Santa Barbara County Air Pollution Control District
DRAFT BACKGROUND PAPER – May 2009

REVISIONS TO

RULE 321. SOLVENT CLEANING MACHINES AND SOLVENT CLEANING

BACKGROUND

The Santa Barbara County Air Pollution Control District (the District) proposes modifications to Rule 321 to implement requirements for solvent cleaning machines and solvent cleaning. To fulfill commitments in Clean Air Plans, the District needs to revise several rules that govern solvent use (Rules 321, 323, 330, 337, 349, 351, 353, and 354). This is the first of several rulemaking efforts to fulfill the solvent control measure commitments and it is focused on revising Rule 321.[a]

[a] The 2001 and 2004 Clean Air Plans indicate a new Rule 362 would be adopted to implement the new "general" solvent cleaning control measure. The District later decided to integrate these solvent cleaning requirements within existing Rule 321 and each of the appropriate operation-specific rules. Thus, the emission reductions shown in the 2001 and 2004 Plans for Rule 362 will be obtained by revising the existing rules and the existing control measures.

Rule 321, first adopted on February 24, 1975, applied to all organic solvent degreasing operations that involved the cleaning of surfaces before fabrication, surface coating, electroplating, or any other process. Rule revisions adopted on July 10, 1990 implemented Control Measure R-S-1 of the 1989 Air Quality Attainment Plan. The 1990 changes expanded the equipment design and operating requirements.

The District made the last significant modifications to Rule 321 in 1997. Those changes addressed rule deficiencies identified by ARB and EPA. They also incorporated the model rule provisions recommended in the Air Resources Board Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Organic Solvent Cleaning and Degreasing Operations.[Ref. 1]

The EPA approved Rule 321 for inclusion into the State Implementation Plan on April 2, 1999.[Ref. 2]

PROPOSED REVISIONS

The proposed revised Rule 321 contains solvent reactive organic compound (ROC) content limits, revised equipment requirements for degreasers, and sanctioned solvent cleaning devices and methods. These proposed provisions apply to two general categories: 1) solvent cleaning machines (degreasers) and 2) solvent cleaning done outside of solvent cleaning machines (e.g., wipe cleaning).

The District modeled the revised Rule 321 requirements on those adopted by the South Coast Air Quality Management District (SC) and the San Joaquin Unified Valley Air Pollution Control District (SJV). Staff also included Rule 321 exemptions and other provisions similar to those listed in the Ventura County APCD (VC) solvent rules.

This rulemaking effort also includes adding new definitions to Rule 102 (Definitions) and making slight changes to Rule 202 (Exemptions to Rule 201) to provide rule clarity and for consistency with the revised Rule 321 provisions.

For existing solvent cleaning machines and existing solvent cleaning operations, the deadline to comply with the ROC content limits (and other requirements) is one year from the date of the adoption of the amended Rule 321.

The proposed revised Rule 321 requirements demonstrate that the District's Clean Air Plan to attain the California ambient ozone standard provides for expeditious implementation of "every feasible measure" to reduce ozone precursor emissions (including ROC).

The District expects the proposed revisions to Rule 321 to result in 0.6 tons per day of ROC emission reduction in Santa Barbara County. The cost-effectiveness of the rule revision is estimated to be between -$3,320 (cost saving) and $12,940 per ton of ROC reduced.

Sources that May be Affected by the Changes to Rule 102, Rule 202, and Rule 321

The Rule 321 provisions apply to sources performing solvent cleaning during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at stationary sources.

There is a wide range of sources that will be affected by the revised rule. Many of the solvent cleaning machines and sources performing solvent cleaning are exempt from the requirement to have a Permit to Operate. Due to their permit-exempt status, the District is unable to specifically identify all sources using solvent cleaning machines and/or performing solvent cleaning.

Stationary sources that likely have solvent cleaning machines and/or are performing solvent cleaning that will be subject to the proposed revised Rule 321 are shown:

1. generically in Appendix A, and
2. by facility or company/agency name in Appendix B – data gleaned from the District permitting and innovative technology programs.

Staff estimates that there may be over 1,000 solvent cleaning machines in use at repair shops and manufacturing and production facilities in Santa Barbara County. Further, the number of sources performing solvent cleaning that will be subject to Rule 321 is estimated to be in the range of 100 to 200.

Solvent cleaning associated with other District operation-specific rules (e.g., 320, 325,326, 330, 337, 343, 344, 349, 351, 353, or 354) will be exempt from the Rule 321 solvent cleaning provisions. If a source subject to one of the other operation-specific rules is performing solvent cleaning and using a solvent cleaning machine:

- the solvent cleaning machine is subject to Rule 321 requirements.
- the solvent cleaning (done outside of the solvent cleaning machine) is exempt from Rule 321.

Rule 102, Definitions

The District proposes to add and modify several definitions that are used in various parts of the rulebook. Appendix C contains an annotated proposed amended Rule 102 with information on the origin of the new and revised definitions.

Rule 202, Exemptions to Rule 201

The District proposes to make minor revisions to Sections I and U of Rule 202 (and the Rule 210 title throughout the rule). The reasons for such changes are outlined in the annotated proposed amended Rule 202 (Appendix D).

Rule 321, Solvent Cleaning Machines and Solvent Cleaning

Changes to Rule 321 will require more rigorous emission control techniques for solvent cleaning machines and establish solvent ROC content limits for solvent cleaning and cold solvent cleaners. Also, vapor cleaning machines using a solvent with an ROC content greater than 50 grams per liter shall require additional emission reducing devices.

Appendix E summarizes the significant revisions to Rule 321and Appendix F provides an annotated proposed amended Rule 321.

EMISSION REDUCTION / COST-EFFECTIVENESS

Emission Reductions

Data in Appendix G, Table 1 indicates that the total emission reduction from modifying Rule 321 is 0.6 ton of ROC per day.

Cost-Effectiveness

The annual costs and cost-effectiveness of switching from high-ROC surface cleaning to low-ROC surface cleaning were estimated by the SJV and are shown in Appendix G Tables 2 and 3. The SJV cost- effectiveness data ranges from -$3,320 (savings) to $12,940 per ton of ROC reduced.

According to the SC cost-effectiveness analysis for the 1997 Rule 1122 amendments, the overall cost-effectiveness was $1,379 per ton of ROC reduced for solvent cleaning machine modifications. That analyses included the costs of vapor degreaser

freeboard extension kits ($2,000 per unit), automated parts handling systems ($4,000 per unit), and retrofitting extended freeboards and freeboard chillers ($7,100 per unit).

The cost-effectiveness for solvent cleaning (changing from high ROC solvents to compliant solvents) ranges between -$1,670 (cost savings) to $3,340 per ton of ROC reduced.[Ref. 3]

Incremental Cost-Effectiveness

Health and Safety Code Section 40920.6 requires the performance of an incremental cost-effectiveness analysis for a regulation that identifies more than one control option to meet the same emission reduction objectives. Incremental cost-effectiveness is defined as the difference in costs divided by the difference in emission reductions between one level of control and the next more stringent level of control.

Rule 321 regulates solvent cleaning machines and solvent cleaning. Compliance by equipment modifications and the substitution of materials is expected. No alternative emission control scenario is available.

ENVIRONMENTAL IMPACTS OF METHODS OF COMPLIANCE / CEQA

[To be included at a later date.]

ANALYSIS OF EXISTING FEDERAL AND DISTRICT REGULATIONS

Appendix H contains the written analysis required by the California Health & Safety Code Section 40727.2 requirements.

COMMENTS AND PUBLIC MEETINGS

Comments

Appendix I contains the written comments and the District's responses to the comments.

Public Meetings

CLEAN SLATE WORKSHOP, MAY 21, 2003

Industry representatives were concerned about requiring low-ROC solvents for surface preparation prior to vehicle painting. They indicated that past attempts to use compliant solvents to remove road tar from vehicles were not successful.

One industry representative requested that the rule provide an exemption for isopropyl alcohol (IPA). Further, if IPA use is subject to the rule, hospitals, schools, technical universities, and prisons (that have auto body shops) should be subject to the rules.

A concern about making the provision apply to ozone depleting and global warming compounds was expressed.

An oil industry representative mentioned that there needs to be an exemption for cleaning analytical equipment or a provision to allow the use of hexane.

Additional discussions involved rule applicability, exemptions, enforcement, and recordkeeping requirements.

SCOPING WORKSHOP, AUGUST 5, 2008

Attendees voiced concerns about hospital use of isopropyl alcohol for general surface cleaning and how these emissions would not be subject to the proposed amended rule. It was agreed that the rule support document should mention the emission rate from such use. Further, a specific hospital exemption should be added.

Turbine cleaning activities and the applicability of the gas/liquid-path cleaner provisions in the existing rule were discussed. The District requested that a description of the turbine cleaning operation be provided.

Platform operators indicated there are concerns that the use of low-ROC solvents will present a water quality discharge compliance issue. Their current practice is to clean up crude oil spills by using petroleum-based solvents. The run-off of waste solvent is collected and directed into the petroleum product stream. Under the proposed requirements, the wastewater from use of aqueous solvents would need to collected and treated differently. District staff indicated that additional research on this issue will be performed.

There were some discussions on the general approach being taken to regulating solvent use:

1. Some representatives were concerned about the command and control approach taken by other air districts and the move to outlaw and criminalize certain chemicals, especially when the sources using the materials are subject to District permits.

2. Another concern raised by the regulated community was that some solvent cleaning permits have conditions limiting solvent use in pounds of emissions per day; the reduction in the ROC per gallon limit won't affect the permit conditions. Also, the permitted emissions have been offset. Therefore, the source has paid for the right to emit at a certain level and should not be required to lower the ROC emissions by the revised rule provisions.

On issue 1, staff explained that we were proposing to meet the Clean Air Plan requirement to implement all feasible control measures. One indicator of a rule meeting the all feasible control measure requirement is if the techniques have been successfully adopted and implemented in other air districts. The proposed revised requirements have been adopted in the South Coast Air Quality Management District (AQMD) and the San Joaquin Valley Unified Air Pollution Control District (APCD) for quite some time. The ROC limits we will be proposing will take into account the needs for the specific industries. Further, many of the devices to be controlled by the revised rule are permit exempt.

Regarding issue 2, there was discussion on the differences between prohibitory rule provisions and the New Source Review rule provisions.

The regulated community wants the 55 gallons per year wipe cleaning permitting threshold in Rule 202.U.3 to be increased to acknowledge or address the requirement to use lower ROC solvents. A source should not be limited to the 55 gallons per year provision, which was intended for high-ROC solvents. The District indicated that it did not envision issuing more permits based on the Rule 321 changes. Further, staff would look at ways to address the incongruity of requiring permits for currently unpermitted solvent wipe cleaning operations that would exceed 55 gallons per year as a result of using Rule 321-compliant low-ROC solvents, but have decreased emissions as compared to high ROC solvents.

The need for Rule 321 exemptions was also discussed. Some participants urged the District to provide an exemption for wipe cleaning with isopropyl alcohol. Others recommended that the San Joaquin Valley Unified Air Pollution Control District 55 gallons per year exemption be included.

Clarification of the proposed ROC solvent limit for aerospace was requested. There is a concern on what the ROC limit will be for solvents used in cleaning clean rooms. Staff indicated they would look into how other air districts have handled such specialized cleaning.

RULE DEVELOPMENT WORKSHOP (to be announced)

COMMUNITY ADVISORY COUNCIL (to be announced)

PUBLIC HEARING ON THE ADOPTION OF THE PROPOSED AMENDED RULES (to be announced)

COMPARISON OF ADJOINING APCD RULES

Appendix J provides a comparison of the San Joaquin Valley APCD, Ventura County APCD, and the San Luis Obispo County APCD rules on permit exemptions and requirements for solvent cleaning machines and solvent cleaning. Basically, there are general similarities with some minor differences between the adjoining air district rules and the proposed amended rules.

IMPACTS OF THE REVISED RULES TO INDUSTRY AND THE DISTRICT

Details of the impacts from the rule revisions are summarized in Appendix K. The rule revisions will cause impacts to the regulated community and District staff by:

1. Applying and verifying control techniques to comply with the Rule 321 requirements.
2. Increasing or causing new operating and monitoring costs.
3. Reducing solvent costs for some sources due to the use of lower-ROC content solvents.

REFERENCES

1. Air Resources Board, Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Organic Solvent Cleaning and Degreasing Operations, July 18, 1991.
2. Federal Regulation citation: 63 FR 5922, 4/2/1999.
3. South Coast Air Quality Management District, Final Staff Report for Proposed Amendment to Rule 1122 - Solvent Degreasers, June 6, 1997.

APPENDICES

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix A
Santa Barbara County
Generic Types of Stationary Sources that May Have Solvent Cleaning Machines or May be Performing Solvent Cleaning that Will be Subject to the Amended Rule 321

Airports
Agricultural Mills
Asphaltic Concrete Batch Plants
Automobile Repair Shops
Bulk Fuel Plants
Concrete Batch Plants
Correctional Facilities, Prisons, and Jails
Electronic Device Manufacturers
Gas Stations with Maintenance Bays
Landfills
Lawnmower Repair Shops
Liquid Dispersion Production Plants
Machine Shops
Manufacturing Plants
Medical Device Manufacturers
Military Installations
Mineral Processing Plants
Offshore Platforms
Oil and Gas Processing Facilities
Oil and Gas Pipelines and Pump Stations
Pharmaceutical Manufacturers
Refineries
Repair Shops
Spaceports
Tire Shops
Wastewater Treatment Plants
Water Filter Manufacturing Facilities
Water Treatment Plants
Wineries & Breweries

Click here to return to the list of Appendices in the Background Paper.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix B
Santa Barbara County
Facilities that May Have Solvent Cleaning Machines or May be Performing Solvent Cleaning Subject to Proposed Amended Rule 321[a]

Table 1. FACILITIES LISTED IN THE AIR POLLUTION CONTROL DISTRICT INTEGRATED DATA SYSTEM

FID	COMPANY OR AGENCY	Sol. Cln[b]	SCM[b]	FID	COMPANY OR AGENCY	Sol. Cln[b]	SCM[b]
02463	Advanced Vision Science	X	X	08006	DCOR, LLC., Platform C	X	X
10084	Allergan Corporation	X	X	08012	DCOR, LLC., Platform Habitat	X	X
01325	Arguello, Inc., Gaviota Oil Heating Facility	X		08007	DCOR, LLC., Platform Henry	X	X
08013	Arguello, Inc., Platform Harvest	X	X	08005	DCOR, LLC., Platform Hillhouse	X	X
08014	Arguello, Inc., Platform Hermosa	X	X	03778	Den-Mat Corp.	X	
08015	Arguello, Inc., Platform Hidalgo	X	X	03858	Digital Instruments		X
01152	Bardex Corporation		X	08709	Dupont Displays		X
03794	BEGA/US	X		10307	Dupont Displays (600 Ward Dr)		X
03314 (+ Others)	BreitBurn Energy	X		01074	E & B Natural Resources	X	
10291	Calient Networks, Inc	X		01477	Electro Optical Industries	X	
00012	Celite		X	01480	Essex Electronics, Inc.	X	X
01294	Channel Industries, Inc.	X		01482	ExxonMobil SYU Project, Las Flores Canyon	X	X
04545	Cree, Inc.	X		08018	ExxonMobil SYU Project, Platform Harmony	X	X
08003	DCOR, LLC., Platform A	X	X	08019	ExxonMobil SYU Project, Platform Heritage	X	X
08004	DCOR, LLC., Platform B	X	X	08009	ExxonMobil SYU Project, Platform Hondo	X	X

[a] Appendix B information is based on 2003 data from several District programs and is not intended to be an all-inclusive listing of facilities to be subject to the revised Rule 321. The mailing list for this rulemaking project includes over 800 potential sources that may be subject to the proposed amended Rule 321.
[b] Sol. Cln = Solvent Cleaning and SCM = Solvent Cleaning Machine.

FID	COMPANY OR AGENCY	Sol. Cln[b]	SCM[b]	FID	COMPANY OR AGENCY	Sol. Cln[b]	SCM[b]
03170	ExxonMobil SYU Project, POPCO Plant	X	X	08934	Pacific Scientific, EKD	X	X
09664	First Nano, Inc.	X		03095	Plains Exploration & Production Co., Lompoc Oil & Gas Plant	X	X
08676	Foristar Methane Group, LLC		X	08016	Plains Exploration & Production Co., Platform Irene	X	X
3211 (+ Others)	Greka Oil & Gas	X		03890	Raytheon, Bldg B-8	X	X
10453	GRT, Inc.	X		04140	Raytheon, Bldgs B1, B2, B3, and B6	X	X
04487	Helix Medical, Inc., Medical Device Mfg		X	01971	Raytheon, Hollister	X	X
09745	Indigo Systems	X	X	08742	Raytheon, Lompoc	X	
10789	Inlustra Technologies, LLC	X		09684	Raytheon, VOCs		X
10867	Innovative Micro Technology, Inc. (IMT)	X		04574	Renco Encoders, Incorporated	X	X
01634	International Transducer Co.	X	X	04621	Silicone Technology	X	
04583	Karl Storz Imaging, Incorporated		X	03750	Skate One Corp.		X
01670	Kilovac Corporation	X	X	04644	Sonatech, Inc.	X	
09424	Lockheed (Santa Barbara Focalplane - operator)		X	10436	Space Exploration Technologies	X	
04455	Magretech, Incorporated	X		08698	Spaceport Systems International		X
04635	Medtronic PS Medical		X	02758	Special Technologies Laboratory		X
01820	Microwave Applications Group		X	10341	Superconductor Technologies, Inc.	X	
06100	National Aeronautics & Space Admin.	X	X	01900	The Okonite Company		X
01880	Neal Feay Company	X		03640	Trisep Corporation	X	
02361	Nusil Technology	X		03970	United Launch Alliance, LLC (PTO 10956)	X	
04617	Pacific Hydraulic Systems	X	X	00206	United Launch Alliance, LLC (PTO 11240)	X	

FID	COMPANY OR AGENCY	Sol. Cln[b]	SCM[b]	FID	COMPANY OR AGENCY	Sol. Cln[b]	SCM[b]
00201 (+ Others)	Vandenberg Air Force Base, Solvents (general)		X	04003	Venoco, Inc., Ellwood Marine Terminal	X	
10105	Veeco Instruments	X		00028	Venoco, Inc., Ellwood Onshore Facility	X	
03035	Venoco, Inc., Beachfront Lease	X		03203	Venoco, Inc., Jovalan Barge	X	
00027	Venoco, Inc., Carpinteria Gas Plant	X		03105	Venoco, Inc., Platform Holly	X	
04138	Venoco, Inc., Carpinteria Pipeline Facility	X		01065	Venoco, Inc., Seep Containment Device	X	

Table 2. AUTOMOBILE REPAIR SHOPS

A & A Import Service	Anderson Custom Boats	Bear Automotive	Buellton Union Elementary School District
A & B Glass	Andy's Mobil Lube & Auto Service	Ben's Transmission Service	Burley's Bimmer Service
A 1 Smog & Repair	Anvil Motor Sports	Bianchi Motor & Auto Body	Bush's Automotive Repair
AAMCO Transmission	APW Automotive Services	Big Brand Tire Co., Carrillo St.	Byrd Harvest
Advanced Automotive	A-Smog-It	Big Brand Tire Co., Fairview Ave.	C & S Automotive
Advanced Automotive Services	ATG Automotive Technicians Group	Big O Tires	Carburetor & Electric Co.
AGS Rebuilders	Auto Parts Restoration	Blanquette Automotive	Carpinteria Automotive
Airport Motors	Auto Pro	Bob Joehnck Automotive	Carpinteria Union School District
Al Williams Carburetor & Electric Co.	Automotive Concepts	Bob Woolever's Tire Shoppe, Hollister Ave.	Casey's Garage
Alamar Automotive	Automotive Service Center	Bob's Auto Salon	Cetti Services- Goleta
Alisal Guest Ranch and Resort (Alisal Ranch Golf Course)	Automotive Systems Laboratory, Inc.	Bob's Garage	Channel City Auto Body
Alisal Guest Ranch and Resort (Alisal River Golf Course)	Automotive Tech Group, Inc.	Bob's Import Auto Service	Channel City Engineering
Allan Hancock Community College	AutoProfessionals	Bowman's Auto Repair	City of Santa Barbara Motor Pool
Anacapa Mobile Service	Ayers Repairs	Bruce's Auto Repair	Clark Motors

Coast Muffler & Brake	Fairview Unocal Service & Carwash	Hughes Automobile Company	Larry's Auto Parts
Coast Village Shell	Falcon Crest Tire & Service	Ian's	Las Positas Mobil Service
Coastline Auto Repair	Fast Lane Oil Change, Milpas St.	Import Auto Parts Machine Shop & Parts Store	Loesche's Custom VW Service
Cooper Automotive	Fast Lane Oil Change, State St.	Imported Auto Service	Lompoc Union School District
Cory Motors	Fast Undercar, Inc.	Independent Lexus & Infiniti	Love's Towing
Cutter Motors	Firestone Tire & Service Centers	Iversen Motor Co.	Mac Tools
Cycle Werks	Fred Import Auto Service	J & S East Valley Garage	Mahneke Motors
D & D Truck Service	Garcia's Auto Repair	J V Enterprises	Mariah Motorsports-Design Energy, Inc.
D & G Automotive	George Thorpe	JAE	Martyn Motors
Dal PozzoTire Corp., Milpas St.	GM Auto & Smog	Jenson Chevron Service	McCormix Corporation
Dal PozzoTire Corp., Pine Ave.	Goleta Chevron Service	Jiffy Lube, Hollister Ave.	MD Auto Repair
Dal PozzoTire Corp., Chapala St.	Goleta Radiator Service	Jiffy Lube, De La Vina St.	Mel Clayton Ford
Dave Scholl automotive	Goleta Transmission	Jim Vreeland Ford	Mesa Union 76
Dave's Auto Repair	Goleta Union School District	John Howe West, Inc.	Michael Fitzpatrick Auto Body
De Nunzio Racing Products	Goodyear Tire Center	John Hurley Automotive	Mike Loredo Chevron
Der Volks Werks	Graham Chevrolet-Oldsmobile-Cadillac	John's Mobil	Milano Motors
Dimauro's Honda Service Center	Granny's Garage	Jose Antonio Huerta	Mireles Automotive
Discount Tire Centers	Guadalupe Union School District	Ken Symer Automotive	Mission Uniform Service
Dos Pueblos High School	H&R Motors	Kennedy's Automotive Center	Mitchell International
East-West Motors	Haik's German Autohaus	Klaus Braun Automotive	Motor Brake & Wheel Svc
Eric Krebs Automotive	Hein Motor Repair	Lang Motors	Mr. Stockero
Fairview Shell Auto Care	Higgins Muffler & Brake	Lara Auto Repair	Muller & Goss

Muñoz's Auto Repair	Richard's Accurate Import Serv.	Santa Barbara School District	Swedemaster
National Motors Mobile Repair	Rick's Auto Repair	Santa Barbara Smog Shop	Tam's Imported Car Repair
Nespor's University Auto House	Rio Vista Chevrolet	Santa Barbara Transmission Service	Technomotive
O'Brien Maintenance & Repair	Risdon's 76 Service	Santa Barbara Transportation, Jason Way	The Auto Works of Santa Barbara
Olive Mill 76 Service Center	Rizzoli's Automotive	Santa Barbara Transportation, Hollister Ave.	The Engine Company
Olivera's Repair	Rob's 4 Wheel Drive & Fab	Santa Barbara Transportation	The International Autohaus
Orcutt Union School District	Rob's Union 76	Santa Barbara Volkswagen	The Jag Shop
Oswald's Auto Repair	Rosebro Garage	Santa Maria Joint School District	The Shop
P. C. Automotive	S D Autoparts	Santa Maria School District	The Smog Center
Pep Boys	San Marcos High School	Santa Ynez Valley School District	TM Auto Repairs
Performance Rebuilders	Santa Barbara Auto Refinishing	SB American Fuel & Service	Toby's Engine Parts
Perry Lincoln Mercury Mazda	Santa Barbara Automotive	Schneider Autohaus	Tor's Saab
Perry's Auto Parts & Service	Santa Barbara Chrysler Plymouth Jeep Eagle	Scott's Mobile Automotive Repair	Toyota of Lompoc
Pichard's Auto Repair	Santa Barbara City College	Smitty's Towing	Toyota of Santa Barbara
Pickle Auto Repair	Santa Barbara County, Vehicle Operations Division	Smog-It	Toyota of Santa Maria
Powell Garage	Santa Barbara County, Vehicle Operations Division - North County	Snap On Tools, Cadiz Ct.	Trans-King Transmisisons
Precision Auto Body and Paint	Santa Barbara Electronic Service	Specialty Tool & Bolt	T's Air Conditionaing & Repair
Precision Automotive	Santa Barbara Honda	Star-Tech Auto Repair	Turnpike Unocal
Quality Automotive Repair	Santa Barbara Mobile Auto	Stirling Mobile Repair	Under The Hood Automotive
Raffetto & Co.	Santa Barbara MTD	Stuttgart Motors	Union 76
Razon Transmission	Santa Barbara Nissan, LLC	Superior Brake & Alignment, Figuero St.	United States Dept. of Agriculture, Forest Service, Los Padres National Forest
Reliable Repair	Santa Barbara Radiator	Superior Brake & Alignment, Fairview Ave.	Valley Automotive Services

Village Automotive Repair	Voigt's Truck & Auto Service	Westside Auto Repair	Winning Makes

Click here to return to the list of Appendices in the Background Paper.

