cleaning which utilizes a material, such as a rag, wetted with a solvent, coupled with a physical rubbing process to remove contaminants from surfaces.

(d) **STANDARDS AND REQUIREMENTS**

(1) General Equipment Requirements. A person shall not operate a solvent cleaner unless all of the following are used:

(i) A container for the solvent ;

(ii) An apparatus or cover which completely covers the solvent container when not processing work;

(iii) A facility for draining cleaned parts such that drained solvent is returned to the container; and

(iv) A permanent, conspicuous, legible label listing the applicable operating requirements contained in Subsections (d)(5) through (d)(9).

(2) Cold Solvent Cleaner Equipment Requirements. A person shall not operate a cold solvent cleaner unless the requirements of Subsection (d)(1) are met and the following are used:

(i) A cover which is easily operable with one hand or mechanically assisted.

(ii) For dip tanks or dip sections, a readily visible, permanent mark or line indicating the maximum allowable solvent level.

(iii) For dip tanks, a freeboard ratio greater than or equal to 0.5.

(iv) For remote-reservoir cleaners, a solvent with a vapor pressure of organic compounds less than 33 mm Hg at 38°C (0.6 psia at 100°F): This provision does not apply to stripping of wood products with any combination of 1,1,1-trichloroethane or methylene chloride.

(v) For cold solvent cleaners employing sprays, spray nozzles which produce continuous liquid flows, not fine atomized nor shower-type sprays.

(vi) For cold solvent cleaners employing solvent with a vapor pressure of organic compounds greater than 33 mm Hg (0.6 psia) at 38°C (100°F) or employing solvent heated above 50°C (122°F).

(A) an internal drainage device, such that parts are enclosed under the cover of the solvent cleaner while draining; and

(B) a freeboard ratio greater than or equal to 0.75; or

(C) a water cover, provided the solvent is insoluble in and denser than water.

(3) Open-top Vapor Solvent Cleaner and Conveyorized Solvent Cleaner Equipment Requirements: A person shall not operate an open-top vapor solvent cleaner or conveyorized solvent cleaner unless the requirements of Subsection (d)(1) are met and the following are used:

(i) A cover which can be easily operated without disturbing the vapor layer;

(ii) A primary condensing coil situated above the boiling solvent, except for conveyorized cold solvent cleaners;

(iii) All of the following safety devices, except for conveyorized cold solvent cleaners:

(A) a device which shuts off the sump heat if the condenser coolant stops circulating, except for refrigerated condensers;

(B) a device which shuts off the sump heat if the condenser coolant or refrigerant becomes warmer than the designed operating temperature;

(C) a device which shuts off the sump heat if the vapor level rises above the designed operating level and which is only manually resettable; and

(D) for solvent cleaners of the spray type, a device which prevents spray pump operation if the solvent vapor-air interface falls below the designed operating level.

(iv) For solvent cleaners employing sprays:

(A) spray nozzles which produce continuous liquid flows, not fine atomized or shower type sprays; or

(B) sprays which are located below the vapor-air interface.

(v) For open-top vapor solvent cleaners with a vapor-air interface area greater than 1 square meter (10.76 square feet), conveyorized vapor solvent cleaners with an vapor-air interface area greater than 2 square meters (21.52 square feet), and conveyorized cold solvent cleaners with a liquid surface area greater than 2 square meters (21.52 square feet).

(A) an automated cover-elevator system which opens only when the dry part is actually entering or exiting the solvent cleaner, except for conveyorized solvent cleaners; or

(B) a freeboard ratio greater than or equal to 0.75 and a powered cover, except for conveyorized solvent cleaners; or

(C) a refrigerated freeboard chiller having a minimum of 500 BTU per hour cooling capacity per foot along the vapor-air interface perimeter or a refrigerated condenser coil having a minimum cooling capacity of 100 percent of the boiling sump heat input rate; or

(D) a carbon adsorption system with ventilation greater than or equal to 15 cubic meters per minute per square meter (50 cubic feet per minute per square foot) of vapor-air interface area and a control efficiency of 90 percent or more by weight of organic compounds ; or

(E) a control system which has a control efficiency at least as effective as any of the above and which is approved by the Air Pollution Control Officer on an annual basis and meets the requirements of Section (e).

(vi) For all conveyorized solvent cleaners, the following:

(A) a drying tunnel, which is an extension from the exit of the conveyorized solvent cleaner to allow more time for the cleaned parts to drain completely, or other means sufficient to prevent cleaned parts from carrying solvent liquid out of the solvent cleaner, and

(B) minimized openings such that entrances and exits shall silhouette work loads with an average clearance between parts and the edge of the solvent cleaner opening less than 10 centimeters or less than 10 percent of the opening width.

(4) Gas-Path Cleaner (Corrosion Control Cart) Requirements: A person shall not operate a gas-path cleaner unless the requirements of Subsection (d)(1) are met and a solvent with a vapor pressure of organic compounds less than 33 mm Hg at 38°C (0.6 psia at 100°F) and greater than 75 percent water by volume or a vapor pressure of organic compounds less than 1 mm HG at 38°C (0.6 psia at 100°F) and greater than 50 percent water by volume is used.

(5) General Operating Requirements: Any person who operates a solvent cleaner shall conform to the following operating requirements.

(i) The solvent cleaner, ventilation systems, and emission control equipment shall be installed and maintained in proper working order. The ventilation systems and emission control equipment shall be properly operating at all times when parts are being cleaned or solvent is being heated in the solvent cleaner.

(ii) There shall be no liquid solvent leaks from any portion of the degreasing equipment.

(iii) Solvent, including waste solvent and distillation residue, shall not be stored or disposed of in a manner that will cause or allow evaporation into the atmosphere.

(iv) Distillation residues shall not contain more than 10 percent solvent by volume after distillation recovery of waste.

(v) Devices designed to cover the solvent shall not be removed except to process work or to perform maintenance.

(vi) Solvent agitation shall be achieved only by means of pump circulation, mechanical mixing, or with ultrasonics. Gas agitation shall not be used.

(vii) For solvent cleaners employing sprays, except gas-path cleaners, the stream pressure shall be low enough to prevent liquid splashing outside the container.

(viii) No porous or absorbent materials, such as cloth, leather, wood, or rope shall be cleaned with solvent. This provision does not apply to stripping of wood products using solvents which are more than 50% by volume of any combination of 1,1,1-trichloroethane and methylene chloride.

(ix) Solvent cleaner operators shall maintain records of the types, amounts, and dates of solvents added to and removed from each solvent cleaner. The records shall be maintained for three years and made available to the Air Pollution Control Officer immediately upon request.

(6) Cold Solvent Cleaner Operating Requirements: Any person who operates a cold solvent cleaner shall conform to requirements of Subsection (d)(5) and the following:

(i) Cleaned parts shall be drained until dripping ceases.

(ii) The solvent cleaner liquid level shall not be above the marked maximum solvent level line.

(iii) For remote-reservoir cleaners, the cover of the solvent reservoir shall be closed at all times except when the reservoir is being cleaned or repaired, and

(iv) For remote-reservoir cleaners, the portion of the solvent cleaner where parts are cleaned shall not be exposed to drafts greater than 40 meters per minute (131 feet per minute).

(7) Open-top Vapor Solvent Cleaner Operating Requirements: Any person who operates an open-top vapor solvent cleaner shall conform to the requirements of Subsection (d)(5) and the following:

(i) Solvent carry-out shall be minimized by all of the following methods:

(A) racking parts for full drainage;

(B) moving parts in and out of the solvent cleaner at a speed less than 3.3 meters per minute;

(C) cleaning the workload in the vapor zone until condensation ceases;

(D) tipping out any pools of solvent on the cleaned parts before removal; and

(E) not removing parts from the solvent cleaner until visually dry.

(ii) Solvent shall not be sprayed above the vapor-air interface.

(iii) Solvent cleaner exhaust ventilation systems, if used, shall not exceed 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of solvent cleaner vapor-air interface area, unless necessary to meet OSHA requirements. Comfort ventilation fans shall not be positioned near the solvent cleaner opening in such a way as to disturb the vapor zone. Lip ventilation, located below the cover of the solvent cleaner, if used, shall be turned off when the solvent cleaner is covered.

(iv) Water shall not be visibly detectable in the organic compound phase exiting the water separator, nor shall organic compounds be visibly detectable in the aqueous phase leaving the separator.

(v) Workloads placed in the solvent cleaner shall have an occupied, horizontal cross-sectional area less than one half of the vapor-air interface area.

(vi) During start up, the primary condenser and refrigerated freeboard chiller, if used, shall be turned on either simultaneously or before the sump heater. During shutdown, the sump heater shall be turned off, either simultaneously or before the condenser coolant and refrigerated freeboard chiller are turned off. The solvent cleaner shall be covered whenever the primary condenser is turned off.

(8) Conveyorized Solvent Cleaner Operating Requirements: Any person who operates a conveyorized solvent cleaner shall conform to the requirements of Subsection (d)(5) above and the following:

(i) Solvent carry-out shall be minimized by the following methods:

(A) racking parts for best drainage;

(B) for conveyorized vapor solvent cleaners, maintaining vertical conveyor speed at less than 3.3 meters (11 feet) per minute; and

(C) for conveyorized cold solvent cleaners, draining parts until dripping ceases.

(ii) Solvent cleaner exhaust ventilation systems shall not exceed 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of solvent cleaner open area, unless necessary to meet OSHA requirements. Comfort

ventilation fans shall not be positioned near the solvent cleaner opening in such a way as to disturb the vapor zone.

(iii) Water shall not be visibly detectable in the organic compound phase exiting the water separator, nor shall organic compounds be visibly detectable in the aqueous phase leaving the separator.

(iv) During startup, the primary condenser and refrigerated freeboard chiller, if used, shall be turned on either simultaneously or before the sump heater. During shutdown, the sump heater shall be turned off, either simultaneously or before the condenser coolant and refrigerated freeboard chiller are turned off. The solvent cleaner shall be covered whenever the primary condenser is turned off.

(9) Gas-Path Cleaner (Corrosion Control Cart) Operating Requirements: Any person who operates a gas-path cleaner shall conform to the requirements of Subsection (d)(5) and the following:

(i) Cleaned parts shall be drained until dripping ceases.

(ii) The cover of the solvent reservoir shall be closed at all times except when the reservoir is being cleaned or repaired.

(iii) Solvent cleaning operations shall not be conducted in areas with air flows greater than 135 meters per minute (5 miles per hour).

(e) **ALTERNATIVE CONTROL**

(1) The provisions of Section (d) shall not apply if alternative methods which reduce emissions of organic compounds from the solvent cleaning operations by at least 85 percent by weight are employed, such as:

(i) Venting the organic compound emissions from a solvent cleaning operation through an air pollution control device approved by the Air Pollution Control Officer,

(ii) Reducing the emissions of organic compounds from a solvent cleaning operation through the use of low volatility cleaning materials.

When employing low volatility cleaning materials, the reduction shall be determined by comparing the organic compound emissions which occur when employing the low volatility cleaning materials with the organic compound emissions that occur when employing the organic solvent cleaning material that was in use on or before September 1, 1980. Such demonstration shall be done using methods and procedures approved by the Air Pollution Control Officer.