Appendix C
Santa Barbara County
Annotated Proposed Amended Rule 102, Definitions

RULE 102. DEFINITIONS. (Adopted 10/18/1971, revised 1/12/1976, readopted 10/23/1978, revised 7/11/1989, 7/10/1990, 7/30/1991, 7/18/1996, 4/17/1997, 1/21/1999, 5/20/1999, 6/19/2003, 1/20/2005, 6/19/2008, ~~and~~ 1/15/2009), and [*date of revised rule adoption*])

These definitions apply to the entire rulebook. Definitions specific to a given rule are defined in that rule or in the first rule of the relevant regulation. Except as otherwise specifically provided in these Rules where the context otherwise indicates, words used in these Rules are used in exactly the same sense as the same words are used in Division 26 of the Health and Safety Code. [*Link to Note No. 1*] [a]

[. . .]

"Application Equipment" means a device or equipment used to apply solvent, sealant, adhesive, coating, ink, or polyester resin materials. [*Link to Note No. 2*]

[. . .]

"Coating" means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.

[. . .]

"Cured Adhesive, Cured Coating, or Cured Ink" means an adhesive, coating, or ink that is dry to the touch.

[. . .]

"Degreaser" has the same meaning as **"Solvent Cleaning Machine."** [*Link to Note No. 3*]

[. . .]

"Flexographic Printing" means any printing method in which the image area is raised relative to the non-image area and utilizes flexible rubber or other elastomeric plate and rapid drying liquid inks. [*Link to Note No. 4*]

[. . .]

"Janitorial Cleaning" means the cleaning of building or facility components including, but not limited to, floors, ceilings, walls, windows, doors, stairs, bathrooms, furnishings, and exterior surfaces of office equipment, and excludes the cleaning of work areas where manufacturing or repair activity is performed.

[. . .]

"**Reactive Organic Compound"** means any volatile compound containing carbon, except:

1. Acetone, ethane, methane, methyl acetate, tertiary butyl acetate, and inorganic carbon compounds: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate [*Link to Note No. 5*]

[a] Notes concerning the proposed new Rule 102 definitions are within a table starting on Page C-3. When using a computer to view this material, use a link to get to a note by clicking the left mouse button over the "*Link to Note No.*" text.

[. . .]

3. Chlorofluorocarbons [. . .]

~~trifluoromethane (HFC-23)~~ [. . .]

4. Hydrofluorocarbons [. . .]

trifluoromethane (HFC-23) [. . .] [*Link to Note No. 6*]
pentafluoroethane (HFC-125) [. . .]

"Rotogravure Printing" means any printing process where the image area is etched or engraved relative to the surface of the image cylinder. Ink is transferred from minute etched wells on a plate cylinder to a substrate, which is supported by an impression roller, with excess ink removed by a doctor blade. The substrate is fed through the printing press in continuous rolls. [*Link to Note No.7*]

[. . .]

"Solvent" means any liquid containing any reactive organic compound or any toxic air contaminant, which is used as a diluent, thinner, dissolver, viscosity reducer, cleaning agent, drying agent, or other similar uses. [*Link to Note No 8*]

"Solvent Cleaning" means any activity, operation, or process (including, but not limited to, surface preparation, cleanup, or wipe cleaning) performed outside of a solvent cleaning machine, that uses solvent to remove uncured adhesives, uncured coatings, uncured inks, uncured polyester resin material, uncured sealant, or other contaminants, including, but not limited to, dirt, soil, oil, lubricants, coolants, moisture, fingerprints, and grease, from parts, products, tools, machinery, application equipment and general work areas. Cleaning spray equipment used for the application of coating, adhesive, ink, or polyester resin material, or sealant is also considered to be solvent cleaning irrespective of the spray material being cured. [*Link to Note No. 9*]

"Solvent Cleaning Machine" means any device or piece of equipment that uses solvent liquid or vapor to remove soils, moisture, or other contaminants from the surfaces of materials. Types of solvent cleaning machines include, but are not limited to, batch cold, batch vapor, in-line cold, in-line vapor, remote reservoir, and gas-path solvent cleaners, as defined in Rule 321. Buckets, pails, and beakers with capacities of 3.785 liters (1.00 gallon) or less are not considered solvent cleaning machines. However, the use of such a container or similar containers (e.g., hand-held spray bottles) with a solvent for cleaning is considered to be solvent cleaning. Any device or piece of equipment used exclusively for stripping shall not be considered to be a solvent cleaning machine. [*Link to Note No. 10*]

[. . .]

"Stripping" means the use of solvent to remove materials such as cured adhesives, cured inks, cured or dried paints, cured or dried paint residues, or temporary protective coatings.

"Surface Preparation" means the removal of contaminants such as dust, soil, oil, grease, moisture, etc., prior to application of an adhesive, coating, ink, polyester resin material, or sealant. [*Link to Note No.11*]

[. . .]

"Wipe Cleaning" means a solvent cleaning activity performed by hand rubbing an absorbent material such as a rag, paper, sponge, brush, or cotton swab containing solvent. [*Link to Note No. 12*]

[. . .]

NOTE No.	DEFINITION	NOTE	LINK TO RETURN TO PAR 102[a]
1	Not applicable	In general, the new Rule 102 definitions appear in Rule 202 (Exemptions) and/or the proposed amended Rule (PAR) 321. The District modeled the new definitions on those found in other California air districts or in federal law (40CFR, Part 63, Subpart T).	Click here.
2	Application Equipment	This term is in the proposed amended Rule 321 and it is found in several current rules. The definition is the same one used in the South Coast AQMD (SC) Rule 1171, except staff added "sealant" and "solvent" to be general.	Click here.
3	Degreaser	Although the term "degreaser" is being eliminated in the PAR 321 (with one exception), inclusion of a "degreaser" definition in Rule 102 is intended to inform and clarify that a "degreaser" is a "solvent cleaning machine." (The PAR 321 definition of batch cleaning machine is the only place in the rule that the term "degreaser" appears.)	Click here.
4	Flexographic Printing	This definition should be in Rule 102 for rule clarity because the Rule 202.S.1 exemption uses this term.	Click here.
5	Reactive Organic Compound	Consistent with 40CFR 51.100, tertiary butyl acetate (tBAc) is not considered to be a reactive organic compound for purposes of ROC emission limits or ROC content requirements. However, tBAc is considered to be an ROC for purposes of all recordkeeping, emissions reporting, photochemical dispersion modeling and inventory requirements which apply to ROC.	Click here.
6	Reactive Organic Compound	The District is relocating the chemical "trifluoromethane (HFC-23)" from Group 3 to Group 4 because it is a hydrofluorocarbon and should be listed with the other hydrofluorocarbons.	Click here.
7	Rotogravure Printing	This definition is the same one found in Rule 354. The Rule 202.S.1 exemption refers to this type of process. Thus, for rule clarity, the District is adding the definition to Rule 102.	Click here.

[a] When using a computer to view this material, you may return to the PAR 102 text by clicking the "here" link in the table using the left mouse button.

NOTE No.	DEFINITION	NOTE	LINK TO RETURN TO PAR 102[a]
8	Solvent	This new solvent definition is needed in Rule 102 because the term is used in several newly proposed Rule 102 definitions, the Rule 202.U exemption, and many of the coating rules. Staff modeled the definition on the SJV Rule 4663, Section 3.28 definition. The proposed solvent definition differs from the SJV Rule 4663 definition in that it includes "any liquid that contains any toxic air contaminant." By including toxic air contaminants (TACs), the scope of the Rule 321 provisions will be expanded to include and regulate other air contaminants of concern. Compounds regulated by the SC Rule 1171 include TACs. It is not the APCD's intent to include TACs in the "organic solvents" definition or modify the meaning of that definition in any way through this addition of the term "solvent" to Rule 102.	Click here.
9	Solvent Cleaning	A clear delineation of what constitutes solvent cleaning and use of a solvent cleaning machine is needed to establish rule applicability and requirements. The APCD modeled this definition on the organic solvent cleaning definition used by the San Joaquin Valley Unified Air Pollution Control District (SJV) in their Rule 4663, Organic Solvent Cleaning, Storage, and Disposal.	Click here.
10	Solvent Cleaning Machine	This definition is modeled on the definition in 40 CFR §46.461. The APCD is making the cutoff to be 1 gallon capacity instead of the 40 CFR §46.461 2 gallons capacity because existing Rule 321.B.2.a has a 1 gallon cutoff. Also, the Ventura County APCD (VC) Rule 74.6.B.2.b has a one gallon cutoff whereas a solvent cleaning machine must be used if the solvent container is greater than one gallon. The *solvent cleaning machine* definition is needed in Rule 102 because the term is used in the "degreaser" and "solvent cleaning" definitions.	Click here.
11	Surface Preparation	This term and definition are modeled on provisions from SC Rule 1171. The term will be used in the ROC limit tables in the rules being modified to add new solvent cleaning provisions. Staff added the term "moisture" in the list of contaminants because the 40 CFR §64.460 et seq. requirements for halogenated solvent cleaning also include drying provisions.	Click here.
12	Wipe Cleaning	This definition is the same one found in the SJV Rule 4663.	Click here.

Click here to return to the list of Appendices in the Background Paper.

Appendix D
Santa Barbara County
Annotated Proposed Amended Rule 202, Exemptions to Rule 201

RULE 202. EXEMPTIONS TO RULE 201. (Adopted 10/18/1971, revised 5/1/1972 and 6/27/1977, readopted 10/23/1978, revised 12/7/1987, 1/11/1988, 1/17/1989, 7/10/1990, 7/30/1991, 11/05/1991, 3/10/1992, 5/10/1994, 6/28/1994, 4/17/1997, 3/17/2005, 1/17/2008, ~~and~~ 6/19/2008, and [*date of revised rule adoption*])

[. . .]

D. General Provisions

[. . .]

5. Temporary Equipment

[. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [*Link to Note No. 1*] [a]

[. . .]

7. Stationary Source Permit Exemption

[. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees.

[. . .]

E. Compliance with Rule Changes

[. . .]

If no application is filed within the ninety (90) day period, the application filing fee prescribed in Rule 210, Fees, shall be doubled and the equipment owner shall be subject to a Notice of Violation and to the penalty provisions set forth in California Health and Safety Code Sections 42400 et seq.

[. . .]

F. Internal Combustion Engines

[. . .]

5. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

7. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

8. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

[a] Notes concerning the proposed amended Rule 202 are within a table starting on Page D-4. When using a computer to view this material, use a link to get to a note by clicking the left-mouse button.

I. Coatings Applications Equipment and Operations

The following listed coating applications equipment and operations ~~is~~ are exempt from permit requirements. [. . .]

3. Equipment used in surface coating operations provided that the total amount of coatings and solvents used does not exceed 55 gallons per year. [. . .] Cleaning agents meeting the criteria of Section U.2.b or Section U.2.c or that have a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Reference Method 24, do not contribute to the 55 gallons per year per stationary source limitation. [. . .] [*Link to Note No. 2*]

6. Unheated non-conveyorized coating dip tanks of 100 gallons or less capacity. [*Link to Note No. 3*]

[. . .]

K. Food Processing and Preparation Equipment

[. . .]

7. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees.

[. . .]

P. Miscellaneous Equipment and Operations

[. . .]

14. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

U. Solvent Application Equipment and Operations

The following solvent ~~application equipment~~ cleaning machines and their operations and solvent cleaning ~~is~~ are exempt from permit requirements. Notwithstanding the listed exemptions, any collection of articles, machines, equipment or other contrivances within each listed equipment category at a stationary source that has aggregate emissions in excess of 10 tons per calendar year of any affected pollutant is not exempt.

1. ~~Unheated solvent dispensing containers, unheated non-conveyorized~~ Unheated nonconveyorized solvent rinsing containers ~~or unheated non-conveyorized coating dip tanks~~ of 1,00 gallon~~s~~ or less capacity, provided that solvent cleaning performed in association with such containers complies with the requirements in Rule 321, Solvent Cleaning Machines and Solvent Cleaning.~~; this exemption shall not apply to degreasing equipment regulated under the provisions of Rule 321.~~ [*Link to Note No. 4*]

2. Single ~~pieces of degreasing equipment~~solvent cleaning machines, which use unheated solvent, and which:

   a. have a liquid surface area of less than 929 square centimeters (1.0 square foot), unless the aggregate liquid surface area of all ~~degreasers~~ solvent cleaning machines at a stationary source, covered by this exemption is greater than 0.929 square meter (10 square feet), or

b. use only ~~organic~~ solvents with an initial boiling point of 150 degrees Celsius (302 degrees Fahrenheit) or greater as determined by ASTM D-1078-~~86~~05, "Standard Test Method for Distillation Range of Volatile Organic Liquids," ASTM International, or

c. use ~~materials~~ cleaning agents with a ~~volatile~~ reactive organic compound content of two percent or less by weight as determined by ~~EPA~~ Environmental Protection Agency Method 24.

d. ~~materials~~ cleaning agents exempt pursuant to subsections b. and c. above or that have a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Reference Method 24, do not contribute to the 0.929 square meter (10 square feet) limitation in subsection a. [*Link to Note No. 5*]

3. ~~Equipment used in wipe~~ Wipe cleaning operations, provided that the solvents used do not exceed 55 gallons per year per stationary source and that the solvent cleaning complies with the requirements in Rule 321, Solvent Cleaning Machines and Solvent Cleaning. [*Link to Note No. 6*]

To qualify for this exemption, the owner or operator shall maintain records of the amount (gallons per year) of solvents used for wipe cleaning at the stationary source for each calendar year.

These records shall be maintained on site for at least 3 years and be made available to the District on request. Thereafter, the records shall be maintained either on site or readily available for expeditious inspection and review for an additional 2 years. ~~Solvents~~ Cleaning agents meeting the criteria of 2.b. or c. above or that have a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Reference Method 24, do not contribute to the 55 gallons per year per stationary source limitation. [*Link to Note No. 7*]

4. Solvent cleaning to disinfect and decontaminate surfaces and equipment in hospitals, clinics, medical facilities, dentistry facilities, and other health care facilities, including but not limited to, sanatoriums, convalescent hospitals, convalescent homes, skilled nursing facilities, nursing homes, blood banks, and blood mobiles. [*Link to Note No.8*]

5. Solvent cleaning associated with janitorial cleaning, including graffiti removal. [*Link to Note No. 9*]

[. . .]

NOTE No.	SECTION IN RULE 202	PROPOSED AMENDED RULE (PAR) 202 NOTES	LINK TO RETURN TO PAR 102[a]
1	D.5	Based on a comment from EPA, the District is adding the Rule 210 title in this section and all other sections where it is referenced in Rule 202.	Click here.
2	I.3	The new text is proposed to make the solvent exemption component of Section I.3 consistent with the Section U.3 provisions.	Click here.
3	I.6	This exemption is currently located in Rule 202, Section U.1. The Section U title is, "Solvent Application Equipment and Operations." The District is moving this provision to Section I because it is relative to coating dip tanks.	Click here.
4	U.1	The District is deleting the *unheated solvent dispensing containers* exemption text from this section. Rule 202 Section V, Storage and Transfer Equipment and Operations, Sections V.1 and/or V.4 provide exemptions for such solvent storage containers and transfer equipment. On the exemption for unheated nonconveyorized solvent rinsing containers, the District is changing the exemption applicability threshold from 100 gallons capacity to one gallon capacity. This provides consistency with the definitions of *solvent cleaning* and *solvent cleaning machines* and the proposed revised Rule 321 provisions.	Click here.
5	U.2.d	The APCD added the exclusionary text for units using a low-ROC solvent to clarify that it is not the District's intent to require permits for such operations.	Click here.
6	U.3	Rule 321 provisions apply regardless of the operation being permit exempt. One of the major changes to Rule 321 is that the wipe exemption is being removed. Thus, facilities performing wipe cleaning not otherwise exempt from Rule 321 will need to comply with the requirements (e.g., the Section D, good housekeeping practices). For rule clarity, the APCD is adding text, which makes Rule 202.U.3 applicable only for sources using 55 gallons per year of solvent for wipe cleaning and that comply with Rule 321. Sources subject to the Rule 202.U.3 exemption will also be eligible for the Rule 321.B.15 exemption. This is a partial Rule 321 exemption and allows use of solvents that do not comply with the Section M.1 solvent requirements (Table 1 ROC limits). Any person claiming the Rule 321.B.15 exemption will need to keep monthly and calendar year total records per the provisions in Rule 321 Section R.2.	Click here.
7	U.3	The APCD added the exclusionary text for units using a low-ROC solvent to clarify that it is not the District's intent to require permits for such operations.	Click here.
8	U.4	The District is adding this exemption for rule clarity based on requests from industry.	Click here.
9	U.5	Same as above.	Click here.

Click here to return to the list of Appendices in the Background Paper.

[a] When using a computer to view this material, you may return to the PAR 102 text by clicking the "here" link in the table using the left mouse button.

Appendix E
Santa Barbara County
Summary of Significant Changes to Rule 321, Solvent Cleaning Machines and Solvent Cleaning

Solvent ROC Content Limits

The proposed amended Rule (PAR) 321, Sections H.7, I.7, K.6, and M.1 will limit the solvent ROC content. Solvents used in the following devices and processes shall be limited to 50 grams per liter of material:

1. Remote reservoir cold cleaning machines.
2. Batch and in-line cold cleaning machines.
3. General product cleaning and surface preparation for coating application.
4. General repair cleaning and maintenance cleaning.

PAR 321.M.1 includes solvent ROC content limits higher than the 50 grams per liter limit for specialized solvent cleaning categories:

Grams/Liter	Solvent Cleaning Category
	(a) Product Cleaning During Manufacturing Processes and Surface Preparation for Coating Application:
900	1) Electrical Apparatus Components & Electronic Components
	2) Medical Devices & Pharmaceuticals
	(b) Repair Cleaning and Maintenance Cleaning:
900	1) Electrical Apparatus Components & Electronic Components
	2) Medical Devices & Pharmaceuticals (tools, equipment, machinery, and general work surfaces)
950	**(c)** Cleaning of Coatings Application Equipment
900	**(d)** Cleaning of Space Vehicles, Space Vehicle Components, Satellites, Satellite Components, and Cleaning of Space Vehicle and Satellite Fuel and Oxidizer Transfer Lines

Other Rule 321 Revisions

321.A – APPLICABILITY. The revised rule is being expanded to include solvent cleaning (e.g., wipe cleaning, spray gun cleaning).

321.B – EXEMPTIONS. The APCD is proposing revisions to several exemption provisions. The significant changes are itemized in the following.

1. The "reactive organic compound" text in 321.B.1 is being replaced with the word "solvent," which will include toxic air contaminants per the Rule 102 newly added definition of "solvent." Also, the APCD is adding recordkeeping provisions to facilitate verification of exemption claims.

2. For consistency with the revised applicability provision and the new solvent cleaning requirements, the 1 gallon volume and 1 square foot surface area exemptions in Sections B.2.a and b are being removed.

3. The APCD proposes to eliminate the exemptions for wipe cleaning, spray gun cleaning, and enclosed small cold cleaners (current Rule 321.B.4.a, 321.B.4.d, and 321.B.4.f). The PAR 321 includes provisions that are applicable to these processes and devices.

4. The District has added several exemptions that are similar to those found in the San Joaquin Valley Unified APCD, the South Coast AQMD, and the Ventura County APCD solvent rules.

321.C – DEFINITIONS. The APCD proposes new and revised definitions to provide clarity to the rule exemptions and rule requirements. Appendix F (annotated PAR 321) provides information on many of the new definitions in Rule 321.

321.D – GENERAL OPERATING REQUIREMENTS. Most of the changes to these provisions clarify the good housekeeping, maintenance, and operating requirements.

321.E, J, AND L – VAPOR CLEANING MACHINE REQUIREMENTS. For vapor cleaning machines, the PAR 321 provisions require several new and revised requirements related to solvent pumps, heating controls, air blankets, safety devices, and other emission reduction techniques:

- The proper use of superheated vapor zones (E.9),

- Idling and downtime mode covers (J.2 & L.3),

- The condenser flow switch is to automatically shut off the sump heat if the condenser coolant stops circulating or becomes warmer that its designed operating temperature (J.4 & L.5),

- Clarification that the vapor level control device is to automatically shut off the sump heat if the vapor level rises above the height of the primary condenser (J.5 & L.6),

- For units with solvent flow, clarification that a device (e.g., a spray pump control switch) is required to prevent the solvent flow pump operation unless the solvent vapor level is at the designed operating level (J.6 & L.7),

- A device that automatically turns off the sump heat if the sump heater coils are not submerged in the liquid solvent (J.7 & L.8), and

- The following provisions (effective one year after the rule revision):

  - A freeboard ratio of 1.0 (J.8 & L.9),
  - For a batch vapor cleaning machine, an automatic parts handling system (J.11.a),[a]
  - Circumferential trough and water separator (J.11.b, J.11.c, L.11.a, & L.11.b),[a] and
  - A freeboard refrigeration device and a superheated vapor zone that meets the rule requirements (J.11.d, J.11.e, L.11.c, & L.11.d).[a]

321.M – SOLVENT CLEANING. This is an entirely new section. In addition to limiting the solvent ROC content (as discussed on page E-1):

- Section M.2 specifies appropriate cleaning devices and methods.
- Section M.3 requires the use of an enclosed system (or equivalent).[a]

321.N – EMISSION CONTROL SYSTEM REQUIREMENTS. The two significant changes in this section are the addition of Sections N.5 & N.6. Section N.5 establishes a deadline for performing an initial source test on the emission control system. And, Section N.6 requires that emissions from an emission control system not be in excess of the emissions otherwise expected when complying with the solvent ROC-limits.

[a]Applicable when using a solvent with an ROC content in excess of 50 grams per liter.

321.O – ALTERNATIVE OPERATING AND EQUIPMENT REQUIREMENTS FOR AN AIRLESS OR AIR-TIGHT SOLVENT CLEANING MACHINE. Air-tight and airless cleaning systems are state-of-the-art machines that have extremely low emissions. Allowing use of such systems in lieu of meeting other rule provisions is consistent with how the SJV and SC rules are written.

321.R – RECORDKEEPING REQUIREMENTS. The revised recordkeeping provisions:

- Are being expanded to apply to all solvent cleaning machines and solvent cleaning (irrespective of being subject to permits).
- Require monthly records on the assessment of the amount of solvents used and their respective ROC content.
- For solvent cleaning, require records on the type of cleaning activity by the cleaning categories in Table 1.
- For solvent cleaning machines, require records on the type of solvent cleaning machine, type solvent, ROC content, and solvent's initial boiling point.
- For an emission control system daily records on the key operating parameters.
- For Sections B.9 or B.15 exemption claims, maintain appropriate records on the solvent usage.
- Eliminate the existing Section P.2 recordkeeping provision for the "small surface area" exemption (current Section B.2.b), which is proposed for deletion.

321.S – REPORTING. The reporting requirements are being expanded to include solvent cleaning subject to a Permit, monthly/annual solvent usage data, PTO #, and name and address of Permit holder.

321.T – COMPLIANCE SCHEDULE. New solvent cleaning operations and new solvent cleaning machines are to comply with the Rule 321 requirements the first time they are performed/operated in the District.

Rule 102, Rule 202, and/or Rule 321 revisions will result in:

- Existing applicable solvent cleaning operations will become subject to Rule 321 for the first time, and

- Some existing solvent cleaning machines may become subject to Rule 321 for the first time.

In such cases, Section T provides the owners/operators one month to comply with the applicable operating requirements, six months to

comply with the applicable recordkeeping and reporting requirements, and one year to comply with the equipment requirements and the solvent ROC limits.

Table 1 summarizes provisions in Sections H.7, I.7, J.8, J.11, K.6, L.9, L.11, and M that will have an effective date one year after the adoption of the revised rules. Table 2 provides a quick reference list of significant new and revised requirements in proposed amended Rule 321. Table 3 shows the effective dates for the new and revised Rule 321 requirements.

Table 1. REQUIREMENTS THAT BECOME EFFECTIVE ONE YEAR FROM THE DATE OF ADOPTION OF THE REVISED RULE 321, SOLVENT CLEANING MACHINES AND SOLVENT CLEANING

SECTION	PROVISION
H.7	Solvents used in remote reservoir cold cleaning machines shall have an ROC content of 50 grams per liter or less (unless exempt by Section B.8).
I.7	Solvents used in batch cold cleaning machines shall have an ROC content of 50 grams per liter or less (unless exempt by Section B.8).
J.8	The freeboard ratio for batch vapor cleaning machines shall be 1.0 or greater.
J.11	Batch vapor cleaning machines using solvents with an ROC content in excess of 50 g/l shall be equipped with all of the following (unless exempt by Sections B.18 or B.20): a. An automated parts handling system; b. A circumferential trough; c. A water separator (not required for solvents that form azeotropes with water); d. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and e. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.
K.6	Solvents used in in-line cold cleaning machines shall have an ROC content of 50 grams per liter or less (unless exempt by Section B.8).
L.9	The freeboard ratio for in-line vapor cleaning machines shall be 1.0 or greater. (An alternative that complies with L.10 may be used.)
L.11	In-line vapor cleaning machines using solvents with an ROC content of 50 g/l or greater shall be equipped with all of the following: a. An automated parts handling system; b. A circumferential trough; c. A water separator (not required for solvents that form azeotropes with water); d. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and e. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.
M.1	Except as provided in Section N, no person shall use a solvent to perform solvent cleaning which exceeds the ROC content limit specified in Table 1 (unless exempt by Sections B.8, B.9, B.10, B.15, or B.16).
M.2	Any person performing solvent cleaning shall use one or more of the devices or methods specified in M.2.
M.3	Any person performing solvent cleaning of application equipment shall use a cleaning material that has an ROC content of 50 grams/liter or less or shall use an enclosed cleaning system.

Note: Although effective upon adoption of the revised rule, the Section N.5 requirement to perform an initial source test on an emission control system has a one-year deadline (or later deadline as established by an Authority to Construct).

Table 2. QUICK-REFERENCE LIST OF SIGNIFICANT NEW AND REVISED REQUIREMENTS IN PROPOSED AMENDED RULE 321

SECTION(S)	AFFECTED EQUIPMENT OR SOLVENT CLEANING CATEGORIES	REQUIREMENT
H.7, I.7, K.6, & M.1	1) Cold Solvent Cleaning Machines: Remote Reservoir, Batch, and In-Line 2) Some Solvent Cleaning Categories as Specified in the Section M.1, Table 1	Solvent limit of 50 grams of ROC per liter
M.1	Some Solvent Cleaning Categories as Specified in the Section M.1, Table 1	Solvent limit of 900 or 950 grams of ROC per liter
J.8 & L.9	Vapor Cleaning Machines (Batch & In-Line)	Freeboard Ratio of 1.0 or Greater
J.4 – J.7 & L.5 – L.8	Vapor Cleaning Machines (Batch & In-Line)	1) Spray Pump Control Switch and 2) Automatic Sump Heat Shut Off for: a) Condenser Flow Too Hot or Not Circulating, b) Vapor Level Too High, and c) Sump Heater Coils Not Being Submerged in the Liquid Solvent
J.11 & L.11	Vapor Cleaning Machines (Batch & In-Line) that use Solvents with an ROC Content in Excess of 50 Grams per Liter	1) Automatic Parts Handling System,[a] 2) Circumferential Troughs, 3) Water Separators, 4) Freeboard Refrigeration Device, and 5) Superheated Vapor Zone
M.2	Cleaning Devices and Methods	Sanctioned cleaning methods and devices (e.g., wipe cleaning; hand-held spray bottles; solvent flow, dip, or flush methods) used in acceptable ways
M.3	Solvent Cleaning of Application Equipment	The cleaning material is to contain ≤ 50 grams of ROC/liter. Alternatively, if a solvent with a higher ROC content is employed, the process shall use an enclosed system (or an APCO-approved alternative)

[a] The requirement to install an automatic parts handling system probably does not apply to an in-line vapor cleaning machine as such a unit is already so equipped.

Table 3. EFFECTIVE DATES FOR THE NEW AND REVISED RULE 321 REQUIREMENTS

	Solvent limit of 50 Grams of ROC per Liter (H.7, I.7, K.6 and M.1)	Solvent limit of 900 or 950 Grams of ROC per Liter (M.1)	Solvents with ≤ 2% ROC are not exempt if containing a TAC (B.1)	Daily Records for the Exemptions in Rule 321.B.9 and B.15 (R.2)	General Operating Requirements (D)	Use of Idling and Downtime Mode Covers for Vapor Cleaning Machines (E.1, J.2, & L.3)	Allow the Solvent Vapor Layer to Collapse Before Turning Off the Primary Condenser (E.3)	Proper Use of Superheated Vapor Zones (E.9)	Gas-Path Cleaners with a Solvent > 50 gr/l, Spent Solvent is to be Collected (G.3)	Rolling Motion Only (No Splashing) When Using a Pump-Agitated Bath (G.5)	Use of a Downtime Mode Covers for Cold Cleaning Machines (I.1 & K.3)	Vapor Cleaning Machine Control Switches and Safety Devices (J.4 – J.7 & L.5 – L.8)[a]	Freeboard Ratio of 1.0 or Greater on Vapor Cleaning Mach's (J.8 & L.9)	Minimize Passages on In-Line Cleaning Machines (K.2 & L.2)	Enhanced Vapor Cleaning Machine Controls (J.11 & L.11)[b]	Cleaning Devices & Methods (M.2)	Solvent Cleaning of Application Equipment (M.3)	New Requirements When Using An Emission Control Device (N.5 & 6)	Requirements for Airless and Air-Tight Solvent Cleaning Machines (O)	Monthly Recordkeeping & Annual Reporting Requirements (R & S)
EFFECTIVE																				
Upon Adoption[c]			X		X	X	X	X	X	X	X	X		X				X	X	X
One Year After Adoption	X	X		X									X		X	X	X			
EQUIPMENT IMPACTED																				
Exempt Aerosol Product Use or Exempt Wipe Cleaning (Limited Exemptions)				X																
Batch Cold Cleaning Machines	X	X	X		X					X	X[d]							X		X
In-Line Cold Cleaning Machines	X	X	X		X					X	X			X				X		X
Batch Vapor and In-Line Vapor Cleaning Machines			X		X	X	X	X		X		X	X	X[e]	X			X		X
Remote Reservoir Cleaning Machines	X	X	X		X													X		X

[a] Includes spray pump control switch and automatic sump heat shut off for 1) condenser flow too hot or not circulating, 2) vapor level too high, and 3) sump heater coils not being submerged in the liquid solvent.
[b] Enhanced vapor solvent cleaning controls require use of an automated parts handling system, circumferential trough, water separator, freeboard refrigeration device, and superheated vapor zone. These enhanced controls are required when the solvent contains in excess of 50 grams per liter. An exemption in Section B may apply to these requirements.
[c] Rule 321.T, Compliance Schedule, provides compliance periods for existing solvent cleaning operations and existing solvent cleaning machines that become subject to Rule 321 due to a Rule 102, Rule 202, and/or Rule 321 revision. In general, the owners/operators of such equipment will have one month to comply with the applicable operating requirements, six months to comply with the applicable recordkeeping and reporting requirements, and one year to comply with the equipment requirements and the solvent limits in Table 1. New solvent cleaning operations and new solvent cleaning machines are to comply with the Rule 321 requirements the first time they are performed/operated in the District.
[d] Required when using a high volatility solvent.
[e] Applicable to in-line vapor cleaning machines (not batch vapor cleaning machines).

	Solvent limit of 50 Grams of ROC per Liter (H.7, I.7, K.6 and M.1)	Solvent limit of 900 or 950 Grams of ROC per Liter (M.1)	Solvents with ≤ 2% ROC are not exempt if containing a TAC (B.1)	Daily Records for the Exemptions in Rule 321.B.9 and B.15 (R.2)	General Operating Requirements (D)	Use of Idling and Downtime Mode Covers for Vapor Cleaning Machines (E.1, J.2, & L.3)	Allow the Solvent Vapor Layer to Collapse Before Turning Off the Primary Condenser (E.3)	Proper Use of Superheated Vapor Zones (E.9)	Gas-Path Cleaners with a Solvent > 50 gr/l, Spent Solvent is to be Collected (G.3)	Rolling Motion Only (No Splashing) When Using a Pump-Agitated Bath (G.5)	Use of a Downtime Mode Covers for Cold Cleaning Machines (I.1 & K.3)	Vapor Cleaning Machine Control Switches and Safety Devices (J.4 – J.7 & L.5 – L.8)[a]	Freeboard Ratio of 1.0 or Greater on Vapor Cleaning Mach's (J.8 & L.9)	Minimize Passages on In-Line Cleaning Machines (K.2 & L.2)	Enhanced Vapor Cleaning Machine Controls (J.11 & L.11)[b]	Cleaning Devices & Methods (M.2)	Solvent Cleaning of Application Equipment (M.3)	New Requirements When Using An Emission Control Device (N.5 & 6)	Requirements for Airless and Air-Tight Solvent Cleaning Machines (O)	Monthly Recordkeeping & Annual Reporting Requirements (R & S)
EFFECTIVE																				
Upon Adoption[c]			X		X	X	X	X	X	X	X	X		X				X	X	X
One Year After Adoption	X	X		X									X		X	X	X			
EQUIPMENT IMPACTED																				
Gas-Path Solvent Cleaners			X		X				X											X
Solvent Cleaning (Performed Outside of a Solvent Cleaning Machine)	X	X	X		X[c]											X	X	X[c]		X[c]
Airless Solvent Cleaners and Air-Tight Solvent Cleaners			X		X														X	X

Footnotes appear on the previous page.

Click here to return to the list of Appendices in the Background Paper.

Appendix F
Santa Barbara County
Annotated Proposed Amended Rule 321, Solvent Cleaning Machines and Solvent Cleaning

Table of Contents

Section and Title **Page No.**

RULE 321. SOLVENT CLEANING MACHINES ~~OPERATIONS~~ AND SOLVENT CLEANING. (Adopted 2/24/1975, readopted 10/23/1978, revised 6/11/1979, 7/10/1990, 4/17/1997, 7/17/1997, ~~and~~ 9/18/1997, and [*date of revised rule adoption*]) [*Link to Note No. 1*] [a]

A. Applicability

This ~~Rule~~ rule shall apply to any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning operation outside of a solvent cleaning machine ~~operations~~during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at any stationary source. [*Link to Note No. 2*]

B. Exemptions

Except as otherwise specifically provided herein, the provisions of this rule shall not apply to the following:

1. Any ~~S~~solvent cleaning machine using and any solvent cleaning performed with ~~operations using solvent~~ a cleaning agent (including emulsions) that contains two percent or less of ~~reactive organic compounds~~ solvent by weight (as determined by EPA method 24). ~~shall not be subject to the requirements of this Rule.~~ Any person claiming this exemption shall maintain the records specified in Sections R.1.a.1) and R.1.a.2) in a manner consistent with Section R.3 and make them available for review. [*Link to Note No. 3*]

~~2. Except for the Rule 321 Section G.2 requirement that the cleaner be covered when work is not being processed (use of covers are not required for remote reservoir cold cleaners using low volatility solvents), the provisions of this Rule shall not apply to an unheated solvent cleaner that:~~

~~a. has a capacity of 3.785 liters (1 gallon) or less, or~~

~~b. has an evaporative surface area of less than 929 square centimeters (1 square foot). However, if the aggregate evaporative surface area of all such solvent cleaners at a stationary source is greater than 0.929 square meters (10 square feet), none of the cleaners are exempt.~~ [*Link to Note No.4*]

~~3~~2. ~~The provisions of Rule 321 Section J.7 shall not apply to open-top vapor solvent cleaners with less than 1 square meter (10.8 square feet) of evaporative surface area.~~ The cleaning of architectural coating application equipment provided that the solvent used does not exceed 950 grams of reactive organic compound per liter of material. [*Link to Note No.5*]

~~4. The provisions of this Rule shall not apply to:~~

~~a. wipe cleaning,~~ [*Link to Note No.6*]

3.~~b.~~ ~~d~~Dry cleaning operations of clothing or other fabrics covered under Rule 320, Petroleum Solvent Dry Cleaners, or ~~17~~ California Code of Regulations Title 17, Section 93109, ~~Perchloroethylene~~ Airborne Toxic Control Measure ~~—~~ for Emissions of Perchloroethylene from Dry Cleaning and Water-Repelling Operations~~,~~. [*Link to Note No.7*]

4. ~~c. s~~Stripping of cured coatings ~~(e.g., stripping)~~, cured adhesives, ~~(e.g., debonding, unglueing)~~ and cured inks, except the stripping of such materials from spray application equipment. [*Link to Note No.8*]

~~d. spray gun cleaning operations,~~ [*Link to Note No.9*]

[a] Notes concerning the proposed new and revised Rule 321 provisions are within a table starting on Page F-29. When using a computer to view this material, use a link to get to a note by clicking the left-mouse button over the "*Link to Note No.*" text.

5. ~~e.~~ Notwithstanding Section B.1, any ~~batch vapor, in-line vapor, in-line cold, and batch cold~~ solvent cleaning machine~~s~~ that uses any halogenated hazardous air pollutant solvent ~~containing methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, or chloroform, or any combination of these halogenated hazardous air pollutants solvents, in a total concentration greater than 5 percent by weight, as a cleaning and/or drying agent,~~ provided such a solvent cleaning machine~~s are~~ is subject to 40 CFR, Part 63, Subpart T, National Emission Standards for ~~Hazardous Air Pollutants:~~ Halogenated Solvent Cleaning~~,~~ (Sections 63.460 et. seq.) ~~or~~. [*Link to Note No.10*] [*Link to Note No.11*]

~~f. cold solvent degreasers of 37.854 liters (10 gallons) or less in capacity, provided the degreasers are designed to operate in a closed system fashion (i.e., sealed when operated) and agitated through pump recirculation, mechanical mixing (a mixer), or with ultrasonics. Gas or air agitation shall not be used.~~ [*Link to Note No.12*]

6. Any equipment or operation that is subject to or specifically exempted by any of the following District rules.

   a. Rule 325, Crude Oil Production and Separation.

   b. Rule 326, Storage of Reactive Organic Compound Liquids.

   c. Rule 330, Surface Coating of Metal Parts and Products.

   d. Rule 337, Surface Coating of Aircraft or Aerospace Vehicle Parts and Products.

   e. Rule 339, Motor Vehicle and Mobile Equipment Coating Operations.

   f. Rule 343, Petroleum Storage Tank Degassing.

   g. Rule 344, Petroleum Sumps, Pits and Well Cellars.

   h. Rule 349, Polyester Resin Operations.

   i. Rule 351, Surface Coating of Wood Products.

   j. Rule 353, Adhesives and Sealants.

   k. Rule 354, Graphic Arts. [*Link to Note No.13*]

7. Janitorial cleaning, including graffiti removal. [*Link to Note No.14*]

8. Provisions of Sections H.7, I.7, K.6, and, M.1 shall not apply to the following:

   a. Cleaning of solar cells, laser hardware, scientific instruments, high-precision optics, and aerospace and military fluid systems.

   b. Cleaning in laboratory tests and analyses, including quality assurance and quality control applications, or bench scale or short-term (less than 2 years) research and development projects. [*Link to Note No.15*]

   c. Cleaning of cotton swabs to remove cottonseed oil before cleaning of high-precision optics.

In addition, the provisions of Sections H.7, I.7, and K.6 shall not apply to solvent cleaning machines employed with solvents having 900 grams of reactive organic compound per liter of

material or less used in the manufacturing, repairing, or maintenance of electrical apparatus components, electronic components, satellites, aerospace vehicles, aerospace vehicle components, or medical devices. [*Link to Note No.16*]

9. Solvent cleaning with aerosol products shall not be subject to Section D.9 and Section M.1 provisions and the Section M.2.c prohibition on solvent atomization, provided:

   a. 160 fluid ounces or less of aerosol products are used per day, per stationary source, and

   b. Records are maintained as specified in Sections R.2 and R.3, and

   c. The use of aerosol products complies with Air Resources Board requirements. [*Link to Note No.17*]

10. Provisions of Section M.1, Table 1, Solvent Cleaning Activity (c) shall not apply to the cleaning of application equipment when such equipment is used to apply a coating on a satellite or when applying a radiation-effect coating. [*Link to Note No.18*]

11. Section D.9 and M.2.c prohibitions on solvent atomization shall not apply to the following applications:

   a. Cleaning of the nozzle tips of automated spray equipment systems, except for robotic systems.

   b. Cleaning with hand-held spray bottles, squirt bottles, and other closed containers having a capacity of one liter or less.

   c. Cleaning of gas turbines or jet engines using a gas-path solvent cleaner. [*Link to Note No.19*]

12. De-icing of aircraft and aerospace vehicles. [*Link to Note No.20*]

13. Solvent cleaning with a solvent containing 50 grams of reactive organic compounds per liter of material or less shall not be subject to the Section D.9 provision. [*Link to Note No.21*]

14. Solvent cleaning to disinfect and decontaminate surfaces and equipment in hospitals, clinics, medical facilities, dental care facilities, and other health care facilities, including but not limited to, sanatoriums, convalescent hospitals, convalescent homes, skilled nursing facilities, nursing homes, blood banks, and bloodmobiles. [*Link to Note No.22*]

15. Provisions of Section M.1 shall not apply if the net aggregate amount of solvent used for all solvent cleaning subject to Rule 321 (i.e., subject to Sections D, M.2, and/or M.3 provisions) at a stationary source does not exceed 55 gallons per year. Solvents with a reactive organic compound content of 50 grams per liter of material or less do not count towards the exemption nonapplicability threshold limit. Any person claiming this exemption shall maintain records as specified in Sections R.2 and R.3. [*Link to Note No.23*]

16. Provisions of Section M.1 shall not apply to the following applications:

   a. Cleaning of ultraviolet lamps used to cure ultraviolet inks coatings, adhesives, or resins.

   b. Cleaning of mold release compounds from molds.

   c. Cleaning of aerospace assembly and subassembly surfaces that are exposed to strong oxidizers or reducers such as nitrogen tetroxiode, liquid oxygen, or hydrazine.

d. Cleaning of paper gaskets.

e. Cleaning of clutch assemblies where rubber is bonded to metal by means of an adhesive.

f. Cleaning of hydraulic actuating fluid from filters and filter housings. [*Link to Note No.24*]

g. Wipe cleaning to remove crude oil and crude oil residue from well workover, drilling operations, and other activities related to petroleum production and processing on offshore platforms, provided the solvent reactive organic compound content does not exceed 800 grams per liter of material and the reactive organic compound composite partial pressure is no more than 8 millimeters of mercury at 20 degrees Celsius. [*Link to Note No.25*]

17. Provisions of Sections H.7, I.7, and K.6 shall not apply to the following applications, provided the solvent reactive organic compound content does not exceed 900 grams per liter of material and the reactive organic compound composite partial pressure is no more than 5 millimeters of mercury at 20 degrees Celsius:

a. Manufacturing cleaning of nuts and bolts designed for automotive racing applications.

b. Cleaning of precision–lapped mechanical seals in pumps that handle liquefied gasses. [*Link to Note No.26*]

18. Provisions of Sections J.11.a, d, and e shall not apply to batch vapor cleaning machines with a solvent/air interface area less than 929 square centimeters (1 square foot) or a solvent capacity less than 2 gallons, provided all such solvent cleaning machines emit, in aggregate, less than 55 pounds of reactive organic compounds per month per stationary source. Any person claiming this exemption shall maintain records as specified in Sections R.1 and R.3. [*Link to Note No.27*]

19. The use of solvent for purposes other than cleaning. [*Link to Note No.28*]

20. The Section J.11.a, d, and e provisions shall not apply to batch vapor cleaning machines provided:

a. The equipment was installed before January 1, 2007; and

b. The solvent/air interface area is less than 4.40 square feet or the solvent capacity is less than 2 gallons; and

c. The equipment is used only for cleaning electronic components; and

d. The total aggregate reactive organic compound emissions from all batch vapor cleaning machines subject to this exemption do not exceed 188 pounds per month per stationary source; and

e. The equipment is subject to a Permit to Operate to help facilitate verifications that the requirements of subparagraphs B.20.a, b, c, and d are met. [*Link to Note No.29*]

21. The Section I.3, I.4, and I.7 requirements for unheated batch cleaning machines shall not apply, provided the equipment is used in medical device manufacturing when performing incidental product cleaning in conjunction with quality assurance or quality control tests (e.g., when conducting leak testing of silicone shells) and the solvent reactive organic compound content does not exceed 900 grams per liter of material. [*Link to Note No.30*]

22. Metal lift-off operations associated with semiconductor manufacturing. [*Link to Note No.31*]

C. Definitions [*Link to Note No.32*]

See Rule 102 for definitions not limited to this rule. For purposes of this rule the following definitions shall apply:

"Aerosol Product" means a hand-held, non-refillable container that expels pressurized product by means of a propellant-induced force.

"Aerospace Vehicle" means the completed unit of any aircraft, helicopter, missile, or space vehicle.

"Aerospace Vehicle 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 and prototypes.

"Air Blanket" means the layer of air inside the solvent cleaning machine freeboard located above the solvent/air interface. The centerline of the air blanket is equidistant between the sides of the machine.

"Airless Solvent Cleaning Machine" means any solvent cleaning machine that is automatically operated and seals at an absolute internal pressure of 0.02 pounds per square inch absolute or less, prior to the introduction of solvent vapor into the cleaning chamber and maintains differential pressure under vacuum during all cleaning and drying cycles.

"**Air-Tight Solvent Cleaning Machine"** means any solvent cleaning machine that is automatically operated and seals at a differential pressure no greater than 0.5 pounds per square inch absolute during all cleaning and drying operations.