(2) Any person electing to comply by one or more alternative control measures shall first submit a plan to the Air Pollution Control Officer, for approval, showing how compliance will be achieved. Such plan shall include documentation sufficient to identify and characterize the cleaning materials in use on or before September 1, 1980 and shall include a protocol describing how compliance shall be demonstrated. The protocol shall include methods and procedures approved by the Air Pollution Control Officer.

(3) Any person electing to comply by one or more alternative control measures shall first submit an application for authorization to construct and permit to operate or for modified permit to operate to the Air Pollution Control Officer. Such person shall reimburse the District for all District costs incurred in evaluating an alternative compliance demonstration. The District costs shall be determined using the labor rates specified in Rule 40, Schedule 94.

(4) An alternative control measure subject to the provisions of this section shall be submitted as a Source-Specific Revision to the State Implementation Plan (SIP) for Solvent Metal Cleaning by the USEPA. The Air Pollution Control Officer shall not accept a method as equivalent under this Section unless it has been accepted as a Source-Specific SIP Revision.

AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

DATE: March 27, 2007

TO: Workshop Participants
Other Interested Parties

FROM: Thomas R. Weeks, Chief
Engineering Division

PROPOSED AMENDED SUBSECTION (b)(1)(iv) OF NEW RULE 67.6.1 – SOLVENT CLEANING AND STRIPPING OPERATIONS

On July 11, 2006, the San Diego County Air Pollution Control District (District) conducted a public workshop to receive comments on proposed new Rules 67.6.1 – Cold Solvent Cleaning and Stripping Operations and 67.6.2 – Vapor Degreasing Operations, and the repeal of existing Rule 67.6 – Solvent Cleaning Operations. Public comments were received before, during, and after the workshop. The workshop report was provided to all interested parties on November 8, 2006.

In the interim, draft Rule 67.6.1 has been amended to provide a clarification of a proposed exemption for small remote reservoir solvent cleaners in Subsection (b)(1)(iv). This exemption now specifies that the exemption applies to a small remote reservoir if the cross-sectional area of its sink is 1 square foot or less. Attached for your review and comments is a new draft of Rule 67.6.1.

The District is planning to present proposed new Rule 67.6.1 together with Rule 67.6.2 for adoption before the Air Pollution Control Board at the May 23, 2007, meeting.

If you have any questions or comments regarding the proposed amended Subsection (b)(1)(iv) of Rule 67.6.1 please contact Cara Bandera at (858) 586-2751, Natalie Yates at (858) 586-2756, or Steve Moore at (858) 586-2750.

THOMAS R. WEEKS, Chief, Engineering Division
Air Pollution Control District

NY:ls

Attachment

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SAN DIEGO AIR POLLUTION CONTROL DISTRICT

PROPOSED NEW RULE

Proposed new Rule 67.6.1 to read as follows:

RULE 67.6.1 COLD SOLVENT CLEANING AND STRIPPING OPERATIONS

(Adopted & Effective *(date of adoption)*)

(a) APPLICABILITY

(1) Except as provided in Section (b), this rule is applicable to all cold solvent cleaning and all stripping operations.

(2) Any cleaning of application equipment is not subject to this rule.

(3) Any dry cleaning operation subject to or exempt from the *Airborne Toxic Control Measure for Emissions of Perchloroethylene from Dry Cleaning Operations* or subject to or exempt from Rule 67.2 is not subject to this rule.

(4) Wipe cleaning operations are not subject to this rule.

(5) Rule 66 shall not apply to any cold solvent cleaning or stripping operation.

(b) EXEMPTIONS

(1) This rule shall not apply to the following:

(i) Non-immersion stripping operations subject to or exempt from Rules 67.9, 67.11, or 67.11.1.

(ii) Solvent cleaning operations regulated by the *National Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning*, 40 CFR Part 63, Subpart T.

(iii) Cold solvent cleaning or stripping operations conducted in any cold solvent tank or stripping tank with a liquid surface area of 1 square foot (0.09 square meters) or less, or with a capacity of 1 gallon (3.8 liters) or less.

(iv) Cold solvent cleaning operations conducted in any remote reservoir cleaner with a sink cross-sectional area of 1 square foot (0.09 square meters) ~~capacity of 1 gallon (3.8 liters)~~ or less.

(v) Cold solvent degreasers used exclusively for educational purposes. This exemption does not apply to degreasers used for other purposes at an educational institution.

(vi) Cold solvent cleaning or stripping operations that exclusively utilize water-based materials with a volatile organic compound (VOC) content of 50 grams per liter (g/l) of material (0.42 pounds per gallon) or less, as used. It shall be the responsibility of any person conducting such operations to keep a current list of all cleaning materials and the VOC content of each material, as applied, to substantiate this exemption.

(2) Subsection (d)(1) shall not apply to cold solvent cleaning of electronic components, electrical components, medical devices, aerospace components, or precision optics components.

(c) **DEFINITIONS**

(1) **"Aerospace Component"** means any raw material, partial or completed fabricated part, assembly of parts, or completed unit of any aircraft, helicopter, missile, or space vehicle, including mockups, test panels and prototypes.

(2) **"Airless/Air-Tight Cleaning System"** means a system that consists of a sealed cold solvent cleaner and the devices to condense and recover solvent and emission control devices to remove solvent from all gas streams that vent to the atmosphere. The system must have no open solvent-air interface, and be designed and operated in such a manner as to prevent the discharge or leakage of solvent emissions to the atmosphere during all cleaning and drying operations.

(3) **"Application Equipment"** means equipment used to apply coatings, inks, adhesives, or resins including, but not limited to: spray guns, rollers, brushes, and printing presses.

(4) **"Batch-loaded Solvent Cleaner"** means a degreaser in which any material is placed in solvent for cleaning and removed as a single batch after the cleaning is finished. This does not include remote reservoir cleaners.

(5) **"CFR"** means Code of Federal Regulations.

(6) **"Cold Solvent Cleaning (Degreasing) Operation"** means any solvent cleaning that is conducted in a tank, drum, or other container and that uses non-boiling solvent to remove contaminants.

(7) **"Cured"** means the coating, ink, adhesive, or resin is dry to the touch.

(8) **"Degreaser"** means a tank, drum, or other container in which objects to be cleaned are exposed to a solvent, in order to remove contaminants. This includes batch-loaded solvent cleaners and remote reservoirs cleaners.

(9) **"Electrical Components"** means internal components such as wires, windings, stators, rotors, magnets, contacts, relays, energizers, and connections in an apparatus that generates or transmits electrical energy including, but not limited to, generators, transformers, and electric motors.

(10) **"Electronic Components"** means components or assemblies of components including, but not limited to, circuit card assemblies, printed wire assemblies, printed circuit boards, soldered joints, ground wires, bus bars, and other electrical fixtures, except for the cabinet in which the components are to be housed.

(11) **"Exempt Compounds"** means the same as defined in Rule 2.

(12) **"Existing Cold Solvent Cleaning or Stripping Operation"** means any cold solvent cleaning or stripping operation that is not new.

(13) **"Freeboard Height"** means:

(i) For batch-loaded solvent cleaners, the distance from the solvent-air interface to the top of the degreaser tank, based on inside tank dimensions.

(ii) For remote reservoirs cleaners, the height from the bottom of the sink or work area to the top of the sink or work area.

(14) **"Freeboard Ratio"** means the freeboard height divided by the smaller of the interior length or width of the degreaser tank.

(15) **"Liquid Leak"** means any visible leak of a VOC-containing liquid at a rate in excess of three drops per minute.

(16) **"Liquid Surface Area"** means the area of interface between the liquid solvent available for dipping and the air which is contiguous with the outside of the solvent degreaser or stripping tank.

(17) **"Medical Device"** means an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent or other similar article including any component or accessory, that is intended for use in the diagnosis of disease or other conditions or in the cure, mitigation, treatment, or prevention of disease, or is intended to affect the structure or any function of the body.

(18) **"New Cold Solvent Cleaning or Stripping Operation"** means any cold solvent cleaning or stripping operation for which a complete application for an Authority to Construct in San Diego County was submitted after *(date of adoption)*.

(19) **"Precision Optics Components"** means the components used to create high resolution images in optical devices. This does not include eye glasses.

(20) **"Remote Reservoir Cleaner"** means a degreaser that consists of a sink or working area and a separate solvent tank that is not accessible for soaking parts and is completely enclosed except for a solvent return opening, which allows used solvent to drain into it from the sink or work area.

(21) **"Sealing Fluid"** means a fluid that prevents evaporation of a stripping solvent by forming a liquid or solid layer on the solvent's surface.

(22) **"Solvent"** means any substance containing an organic compound or combination of organic compounds which is liquid at atmospheric pressure and ambient temperature and which is used as a diluent, thinner, dissolver, viscosity reducer, or cleaning agent, or for other similar purposes.

(23) **"Solvent-Air Interface"** means the area of contact between the solvent and air that is contiguous with the air outside the degreaser.

(24) **"Solvent Carry-Out"** means solvent carried out of a degreaser that adheres to or is entrapped in the part being cleaned.

(25) **"Solvent Cleaning Operation"** means any solvent cleaning activity including subsequent drying that is conducted in a degreaser to remove contaminants from parts, products, tools, machinery, and/or equipment.

(26) **"Stripping Operation"** means a removal of cured coatings, inks, resins, or adhesives conducted with the use of solvents by immersion into a container such as tank or drum.

(27) **"Water-Based Material"** means any solvent that consists only of water and VOC and does not contain exempt compounds.

(28) **"Wipe Cleaning"** means the method of cleaning a surface, not conducted in a container, by physically rubbing it with a material or device such as a rag, paper, or cotton swab moistened with a solvent.

(29) **"Volatile Organic Compounds (VOC)"** means any volatile compound containing at least one atom of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.

(d) **STANDARDS**

(1) VOC Content Requirements for Cold Solvent Cleaning Operations

Except as specified in Subsection (b)(2), each solvent utilized in a cold solvent cleaning operation subject to this rule shall have a VOC content of 50 g/l (0.42 lbs/gal) of material or less, as used.

(2) General Equipment Requirements for Cold Solvent Cleaning Operations

A person shall not conduct a cold solvent cleaning operation unless a degreaser is equipped with all of the following.

(i) A cover that completely covers the solvent when work is not being performed in the degreaser. This includes covers for the sink or basin of a remote reservoir cleaner.

(ii) A facility for draining parts such that the drained solvent returns to the degreaser.

(3) Equipment Specific Requirements for Cold Solvent Cleaning Operations

(i) A person shall not operate a batch-loaded cold solvent cleaner unless it has:

(A) a freeboard ratio greater than or equal to 0.5,

(B) a cover easily operable with one hand or mechanically assisted, and

(C) a readily visible, permanent mark or line indicating the maximum allowable solvent level that conforms to the freeboard ratio.

(ii) A person shall not operate a remote reservoir cleaner unless it has:

(A) a freeboard height of at least 6 inches (15 cm), and

(B) a sink-like work area for draining cleaned parts, which is sloped sufficiently towards the drain to preclude pooling of solvent.

(4) Operating Requirements for Cold Solvent Cleaning Operations

A person shall not conduct a cold solvent cleaning operation without meeting all of the following requirements.

(i) A permanent, conspicuous, legible label listing the applicable operating requirements is posted on or near the degreaser.

(ii) The solvent degreaser and any emission control system are properly installed and maintained in proper working order.

(iii) Any emission control system is properly operating at all times when parts are being cleaned.

(iv) The required cover is not removed except to process work or to perform maintenance.