[*Link to Note No.33*]

~~**"Air-Vapor Interface"** means, for vapor solvent cleaners, the top of the solvent vapor layer, and the air touching this layer. The effective top of the vapor layer may be determined as the maximum height where condensation occurs on a cold metal object lowered into the vapor zone.~~

~~**"Air-Solvent Interface"** means the point of contact between the exposed solvent and the air.~~

~~**"ASTM"** means American Society for Testing and Materials Standards.~~

"Automated Parts Handling System" means a mechanical device that carries all parts and parts baskets at a controlled speed from the initial loading of soiled or wet parts through the removal of the cleaned or dried parts. Automated parts handling systems include, but are not limited to, hoists and conveyors.

~~**"Batch loaded"** means material placed in a nonconveyorized container for cleaning.~~

"Batch Cleaning Machine" means a solvent cleaning machine in which individual parts or a set of parts move through the entire cleaning cycle before new parts are introduced into the solvent cleaning machine. An open-top vapor cleaning machine is a type of batch cleaning machine. A solvent cleaning machine, such as a Ferris wheel or a cross-rod degreaser, that clean multiple batch loads simultaneously and are manually or semi-continuously loaded are batch cleaning machines.

"Carbon adsorber" means a bed of activated carbon into which an air-solvent gas-vapor stream is routed and which adsorbs the solvent on the carbon.

"Carry-out" see **"Drag-out."**

"Circumferential Trough" means a receptacle located below the primary condenser that conveys condensed solvent and atmospheric moisture to a water separator.

~~**"Cold Cleaner"** means any cleaner using solvent that, if heated, is maintained below the initial boiling point temperature. Cold cleaners include, but are not limited to, remote reservoirs, spray sinks, batch loaded dip tanks, and cold conveyorized degreasers. Cold cleaners do not include gas/liquid path cleaners.~~

"Cold Cleaning Machine" means any device or piece of equipment that contains and/or uses liquid solvent, into which parts are placed to remove soils from the surfaces of the parts or to dry the parts. Cleaning machines that contain and use heated, nonboiling solvent to clean the parts are classified as cold cleaning machines. Cold solvent wash stations are classified as cold cleaning machines.

"Condenser" or **"Primary Condenser"** means a ~~device, such as cooling coils, used to condense (liquify) solvent vapor~~ series of circumferential cooling coils on a vapor cleaning machine through which a chilled substance is circulated or recirculated to provide continuous condensation of rising solvent vapors and, thereby, create a concentrated solvent vapor zone.

"Condenser Flow Switch" means a safety switch connected to a thermostat that shuts off the sump heater if the condenser coolant is either not circulating or exceeds its designed operating temperature.

"Continuous Cleaning Machine" see **"In-Line Cleaning Machine."**

"Continuous Web Cleaning Machine" means a solvent cleaning machine in which parts such as film, coils, wire, and metal strips are cleaned at speeds typically in excess of 11 feet per minute. Parts are generally uncoiled, cleaned such that the same part is simultaneously entering and exiting the solvent application area of the solvent cleaning machine, and then recoiled or cut. For the purposes of this rule, all continuous web cleaning machines are considered to be a subset of in-line solvent cleaning machines.

~~**"Control Device"** means a device for reducing emissions of reactive organic compounds to the atmosphere.~~ [*Link to Note No.34*]

"Conveyorized (In-Line or Continuous) Cold ~~Solvent Cleaner~~Cleaning Machine" means any continuously loaded ~~solvent cleaner~~ solvent cleaning machine that is not a conveyorized vapor ~~solvent cleaner~~cleaning machine.

"Conveyorized (In-Line or Continuous) ~~Solvent Cleaner~~Cleaning Machine" means any ~~conveyorized~~ cold or vapor solvent ~~cleaner~~ cleaning machine, that uses an automated parts handling system to automatically provide a continuous supply of parts to be cleaned. ~~including~~ Conveyorized (in-line or continuous) cleaning machines include but are not limited to ~~gyro,~~ vibra, monorail, ~~cross rod,~~ mesh, belt, web, and strip ~~cleaners~~cleaning machines. Strip ~~cleaners~~ cleaning machines clean material by drawing the strip itself through the unit for cleaning prior to coating or other fabrication processes. For the purposes of this rule "**Conveyorized (In-Line or Continuous) Cleaning Machine"** has the same meaning as **"In-Line Cleaning Machine."** [*Link to Note No.35*]

"Conveyorized (In-Line or Continuous) Vapor ~~Solvent Cleaner~~ Cleaning Machine" means any continuously loaded solvent ~~cleaner~~ cleaning machine that immerses parts in boiling solvent or in solvent vapors generated by boiling solvent. Conveyorized ~~vapor solvent cleaners~~ (in-line or continuous) cleaning machines that contain any vapor cleaning sections shall be considered to be conveyorized vapor ~~solvent cleaners~~cleaning machines for the purposes of this rule.

"Cross-Rod Solvent Cleaning Machine" means a batch solvent cleaning machine in which parts baskets are suspended from "cross-rods" as they are moved through the machine. In a cross-rod cleaning machine, parts are loaded semi-continuously, and enter and exit the machine from a single portal.

~~**"Degreaser"** means any equipment designed and used for holding a solvent to carry out solvent cleaning operations. Degreasers include, but are not limited to, remote reservoir cold cleaners, batch loaded cold cleaners, open top vapor solvent cleaners, and conveyorized solvent cleaners. All degreasers can be classified as one of the following: 1) cold cleaner (including remote reservoir cold cleaners), 2) batch loaded vapor solvent cleaner, or 3) conveyorized solvent cleaner.~~ [*Link to Note No.36*]

"Downtime Mode" means the time period when a solvent cleaning machine is not cleaning parts and the sump heating coils, if present, are turned off.

"Drag-out" ~~or **"Carry-out"**~~ means solvent carried out of a ~~cleaner~~ solvent cleaning machine that adheres to or is entrapped in the part being removed.

"Drying Tunnel" means an add-on enclosure extending from the exit area of a ~~conveyorized degreaser~~ solvent cleaning machine that reduces drag-out losses by containing evaporating solvent.

"Dwell" means the technique of holding parts within the freeboard area but above the vapor zone of the solvent cleaning machine. Dwell occurs after cleaning to allow solvent to drain from the parts or parts baskets back into the solvent cleaning machine.

"Dwell Time" means the period of time when parts are held within the freeboard area of the solvent cleaning machine, after cleaning, to allow solvent to drain from the parts back into the solvent cleaning machine.

"Electrical Apparatus Components" means the 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: alternators, generators, transformers, electric motors, cables, and circuit breakers, except for the actual cabinet in which the components are housed. Electrical components of graphic arts application equipment and hot-line tools are also included in this category.

"Electronic Components" means the portions of an assembly, including, but not limited to: circuit card assemblies, printed wire assemblies, printed circuit boards, soldered joints, ground wires, bus bars, magnetic tapes and tape drive mechanisms, discs and disc drive mechanisms, electro-optical devices (e.g., optical filters, sensor assemblies, infrared sensors, charged coupled devices, thermal electric coolers, and vacuum assemblies), solid state components, semiconductors (e.g., diodes, zeners, stacks, rectifiers, integrated microcircuits, transistors, solar cells, light sensing devices, and light-emitting devices), and other electrical fixtures, except for the actual cabinet in which the components are housed. [*Link to Note No.37*]

"Emulsion" means a suspension of small droplets of one liquid in a second liquid.

"Emission Control Device" means a device for reducing emissions of reactive organic compounds or toxic air contaminants to the atmosphere.

"Evaporation" means to change into a vapor, normally from a liquid state.

~~**"Evaporative Surface Area"** means:~~

~~(1) Cold Solvent Cleaner:~~
~~(a) The surface area of the top of the solvent.(b) Remote Reservoir Cold Cleaner: The solvent drain opening area.~~
~~(2) Vapor Solvent Cleaner: The surface area of the top of the solvent vapor-air interface.~~
~~(3) Conveyorized Solvent Cleaner:~~
~~(a) Cold Cleaner: The surface area of the top of the solvent.~~
~~(b) Remote Reservoir Cold Cleaner: The solvent drain opening area.~~
~~(c) Vapor Solvent Cleaner: The surface area of the top of the solvent vapor-air interface.~~ [*Link to Note No.38*]

"Existing Solvent Cleaning Operation" means solvent cleaning that is being performed as of [*date of revised rule adoption*].

"Existing Solvent Cleaning Machine" means any solvent cleaning machine that is installed as of [*date of revised rule adoption*]

"Fluid System" means a power transmission system that uses the force of flowing liquids and gases to transmit power. Fluid systems include hydraulic systems and pneumatic systems.

"Freeboard Area" means; for a batch cleaning machine, the area within the solvent cleaning machine that extends from the solvent/air interface to the top of the solvent cleaning machine; for an in-line cleaning machine, it is the area within the solvent cleaning machine that extends from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower.

~~**"Freeboard Height"** means:~~

~~(1) Cold Solvent Cleaner: The vertical distance from the top of the solvent, or the solvent drain of a remote reservoir cold cleaner, to the top of the cold cleaner.~~

~~(2) Batch-loaded Vapor Solvent Cleaner: The vertical distance from the top of the solvent vapor-air interface to the top of the solvent cleaner.~~

~~(3) Conveyorized Solvent Cleaner:~~
~~(a) For non-boiling solvent, the vertical distance from the top of the solvent to the bottom of the lowest opening in the solvent cleaner where vapors can escape.~~
~~(b) For boiling solvent, the vertical distance from the top of the solvent vapor-air interface to the bottom of the lowest opening in the degreaser where vapors can escape.~~

"Freeboard Height" means; for a batch cleaning machine, the distance from the solvent/air interface as measured during the idling mode or the top of the solvent drain of a remote reservoir cold cleaning machine to the top of the cleaning machine; for an in-line cleaning machine, it is the distance from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower as measured during the idling mode.

"Freeboard Ratio" means the ratio of the solvent cleaning machine freeboard height ~~divided by the smaller of the inside length or the inside width (or diameter if applicable) of the solvent cleaner evaporative area~~ to the smaller interior dimension (length, width, or diameter) of the solvent cleaning machine.

"Freeboard Refrigeration Device (Also Called a 'Chiller')" means a secondary cooling coil mounted above the primary condenser that provides a chilled air blanket above the solvent vapor air-interface to cause the condensation of additional solvent vapor. A primary condenser capable of meeting the requirements of Section J.9.a or L.10.a is defined as both a freeboard refrigeration device and a primary condenser for the purposes of this rule.

"Gas~~/Liquid~~-Path Solvent Cleaner" means a solvent cleaning machine (including ancillary equipment) that applies solvent to the interior of ~~parts,~~ a gas turbine or jet engine~~s, or equipment to clean gas and/or liquid paths. Gas/liquid path cleaning operations include, but are not limited to,~~ for the removal of corrosion~~,~~ or combustion deposits~~, propellants, moisture, residuals, or other undesirable matter. Examples of gas/liquid path cleaners include, but are not limited to, corrosion control carts (e.g., used on the interiors of gas turbine or jet engines), valve flushing systems, rocket engine flushing equipment, rocket propellant transfer line flushing and purging systems~~. [*Link to Note No.39*]

"General Work Surface" means an area of a medical device or pharmaceutical facility where solvent cleaning is performed on work surfaces including, but not limited to, tables, countertops, and laboratory benches. General work surface shall not include items defined under janitorial cleaning.

"Guillotine Cover" means a cover that is biparting and moves in the same plane.

"Halogenated Hazardous Air Pollutant Solvent" means methylene chloride (Chemical Abstracts Service No. 75-09-2), perchloroethylene (Chemical Abstracts Service No. 127-18-4), trichloroethylene (Chemical

Abstracts Service No. 79-01-6), 1,1,1-trichloroethane (Chemical Abstracts Service No. 71-55-6), carbon tetrachloride (Chemical Abstracts Service No. 56-23-5), and chloroform (Chemical Abstracts Service No. 67-66-3).

"High-Precision Optics" means any optical element used in an electro-optical device that is designed to sense, detect, or transmit light energy, including specific wavelengths of light energy and changes in light energy levels.

"~~High Vapor Cutoff Thermostat"~~ ~~means a device, with a manual reset, that shuts off the sump heater if the temperature at the air-vapor interface rises above the designed operating level.~~

"High Volatility Solvent" means any solvent that is not classified as a low volatility solvent. [*Link to Note No.40*]

"Hoist" means a mechanical device that carries the parts basket and the parts to be cleaned from the loading area into the solvent cleaning machine and to the unloading area at a controlled speed. A hoist may be operated by controls or may be programmed to cycle parts through the cleaning cycle automatically.

"Idling Mode" means the time period when a solvent cleaning machine is not actively cleaning parts and the sump heating coils, if present, are turned on.

"Initial Boiling Point" means the boiling point of a ~~solvent~~ liquid as defined by ASTM D-1078-~~95~~05, "Standard Test Method for Distillation Range of Volatile Organic Liquids," ASTM International.

"In-Line ~~Cleaner~~Cleaning Machine" or **"Continuous Cleaning Machine"** means ~~conveyorized solvent cleaner~~ any solvent cleaning machine that uses an automated parts handling system, typically a conveyor, to automatically provide a continuous supply of parts to be cleaned. These units are fully enclosed except for the conveyor inlet and exit portals. In-line cleaning machines can be either cold or vapor cleaning machines. [*Link to Note No.41*]

"Leakproof Coupling" means a threaded or other type of coupling that prevents solvents from leaking while filling or draining solvent to and from the solvent cleaning machine.

"Lip Exhaust" means a ~~system that collects solvent vapors escaping from the top of a solvent cleaner~~ device installed at the top of the opening of a solvent cleaning machine that draws in air and solvent vapor from the freeboard area and ducts the air and vapor away from the solvent cleaning machine.

"Liquid Leak" means any ~~ROC containing liquid~~ solvent leak at a rate of more than three drops per minute or any visible liquid mist.

"Low Volatility Solvent" means a solvent with an initial boiling point that is greater than 120 degrees Celsius (248 degrees Fahrenheit) and with a temperature, as used, at least 100 degrees Celsius (~~180~~ 212 degrees Fahrenheit) below the initial boiling point. [*Link to Note No.42*]

"~~Make-Up Solvent"~~ ~~means that solvent added to the solvent cleaning operation to replace solvent lost through evaporation or other means.~~

"Maintenance Cleaning" means a solvent cleaning operation or activity carried out to keep clean general work areas where manufacturing or repair activity is performed, to clean tools, machinery, molds, forms, jigs and equipment. This definition does not include the cleaning of adhesive, coating, or ink application equipment.

"Manufacturing Process" means the process of making goods or articles by hand or by machinery.

"Medical Device" means an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent or other similar article, including any component or accessory, that meets one of the following conditions:

1. It is intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease; or
2. It is intended to affect the structure or any function of the body; or
3. It is defined in the National Formulary or the United States Pharmacopeia, or any supplement to them.

"Mixer" means any device that mechanically agitates the liquid solvent to enhance the cleaning process.

"Nonabsorbent Container" means any container made of nonporous material, which does not allow the migration of the liquid solvent through it.

"Nonatomized Solvent Flow" means the use of a solvent in the form of a liquid stream without atomization to remove uncured adhesives, uncured inks, uncured coatings, uncured polyester resins, or contaminants from an article.

"Nonleaking Container" means a container without any liquid leaks.

"Open-Top Vapor ~~Solvent Cleaner~~Cleaning Machine" means ~~any batch-loaded degreaser using solvent that is maintained above the initial boiling point temperature of the solvent. Degreasing occurs through the condensation of the resultant solvent vapor onto the surface of the workload~~ a batch solvent cleaning machine that has its upper surface open to the air and boils solvent to create solvent vapor used to clean and/or dry parts.

"Primary Condenser" see "**Condenser."**

"Radiation-Effect Coating" means a material that prevents radar detection.

"Reactive Organic Compound Composite Partial Pressure" means the sum of the partial pressures of compounds defined as reactive organic compounds. Reactive organic compound composite pressure shall be calculated as follows:

$$PP_c = \frac{\sum_{i=1}^{n} \left(W_i\right)\left(VP_i\right) / \left(MW_i\right)}{\left(W_w / MW_w\right) + \sum_{e=1}^{n} \left(W_e / MW_e\right) + \sum_{i=1}^{n} \left(W_i / MW_i\right)}$$

Where:

W_i = Weight of the "i"th reactive organic compound, in grams
W_w = Weight of water, in grams
W_e = Weight of the "e"th exempt organic compound, in grams
MW_i = Molecular weight of the "i"th reactive organic compound, in grams per grams-mole
MW_w = Molecular weight of water, in grams per grams-mole
MW_e = Molecular weight of the "e"th exempt compound, in grams per grams-mole
PP_c = Reactive organic compound composite partial pressure at 20 degrees Celsius, in millimeters of mercury
VP_i = Vapor pressure of the "i"th reactive organic compound at 20 degrees Celsius, in millimeters of mercury

"Refrigerated Freeboard Chiller" ~~means a secondary cooling coil mounted above the primary condenser that provides a chilled air blanket above the solvent vapor air interface to cause the condensation of additional solvent vapor.~~ see the definition for "**Freeboard Refrigeration Device (also called a 'Chiller').**"

"Remote Reservoir Cold ~~Cleaner~~ Cleaning Machine" means any device in which liquid solvent is pumped ~~through~~ to a sink-like work area ~~for cleaning parts and~~ that drains ~~immediately~~ solvent back into an enclosed container while parts are being cleaned, ~~without forming a~~ allowing no solvent to pool in the work area~~, through a single drain hole less than 100 square centimeters (15.5 square inches) in area into an enclosed container that is not accessible for soaking parts~~. A remote reservoir cold cleaning machine that uses an enclosed container that is accessible for dipping or soaking parts is also considered to be a batch cleaning machine.

"Repair Cleaning" means a solvent cleaning operation or activity carried out during a repair process.

"Repair Process" means the process of returning a damaged object or an object not operating properly to good condition.

"Research and Development Activities" means activities conducted at a research or laboratory facility whose primary purpose is to conduct research and development into new processes and products, where such source is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for sale or exchange for commercial profit, except in a de minimis manner.

"Rotating Basket" means a perforated or wire mesh cylinder containing parts to be cleaned that is slowly rotated while proceeding through the ~~degreaser~~ solvent cleaning machine.

"Scientific Instrument" means an instrument (including the components, assemblies, and subassemblies used in their manufacture) and associated accessories and reagents that is used for the detection, measurement, analysis, separation, synthesis, or sequencing of various compounds.

"Soils" mean contaminants that are removed from the part or parts being cleaned. Soils include, but are not limited to, grease, oils, waxes, metal chips, carbon deposits, fluxes, and tars.

~~**"Solvent"** means **"Organic Solvent."**~~

"Solvent/Air Interface" means, for a vapor cleaning machine, the location of contact between the concentrated solvent vapor layer and the air. This location of contact is defined as the mid-line height of the primary condenser coils. For a cold cleaning machine, it is the location of contact between the liquid solvent and the air.

"Solvent/Air Interface Area" means; for a vapor cleaning machine, the surface area of the solvent vapor zone that is exposed to the air; for an in-line cleaning machine, it is the total surface area of all the sumps; for a cold cleaning machine, it is the surface area of the liquid solvent that is exposed to the air.

[*Link to Note No.43*]

~~**"Solvent Cleaner"** means a device that applies solvent or in which solvent is applied to items for the purpose of solvent cleaning.~~

~~**"Solvent Cleaning"** means the use of organic solvent to remove loosely held uncured adhesives, uncured inks, uncured coatings, and other contaminants that include, but are not limited to, dirt, soil, lubricants, coolant, moisture, grease and fingerprints from parts, products, tools, machinery, equipment and general work areas.~~ [*Link to Note No.44*]

"Solvent Container" means that part of the solvent ~~cleaner~~ cleaning machine that is intended to hold the cleaning solvent.

"Solvent Vapor Zone" means; for a vapor cleaning machine, the area that extends from the liquid solvent surface to the level that solvent vapor is condensed. This condensation level is defined as the midline height of the primary condenser coils.

"Space Vehicle" means a vehicle designed to travel beyond the earth's atmosphere.

"Space Vehicle Component" means any raw material, partial or completed fabricated part, assembly of parts, or completed unit of any space vehicle, including mockups and prototypes.

"Spray Pump Control Switch" means a safety switch that prevents the spray pump from operating if the vapor level falls below the design operating level.

"Stripping" means the use of solvent to remove materials such as cured adhesives, cured inks, cured or dried paints, cured or dried paint residues, or temporary protective coatings.

"Sump" means the part of a solvent cleaning machine where the liquid solvent is located.

"Sump Heater Coils" mean the heating system on a cleaning machine that uses steam, electricity, or hot water to heat or boil the liquid solvent.

"Superheated Vapor System" means a system that heats the solvent vapor, either passively or actively, to a temperature above the solvent's boiling point. Parts are held in the superheated vapor before exiting the machine to evaporate the liquid solvent on them. Hot vapor recycle is an example of a superheated vapor system.

"Superheated Vapor Zone" means any region located within the vapor zone of a vapor cleaning machine whereby solvent vapors are heated above the solvent's initial boiling point.

"Ultrasonics" means enhancement of the cleaning process by agitation of liquid solvents with high frequency sound wave vibrations.

"Vapor Cleaning Machine" means a batch or in-line solvent cleaning machine that boils liquid solvent generating solvent vapor that is used as a part of the cleaning or drying cycle.

~~**"Vapor Level Control Switch or Vapor Level Control Thermostat"** see **"High Vapor Cutoff Thermostat."**~~

~~**"Vapor Solvent Cleaner"** means any solvent cleaners that cleans through the condensation of hot solvent vapor on colder workloads.~~

"Waste Solvent Residue" means sludge that may contain dirt, oil, metal particles, and/or other undesirable waste products concentrated after heat distillation of the waste solvent either in the solvent ~~cleaner~~ cleaning machine itself or after distillation in a separate still.

"Water Layer" means a layer of water that floats above the denser solvent and provides control of solvent emissions. In many cases, the solvent used in batch cold cleaning machines is sold containing the appropriate amount of water to create a water cover.

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

"Workload" means the objects put in a ~~cleaner~~ solvent cleaning machine for the purpose of removing oil, grease, soil, coating, dirt, moisture, or other undesirable matter from the surface of the objects.

"Workload Area" means:

(1) The plane geometric surface area of the top of the submerged parts basket, or
(2) The combined plane geometric surface area(s) displaced by the submerged workload, if no basket is used.

D. General Operating Requirements. Any person who owns, operates, or uses any solvent ~~cleaner~~ cleaning machine or performs any solvent cleaning shall ensure such operation conforms to the following ~~operating~~ requirements: [*Link to Note No.45*]

1. All ~~S~~solvent, including waste solvent and waste solvent residue, and waste solvent cleaning materials such as cloth, paper, etc. shall ~~not~~ be stored or disposed of ~~in a manner that will cause or allow evaporation into the atmosphere~~in nonabsorbent and nonleaking containers equipped with tight-fitting covers. The covers shall be in place unless adding material to or removing material from the containers, the containers are empty, or doing maintenance/inspection of the containers. ~~Containers shall have a label indicating the name of the solvent/material they contain.~~ After distillation recovery of waste solvent, solvent residues shall not contain more than 20 percent ~~solvent~~ of reactive organic compound by weight.

2. The solvent ~~cleaner~~cleaning machine, ventilation system, and/or emission control equipment shall be installed, operated, and maintained ~~in proper working order~~ consistent with the manufacturer's specifications.

3. ~~Solvent~~ The cleaning ~~or solvent vapor cleaning~~ of porous or absorbent materials, such as cloth, leather, wood, or rope, is prohibited. This provision shall not apply to paper gaskets, paper filters, and medical devices.