(v) There are no liquid leaks from any portion of the degreaser. Upon detection of a liquid leak, the leak shall be repaired immediately, or the degreaser shall be shut down and drained in a manner that minimizes emissions.

(vi) No porous or absorbent materials, such as cloth, leather, wood, or rope are cleaned in the degreaser.

(vii) Solvent spraying, when necessary, is conducted by using only a continuous liquid stream (not a fine, atomized, fan, or shower type spray) at a pressure which does not cause liquid solvent to splash outside of the solvent container.

(viii) Solvent agitation, where necessary, is achieved exclusively through pump circulation or by means of a mechanical mixer or ultrasonic agitation. Air or gas agitation shall not be used.

(ix) For batch-loaded cleaners the actual solvent level is not above the marked maximum solvent level line at any time.

(x) The degreaser is not exposed to drafts greater than 131 feet (40 meters) per minute.

(xi) Solvent carry-out is minimized by all of the following methods:

(A) allowing for full drainage by racking parts or other means;

(B) tipping out any pools of solvent from the cleaned parts before removal; and

(C) allowing parts to dry within the degreaser until visually dry or dripping ceases.

(xii) Waste solvent and contaminated residue, if any, shall be recycled or disposed of according to requirements based on the California Health and Safety Code, Division 20, Chapter 6.3 (beginning at Section 25100) concerning hazardous waste disposal.

(5) Equipment Requirements for Stripping Operations

A person shall not operate stripping equipment unless it is equipped with all of the following.

(i) A cover that completely covers the solvent when work is not processed in the tank.

(ii) A facility for draining parts such that the drained solvent returns to the container.

(iii) A readily visible, permanent mark or line indicating the maximum allowable solvent level that conforms to the freeboard ratio in Subsection (d)(5)(iv), unless a sealing fluid is used.

(iv) Stripping equipment has:

(A) a freeboard ratio greater than or equal to 0.75; or

(B) a sealing fluid.

(6) Operating Requirements for Stripping Operations

A person shall not conduct a stripping operation without meeting all of the following requirements.

(i) A permanent, conspicuous, legible label listing the applicable operating requirements is posted on or near the stripping operation.

(ii) The stripping equipment and any emission control system are properly installed and maintained in proper working order.

(iii) Any emission control system is properly operating at all times when parts are being stripped.

(iv) The required cover is not removed except to process work or to perform maintenance.

(v) There are no liquid leaks from any portion of the stripping equipment. Upon detection of a liquid leak, the leak shall be repaired immediately, or the stripping tank drained and taken out of service, in a manner that minimizes emissions.

(vi) Solvent is not above the marked maximum solvent level line, unless a sealing fluid is used.

(vii) Solvent carry-out is minimized by all of the following methods:

(A) allowing for full drainage by racking parts or by other means;

(B) tipping out any pools of solvent from the stripped parts before removal; and

(C) allowing parts to dry within the stripping equipment until visually dry or dripping ceases.

(viii) Solvent agitation, where necessary, is achieved exclusively through pump circulation or by means of a mechanical mixer or ultrasonic agitation. Air or gas agitation shall not be used.

(ix) Solvent spraying, when necessary, is conducted by using only a continuous fluid stream (not a fine, atomized, fan, or shower type spray) at a pressure which does not cause liquid solvent to splash outside of the solvent container.

(x) Waste solvent and contaminated residue, if any, shall be recycled or disposed of according to requirements based on the California Health and Safety Code, Division 20, Chapter 6.3 (beginning at Section 25100) concerning hazardous waste disposal.

(e) **CONTROL EQUIPMENT**

(1) In lieu of complying with the requirements in Subsections (d)(1), (d)(2), and (d)(3) an owner/operator may use an airtight/airless cold solvent cleaner provided that all of the following requirements are met:

(i) The equipment is operated in accordance with the manufacturer's specifications and with a door or other pressure sealing apparatus in place during all cleaning and drying cycles;

(ii) All associated pressure relief devices do not allow liquid solvents to drain out. Spills during any solvent transfer shall be cleaned up immediately;

(iii) A differential pressure gauge is installed to indicate the sealed chamber pressure;

(iv) The equipment complies with all applicable operating requirements of Subsection (d)(4).

(2) In lieu of complying with the requirements of Subsections (d)(1), (d)(2), (d)(3), and (d)(5) a person conducting a cold solvent cleaning or stripping operation may use an air pollution control system which:

(i) Has been installed in accordance with an Authority to Construct; and

(ii) Has a combined emissions capture and control efficiency of at least 85% by weight.

(3) A person electing to use control equipment pursuant to Subsection (e)(2) shall submit to the Air Pollution Control Officer for approval an Operation and Maintenance plan for the proposed emission control and collection system and receive approval prior to operation of the control equipment. Thereafter, the plan can be modified, with Air Pollution Control Officer approval, as necessary to ensure compliance. Such a plan shall:

(i) Identify all key system operating parameters. Key system operating parameters are those necessary to ensure compliance with Subsection (e)(2)(ii), such as temperature and/or pressure;

(ii) Include proposed inspection schedules, anticipated ongoing maintenance, and proposed recordkeeping practices regarding the key system operating parameters; and

(iii) Upon approval by the Air Pollution Control Officer, a person subject to the requirements of Subsection (e)(2) shall implement the Operation and Maintenance plan and shall comply with the all the provisions of the approved plan.

(f) **RECORDKEEPING REQUIREMENTS**

(1) Any person conducting a cold solvent cleaning or stripping operation subject to this rule shall maintain the following records:

(i) A current list of solvents and sealing fluids in use, which provides all of the data necessary to evaluate compliance, including but not limited to:

(A) Manufacturer name and identification for each solvent, and

(B) VOC content of solvent expressed in g/l (lbs/gal) of material as used, and density and mix ratios for each solvent.