4. ~~The~~ All solvent containers shall be free of ~~all~~ liquid leaks. ~~Auxiliary cleaner~~ Solvent cleaning machine equipment, such as covers, pumps, water separators, steam traps, or distillation units shall not have any liquid leaks, visible tears, holes, or cracks. Any such liquid leak, visible tear, hole, or crack that is detected shall be repaired within one day from discovery ~~by the operator~~, or the ~~cleaner~~ solvent cleaning machine shall be drained of all solvent, ~~in a manner authorized by this Rule~~consistent with Section D.12 provisions, and shut down until replaced or repaired. Solvent ~~cleaners~~ cleaning machines shall not be operated when leaking.

5. Covers and other closure devices (e.g., valves or drain plugs) designed to reduce solvent evaporation shall not be removed or opened except to process work or to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers or other closure devices. Solvent cleaning machines shall not be operated when performing maintenance or repairs.

6. For solvent ~~degreaser~~ cleaning machine operations other than gas-path solvent cleaners and continuous web cleaning machines, solvent carry-out shall be minimized by the following methods, as applicable:

   a. The workload shall be racked.

   b. ~~For manual operations, any pools of solvent remaining on the cleaned parts shall be tipped out before removing them from the cleaner.~~Parts having cavities, holes, or blind holes shall be tipped or rotated before being removed from the solvent cleaning machine such that the solvent in the cavities, holes, or blind holes is returned to the solvent container.

   ~~c. Pools of solvent shall be drained by a device.~~

~~d~~c. The workload shall be drained within the freeboard area so that the drained solvent is returned to the solvent container.

~~e~~d. For cold solvent cleaning, parts shall be drained immediately after cleaning, until one of the following conditions exists:

1) At least 15 seconds have elapsed; or

2) Dripping of solvent ceases; or

3) The parts become visibly dry.

~~f~~e. For automated parts handling systems, ~~T~~the workload shall be moved in and out of the ~~degreaser~~ solvent cleaning machine at less than ~~3.3~~3.4 meters per minute (11.2 feet per minute).

7. For solvent ~~degreaser~~ cleaning machine operations other than gas-path solvent cleaners and continuous web cleaning machines, solvent flow shall be directed downward to avoid turbulence at the ~~air-vapor or air-solvent~~ solvent/air interface and to prevent liquid solvent from splashing outside of the ~~cleaner~~solvent cleaning machine. If a flexible hose or flushing device is used, flushing shall be performed only within the freeboard area of the solvent cleaning machine.

8. For solvent ~~degreaser~~ cleaning machine operations other than gas-path solvent cleaners, solvent flow shall not be used in a manner such that liquid solvent splashes outside the container.

9. Solvent ~~atomization operations (e.g., blow drying)~~ shall not be atomized unless ~~be~~ it is vented to an emission control system that meets the requirements of ~~Rule 321~~ Section ~~M~~N.

10. Any solvent spills shall be wiped up immediately and the used absorbent material (e.g., cloth, paper, sand, sawdust, etc.) shall be stored in closed containers that are handled in accordance with Section D.1.

11. Solvent levels shall not exceed the solvent cleaning machine's fill line.

12. When solvent is added or drained from any solvent cleaning machine, the solvent shall be transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump shall be located beneath the liquid solvent surface.

[*Link to Note No.46*]

13. When using a ventilation fan, it shall not be positioned in such a way as to direct air flow near a solvent cleaning machine opening. [*Link to Note No.47*]

E. Additional Operating Requirements for ~~Open-top~~ Batch Vapor ~~Solvent Cleaners~~ Cleaning Machines and In-Line ~~Conveyorized~~ Vapor ~~Solvent Cleaners~~Cleaning Machines. ~~In addition to the general operating requirements specified above in Rule 321 Section D, a~~Any person who owns, operates, or uses any ~~open-top~~ batch vapor ~~solvent cleaner~~ cleaning machine or any ~~conveyorized~~ in-line vapor ~~solvent cleaner~~ cleaning machine shall ensure the equipment operation conforms to the following ~~operating~~ requirements:

1. ~~The degreaser shall be covered whenever the cooling system is off.~~ Except to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers:

a. Idling mode covers shall be closed when the equipment is in an idling mode.

b. Downtime mode covers shall be closed when the equipment is in a downtime mode.

2. When starting the ~~degreaser~~ solvent cleaning machine, the ~~cooling system~~ primary condenser shall be turned on before ~~or simultaneously with~~ the sump heater.

3. When shutting down the ~~degreaser~~ solvent cleaning machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before ~~or simultaneously with~~ the ~~cooling system~~ primary condenser is turned off.

4. The workload shall be ~~degreased~~ cleaned in the vapor zone for at least 30 seconds or until condensation ceases.

5. Parts shall be allowed to dry within the ~~degreaser~~ solvent cleaning machine until the exterior surface of the parts become visually dry.

6. Solvent spray shall be kept at least 10 centimeters (3.94 inches) below the ~~air-vapor~~ solvent/air interface.

7. The workload area shall not occupy more than half of the ~~evaporative surface area~~solvent/air interface area of the solvent ~~cleaner~~ cleaning machine.

8. For ~~cleaners~~ solvent cleaning machines equipped with water separators, water shall not be visibly detectable in the solvent phase exiting the water separator, nor shall solvent be visibly detectable in the aqueous phase leaving the separator.

9. If equipped with a superheated vapor zone:

   a. The manufacturer's specifications for determining the minimum proper dwell time within the superheated vapor system shall be followed.

   b. Parts and parts baskets shall remain in the vapor zone for at least the minimum proper dwell time.

   c. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

F. Additional Operating Requirements for Gas/~~Liquid~~-Path ~~Cleaners~~Solvent Cleaners. ~~In addition to the operating requirements specified in Rule 321 Sections D.1 - D.5 and D.9, a~~Any person who owns, operates, or uses ~~using~~ any ~~gas/liquid-path cleaner~~ gas-path solvent cleaner shall ensure the equipment operation conforms to the following ~~operating~~ requirements:

1. Cleaned parts or equipment shall be drained until dripping ceases or 15 seconds have elapsed.

2. The cover of the solvent container(s), reservoir(s) and opening(s) of a solvent collection system shall be closed at all times except ~~when the reservoir is being filled, emptied, cleaned, repaired or inspected~~ to process work or to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers or other closure devices.

G. General Equipment Requirements for Solvent ~~Cleaners~~Cleaning Machines. Any person who owns, operates, or uses ~~All~~ any solvent ~~cleaners~~ cleaning machine shall ensure that it is equipped with ~~conform to~~ the following ~~requirements~~:

1. A container ~~shall be used~~ for the solvent.

2. Except for remote reservoir cold ~~cleaners~~ cleaning machines using low volatility solvents, ~~all cleaners shall be equipped with~~ an apparatus or cover(s) to completely cover the solvent container when not processing work.

3. ~~Solvent degreasers shall be equipped with a facility~~ Except for gas-path solvent cleaners using a solvent with a reactive organic compound content of 50 grams per liter of material or less, an apparatus or a device for draining cleaned parts such that the drained solvent or drag-out is returned to the ~~cleaner~~ solvent ~~tank~~container.

4. ~~The~~ A list of the applicable operating requirements. At a minimum, the list shall include the applicable operating requirements contained in ~~Rule 321~~ Sections D, E, and F. The list of operating requirements shall be ~~legibly written~~ legible and ~~permanently and~~ conspicuously posted or maintained on or near the equipment in such a manner that it is conveniently available to the operator for reference purposes.

5. Where solvent agitation is used, ~~the~~ equipment that achieves agitation ~~shall be achieved~~ by use of ~~using~~ pump recirculation, mechanical mixing (a mixer), or ultrasonics. Gas or air agitation shall not be used. When a pump-agitated solvent bath is used, the pump agitator shall be designed to produce a rolling motion of the solvent without any observable splashing against tank walls or parts being cleaned.

6. When employing solvent flow, ~~with a solvent degreaser, the flow shall only be~~ a flexible hose or flushing device that produces only a continuous fluid stream. An atomized or shower type spray shall not be used~~. I~~ unless it is used in an ~~conveyorized~~ in-line or enclosed ~~cleaner~~solvent cleaning machine~~, a shower type spray may be used provided that~~ where the spray is conducted in a totally confined space that is sealed from the atmosphere.

7. ~~Any degreaser equipped with~~ Where a hood, enclosure, ~~or~~ lip exhaust, or a lip exhaust connected to a hood or enclosure is employed, ~~shall not have an~~ a blower or fan such that the air ventilation rate ~~in excess of~~ shall not exceed 20 cubic meters per minute per square meter (65.6 cubic feet per minute per square feet) of ~~air-vapor or air-solvent~~ solvent/air interface ~~surface~~ area, unless necessary to meet a National Institute for Occupational Safety and Health standard.

8. ~~Effective July 17, 1997, no person shall install or add a lip exhaust to a degreaser~~ When a lip exhaust ~~unless it is~~ is installed or added after July 17, 1997, ~~vented to~~ ducting or a collection system connected to an emission control system that meets the requirements of ~~Rule 321~~ Section ~~M~~ N.

9. A ~~The average draft rate in the solvent cleaner~~ workroom having an average draft rate, as measured parallel to the plane of the ~~degreaser~~ solvent cleaning machine opening, ~~shall~~ not exceeding 9.1 meters per minute (30 feet per minute), unless necessary to meet a National Institute for Occupational Safety and Health standard.

~~10. Ventilation fans shall not be positioned in such a way as to direct air flow near the degreaser openings.~~

~~11~~10. When employing an automated parts handling system, ~~The vertical~~ equipment such that the speed ~~of any powered hoist or conveyor~~ of the parts shall not exceed ~~3.3~~3.4 meters per minute (11.2 feet per minute).

H. Additional Equipment Requirements for Remote Reservoir Cold ~~Cleaners~~Cleaning Machines. ~~In addition to the requirements in Rule 321 Section C,~~ Any person who owns, operates, or uses any remote reservoir cold ~~cleaner equipment~~ cleaning machine shall ensure that it is equipped with ~~meet~~ the following ~~requirements~~:

1. ~~The~~ A sink or work area ~~shall be~~ that is sloped sufficiently towards the drain to prevent pooling of solvent.

2. ~~There shall be a~~A single drain hole, not larger than 100 square centimeters (15.5 square inches) in area, for the solvent to flow from the sink into the enclosed reservoir.

3. Except ~~for remote reservoir cold cleaners~~ when using low volatility solvents, a cover or a device, such as a valve or a drain plug, to prevent or minimize ~~the~~ solvent vapor emissions ~~shall be prevented from escaping~~ from the solvent container ~~by means of closing a cover or a device, such as a valve or a drain plug,~~ when ~~the remote reservoir is not being used, cleaned, or repaired~~ not processing work or performing monitoring, inspections, maintenance, or repairs that require the removal of the cover or device.

4. ~~The~~ A freeboard height ~~shall be~~ of 6 inches or higher.

5. ~~The unit shall have a~~ When the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), or it is agitated, or the solvent is a high volatility solvent, dimensions such that the freeboard ratio ~~of~~ is 0.75 or greater.~~, if the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), agitated, or a high volatility solvent is used.~~

6. In lieu of the freeboard height required by ~~Rule 321~~ Section H.4 or the freeboard ratio required by ~~Rule 321~~ Section H.5, one of the following requirements ~~shall~~ may be met:

   a. ~~a~~ A water ~~cover~~ layer at a minimum thickness of 2.5 centimeters (1.0 inch) on the surface of the solvent within the cleaning machine ~~at least 1 inch deep~~ shall be used, ~~provided the solvent is insoluble in water and has a specific gravity greater than 1,~~ or

   b. ~~a~~An emission control system that meets the requirements of ~~Rule 321~~ Section ~~M~~ N shall be used.

7. Effective [*one year from the date of revised rule adoption*], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less. [*Link to Note No.48*]

I. Additional Equipment Requirements for Batch Cold ~~Cleaners~~Cleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G,~~ Any person who owns, operates, or uses any batch cold ~~cleaners~~ cleaning machine other than a remote reservoir cold cleaning machine shall ensure that it is equipped with ~~include all of~~ the following: [*Link to Note No.49*]

1. When using a high volatility solvent, ~~the unit shall be equipped with~~ a cover that is a sliding, rolling, or guillotine type that is designed to easily open and close. If a mechanized batch cold cleaning machine (e.g., a manually loaded or semi-continuously loaded Ferris wheel or cross-rod solvent cleaning machine) is used with a high volatility solvent, the unit shall be equipped with a downtime mode cover.

2. ~~A method for draining cleaned parts, so the drained solvent is returned to the container.~~ If using a high volatility solvent, the drainage ~~facility~~ apparatus or device required by Section G.3 shall be internal so that the cleaned parts are within the solvent ~~cleaner~~ cleaning machine and under the cover while draining. The drainage ~~facility~~ apparatus or device may be external where the internal type cannot fit into the cleaning system provided the drained solvent is returned to the solvent container.

3. When using a low volatility solvent that is not agitated, ~~the~~ a freeboard height ~~shall be~~ of 6 inches or higher or dimensions such that ~~a~~ the freeboard ratio ~~of~~ is 0.5 or greater ~~shall be maintained~~.

4. ~~The unit shall have a~~ When the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), or it is agitated, or the solvent is a high volatility solvent, dimensions such that the freeboard ratio ~~of~~ is 0.75 or greater.~~, if the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), agitated, or a high volatility solvent is used.~~

5. In lieu of the freeboard height or freeboard ratio required by ~~Rule 321~~ Section I.3 or the freeboard ratio required by Section I.4, one of the following requirements may be met:

   a. ~~a water cover at least 1 inch deep shall be used, provided the solvent is insoluble in water and has a specific gravity greater than 1~~A water layer at a minimum thickness of 2.5 centimeters (1.0 inch) on the surface of the solvent within the cleaning machine shall be used, or

   b. ~~a~~An emission control system shall be used that meets the requirements of ~~Rule 321~~ Section ~~M~~ N shall be used.

6. A ~~permanent,~~ conspicuous mark ~~shall be maintained locating~~ denoting the maximum allowable solvent level conforming to the applicable freeboard requirements. This requirement does not apply if employing a water ~~cover~~ layer or an emission control system per ~~Rule 321~~ Section I.5.

7. Effective [*one year from the date of revised rule adoption*], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less. [*Link to Note No.50*]

J. Additional Equipment Requirements for ~~Open-top~~ Batch Vapor ~~Solvent Cleaners~~Cleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G, open-top~~ Any person who owns, operates, or uses any batch vapor ~~solvent cleaners~~ cleaning machine shall ensure that it is equipped with ~~include all of~~ the following:

1. For open-top vapor cleaning machines, ~~A~~ a cover that is a sliding, rolling, or guillotine type that is designed to easily open and close without disturbing the vapor zone. This requirement does not apply to open-top vapor ~~solvent degreasers~~ cleaning machines equipped with top enclosures, provided:

   a. the operator only opens the enclosure cover(s) or door(s) when the condenser is operative or when the ~~degreaser~~ solvent cleaning machine is shut down,

   b. the ~~degreaser~~ solvent cleaning machine ~~evaporative surface area~~solvent/air interface area is less than 1 square meter (10.8 square feet), and

   c. the ~~degreaser~~ solvent cleaning machine cover is designed such that it can be opened and closed easily without disturbing the vapor zone.

2. For mechanized batch vapor cleaning machines (e.g., a manually-loaded or semi-continuously-loaded Ferris wheel or cross-rod solvent cleaning machine), idling and downtime mode covers.

~~2~~3. A primary condenser ~~coil~~ situated above the boiling solvent.

~~3~~4. A condenser flow switch that automatically shuts off the sump heat~~er~~ if the condenser coolant stops circulating or becomes warmer than its designed operating temperature.

~~4~~5. A ~~high~~ vapor level ~~cutoff thermostat~~ control device that automatically shuts off the sump ~~heater~~ heat ~~when~~ if the ~~solvent~~ vapor level in the vapor cleaning machine rises above the ~~designed operating level~~ height of the primary condenser.

~~5~~6. For ~~degreasers~~ solvent cleaning machines with solvent flow, a device such as a spray pump control switch that prevents the solvent flow pump operation unless the solvent vapor level is at the designed operating level.

7. A device that automatically shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.

~~6~~8. ~~A~~ Dimensions such that the freeboard ratio ~~of~~ is 0.75 or greater. Effective [*one year from the date of revised rule adoption*], the unit shall have dimensions such that the freeboard ratio is 1.0 or greater.

79. ~~Cleaners~~ For solvent cleaning machines with ~~an evaporative surface area~~a solvent/air interface area of 1 square meter (10.8 square feet) or greater ~~shall be equipped with one of the following~~:

a. A ~~refrigerated freeboard chiller~~ freeboard refrigeration device for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical axis in the center of the air-vapor interface shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than 40 degrees Fahrenheit. If the chiller operates below 32 degrees Fahrenheit, it shall be equipped with an automatic defrost~~.~~; or

b. An enclosed design in which the cover or door opens only when the dry part is actually entering or exiting the ~~cleaner~~ solvent cleaning machine.

~~8~~10. In lieu of the freeboard ratio required by Rule 321 Section J.~~6~~8 or the freeboard chiller/enclosed design required by Section J.~~7~~9, an emission control system that meets the requirements of Section ~~M~~ N may be used.

11. Effective [*one year from the date of revised rule adoption*], except when an emission control system that meets the requirements of Section N is employed, when using solvent containing in excess of 50 grams of reactive organic compound per liter of material:

a. An automated parts handling system;

b. A circumferential trough;

c. A water separator (not required for solvents that form azeotropes with water);

d. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and

e. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used. [*Link to Note No.51*]

K. Additional Equipment Requirements for ~~Conveyorized~~ In-Line Cold ~~Cleaners~~Cleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G, conveyorized~~ Any person who owns, operates, or uses any batch in-line cold ~~cleaners~~ cleaning machine shall ensure that it is ~~be~~ equipped with the following:

1. A rotating basket, tumbling basket, drying tunnel, or other means that prevents cleaned parts from carrying out solvent liquid or vapor.

2. Openings such that ~~T~~the average clearance between workload material and the edges of the ~~cleaner~~ solvent cleaning machine entrance and exit openings shall be less than 10 centimeters (3.94 inches) or less than 10 percent of the opening width, whichever is less.

3. Down-time mode covers ~~for closing off the entrance and exit during shutdown hours, or an equivalent device that cover at least 90 percent of the opening~~. A continuous web part that completely occupies an entry and exit port when the machine is idle is considered to meet this requirement.

4. ~~A~~ Dimensions such that the freeboard ratio ~~of~~ is 0.75 or greater ~~that is physically verifiable~~.

5. In lieu of the freeboard ratio required by ~~Rule 321~~ Section K.4, ~~use of~~ an emission control system that meets the requirements of Section ~~M~~N may be used.

6. Effective [*one year from the date of revised rule adoption*], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less. [*Link to Note No.52*]

L. Additional Equipment Requirements for ~~Conveyorized~~ In-Line Vapor ~~Solvent Cleaners~~Cleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G, conveyorized~~ Any person who owns, operates, or uses any in-line vapor ~~solvent cleaners~~ cleaning machine shall ensure that it is ~~be~~ equipped with the following:

1. A rotating basket, tumbling basket, drying tunnel, or other means that prevents cleaned parts from carrying out solvent liquid or vapor.

2. Openings such that ~~T~~the average clearance between workload material and the edges of the ~~cleaner~~ solvent cleaning machine entrance and exit openings shall be less than 10 centimeters (3.94 inches) or less than 10 percent of the opening width, whichever is less.

3. Idling and ~~D~~down-time mode covers ~~for closing off the entrance and exit during shutdown hours, or an equivalent device that cover at least 90 percent of the opening~~. A continuous web part that completely occupies an entry and exit port when the machine is idle is considered to meet this requirement.

4. A primary condenser ~~coil~~ situated above the boiling solvent.

5. A condenser flow switch that automatically shuts off the sump heat~~er~~ if the condenser coolant stops circulating or becomes warmer than its designed operating temperature.

6. A ~~high~~ vapor level ~~cutoff thermostat~~ control device that automatically shuts off the sump heat~~er when~~ if the ~~solvent~~ vapor level in the vapor cleaning machine rises above the ~~designed operating level~~ height of the primary condenser.

7. For ~~degreasers~~ solvent cleaning machines with solvent flow, a device such as a spray pump control switch ~~device~~ that prevents the solvent flow pump operation unless the solvent vapor level is at the designed operating level.

8. A device that automatically shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.

~~8~~9. ~~A~~ Dimensions such that the freeboard ratio ~~of~~ is 0.75 or greater ~~that is physically verifiable~~. Effective [*one year from the date of revised rule adoption*], the unit shall have dimensions such that the freeboard ratio is 1.0 or greater.

~~9~~10. In lieu of the freeboard ratio required by ~~Rule 321~~ Section L.~~8~~9, one of the following ~~shall~~ may be met:

a. A ~~refrigerated freeboard chiller~~ freeboard refrigeration device for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical

axis in the center of the air-vapor interface shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than 40 degrees Fahrenheit. If the chiller operates below 32 degrees Fahrenheit, it shall be equipped with an automatic defrost; or

b. An emission control system that meets the requirements of ~~Rule 321~~ Section ~~M~~ N shall be used.

11. Effective [*one year from the date of revised rule adoption*], except when an emission control system that meets the requirements of Section N is employed, when using solvent containing in excess of 50 grams of reactive organic compound per liter of material:

a. A circumferential trough;

b. A water separator (not required for solvents that form azeotropes with water);

c. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and

d. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used. [*Link to Note No.53*]

M. Requirements - Solvent Cleaning. [*Link to Note No.54*]

Section M requirements apply to any person performing solvent cleaning, including, but not limited to, use of wipe cleaning cloths, cotton swabs, dabber bottles, hand-held spray bottles, squirt bottles, aerosol products, and the cleaning of application equipment. The following requirements become effective [*one year from the date of revised rule adoption*] and are in addition to the general operating requirements specified in Section D.

1. **Solvent Requirements.** Except when using an emission control system that meets the requirements of Section N, no person shall use any solvent to perform solvent cleaning which exceeds the applicable grams of reactive organic compound per liter of material limit specified in Table 1.

Table 1: Reactive Organic Compound Content Limits for Solvent Cleaning

SOLVENT CLEANING ACTIVITY	ROC Limit, grams of ROC per liter of material (pounds of ROC per gallon[a])	
(a) Product Cleaning During Manufacturing Processes and Surface Preparation for Coating Application:		
(i) General	50 (0.42)	[*Link to Note No.55*]
(ii) Electrical Apparatus Components & Electronic Components	900 (7.51)	[*Link to Note No.56*]
(iii) Medical Devices & Pharmaceuticals	900 (7.51)	
(b) Repair Cleaning and Maintenance Cleaning:		
(i) General	50 (0.42)	[*Link to Note No.55*]
(ii) Electrical Apparatus Components & Electronic Components	900 (7.51)	[*Link to Note No.56*]
(iii) Medical Devices & Pharmaceuticals:		
(I) Tools, Equipment, & Machinery	900 (7.51)	
(II) General Work Surfaces	900 (7.51)	
(c) Cleaning of Coatings Application Equipment	950 (7.93)	
(d) Cleaning, Including Maintenance Cleaning, of Space Vehicles, Space Vehicle Components, Satellites, Satellite Components, and Maintenance Cleaning of Space Vehicle and Satellite Fuel and Oxidizer Transfer Lines and Related Servicing Equipment	900 (7.51)	[*Link to Note No.57*]

[a] English units are provided for information only.