(2) Any person using control equipment pursuant to Section (e) of this rule shall:

(i) Maintain records in accordance with the requirements of Subsection (f)(1); and

(ii) Maintain daily records of key system operating parameters as approved in the Operation and Maintenance plan pursuant to Subsection (e)(3). Such records shall be sufficient to document continuous compliance with Subsection (e)(2)(ii) during periods of emission producing activities.

All records shall be retained on site for at least three years and shall be made available to the District upon request.

(g) **TEST METHODS**

(1) The VOC content of cleaning materials shall be determined by the South Coast Air Quality Management District (SCAQMD) Method 313 (Determination of Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry), SCAQMD Method 308 (Quantitation of Compounds by Gas Chromatography), or any other test methods approved by the Environmental Protection Agency (EPA), California Air Resources Board (ARB), and the Air Pollution Control District.

(2) The overall control efficiency of air pollution control equipment operated pursuant to Subsection (e)(2)(ii) shall be determined by multiplying the capture efficiency of the emission collection system by the control efficiency of the air pollution control device. The control efficiency of the air pollution control device shall be determined using EPA Test Methods 18 and 25 or 25A (40 CFR 60, Appendix A) and in accordance with a protocol approved by the Air Pollution Control Officer. Capture efficiency shall be determined according to EPA Test Method 204. Subsequent to the initial compliance demonstration period, appropriate key system operating parameters as determined by the Air Pollution Control Officer may be used as indicators of the performance of the emission control system.

(h) **COMPLIANCE SCHEDULE**

(1) All new cold solvent cleaning or stripping operations shall comply with the applicable requirements of this rule upon initial startup.

(2) All existing cold solvent cleaning or stripping operations shall comply with the applicable requirements of this rule not later than *(12 months after date of adoption)*.

(3) The owner or operator of existing cold solvent cleaning or stripping equipment that will require modifications pursuant to the requirements of Subsections (d)(1), (d)(3), and/or (d)(5), except for those switching to a water-based solvent with a VOC content 50 g/l or less shall:

(i) By *(6 months after date of adoption)* submit to the Air Pollution Control Officer an application to modify a Permit to Operate for complying with the applicable requirements of Subsections (d)(1), (d)(3), and/or (d)(5).

(ii) By *(12 months after date of adoption)* comply with all applicable rule requirements.

(4) The owner or operator of existing cold solvent cleaning or stripping equipment that chooses to comply with the rule by installing air pollution control equipment pursuant to Section (e) of this rule shall comply with the following increments of progress:

(i) By *(6 months after date of adoption)* submit to the Air Pollution Control Officer an application for an Authority to Construct and a Permit to Operate an air pollution control system as specified in Section (e).

(ii) By *(12 months after date of adoption)* comply with all applicable rule requirements.

SAN DIEGO AIR POLLUTION CONTROL DISTRICT

PROPOSED NEW RULE

Proposed new Rule 67.6.2 to read as follows:

RULE 67.6.2 VAPOR DEGREASING OPERATIONS

(Adopted & Effective *(date of adoption)*)

(a) APPLICABILITY

(1) Except as provided in Section (b), this rule is applicable to all vapor degreasing operations.

(2) Rule 66 shall not apply to any vapor degreasing operation.

(b) EXEMPTIONS

(1) This rule shall not apply to the following:

(i) Except for requirements for waste solvent disposal in Subsection (d)(4)(xiii), ~~V~~vapor degreasing operations that exclusively utilize water-based cleaning materials with a volatile organic compound (VOC) content of 50 grams per liter (g/l) of material (0.42 pounds per gallon) or less, as used

It shall be the responsibility of any person conducting such operations to keep a current list of all cleaning materials and the VOC content of each material, as applied, to substantiate this exemption.

(ii) Vapor-phase solder reflow units.

(iii) Vapor degreasing operations conducted in a container with a vapor-air interface area of one square foot (0.09 square meters) or less or with a maximum solvent capacity of one gallon (3.8 liters) or less.

(c) DEFINITIONS

(1) **"Airless/Air-Tight Vapor Degreaser"** means a system that consists of a sealed vapor degreaser and the devices to condense and recover solvent and emission control devices to remove solvent from all gas streams that vent to the atmosphere. The system must have no open vapor-air interface, and be designed and operated in such a manner as to prevent the discharge or leakage of solvent emissions to the atmosphere during all cleaning and drying operations.

(2) **"Batch-loaded Solvent Degreaser"** means a degreaser in which any material is placed for cleaning and removed as a single batch after the cleaning is finished.

(3) **"CFR"** means Code of Federal Regulations.

(4) **"Degreaser"** means a tank, drum, or other container in which objects to be cleaned are exposed to a solvent or solvent vapors, in order to remove contaminants.

(5) **"Exempt Compounds"** means the same as defined in Rule 2.

(6) **"Existing Vapor Degreasing Operation"** means any vapor degreasing operation that is not new.

(7) **"Freeboard Height"** means the distance from the solvent vapor-air interface to the top of the degreaser tank, based on inside tank dimensions.

(8) **"Freeboard Ratio"** means the freeboard height divided by the smaller of the interior length or width of the degreaser tank.

(9) **"Liquid Leak"** means any visible leak of a VOC-containing liquid at a rate in excess of three drops per minute.

~~(10) **"Liquid Surface Area"** means the area of interface between the liquid solvent available for heating and the air which is contiguous with the outside of the vapor degreaser.~~

(10) ~~(11)~~ **"New Vapor Degreasing Operation"** means any vapor degreasing operation for which a complete application for an Authority to Construct in San Diego County was submitted after *(date of adoption).*

(11)~~(12)~~ **"Open-top Vapor Degreaser"** means any batch loaded vapor degreaser.