2. **Cleaning Devices and Methods.** Any person performing solvent cleaning with a solvent containing more than 50 grams per liter of material shall use one or more of the following cleaning devices or methods: [*Link to Note No.58*]

   a. Wipe cleaning where solvent is dispensed to wipe cleaning materials from containers that are kept closed to prevent evaporation, except while dispensing solvent or replenishing the solvent supply;

   b. Application of solvent from hand-held spray bottles, squirt bottles, or other closed containers with a capacity of one liter or less; or

   c. Non-atomized solvent flow, dip, or flush method where pooling on surfaces being cleaned is prevented or drained, and all solvent runoff is collected in a manner that enables solvent recovery or disposal. The collection system shall be kept closed to prevent evaporation except while collecting solvent runoff or emptying the collection system.

3. **Solvent Cleaning of Application Equipment.** Any person cleaning application equipment with a solvent containing more than 50 grams of reactive organic compound per liter of material shall use an enclosed system, or equipment that is proven to the satisfaction of the Control Officer to be equally effective as an enclosed system at controlling emissions. If an enclosed system is used, it shall totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it shall be used according to the manufacturer's recommendations and be closed when not in use. [*Link to Note No.59*]

~~M~~N. **Emission Control System Requirements.** Any person who owns, operates, or uses any emission control system required by ~~owning or operating a solvent cleaner subject to this rule may use~~ Sections D.9, G.8, or T.2.b.4) ~~an emission control system~~ or as an alternative compliance method as provided for in this rule ~~to Rule 321 Sections D.9, G.8, H.6.b, I.5.b, J.8, K.5, or L.9.b, provided that~~shall ensure that the following requirements are met: [*Link to Note No.60*]

1. The overall efficiency (the capture system efficiency multiplied by the emission control device efficiency) of the total system shall not be less than 85 percent by weight in reducing total reactive organic compound and toxic air contaminant emissions. [*Link to Note No.61*]

2. When using a carbon ~~adsorption~~ adsorber, the system exhaust shall be no more than 25 parts per million of ~~solvent~~ reactive organic compound by volume, calculated as carbon, over a complete adsorption cycle,

3. The emission collection system shall have a ventilation rate between 15 to 20 cubic meters per minute per square meter of ~~air vapor or air solvent~~ solvent/air interface area (49.2 to 65.6 cubic feet per minute per square feet of ~~air vapor or air solvent~~ solvent air interface ~~surface~~ area), unless otherwise required to meet a National Institute for Occupational Safety and Health standard.

4. An application for installation of the emission control equipment is submitted and the Control Officer grants an Authority to Construct for the equipment.

5. An initial source test is accomplished by [*one year from the date of revised rule adoption*] or later deadline established in an Authority to Construct. [*Link to Note No.62*]

6. Compliance through the use of an emission control system will not result in reactive organic compound emissions in excess of the reactive organic compound emissions which would result from compliance with Sections H.7, I.7, J.11, K.6, L.11, or M.1. [*Link to Note No.63*]

O. Alternative Operating and Equipment Requirements for an Airless Solvent Cleaning Machine or an Air-Tight Solvent Cleaning Machine. In lieu of meeting the requirements of Sections E through L, any person may use an airless solvent cleaning machine or air-tight solvent cleaning machine, provided all of the following requirements are met: [*Link to Note No.64*]

1. The equipment is operated in accordance with the manufacturer's specifications and operated with a door or other pressure sealing apparatus that is in place during all cleaning and drying cycles.

2. No pressure relief device shall allow liquid solvent to drain out.

3. A differential pressure gauge shall be installed to indicate the sealed chamber pressure.

4. A list of operating requirements shall be legible and conspicuously posted or maintained on or near the equipment in such a manner that it is conveniently available to the operator for reference purposes.

~~N~~P. Test Methods.

Any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning shall comply with the following test methods:

1. The reactive organic compound content of solvents shall be measured by the Environmental Protection Agency Reference Method 24 (40 CFR, Part 60, Appendix A-7).

2. The initial boiling point of solvents shall be determined by ASTM D- 1078-~~86~~05, "Standard Test Method for Distillation Range of Volatile Organic Liquids~~.~~," ASTM International.

3. The capture system efficiency shall be determined in accordance with the Environmental Protection Agency method described in 40 CFR, §52.741(a)(4)(iii).

4. The emission control device efficiency shall be determined pursuant to the Environmental Protection Agency method described in 40 CFR, §52.741(a)(4)(iv)~~.~~ and 40 CFR, §52.741(a)(4)(vi).

5. The volumetric flowrate shall be determined in accordance with the Environmental Protection Agency Methods 2, 2A, 2C, ~~and~~ 2D, 2F, or 2G (40 CFR, Part 60, Appendix A-1). [*Link to Note No.65*]

6. The average workroom draft rate shall be measured parallel to the plane of the ~~degreaser~~ solvent cleaning machine opening with a thermistor anemometer with an accuracy within ± 2 feet per minute and a calibration pursuant to the National Institute of Standards and Technology.

7. The identity of components in solvents shall be determined using manufacturer's formulation data or by using ASTM E 168-~~67~~06, "Standard Practices for General Techniques of Infrared Quantitative Analysis," ASTM International, ASTM E 169-~~87~~04, "Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis," ASTM International, or ASTM E 260-~~85~~96 (2006), "Standard Practice for Packed Column Gas Chromatography," ASTM International.

8. Emissions of ~~ROC~~ reactive organic compounds from the exhaust of an emission control system shall be measured by the ~~appropriate~~ EPA Method 18 ~~or 25, or, if applicable, 25A or 25B may be used~~ (40 CFR, Part 60, Appendix A-7), with gas chromatography-flame ionization detection speciation analysis for C1, C2, C3, C4, C5, C6+ species.

~~O~~Q. **Operation~~al~~ and Maintenance Plan.** Any person proposing to use an emission control device to comply with this rule pursuant to ~~Rule 321~~ Section ~~M~~ N shall submit, with the Authority to Construct application, an emission control device Operation and Maintenance Plan to the Control Officer for approval. ~~Owners or operators of emission control devices installed as of July 17, 1997, if not previously submitted, shall submit Operation & Maintenance Plans by January 17, 1998 and obtain approval of the plan by the Control Officer.~~ The Operation and Maintenance Plan shall specify: [*Link to Note No.66*]

1. operation and maintenance procedures of emissions-producing operation, and

2. which records shall be kept to document these operation and maintenance procedures.

These records shall comply with the requirements of ~~Rule 321~~ Section ~~P~~R.1.c and ~~P.3~~R.3. The Operation and Maintenance Plan shall be implemented upon approval of the Control Officer.

~~P~~R. **Recordkeeping Requirements.**

1. Any person ~~holding a permit for~~who owns, operates, or uses a solvent ~~cleaner~~ cleaning machine or performs solvent cleaning that is subject to this rule shall comply with the following requirements:

   a. Maintain and have available on site ~~solvent manufacturer specification sheets that show~~ the following information ~~for each~~ on all solvent materials subject to this rule currently in use at the stationary source:

      1) ~~Type of solvent (chemical or manufacturer's product name).~~ Brand name, stock identification number, and generic product class for each solvent used during the month.

      2) ~~The solvent initial boiling point.~~Material safety data sheets for each material listed in response to Section R.1.a.1).

      3) Purchase records for each material listed in response to Section R.1.a.1).

   b. Record ~~each quarter~~ the following information for the stationary source:

      1) ~~The total volume of make-up solvent used, itemized by each solvent's chemical or manufacturer's product name. If the solvent is a mix of materials blended by the operator, the mix ratio by each solvent's chemical or manufacturer's product name shall be recorded.~~On a monthly basis, the total monthly volume (gallons) usage and reactive organic compound content (grams per liter or pounds per gallon of reactive organic compound) for each material listed in response to Section R.1.a.1).

      2) ~~The date~~ Records confirming compliance with the acceptable disposal methods listed in Section D.1, each time waste solvent or waste solvent residue is removed from the ~~facility~~ stationary source for disposal.

      3) For solvent cleaning, the type of cleaning activity for each solvent used at the stationary source in accordance with the cleaning categories specified in Table 1 of this rule.

      4) For each solvent cleaning machine:

         i. Type of solvent cleaning machine.

ii. Brand name of each solvent and the reactive organic compound content of each solvent, as used.

iii. The solvent(s) initial boiling point.

5) When the solvent is a mixture of different materials that are blended by the operator, the mix ratio of the batch shall be recorded and the reactive organic compound content of the batch shall be calculated and recorded in order to determine compliance with the specified limits of reactive organic compound content, as applied.

c. If using an emission control system pursuant to ~~Rule 321~~ Section ~~M~~ N as a means of complying with this rule, the person shall maintain such records as required by the Operation and Maintenance Plan in Section ~~O~~ Q on a daily basis. Key operating parameters and other information necessary to verify compliance with the required overall efficiency of the total system, as specified in Section N.1, shall be recorded. These parameters shall include, but not be limited to:

1) Hours of operation;

2) All maintenance work that requires the emission control system to be shut down;

3) All information needed to demonstrate continuous compliance with Section N, such as temperatures, pressures, and/or flow rates.

~~2.~~ ~~Any person claiming an exemption from Rule 321, pursuant to Section B.2.b, shall record each quarter the following information for the stationary source: the aggregate evaporative surface area of all solvent cleaners subject to the Rule 321 Section B.2.b exemption claim.~~ [*Link to Note No.67*]

~~3~~2. Any person claiming the Section B.9 exemption or the Section B.15 exemption, shall maintain records in order to demonstrate compliance with the solvent usage rate applicability threshold limits. For Section B.9 exemption claims, daily records shall be maintained. For Section B.15 exemption claims, monthly and calendar year total records shall be maintained.

3. Maintain the ~~R~~records kept pursuant to this ~~section~~ rule ~~shall be maintained~~ on site for at least ~~2~~ 3 years. Thereafter, ~~the records shall be~~ maintain~~ed~~ such records either on site or readily available for expeditious inspection and review for an additional ~~3~~ 2 years.

~~Q~~S. Reporting Requirements

Any person holding a permit for a solvent ~~cleaner~~ cleaning machine or solvent cleaning subject to the requirements of this rule shall submit an annual report to the ~~Control~~ District. At a minimum, ~~T~~the annual report shall contain the ~~quarterly~~ monthly records required by ~~Rule 321~~ Section ~~P~~R.1.b.1), the annual totals based on each of the solvent's monthly data, the name and address of the Permittee, and the Permit to Operate number that the solvent cleaning machine and/or solvent cleaning is subject to. The report shall be due March 1 for the previous calendar year.

~~R~~T. Compliance Schedule

Any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning subject to this rule shall meet the following compliance schedule:

1. New solvent cleaning machines and solvent cleaning operations:

Commencing [*date of revised rule adoption*], any new solvent cleaning machine shall comply with this rule the first time it is operated in the District. Also commencing [*date of revised rule adoption*], any new solvent cleaning shall comply with this rule the first time it is performed in the District. [*Link to Note No.68*]

2. Existing solvent cleaning machines:

a. For any solvent cleaning machine previously subject to the Rule 321 adopted on September 18, 1997, commencing [*date of revised rule adoption*], the owner or operator shall ensure that the equipment complies with the applicable provisions of Rule 321. The provisions in Sections H.7, I.7, J.8, J.11, K.6, L.9, and L.11 have an effective date of [*one year from the date of revised rule adoption*]. [*Link to Note No.69*]

b. For any solvent cleaning machine previously exempt from the September 18, 1997 amended Rule 321 that lost its exemption by the adoption of amended Rules 102 (Definitions), 202 (Exemptions to Rule 201), and/or Rule 321 on [*date of revised rule adoption*], the owner or operator of such equipment shall comply with the following: [*Link to Note No.70*]

~~1. The owner or operator of any solvent cleaning equipment in operation as of July 17, 1997 and subject to the requirements of this rule shall comply with the following:~~

~~a.~~ 1) By ~~August 16, 1997~~[*30 days from the date of revised rule adoption*], be in full compliance with the applicable operating requirements of ~~Rule 321~~ Sections D, E, and F.

~~b.~~ 2) By ~~January 13, 1998~~[*180 days from the date of revised rule adoption*], be in full compliance with the applicable recordkeeping and reporting provisions of ~~Rule 321~~ Sections ~~P~~ R and ~~Q~~S.

~~c.~~ 3) By ~~July 17, 1998~~[*365 days from the date of revised rule adoption*], be in full compliance with the applicable equipment requirements of ~~Rule 321~~ Sections G, H, I, J. K, L, and ~~M~~N.

~~d.~~ 4) For any lip exhaust installed or added after [*date or revised rule adoption*] and ~~N~~notwithstanding the dates in ~~Rule 321~~ Section~~s R.1.c, the provisions of Section G.8 shall take effect on July 17, 1997~~ G.8 and T.2.b.3, ducting or a collection system connected to an emission control system that meets the requirements of Section N. [*Link to Note No.71*]

~~2. This rule applies to any new or modified solvent cleaning equipment on July 17, 1997.~~

3. Existing solvent cleaning operations: [*Link to Note No.72*]

The owner or operator of any facility performing solvent cleaning as of [*date or revised rule adoption*] and subject to the requirements of this rule shall comply with the following:

a. By [*30 days from the date of revised rule adoption*], be in full compliance with the applicable operating requirements of Section D.

b. By [*180 days from the date of revised rule adoption*], be in full compliance with the applicable recordkeeping and reporting provisions of Sections R and S.

c. By [*365 days from the date of revised rule adoption*], be in full compliance with the solvent cleaning requirements of Rule Section M.

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
1	Rule Title	The *solvent cleaning machines* term is from 40 CFR, Part 63, Subpart T. The *solvent cleaning* term is modeled on the term in the San Joaquin Valley Unified APCD (SJV) Rule 4663. "Solvent cleaning" is generally defined as those solvent activities, operations, and processes that occur outside of a solvent cleaning machine (SCM). The proposed amended Rule 102 contains definitions for *solvent, solvent cleaning,* and *solvent cleaning machine.*	Click here.	Page F-1
2	A.	The APCD used the SJV Rule 4663 "Applicability" provision as a model for this section.	Click here.	Page F-1
3	B.1	With the new definition of "Solvent" in Rule 102, a solvent that contains no reactive organic compounds, but contains more than 2% of a toxic air contaminant will be subject to the rule. However, if a solvent cleaning machine is using a hazardous air pollutant and is subject to the 40CFR Part 63 Subpart T requirements, the equipment will be exempt by Section B.5 (providing the equipment complies with the applicable federal requirements). The APCD is adding recordkeeping provisions to Section B.1 to help sources and staff verify eligibility with exemption claims.	Click here.	Page F-1
4	Deleted B.2	For consistency with the new solvent ROC limits for small cold cleaning machines and remote reservoir cleaning machines, the 1 gallon volume and 1 square foot surface area exemptions need to be deleted	Click here.	Page F-1
5	Deleted B.3 and Revised B.2	The deleted text is unnecessary because the proposed amended Rule (PAR) 321 Section J.9 provision indicates that the requirements only apply to units with a surface area of 10.8 square feet or greater. The new text adds an architectural coating application equipment exemption. This exemption is necessary to standby itself (i.e., not be included with the B.6 provision) because Rule 323 does not current have any requirements on the cleaning of application equipment. The owners/operators that apply architectural coatings should easily comply with the 950 grams of ROC per liter limit. Thus, the requirement does not warrant recordkeeping provisions for compliance verification. The APCD modeled this exemption on the South Coast AQMD (SC) Rule 1171, Section (h)(2)(H), as adopted May 6, 2005.	Click here.	Page F-1
6	Deleted B.4.a	The deletion of the wipe cleaning exemption is necessary for consistency with the new PAR 321 solvent cleaning provisions.	Click here.	Page F-1
7	B.3	The District updated the name of the ATCM.	Click here.	Page F-1
8	B.4	This revised text is modeled on the exemption in the SJV Rule 4663.4.2.	Click here.	Page F-1
9	Deleted B.4.d	The deletion of the spray gun cleaning exemption is necessary for consistency with the PAR 321.	Click here.	Page F-1

[a] When using a computer to view this material, you may return to the PAR 321 text by clicking the "here" link in the table using the left mouse button.

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
10	B.5	The APCD is proposing that the definition of *solvent* include any liquid containing an ROC or a toxic air contaminant (TAC). All HAP solvents are TACs. The addition of the "notwithstanding Section B.1" text in Rule 321.B.5 is to trump the Section B.1 exemption. Thus, a SCM subject to and complying with 40 CFR, Part 63, Subpart T, is exempt irrespective that the unit uses a cleaning agent that contains more than 2 percent solvent that is a TAC.	Click here.	Page F-2
11	B.5	The listing of the chemicals in this section is no longer necessary with the addition of the *halogenated hazardous air pollutant solvent* definition in Rule 321.	Click here.	Page F-2
12	Deleted B.4.f	The PAR 321 has provisions that apply to these types of units(e.g., Section O requirements for airless and air-tight solvent cleaning machines).	Click here.	Page F-2
13	B.6	Exempting these solvent cleaning operations from Rule 321 is consistent with the approach of putting the solvent cleaning requirements into each of the operation- or equipment-specific rules. The SJV and VC solvent cleaning rules have similar exemptions.	Click here.	Page F-2
14	B.7	This exemption is the same one found in SJV Rule 4663 Section 4.1 and VC Rule 74.6 Section E.1.c.	Click here.	Page F-2
15	B.8	The APCD modeled this exemption on provisions in the SJV Rule 4663 Sections 4.5.1 and 4.5.2, the SC Rule 1171 Section (g)(3), and VC Rule 74.6 Sections E.2.c and d.	Click here.	Page F-2
16	B.8	This provision stems from various exemptions in the SC Rule 1122 and the SJV Rule 4662, the SBCAPCD responses to concerns from the regulated community, and the limits for like categories in the Section M.1, Table 1. By making these solvent cleaning machines exempt from the 50 grams per liter ROC limit, but limiting the solvent to 900 grams per liter of ROC, should eliminate any tendencies for industry to switch from solvent cleaning to a solvent cleaning machine to be subject to less stringent limits.	Click here.	Page F-3
17	B.9	This exemption is similar to the one found in SC Rule 1171(g)(4) and SJV Rule 4663.4.8. The APCD added the recordkeeping provision to facilitate determinations of exemption applicability.	Click here.	Page F-3
18	B.10	The APCD modeled this exemption on the SC Rule 1171 Section (h)(6)(B) as adopted on October 8, 1999 and SJV Rule 4663 Section 4.6 provisions.	Click here.	Page F-3
19	B.11	The proposed new Section B.11.a and b exemptions are similar to the SC Rule 1171 Section (g)(11)(A) and (B) provisions. Staff added the Section B.11.c exemption because gas-path cleaners inject solvent into gas turbines or jet engines under pressure and there is likely atomization occurring during the process.	Click here.	Page F-3
20	B.12	With the addition of the term *moisture* to the solvent cleaning definition (Rule 102), tarmac de-icing operations become a subset of solvent cleaning. No air districts require control techniques for aircraft de-icing. A feasibility study on controlling de-icing operations has not been performed. Thus, the APCD prefers not to apply Rule 321 provisions to such operations at this time and is adding this exemption.	Click here.	Page F-3

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
21	B.13	This exemption is similar to an exemption provided in the SJV Rule 4663 Section 5.1.6 (adopted December 20, 2001). The SJV staff added this exemption in response to an industry concern about prohibiting the use of "Hudson" type sprayers, which are hand-pump pressurized containers with atomizing spray nozzles.	Click here.	Page F-3
22	B.14	The District is adding this exemption to clarify that the Rule 321 solvent cleaning requirements do not apply to such sources.	Click here.	Page F-3
23	B.15	This exemption is similar to the one found in the SJV Rule 4663 Section 4.4.	Click here.	Page F-3 & 4
24	B.16.a - f	These exemptions stem from similar provisions found in the SC Rule 1171(g) and the VC Rule 74.6.E.2.	Click here.	Page F-4
25	B.16.g	The APCD added this exemption to allow offshore platform operators to use mineral spirits to remove crude oil residues . Limiting the solvent's composite partial pressure to 8 mm of Hg at 20 degrees Celsius or less is consistent with the EPA guidance in the document titled, "Control Techniques Guidelines: Industrial Cleaning Solvents," September 2006 (EPA-HQ-OAR-2006-0535). The mineral spirits the industry requests to use should be able to meet the composite partial pressure limit and the 800 grams per liter ROC content limit.	Click here.	Page F-4
26	B.17	These exemptions are similar to the VC Rule 74.6, Section E.2.m and n exemptions.	Click here.	Page F-4
27	B.18	This exemption is similar to the VC Rule 74.6.1, Section G.3 exemption.	Click here.	Page F-4
28	B.19	The APCD modeled this exemption on the VC Rule 74.6.E.1.h text.	Click here.	Page F-4
29	B.20	This is a limited exemption from several new vapor cleaning machine requirements. Equipment subject to this exemption will not be required to have an automated parts handling system, an enhanced freeboard refrigeration device, or a superheated vapor zone. The APCD is proposing this exemption to provide relief for several existing uncontrolled vapor cleaners used by Raytheon to clean electronic components. Raytheon indicates it has explored using other equipment (e.g., airless and air-tight systems) but has not been able to find suitable replacements. The SC Rule 1122 (E) provides a narrow and unique exemption for specialized parts cleaning, which is similar to the approach the District is taking. The proposed maximum ROC limit of 188 pounds per month per stationary source is based on data provided by Raytheon and may not represent the equipment's maximum potential to emit. The District is proposing the qualifying provisions of this exemption, including the pound per month per stationary source limit, as a means to develop an exemption that will be acceptable to Raytheon, the APCD, ARB, and EPA.	Click here.	Page F-4

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
30	B.21	This is an exemption that is unique to SBC. The District is aware that medical device manufacturers sometime leak test devices using a solvent bath. This limited exemption would allow the practice to continue without subjecting the solvent wash stations to the rule's minimum freeboard height and/or free ratio requirements, or alternative compliance methods (water cover or emission control system).	Click here.	Page F-4
31	B.22	The APCD is adding this exemption to clarify that metal lift-off operations are not subject to Rule 321 requirements. This is consist with exempting photoresist stripping from the Rule 321 provisions (PAR 321.B.4).	Click here.	Page F-4
32	C (Section Title: Definitions)	In general, the solvent cleaning machine terms used herein have the same meaning as those found in 40 CFR, Part 63, Subpart T - National Emission Standards for Halogenated Solvent Cleaning (40 CFR §63.460 et seq.). The basis for using the definitions from the federal statute is that: 1. It is the most global regulatory document available relative to solvent cleaning machine requirements, and 2. EPA and manufacturers worked together to develop the terms, and 3. They are available on the Internet (http://www.gpoaccess.gov/cfr/retrieve.html, under Title "40," CFR "63," Section "461"). The APCD modeled the *solvent cleaning* terms and definitions on those used by other air districts.	Click here.	Page F-5
33	C (Airless and Air-Tight SCM Definition)	These definitions are the same ones found in SJV Rule 4662. PAR 321, Section O, provides an alternative compliance method to Sections E through L involving the use of either an airless or air-tight solvent cleaning machine.	Click here.	Page F-5
34	C (Deleted Control Device Definition)	The APCD changed the term to *emission control device* and relocated it so that it would be in alphabetical order. The PAR 321 uses the 40 CFR, Part 63, Subpart T, *control device* term when describing a *vapor level control device*. PAR 321 also uses the term *control device* when establishing requirements for the emission controls. Thus, it is necessary to differentiate between these two uses of the term *control device*.	Click here.	Page F-6
35	C (Conveyorized [In-Line or Continuous] Cleaning Machine Definition)	40 CFR, Part 63, Subpart T, provisions do not use the term *conveyorized*. For congruency with the SC and SJV degreasing rules, the conveyorized term is being retained. The addition of *web* is provided for consistency with the *continuous web cleaning machine* definition. The terms *gyro* and *cross-rod* cleaning machines are being deleted because these are loaded manually or semi-continuously, which makes them batch cleaning machines.	Click here.	Page F-6