(12) ~~(13)~~ **"Perimeter Trough"** means a receptacle within the vapor degreaser located below the primary condenser that conveys condensed solvent and atmospheric moisture to a water separator.

(13)~~(14)~~ **"Primary Condenser"** means a series of circumferential cooling coils on the inside of walls of a vapor degreaser through which a chilled substance is circulated or recirculated to provide continuous condensation of rising solvent vapors, thereby creating a concentrated solvent vapor zone.

(14)~~(15)~~ **"Refrigerated Freeboard Chiller"** means an emission control device which is mounted above the degreaser's water jacket or primary condenser coils, and which consists of secondary coils that carry a refrigerant to provide a chilled air blanket above the solvent vapor.

(15)~~(16)~~ **"Solvent"** means any substance containing an organic compound or combination of organic compounds which is liquid at atmospheric pressure and ambient

temperature and which is used as a diluent, thinner, dissolver, viscosity reducer, or cleaning agent, or for other similar purposes.

(16)(~~(17)~~ **"Solvent Carry-Out"** means solvent carried out of a degreaser that adheres to or is entrapped in the part being cleaned.

(17) ~~(18)~~ **"Vapor-Air Interface"** means the area of contact between the solvent vapors and air that is contiguous with the air outside the degreaser. The area of the vapor-air interface shall be calculated as the product of the lengths between internal solvent cleaner walls behind the condensing coils.

(18) ~~(19)~~ **"Vapor-Phase Solder Reflow Unit"** means a device in which parts are immersed in VOC-rich vapor generated by boiling a liquid for heating to melt or soften solder connections of electronic components.

(19) ~~(20)~~ **"Vapor Degreaser"** means a degreaser in which objects to be cleaned are exposed to a boiling solvent or solvent vapors.

(20)~~(21)~~ **"Vapor Degreasing Operation"** means a cleaning operation that is conducted by immersing parts, products, tools or other items in a boiling solvent or in solvent vapors generated by boiling solvent.

(21) ~~(22)~~ **"Volatile Organic Compound (VOC)"** means any volatile compound containing at least one atom of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.

(22)~~(23)~~ **"Water-Based Cleaning Material"** means cleaning material that consists only of water and VOC and does not contain any exempt compounds.

(23) ~~(24)~~ **"Water Separator"** means a device that isolates water from a solvent or a mixture of solvents through mechanical or chemical means.

(d) **STANDARDS**

(1) General Equipment Requirements

A person shall not operate any vapor degreaser unless it is equipped with all of the following:

(i) A cover that can be easily operated without disturbing the vapor layer and that completely covers the solvent tank when work is not performed in the degreaser;

(ii) A primary condenser situated above the boiling solvent;

(iii) A water separator that does not operate by means of evaporation or distillation;

(iv) A perimeter trough;

(v) For vapor degreasers employing sprays:

(A) spray nozzles having a pressure low enough to prevent liquid splashing outside of the tank, and

(B) spray nozzles which produce continuous liquid flow, rather than fine atomized or shower type sprays; or

(C) spray nozzles which are located below the vapor-air interface.

(2) Additional Equipment Requirements

All vapor degreasers shall have one of the following:

(i) A freeboard ratio of at least 1.0; or

(ii) A refrigerated freeboard chiller, where the chilled air blanket temperature measured in degrees Fahrenheit at the center of the air blanket is not greater than 40% of the initial boiling point of the solvent; or

(iii) Be designed in such a manner that its cover or door opens only when the dry part is entering or exiting the degreaser.

(3) Safety Devices

Vapor degreasers shall be equipped with the following safety devices:

(i) A device which shuts off the sump heat if the condenser's coolant stops circulating. This requirement does not apply to vapor degreasers equipped with refrigerated condensers; and

(ii) A device which shuts off the sump heat if the condenser's coolant or refrigerant temperature becomes higher than the designed operating temperature; and

(iii) A device which is only manually resettable and which shuts off the sump heat if the vapor level rises above the designed operating level;

(iv) For vapor degreasers employing sprays, a device that prevents spray pump operation if the solvent vapor-air interface temperature falls below the designed operating level.

(4) Operating Requirements

A person shall not operate a vapor degreaser unless all of the following requirements are met:

(i) A permanent, conspicuous, legible label listing the applicable operating requirements is posted on or near the degreaser;

(ii) The degreaser and any emission control equipment are installed and maintained in proper working order. The emission control equipment shall be properly operating at all times when parts are being cleaned or solvent is being heated in the degreaser;

(iii) The cover is not removed except to process workload or to perform maintenance;

(iv) There are no liquid leaks from any portion of the degreaser. Upon detection of a liquid leak, the leak shall be repaired immediately, or the degreaser shall be shut down and drained in a manner that minimizes emissions;

(v) Ventilation fans are not positioned near the degreaser openings in such a way as to disturb the vapor zone;

(vi) At startup, the primary condenser and the refrigerated freeboard chiller, if required, are turned on before the sump heater is turned on. At shutdown, the sump heater is turned off before the primary condenser and refrigerated freeboard chiller are turned off;

(vii) No porous or absorbent materials, such as cloth, leather, wood, or rope are cleaned in a vapor degreaser;

(viii) Solvent is not sprayed above the vapor-air interface;

(ix) Exhaust ventilation rate does not exceed 65 cubic feet per minute per square foot (20 cubic meters per minute per square meter) of the degreaser vapor-air interface area, unless necessary to meet OSHA requirements;

(x) Workloads placed in the degreaser occupy a horizontal cross-sectional area that is less than one half of the vapor-air interface area;

(xi) The water separator is maintained to prevent water from returning to the surface of the boiling solvent sump or from becoming visibly detectable in the solvent exiting the water separator; and

(xii) Solvent carry-out is minimized by all of the following methods:

(A) racking parts for full drainage;

(B) moving parts in and out of the degreaser at a speed of less than 11 feet per minute (3.3 meters per minute);

(C) cleaning the workload in the vapor zone until condensation ceases;

(D) tipping out any pools of solvent on the cleaned parts before removal; and

(E) not removing parts from the degreaser until they are visually dry.