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
36	C (Deleted Degreaser Definition)	The APCD is revising the *degreaser* definitions to be consistent with 40 CFR, Part 63, Subpart T, wherever possible. The federal regulation does not define *degreaser* and does not use the term.[a] Instead, 40 CFR, Part 63, Subpart T, uses *solvent cleaning machine*. Therefore, staff replaced the term *degreaser* with *solvent cleaning machine* throughout Rule 321 and deleted the definition of *degreaser* from Section C. Rule 102 includes a definition of *degreaser* to clarify that degreaser has the same meaning as *solvent cleaning machine*.	Click here.	Page F-6
37	C (Electrical Components Definition)	The District deviated from the similar definitions found in the SC, SJV, and VC rules. The proposed definition is intended to be more descriptive and incorporates *semiconductor* terms. The APCD is not planning to have a separate *semiconductor manufacturing* rule as is done in the SCAQMD and VC.	Click here.	Page F-7
38	C (Deleted Evaporative Surface Area Definition)	*Evaporative surface area* has been replaced by the 40 CFR, Part 63, Subpart T, *solvent/air interface area* term.	Click here.	Page F-7
39	C (Gas-Path Solvent Cleaner Definition)	Staff used the San Diego County APCD (SD) Rule 67.6(c)(8) "gas-path cleaning machine" as a model for the proposed revised definition. For rule clarity, staff recommends that the current "liquid-path" portion of the term be deleted. The PAR 321, Section M.2.c, includes *solvent flow* and *solvent flush* methods as acceptable cleaning techniques for solvent cleaning. Without the deletion of "liquid-path" there could be confusion between the solvent cleaning and gas/liquid-path solvent cleaner requirements. Thus, the "liquid-path" description is removed from the term and the proposed amended Section F operating requirements apply only to gas-path solvent cleaners.	Click here.	Page F-8
40	C (High Volatility Solvent Definition)	A *high volatility solvent* includes any solvent with an initial boiling point (IBP): 1. ≤ 248 ºF or 2. > 248 ºF, but the in-use temperature is not ≤ 212 ºF below the solvent's IBP. The Rule 202.U.2.b uses a solvent IBP temperature exemption applicability threshold of 302 ºF or greater. For a remote reservoir SCM employing turpentine (IBP = 302 ºF) used in an environment without air conditioning, the ambient and in-use temperature could be expected to reach 90 ºF or greater. Such a unit would be exempt from permit, but would need to comply with the Rule 321 Section H.5 0.75 freeboard ratio requirement because the solvent would be classified as a *high volatility solvent*.	Click here.	Page F-9

[a] There is one exception. The 40 CFR, Part 63, Subpart T, Section 63.461 uses the term *degreaser* in the definition of *batch cleaning machine.*

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
41	C (In-Line Cleaning Machine or Continuous Cleaning Machine Definition)	The revised definition is from 40 CFR, Part 63, Subpart T. A mechanized solvent cleaning machine is an *in-line* or *continuous cleaning machine* only if it uses an automated parts handling system to provide a continuous supply of parts. If a cleaner is loaded manually or semi-continuously, it is not an in-line cleaning machine or a continuous solvent cleaning machine. Gyro (Ferris wheel) and cross rod cleaning machines are not in-line or continuous cleaning machines because the parts being cleaned are loaded manually or semi-continuously.	Click here.	Page F-9
42	C (Low Volatility Solvent Definition)	The definition stems from the ARB RACT/BARCT document. However, the APCD discovered that the definition had an error (100 degrees Celsius equals 212 degrees Fahrenheit, not 180 degrees Fahrenheit). Thus, the revised definition takes into account the correct Fahrenheit temperature for deeming a solvent a *low volatility solvent*.	Click here.	Page F-9
43	C (Solvent/Air Interface and Solvent/Air Interface Area Definitions)	These definitions are consistent with the definitions found in 40 CFR, Part 63, Subpart T. *Solvent/air* interface replaces the current *air-solvent interface* and *air-vapor interface* terms. The *solvent/air interface* term appears in the definitions of *freeboard area* and *freeboard height*. *Solvent/air interface area* replaces the current *evaporative surface area* term. The *solvent/air interface area* term appears in various Rule 321 operation and equipment requirements.	Click here.	Page F-11
44	C (Deleted Solvent Cleaning Definition)	The *solvent cleaning* term has been moved to Rule 102 and it is being modified to take on a different meaning. Basically, *solvent cleaning* includes any operation using a solvent performed outside of a solvent cleaning machine. This approach is consistent with the one used in the SJV Rule 4663.	Click here.	Page F-11
45	D	In general, the APCD added "owns, operates, or uses" to sections on applicability and rule requirements to improve rule clarity. This terminology is being added in numerous places throughout the revised rule. For the sake of brevity, the notes in this annotated draft PAR 321 will not re-iterate the addition of the "owns, operates, or uses" text.	Click here.	Page F-13
46	D.10 – D.12	Requirements in PAR321.D.10 and 11 are similar to those found in 40 CFR, Part 63, Subpart T, and SC Rule 1122. The intent is to ensure that good housekeeping procedures are followed. The Section D.12 provision is modeled on language from 40 CFR, Part 63, Subpart T	Click here.	Page F-14
47	D.13	The APCD moved this provision from Rule 321, Section G.10. A similar provision is found in the SC Rule 1122, Section (c)(1)(K), Work Practice Requirements.	Click here.	Page F-14
48	H.7	Limiting the solvent's ROC content will likely affect the type of solvent used in remote reservoir cleaners (e.g., Safety Kleen units) in shops such as automobile repair shops. Limiting remote reservoir cleaner solvent ROC content is consistent with the approach taken by SJV, SC, and VC. The 50 grams of ROC per liter limit is based on the limit specified in the SC Rule 1122, adopted July 11, 1997.	Click here.	Page F-17

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
49	I	It should be understood that if a person is employing a remote reservoir cold cleaning machine that uses an enclosed container that is accessible for dipping or soaking parts, such machine is subject to the provisions in Section I. (See the "Remote Reservoir Cleaning Machine" on page F-11 or clicking here for the text that explains that remote reservoir cold cleaners designed to allow dip or soak cleaning are considered to be batch cold cleaning machines.)	Click here.	Page F-17
50	I.7	The 50 grams of ROC per liter limit is based on the limit specified in the SC Rule 1122, adopted July 11, 1997.	Click here.	Page F-18
51	J.11	The APCD modeled the Section J.11 requirements on provisions in: 1. The SJV Rule 4662, Sections 5.4.10.7 - 5.4.10.12; and 2. The SC Rule 1122, Section (e)(1)(B).	Click here.	Page F-19
52	K.6	The 50 grams of ROC per liter limit is based on the limit specified in the SC Rule 1122, adopted July 11, 1997.	Click here.	Page F-18
53	L.11	The APCD modeled the Section L.11 requirements on provisions in: 1. The SJV Rule 4662, Sections 5.5.7.7 - 5.5.7.12; and 2. The SC Rule 1122, Section (e)(2)(C).	Click here.	Page F-21
54	M	In general, the proposed new Section M provisions are modeled on requirements in the SC Rule 1171, Solvent Cleaning Operations; the SJV Rule 4663, Organic Solvent Cleaning, Storage, and Disposal; and the VC Rule 74.6.	Click here.	Page F-22
55	M.1, Table 1, Category (a)(i) & Category (b)(i)	These limits are based on those limits in the SJV Rule 4663 (effective November 15, 2003)	Click here.	Page F-22
56	M.1, Table 1, Categories (a)(ii), (a)(iii), (b)(ii), (b)(iii), and (c)	The APCD based these limits on the limits in the SJV Rule 4663 (effective November 15, 2002 through November 14, 2003).	Click here.	Page F-22
57	M.1, Table 1, Category (d)	The District based the limit on comments from the regulated community and the Vandenberg Air Force Base practice of using IPA for cleaning fuel transfer lines.	Click here.	Page F-22
58	M.2	These provisions on cleaning devices and methods are similar to requirements found in SC Rule 1171, Section (c)(2); SJV Rule 4663, Section 5.2.5; and VC Rule 74.6, Section B.2.	Click here.	Page F-23

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
59	M.3	The proposed new 321.M.3 provisions are modeled on the provisions in SJV Rule 4663, Section 5.2.7. The Section M, Table 1 category (c) allows the solvent used for cleaning application equipment to have an ROC content up to 950 grams per liter. However, under the Section M.3 provision, an enclosed system (or other APCO-approved equipment) is needed if the solvent's ROC content exceeds 50 grams per liter.	Click here.	Page F-23
60	N	Section D.9 (solvent atomization), Section G.8 (lip exhausts installed after July 17, 1997), and proposed amended Rule 321 Section T.2.b.4) (lip exhausts installed on previously exempt SCMs after the rule adoption date) require the use of an emission control system that complies with Section N. Many other sections allow the use of an emission control system that complies with Section N as an alternative compliance method. Instead of listing those rule sections in the rule, the APCD elected to simply indicate *or as an alternative compliance method as provided for in this rule*. The PAR 321 Sections that provide for use of an emission control system as an alternative compliance method include: H.7, I.7, J.11, K.6, L.11, and M.1	Click here.	Page F-23
61	N.1	The District added *and toxic air contaminant emissions* to Section N.1 to cover cases where a source is using a liquid containing a toxic air contaminant and wants to use an emission control system as an alternative compliance method.	Click here.	Page F-23
62	N.5	The new Section N.5 provision on a deadline for completing an initial source test is being added to ensure that sources complete such a test in a timely manner	Click here.	Page F-23
63	N.6	This requirement is similar to the provision found in SJV Rule 4663, Section 5.5.5. It is an overarching provision that prohibits use of an emission control system unless the ROC emission rate from such system is equal to or less than the emissions otherwise expected with the use of a complying solvent. The provision prevents a source from using a large quantity of high-ROC content solvent with an emission control system unless the control system's overall efficiency is such that it achieves a lower emission rate than the one that would have been achieved through use of a complying solvent. Theoretically, this provision may require that a system's overall control efficiency be above the 85% requirement in Section N.1 to comply with Section N.6.	Click here.	Page F-23
64	O	The SC Rule 1122 and SJV Rule 4662 allow use of air-tight cleaning systems and airless cleaning systems. These systems are state-of-the-art machines that have low emissions.	Click here.	Page F-24

NOTE No.	PROPOSED AMENDED RULE 321 SECTION	PROPOSED AMENDED RULE (PAR) 321 NOTES	LINK TO RETURN TO PAR 321[a]	APPENDIX F PAGE NO. FOR THE PAR 321 SECTION
65	P.5	To provide additional options, the APCD recommends the addition of these two test methods: 1. EPA Test Appendix A-1, Method 2F, Determination of Stack Gas Velocity and Volumetric Flow Rate with Three-Dimensional Probes, and 2. EPA Test Appendix A-2, Method 2G, Determination of Stack Gas Velocity and Volumetric Flow Rate with Two-Dimensional Probes.	Click here.	Page F-24
66	Q	This text should no longer be necessary as sources should have already obtained the APCO approval for their Operation and Maintenance Plans.	Click here.	Page F-25
67	Deleted P.2.	The APCD is eliminating the *small surface area exemption* (Rule 321.B.2.b). Thus, the recordkeeping provision associated with this exemption is no longer needed.	Click here.	Page F-26
68	T.1	When the APCD indicates that qualifying SCMs or solvent cleaning *shall comply with the rule the first time it is operated or performed in the District,* it should be recognized that the provisions in Sections H.7, I.7, J.8, J.11, K.6, L.9, and L.11 have an effective date of one year from the date of revised rule adoption. Thus, the District does not require new equipment or solvent cleaning operations to comply with those rule provisions before the section's effective date.	Click here.	Pages F-26 & 27
69	T.2.a	The owners and operators of existing solvent machines previously subject to Rule 321 are required to maintain continuous compliance when the newly adopted revised rule supersedes the Rule 321 adopted on September 18, 1997.	Click here.	Page F-27
70	T.2.b	Changes to Rules 102, 202, and 321 may cause some previously exempt solvent cleaning machines to become subject to Rule 321 for the first time. For example, an unheated solvent rinsing container having a capacity of 9 gallons and designed to operate in a closed system fashion is presently exempt by Rule 202.U.1 and Rule 321.B.4.f. However, under the revised rules, such a unit will no longer be exempt. The APCD is proposing incremental, phased compliance periods that follow the present rule compliance periods.	Click here.	Page F-27
71	T.2.b.4)	The APCD is modifying and updating this section to clarify when the installation of a lip exhaust on a previously exempt SCM will be required to be connected to an emission control system complying with the Section N requirements.	Click here.	Page F-27
72	T.3	The adoption of the revised Rule 321 will eliminate the solvent cleaning (wipe cleaning) exemption in Section B.4.a. In general, all existing qualifying solvent cleaning operations are becoming subject to Rule 321 for the first time via the proposed amended rule adoption. The District is providing incremental, phased compliance periods similar to those in the existing rule (adopted July 17, 1997).	Click here.	Page F-27

Click here to return to the list of Appendices in the Background Paper.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix G
Summarized Data on Emission Reductions and Cost-Effectiveness

Table 1. EMISSION REDUCTIONS[a]
Reactive Organic Compounds in Tons per Year

	Company/Facility or Area Source Description	Facility or EIC Number	Device No.	Category[b]	Current Solvent Emissions	Projected ROC Emissions	Reduced Solvent Emissions
1	Bardex Corporation	01152	108834	SCM	0.08	0.02	0.06
2	Celite Corporation	00012	008043	SCM	0.21	0.18	0.03
3	DCOR, LLC., Platform A	08003	004883	SCM	1.17	0.99	0.18
4	DCOR, LLC., Platform B	08004	004901	SCM	2.83	2.41	0.42
5	DCOR, LLC., Platform C	08006	004935	SCM	1.50	1.28	0.22
6	DCOR, LLC., Platform Habitat	08012	005483	SCM	0.02	0.02	0.00
7	DCOR, LLC., Platform Henry	08007	004953	SCM	1.00	0.85	0.15
8	DCOR, LLC., Platform Hillhouse	08005	004920	SCM	9.59	8.15	1.44
9	ExxonMobil Production Company, Platform Harmony	08018	005345	SCM	0.35	0.30	0.05
10	ExxonMobil Production Company, Platform Heritage	08019	005369	SCM	0.18	0.15	0.03
11	ExxonMobil Production Company, Platform Hondo	08009	005385	SCM	0.15	0.13	0.02
12	Plains Exploration & Production Company, Lompoc Oil and Gas Plant	03095	008759	SCM	0.68	0.58	0.10
13	Plains Exploration & Production Company, Platform Irene	08016	005459	SCM	0.09	0.08	0.01
14	The Point Arguello Companies, Platform Hermosa	08014	005422	SCM	0.30	0.26	0.04
15	The Point Arguello Companies, Platform Hidalgo	08015	005445	SCM	0.77	0.65	0.12
16	Celite Corporation	00012	008043	SC	0.21	0.08	0.13

[a] Based on the 2006 Emission Inventory.
[b] Solvent Cleaning Machine (SCM), Solvent Cleaning (SC), or Area Source (AS) categories.

	Company/Facility or Area Source Description	Facility or EIC Number	Device No.	Category[b]	Current Solvent Emissions	Projected ROC Emissions	Reduced Solvent Emissions
17	Greka Oil & Gas, Inc., Bell Lease (Cat Canyon)	03211	005957	SC	0.28	0.07	0.21
18	Helix Medical, LLC.	04487	107500	SC	2.38	2.29	0.09
19	Indigo Systems Corporation	09745	107595	SC	0.35	0.33	0.01
20	Indigo Systems Corporation	09745	107595	SC	0.56	0.54	0.02
21	Innovative Micro Technology, Inc. (IMT)	10867	109942	SC	1.67	1.60	0.06
22	International Transducer Co.	01634	107650	SC	0.27	0.26	0.01
23	International Transducer Co.	01634	107650	SC	0.76	0.73	0.03
24	Lockheed Martin Missiles & Fire Control	09424	010050	SC	0.93	0.89	0.04
25	Lockheed Martin Missiles & Fire Control	09424	009932	SC	1.17	1.13	0.05
26	Lockheed Martin Missiles & Fire Control	09424	010049	SC	2.28	2.19	0.09
27	Medtronic PS Medical	04635	107596	SC	0.12	0.12	0.01
28	Medtronic PS Medical	04635	107596	SC	0.16	0.15	0.01
29	Medtronic PS Medical	04635	107596	SC	3.62	3.48	0.14
30	NuSil Technology	02361	006026	SC	0.46	0.44	0.02
31	NuSil Technology	02361	001356	SC	1.41	1.35	0.05
32	NuSil Technology	04621	006001	SC	3.35	3.23	0.13
33	Pacific Scientific, EKD	08934	107600	SC	0.27	0.26	0.01
34	Plains Exploration & Production Company, Lompoc Oil and Gas Plant	03095	008759	SC	0.68	0.27	0.41
35	Raytheon Space & Airborne Systems	03890	005234	SC	0.19	0.18	0.01
36	Raytheon Space & Airborne Systems	04140	107601	SC	0.24	0.23	0.01
37	Superconductor Technologies, Inc.	10341	107607	SC	0.23	0.23	0.01
38	Degreasing-Handwiping-Alcohols (Unspecified)	220-208-3022-0000	N/A	AS	61.21	58.92	2.29
39	Degreasing-Handwiping-Degreasing Solvents-Blends (Unspecified)	220-208-8106-0000	N/A	AS	20.40	15.05	5.35
40	Degreasing-Handwiping-Degreasing Solvents-Pure (Unspecified)	220-208-8104-0000	N/A	AS	4.08	3.01	1.07

	Company/Facility or Area Source Description	Facility or EIC Number	Device No.	Category[b]	Current Solvent Emissions	Projected ROC Emissions	Reduced Solvent Emissions
41	Degreasing-Handwiping-Glycol Ethers (Unspecified)	220-208-3176-0000	N/A	AS	8.16	1.97	6.19
42	Degreasing-Handwiping-Ketones (Unspecified)	220-208-3204-0000	N/A	AS	44.89	28.04	16.85
43	Degreasing-Handwiping-Petroleum Naphtha	220-208-0500-0000	N/A	AS	53.05	21.26	31.79
44	Degreasing-Handwiping-Toluene/Xylene	220-208-3339-0000	N/A	AS	12.24	11.78	0.46
45	Solvent-Cold Cleaning-Alcohols (Unspecified)	220-204-3022-0000	N/A	AS	28.56	27.49	1.07
46	Solvent-Cold Cleaning-Isopropal Alcohol	220-204-3202-0000	N/A	AS	4.08	1.00	3.08
47	Solvent-Cold Cleaning-Other/Not Classified: Specify Solvent	220-204-8106-0000	N/A	AS	77.53	48.46	29.08
48	Solvent-Cold Cleaning-Petroleum Naphtha: General	220-204-0500-0000	N/A	AS	428.47	300.10	128.37
49	Solvent-Cold Cleaning-Terpenes (Unspecified)	220-204-3333-0000	N/A	AS	16.32	10.79	5.53
				Totals	799.52	563.96	235.56[a]

[a] Converted to tons per day:

(235.56 tons/year)*(1 year/365 days) = 0.65 tons/day of ROC emission reduction.

Table 2. COST-EFFECTIVENESS FOR REPLACING TWO HIGH-ROC COLD CLEANERS WITH ONE AQUEOUS UNIT[a]

Control Option: Switching from Two High-ROC Cold Cleaners to:	Cost per Year	Cost-Effectiveness ($/ton of ROC reduced)
One Low-Use Batch-Loaded Automated Aqueous Unit	-$112 (savings)	-$2,560 (savings)
One Average-Use Batch-Loaded Automated Aqueous Unit	-$362 (savings)	-$3,320 (savings)
One High-Use Batch-Loaded Automated Aqueous Unit	-$412 (savings)	-$1,880 (savings)

Table 3. COST-EFFECTIVENESS FOR REPLACING A HIGH-ROC COLD CLEANER WITH AN AQUEOUS OR ENZYME UNIT[a]

Control Option: Switching from One High-ROC Cold Cleaners to:	Cost per Year	Cost-Effectiveness ($/ton of ROC reduced)
Low-Use Aqueous Unit	$545	$12,940
Average-Use Aqueous Unit	$903	$8,560
High-Use Aqueous Unit	$1,393	$6,600
Low-Use Enzyme Unit	$370	$8,120
Average-Use Enzyme Unit	$430	$3,800
High-Use Enzyme Unit	$470	$2,080
One Low-Use Batch-Loaded Automated Aqueous Unit	$130	$9,440
One Average-Use Batch-Loaded Automated Aqueous Unit	$240	$2,320
One High-Use Batch-Loaded Automated Aqueous Unit	$790	$3,840

Click here to return to the list of Appendices in the Background Paper.

[a] Reference: San Joaquin Valley Unified Air Pollution Control District, Final Staff Report - Amendments to Rule 4662 (Organic Solvent Degreasing Operations), May 11, 2001.

Appendix H
Santa Barbara County
Identification of Existing Federal and APCD Regulations that Apply to the Same Equipment or Source Type Covered in Rule 321

This section is included to comply with the California Health & Safety Code Section 40727.2 requirements.

Federal Air Pollution Control Requirements

The federal requirements in the below-referenced statutes apply to the same equipment or source types covered by Rule 321:

- 40 CFR, Part 63, Subpart T, National Emission Standards for Hazardous Air Pollutants: National Emission Standards for Halogenated Solvent Cleaning. (Solvent cleaning machines.)

- 40 CFR, Part 63, Subpart GG, National Emission Standards for Aerospace Manufacturing and Rework Facilities. (Handwipe cleaning in the aerospace industry.)

Santa Barbara County Air Pollution Control District Requirements

These are shown in the following table.

Table 1. RULES THAT APPLY TO SOLVENT CLEANING MACHINES AND SOLVENT CLEANING SUBJECT TO RULE 321

GENERIC REQUIREMENTS	AFFECTED EMISSION UNITS	BASIS FOR APPLICABILITY
RULE 201: Permits Required	All emission units	Emission of pollutants
RULE 202: Exemptions to Rule 201	Applicable emission units	Insignificant activities/emissions, per size/rating/function
RULE 210: Fees	All emission units	Administrative
RULE 212: Emission Statements	All emission units	Administrative
RULE 302: Visible Emissions	All emission units	Particulate matter emissions
RULE 303: Nuisance	All emission units	Emissions that can injure, damage or offend.
RULE 317: Organic Solvents	All emission units	Emission of pollutants
RULE 322: Metal Surface Coating Thinner and Reducer	All emission units	Composition of organics in all metal surface coating thinners and reducers shall not be photochemically reactive
RULE 324: Disposal and Evaporation of Solvents	All emission units	Solvent disposal requirements
REGULATION VIII: New Source Review	All emission units	Addition of new equipment or modification to existing equipment. Applications to generate ERC Certificates.
REGULATION XIII (RULES 1301-1305): Part 70 Operating Permits	All emission units	A stationary source is a major source.

A review of Table 1 indicates that there are no overlapping or conflicting averaging provisions, units, or any other pertinent provisions associated with emission limits.

Click here to return to the list of Appendices in the Background Paper.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix I
Santa Barbara County
Public Comments and the Responses to Public Comments

Comments from Plains Exploration & Production Company, Letter Dated May 21, 2003

[COMMENT 1]

1. Rule 323 does not contain any type of exemption for solvents used for cleaning coating equipment. New Rule 362 must exempt solvents used for equipment cleaning. It should also exempt some small quantity of aerosol solvent product use, e.g. 16 ounces or less.

[RESPONSE TO COMMENT 1]

A revision to Rule 323, Architectural Coatings, scheduled during the 2010 - 2012 period, is to include solvent requirements. Until Rule 323 is revised, the proposed amended Rule (PAR) 321, Section B.2, provides an exemption for the cleaning of architectural coating application equipment (provided the solvent does not exceed 950 grams or ROC per liter).