(xiii) Waste solvent and contaminated residue, if any, shall be recycled, or disposed of according to requirements based on the California Health and Safety Code, Division 20, Chapter 6.3 (beginning at section 25100) concerning hazardous waste disposal.

(e) **CONTROL EQUIPMENT**

(1) In lieu of complying with the equipment requirements in Subsections (d)(1), (d)(2), and (d)(3), an owner/operator may use an airtight/airless vapor degreaser provided that all of the following requirements are met:

(i) The degreaser is operated in accordance with the manufacturer's specifications and is equipped with a door or other pressure sealing apparatus in place during all cleaning and drying cycles;

(ii) All associated pressure relief devices do not allow liquid solvents to drain out. Spills during any solvent transfer shall be wiped up immediately;

(iii) A differential pressure gauge is installed to indicate the sealed chamber pressure;

(iv) The applicable operating requirements of Subsection (d)(4) are met.

(2) In lieu of complying with the requirements of Subsections (d)(1), (d)(2), and (d)(3), an owner/operator of a vapor degreaser may use an air pollution control system which:

(i) Has been installed in accordance with an Authority to Construct; and

(ii) Has a combined emissions capture and control efficiency of at least 85% by weight.

(3) A person electing to use control equipment pursuant to Subsection (e)(2) shall submit to the Air Pollution Control Officer for approval an Operation and Maintenance plan for the proposed air pollution control system and receive approval prior to operation of the control equipment. Thereafter, the plan can be modified, with Air Pollution Control Officer approval, as necessary to ensure compliance. Such plan shall

(i) Identify all key system operating parameters. Key system operating parameters are those necessary to ensure compliance with Subsection (e)(2)(ii), such as temperature and/or pressure;

(ii) Include proposed inspection schedules, anticipated ongoing maintenance, and proposed recordkeeping practices regarding the key system operating parameters; and

(iii) Upon approval of the Air Pollution Control Officer, a person subject to the requirements of Subsection (e)(2) shall implement the Operation and Maintenance plan and shall comply with the all the provisions of the approved plan.

(f) **RECORDKEEPING REQUIREMENTS**

(1) Any person conducting vapor degreasing operations subject to this rule shall maintain the following records:

(i) A current list of cleaning materials in use, which provides all of the data necessary to evaluate compliance, including but not limited to:

(A) Manufacturer name and identification for each material;

(B) VOC content expressed in g/l (lb/gal) of material as used, and density and mixed ratios for each component; and

(C) Initial boiling point of a cleaning material if a refrigerated freeboard chiller is used.

(2) Any person using control equipment pursuant to Section (e) of this rule shall:

(i) Maintain records in accordance with the requirements of Subsection (f)(1); and

(ii) Maintain daily records of key system operating parameters as approved in the Operation and Maintenance plan pursuant to Subsection (e)(3). Such records shall be sufficient to document continuous compliance with Subsection (e)(2)(ii) during periods of emission producing activities.

All records shall be retained on site for at least three years and shall be made available to the District upon request.

(g) **TEST METHODS**

(1) The VOC content of cleaning materials shall be determined by the South Coast Air Quality Management District (SCAQMD) Method 313 (Determination of Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry), SCAQMD Method 308 (Quantitation of Compounds by Gas Chromatography), or any other test methods approved by the Environmental Protection Agency (EPA), California Air Resources Board (ARB), and the Air Pollution Control District.

(2) Measurement of initial boiling point of solvents shall be conducted in accordance with ASTM Standard Test Method D1078-03 for distillation range of volatile organic liquids, or its most current version,

(3) Hoist speed shall be determined by measuring the distance traveled by the hoist per unit of time.

(4) Temperatures in the vapor zone shall be measured with the use of a properly calibrated temperature probe, with an accuracy of ± 1ºF.

(5) The overall control efficiency of air pollution control equipment operated pursuant to Subsection (e)(2)(ii) shall be determined by multiplying the capture efficiency of the emission collection system by the control efficiency of the air pollution control device. The control efficiency of the air pollution control device shall be determined using EPA Test Methods 18 and 25 or 25A (40 CFR Part 60, Appendix A) and in accordance with a protocol approved by the Air Pollution Control Officer. Capture efficiency shall be determined according to EPA Test Method 204. Subsequent to the initial compliance demonstration period, appropriate key system operating parameters as determined by the Air Pollution Control Officer may be used as indicators of the performance of the emission control system.

(h) **COMPLIANCE SCHEDULE**

(1) All new vapor degreasing operations shall comply with the applicable requirements of this rule upon initial startup.

(2) All existing vapor degreasing operations, except for those specified in Subsection (h)(3) or (h)(4), shall comply with the applicable requirements of this rule after *(date of adoption).*

(3) An owner or operator of any existing vapor degreaser that currently does not comply with one of the requirements of Subsection (d)(2) shall:

(i) By *(6 months after date of adoption)* submit to the Air Pollution Control Officer an application to modify a Permit to Operate for complying with the applicable requirements of Subsections (d)(2);

(ii) By *(12 months after date of adoption)* comply with all applicable rule requirements.

(4) An owner or operator of an existing vapor degreaser that chooses to comply with the rule by installing air pollution control equipment pursuant to Section (e) of this rule shall comply with the following increments of progress:

(i) By *(6 months after date of adoption)* submit to the Air Pollution Control Officer an application for an Authority to Construct and a Permit to Operate an air pollution control system as specified in Section (e);

(ii) By *(12 months after date of adoption)* comply with all applicable rule requirements.