Staff disagrees with the suggestion that the rule should exempt solvents used for equipment cleaning. The South Coast, San Joaquin Valley, and Ventura County air districts (to name a few) have applied solvent cleaning requirements to equipment cleaning for many years. Under proposed revised Rule 321, general repair cleaning and maintenance cleaning will be subject to a 50 grams per liter limit.

Regarding your suggestion on exempting aerosol products, the proposed amended Rule 321, Section B.9, includes a partial exemption for aerosol products.

Note 1: At the time of the May 21, 2003 workshop, the APCD proposed adding a new Rule 362. The project has since been modified to include solvent cleaning requirements within Rule 321.

[COMMENT 2]

2. We use hexane as a solvent to analyze the oil and grease content of wastewater before it is discharged. Hexane is used to clean the equipment. Hexane is the only suitable alternative to the other solvent in this application, Freon. Non-aqueous solvents are used to clean analytical instruments in many industries; the aqueous solvents leave a residue.

[RESPONSE TO COMMENT 2]

The use of hexane to clean laboratory equipment will be exempt from the 50 grams of ROC per liter or less requirement per PAR 321, Section B.8.b.

[COMMENT 3]

3. SCAQMD Rule 1171 does not provide alternative methods for determining the ROC content of the products as applied. Some of the aqueous products are provided in a form that requires dilution. As a user would not want to pay the manufacturer for the added water. Rule 362 must provide for user determination of the ROC content as applied (through recordkeeping).

[RESPONSE TO COMMENT 3]

The rule acknowledges that there may be use of blended solvents. The recordkeeping provision in Section R.1.b.5 requires the operator to calculate and record ROC data when using a solvent that is a mixture of different materials that are blended.

Comments from Vandenberg Air Force Base, Letter Dated June 16, 2003

[COMMENT 4]

1. Vandenberg Air Force Base (VAFB) attended and provided verbal comments at the 21 May 03 Santa Barbara County Air Pollution Control District (APCD) sponsored workshop for solvent cleaning operations (Rule 362) and solvent degreasing operations (Rule 321). VAFB provides the following questions/comments prepared by representatives from 30 CES/CEV, The Boeing Company (TBC), Lockheed Martin and MCA Engineers:

a. The APCD proposes to amend Rule 321 and create Rule 362 based on the South Coast Air Quality Management District (SCAQMD) Rules 1122 and 1171. Both of these SCAQMD rules are significantly more restrictive than Santa Barbara County APCD rules due to the extreme non-attainment status of the south coast air basin, while Santa Barbara County is scheduled to receive federal maintenance attainment

status. In light of this disparity, VAFB proposed that the APCD review the SCAQMD rule revisions prior to 1999 as a model for the current rule making effort.

[RESPONSE TO COMMENT 4]

The APCD modeled the proposed revised requirements for solvent cleaning machines on South Coast Rule 1122, as adopted on July 11, 1997. The proposed solvent cleaning requirements are modeled on a combination of rules: South Coast Rule 1171, as adopted on October 8, 1999, and SJV Rule 4663, as adopted on December 20, 2001. Staff also considered and added exemption provisions from the Ventura County APCD solvent rules.

[COMMENT 5]

b. VAFB suggest that the APCD examine the interaction between Rule 322, Metal Surface Coating Thinner and Reducer, and Rule 324, Disposal and Evaporation of Solvents, with the proposed revisions to Rule 321 and development of Rule 362. VAFB recommends that Rules 322 and 324 be eliminated, as they appear to be redundant following the adoption of the proposed rule changes.

[RESPONSE TO COMMENT 5]

Staff disagrees that there is any interaction or interdependency between the PAR 321 and Rules 322 and 324 requirements. Rules 322 and 324 are general umbrella- or catch-all-type rules that do not have any requirements regarding the use of solvent cleaning machines or provisions on solvent cleaning. Also, the PAR 321 will have limited applicability. Thus, a person disposing of a solvent not subject to the Rule 321 solvent disposal provisions would be subject to Rule 324 requirements.

[COMMENT 6]

c. VAFB requests clarification regarding how Rule 317, Organic Solvents, will interact with Rule 362. Rule 317 provides a daily emission cap of 40 pounds per day of photochemically reactive solvents (e.g., benzene and toluene) and 3000 pounds per day of non-photochemically reactive solvents (e.g., isopropyl alcohol and methyl ethyl ketone). There appears to be no air quality benefit to imposing lower Reactive Organic Compound (ROC) limits if emission caps exist in other rules. Alternatively, facilities complying with emission caps in Rule 317 are doubly regulated and should not have to comply with ROC limits in the proposed rule changes.

[RESPONSE TO COMMENT 6]

Rule 317 is a general umbrella- or catch-all-type rule that applies to a wide range of sources and regulates "photochemically" and "nonphotochemically" reactive solvents. Rule 321 regulates "reactive organic compounds," which includes a larger set of chemicals when compared to chemicals categorized as "photochemically reactive organic compounds."

Sources subject to Rule 321 are required to comply with all other applicable SBCAPCD prohibitory rules (including Rule 317). The modified Rule 321 will have limits on the ROC content of solvents, but not daily limits on ROC emissions.

It is a fairly common occurrence amongst the air district rules that older general umbrella- or catch-all-type rules will also apply when an air district has a newer source- specific rule. (There are examples of such cases this in the SC and SJV rulebooks.)

The air quality benefit of adopting Rule 321 will be a reduction of 0.6 tons per day of ROCs. The revised requirements for solvent cleaning machines and new solvent cleaning provisions in Rule 321 will need to be met regardless of emission limits in other APCD rules.

[COMMENT 7]

d. VAFB requests clarification regarding solvent activities that have an existing APCD Permit to Operate (PTO). For example, the VAFB/TBC draft Authority to Construct (ATC) Number 10956 for miscellaneous solvent and coating operations is authorized to emit 24 pounds per day of ROC. All of the emissions associated with this permit are offset at a 1.2 to 1 offset ratio. These permitted emissions should also be accounted for in the District's emission inventory. It appears that if a permit is issued in pounds per day, as in Santa Barbara County, there can be no net air quality benefit from permitted facilities due to a prohibitory rule revision. This is in contrast to SCAQMD, which issues permits in gallons/day, and where a net air quality benefit will result from the tightening of an ROC limit in a prohibitory rule. VAFB proposes that permit holders who have specific solvent use permitted emission limits should be exempt from limits in prohibitory rules.

[RESPONSE TO COMMENT 7]

Regarding the request for clarification of solvent activities subject to an existing permit, such

permitted solvent activities need to comply with the permit conditions and all applicable rules. Some rules have emission limits or thresholds based on pounds per day and other rules have limits on the maximum allowable amount of ROC content of a material.

The revised Rule 321 will limit the solvent's ROC content, but not the equipment's emissions in units of pounds per day. Provisions in Regulation VIII, New Source Review (NSR), have thresholds based on pounds per day and tons per year. These thresholds are the genesis for the APCD to issue permits with conditions limiting emissions in pounds per day and tons per year.

The APCD Permits to Operate conditions indicate that the daily emissions are determined by dividing the monthly emissions by the typical operating schedule (e.g., 21.7 days per month). We believe this approach is reasonable and allows companies and agencies the flexibility they need for their operations.

Regarding 1) offsets required by NSR provisions, 2) emission reductions achieved by prohibitory rules, and 3) air quality benefits associated with NSR and prohibitory rule provisions, the APCD has several programs associated with reducing air emissions, some that work separately and some that work in parallel to each other.

The NSR provisions apply to new and modified sources subject to permitting. The prohibitory rules apply to all existing and new sources (unless specifically exempted in a prohibitory rule). There may seem to be an incongruity between NSR offset requirements and a prohibitory rule. However, there are built-in safeguards in the regulations such that there will be an air quality benefit from application of the prohibitory and/or NSR rule provisions.

On the issue of potential air quality benefits from implementing stricter Rule 321 limits for solvent activities that have been offset, there may not be any change in the air quality benefit when looking at specific cases. For example, for aerospace operations, the changes to Rule 321 will have little impact because the revised rule will provide relatively high ROC content limits for their specialized cleaning operations. Thus, the offset liability associated with solvent cleaning of aerospace items may not be affected.

If the revised Rule 321 provisions achieve emission reductions for activities that have already been offset, then the offset liability would be reduced. The permit holder could choose to revise the permit accordingly. Rule 802.E.2 and E.3 provisions require that there be a net air quality benefit.

Staff disagrees that permit holders with specific solvent use limits should be exempt from prohibitory rule limits. Such an exemption would be problematic because:

1. PTO solvent use limits are based on pounds per day and tons per year, but Rule 321 limits are based on the solvents' ROC content, and

2. There is no similar exemption found in any California APCD or AQMD rules on solvent cleaning machines or solvent cleaning.

[COMMENT 8]

e. The current APCD strategy is to reduce Reactive Organic Compound (ROC) emissions by implementing these rules. The APCD is not currently mandated to include ODS substances in this rule making effort even though the 2001 Clean Air Plan control measure R-SL-2 for solvent degreasers and solvent cleaning operations includes source categories for ozone depleting compounds (ODCs). VAFB proposes leaving ODCs out of these rule changes.

[RESPONSE TO COMMENT 8]

PAR 102 will include a new definition for solvent:

> *"Solvent" means any liquid containing any reactive organic compound or any toxic air contaminant, which is used as a diluent, thinner, dissolver, viscosity reducer, cleaning agent, drying agent, or other similar uses.*

Rule 321 will regulate any ODCs and global warming compounds that meet the definition of "solvent" unless otherwise exempted by the rule.

[COMMENT 9]

f. VAFB also proposes that the APCD not include global warming compounds in this rule making. The most common green house gases include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. These compounds are not likely to be of concern in solvent degreasers and solvent cleaning operations.

[RESPONSE TO COMMENT 9]

Please see the response to comment 8.

[COMMENT 10]

g. VAFB suggest the APCD apply the definition in SCAQMD Rule 1171 for "*solvent cleaning*" to avoid confusion and differentiate removal of loosely held contaminants from materials requiring scrapping and stripping to remove from surfaces. The SCAQMD definition states: "*Solvent Cleaning is the removal of loosely held uncured adhesives, uncured inks, uncured coatings, and contaminants which include, but are not limited to, dirt, soil, and grease from parts, products, tools, machinery, equipment, and general work areas. Each distinct method of cleaning in a cleaning process, which consists of a series of cleaning methods, shall constitute a separate solvent cleaning operation.*" VAFB recommends that operations not meeting the definition for "*solvent cleaning*" be exempt from Rule 362.

[RESPONSE TO COMMENT 10]

The new "solvent cleaning" definition proposed in amended Rule 102 is modeled on the SJV Rule 4663 definition. Although the proposed definition does not use the term "loosely held," it does include the transitive verb "uncured" in several places. Also, staff added text in the definitions of "solvent cleaning" and "solvent cleaning machine" to clarify when "stripping" does and does not apply.

[COMMENT 11]

h. VAFB suggests inclusion of language to these draft solvent rules allowing solvent users to determine solvent ROC content at the time of application and not on a product basis or laboratory analysis. This provides for the use of specialty solvent applications while still complying with the rule.

[RESPONSE TO COMMENT 11]

See the response to Comment 3.

[COMMENT 12]

i. VAFB proposes the following exemptions to APCD Rules 321 and 362:

(1) Paint clean up operations and small usage such as laboratory analyses.

[RESPONSE TO COMMENT 12]

The District disagrees that the cleaning of application equipment should be exempt. The process of cleaning application equipment with solvents is regulated by many air districts. Under the PAR 321.M.3, sources will need to use an enclosed system (or equivalent) when using a solvent with an ROC content of greater than 50 grams per liter (not to exceed 950 grams per liter). PAR 321.B.8.b provides an exemption from the rules' ROC content limits for cleaning in laboratory tests and analyses.

[COMMENT 13]

(2) Isopropyl alcohol (IPA). IPA is the primary solvent used throughout Santa Barbara County in a variety of applications including, but not limited to, aerospace and medical applications. Isopropyl alcohol is non-photochemically reactive. As noted above, per the current version of Rule 317, up to 3000 pounds (or 430 gallons per day) of isopropyl alcohol can be emitted per stationary source.

[RESPONSE TO COMMENT 13]

IPA is a reactive organic compound that is also a toxic air contaminant. Thus, the proposed amended Rule 321 requirements will apply when IPA is used in solvent cleaning machines and solvent cleaning.

[COMMENT 14]

(3) Including allowances in Rule 362 for inert gases (e.g., nitrogen) in addition to air and hydraulic fluid for use in purging operations.

[RESPONSE TO COMMENT 14]

Using the term "purging" to mean "to make free of something unwanted" and assuming the inert gas is not a liquid at the SBCAPCD "standard conditions," the following applies:

1. *If the unwanted material is not a solvent and air or an inert gas is used to remove such material, then Rule 321 would not apply. Air and inert gases do not qualify as a solvent because they are not liquid at standard conditions. However, hydraulic fluid is a liquid, likely contains ROCs and/or TACs, and would be subject to Rule 321.*

2. *If the unwanted material is a solvent with an ROC content greater than 50 grams per liter, then the PAR 321.M.2.c. provisions likely apply. For example, an aerospace operation involves the removal of cleaning solvent such as IPA from a*

transfer line by flushing the line with air. The Rule 321.M.2.d requirements would allow such a process, provided the discharged solvent is collected into a container without atomizing into the open air and the container is kept closed except while collecting solvent runoff or emptying of the collection system.

[COMMENT 15]

(4) Cleaning activities applying solvents that are in containers less than one liter in volume, including containers that are dispensed on site using industry approved pumps and aerosol products. Allowing an exemption for solvents dispensed on site will reduce hazardous waste. Facilities will be able to dispense into small containers or squeeze bottles from 55-gallon drums and reuse these containers. This is a standard waste minimization practice, and facilities following this practice should receive special allowances from this rule-making activity.

[RESPONSE TO COMMENT 15]

The PAR 321 Sections B.9 and B.11.b provide partial rule exemptions for the use of aerosol products and small containers (e.g., spray bottles, squirt bottles, and other containers having a capacity of one liter or less). However, such solvent cleaning activities using aerosol products and other small containers will need to comply with the Rule 321 requirement to use low-ROC materials wherever feasible.

[COMMENT 16]

(5) "*The VOC limits for solvents and strippers shall not apply to space satellite and vehicle processing and launching.*" This proposed exemption is based on SCAQMD Rule 1124 (l)(4): "*The VOC limits for solvents and strippers shall not apply to space vehicle manufacturing.*" The SCAQMD considered space vehicle manufacturing as a specialized operation in South Coast, meriting an exemption. VAFB suggest that this exemption be expanded to cover all processing and launching of space satellites and vehicles.

[RESPONSE TO COMMENT 16]

PAR 321.B.4 will exempt stripping (except stripping of material from spray application equipment). The use of solvents for the surface preparation and coating of aerospace vehicles subject to Rule 337 will be exempt per PAR 321.B.6.d.

The last paragraph in PAR 321.B.8 exempts cold solvent cleaning machines from the 50 grams of ROC per liter limit when cleaning satellites or space vehicle components.

Staff added a special category for the cleaning of space vehicles and satellites to the PAR 321.M, Table 1. This proposed limit is 900 grams of ROC per liter.

Under these proposed rule amendments, VAFB and others involved in similar space vehicle/satellite handling should be able to continue servicing them without changing the method of operation (e.g., the practice of flushing fuel transfer lines with IPA).

[COMMENT 17]

(6) "*The VOC limits for solvents shall not apply to the surface cleaning of solar cells, fluid systems, avionic equipment, and laser optics.*" This proposed exemption is based on SCAQMD Rule 1124(l)(12).

[RESPONSE TO COMMENT 17]

The following exemptions should cover all of the items in South Coast Rule 1124(l)12:

PAR 321.B.8.a: Solvent ROC-content limits will not apply to the cleaning of solar cells, laser hardware, fluid systems, space vehicle components, scientific instruments, and high-precision optics.

PAR 321.B.8 (last paragraph): Solvent cleaning machines are exempt from the 50 grams per liter limit when such machines are used in the manufacturing, repairing, or maintenance of electrical apparatus components, electronic components, satellites, or medical devices.

[COMMENT 18]

(7) VAFB requests that the ROC limit for "*Cleaning of Coatings, or Adhesives application Equipment*" from SCQMD Rule 1171(c)(1)(C) remain at 550 gm/l, until products that can meet this limit have been demonstrated to be effective in the SCQMD.

[RESPONSE TO COMMENT 18]

The PAR 321.M, Table 1, limits solvents used to clean coatings application equipment to 950 grams of ROC per liter. The adhesives application equipment solvent limit requirement will be established through

a separate rulemaking effort to modify Rule 353, Adhesives and Sealants. In the case of adhesives and sealants used on aerospace vehicles, Rule 337 will be amended to include such solvent limits.

[COMMENT 19]

j. VAFB proposed the inclusion of the following language into Rules 321 or 362:

(1) Solvent Cleaning Stations.

[RESPONSE TO COMMENT 19]

The APCD does not see the need to add special provisions for "solvent cleaning stations." The provisions of proposed amended Rule 321 are intended to apply to such solvent cleaning activities

[COMMENT 20]

(a) A person shall not operate a solvent cleaning station at a medical, satellite processing, or space vehicle processing facility unless the following requirements are satisfied:

1. All heated or unheated reservoirs, sinks, tanks and containers which transfer, store, or hold ROC-containing material shall be provided with a full cover or an approved emission control system. These covers must remain closed except while production, sampling, maintenance, or loading or unloading procedures require operator access.

[RESPONSE TO COMMENT 20]

The District include similar provisions within the PAR 321.D.4.

[COMMENT 21]

2. All heated or unheated reservoirs and sinks holding ROC-containing fluids with a ROC composite partial pressure of 33 mm HG or less at 20ºC (68ºF), shall have a freeboard ratio greater than or equal to 1.0, or be equipped with an approved emission control system.

[RESPONSE TO COMMENT 21]
The District is proposing that vapor solvent cleaning machines have a minimum freeboard ratio of 1.0. This requirement is modeled on vapor solvent cleaning machine requirements in the SC Rule 1122 (as adopted on July 11, 1997).

[COMMENT 22]

3. Solvent flow of ROC-containing materials shall be applied in a continuous unbroken stream and in a manner that shall prevent liquid loss resulting from splashing.

[RESPONSE TO COMMENT 22]

This is a requirement of the existing rule that is maintained as PAR 321.G.6.

[COMMENT 23]

4. Liquid solvent leaks of 3 drops per minute or more shall be repaired within 24 hours of detection or the equipment shall be shut down until replaced or repaired.

[RESPONSE TO COMMENT 23]

This is similar to the existing and PAR 321.D.4 provisions coupled with the existing Rule 321 definition of "liquid leak." The PAR does not change these provisions significantly.

[COMMENT 24]

5. All equipment at a solvent cleaning station shall be operated and maintained in proper working order.

[RESPONSE TO COMMENT 24]

This is similar to the PAR 321.D.2 provision.

[COMMENT 25]

(2) Cleanup solvents.

(a) A person shall not use ROC-containing materials for the purpose of cleaning equipment at a medical, satellite processing, or space vehicle processing facility unless the following requirements are satisfied.

1. The ROC content of the fluid shall not exceed 200 grams per liter (1.7 pounds per gallon) of material; or the ROC composite partial pressure shall not exceed 33 mm Hg (0.64 psia) at a temperature of 20ºC (68ºF); or the components being cleaned are totally enclosed during the washing, rinsing, and draining processes; or the cleanup solvents are flushed or drained in a manner that does not allow evaporation into the atmosphere; and:

[RESPONSE TO COMMENT 25]

A 200 grams of ROC per liter limit may be too restrictive for some of the solvent cleaning categories shown in Table 1 of the PAR 321, Section M. The use of an enclosed solvent cleaning device described above is similar to the PAR 321.O provision. This alternative to the operating and equipment requirements allows the use of airless or air-tight solvent cleaning machines.

[COMMENT 26]

2. Only nonabsorbent, closed containers shall be used for the storage, transfer, or disposal of all ROC-containing accessories that include, but are not limited to, cloth, paper, and other materials clearly used for cleanup with solvents.

[RESPONSE TO COMMENT 26]

This is similar to the Rule 321.D.1 requirements.

[COMMENT 27]

(3) These provisions are based on SCAQMD Rule 1164, "Semiconductor Manufacturing". The original language was written to recognize the unique processing requirements at a semiconductor facility, and allowed for the controlled use of isopropyl alcohol. VAFB believes that the same consideration should be given to medical facilities, satellite processors and space vehicle processors, all of which have similarly unique requirements. The solvent that is specifically allowed for in this rule, isopropyl alcohol, is non-photochemically reactive. As noted in comments above, the current version of Rule 317, up to 3000 pounds (or 430 gallons per day) of isopropyl alcohol can be emitted per stationary source.

[RESPONSE TO COMMENT 27]

Please see the Response to Comment 6.

[COMMENT 28]

1.k. VAFB requests that the California Environmental Quality Act (CEQA) document assess the increased generation of hazardous waste as a result of the proposed closed container requirement. This document should include the secondary emissions generated by the transportation of this hazardous waste material to approved waste collection sites. For example, existing APCD rules do not prohibit the air drying of rags during miscellaneous wipe solvent operations. The proposed rule would eliminate this practice, resulting in the generation of a new hazardous waste stream. As one of the largest corrosion control and paint operators in Santa Barbara County, the proposed "closed container requirement" will result in an increase in hazardous waste generation and air pollution for the transportation of this hazardous waste to an approved site.

[RESPONSE TO COMMENT 28]

The APCD does not foresee that there will be any unmitigated significant CEQA issues. The proposed equipment designs, limits, and operating requirements have been established in many other California air districts.

Rule 324 limits the amount of photochemically reactive solvent that may be evaporated (including air-drying of solvent laden rags used in wipe cleaning) by a person (e.g., federal governmental agency) to 1.5 gallons per day.

[COMMENT 29]

1.l VAFB notes that the 21 May 03 workshop the APCD stated they did not intend to require a miscellaneous solvent use inspection and maintenance plan in order to monitor remote reservoir solvent operations.

[RESPONSE TO COMMENT 29]

The District does not plan to require inspection and maintenance plans for remote reservoir cold cleaning machines. However, sources claiming an exemption under Rule 202.U (including Section 2.a, which generally applies to remote reservoir solvent cold cleaning machines) are required to keep records per Rule 202.D.1.

Comments from Raytheon Electronic Systems, Letter Dated June 19, 2003

[COMMENT 30]

Rule 321 - Solvent Degreasers

The additional control techniques outlined in the APCD's 2001 Clean Air Plan Appendix B (http://www.sbcapcd.org/cap01/app_b.pdf) follow:
1. Requiring air-tight or airless cleaning systems in lieu of meeting the requirements for batch-loaded cold cleaners or open-top vapor degreasers.

2. Increasing the minimum freeboard ratio from 0.75 to 1 on open-top vapor degreasers and conveyorized degreasers, and
3. Requiring that the solvent have an ROC content of 50 grams per liter or less for batch-loaded cold cleaners and conveyorized cold cleaners.

Based on the exemptions for batch-loaded cold cleaners in SBCAPCD Rule 321 and Ventura County APCD's Rule 74.6.1, two operations may not have issues complying, provided that the following exemptions are maintained:

1. For Electronic Warfare's batch-loaded, cold cleaner under 10 gallons in capacity: SBCAPCD Rule 321 (http://www.sbcapcd.org/rules/download/rule 321.pdf)
B. Exemptions
4. The provisions of this Rule shall not apply to:
f.cold solvent degreasers of 37.854 liters (10 gallons) or less capacity, provided the degreasers are designed to operate in a closed system fashion (i.e., sealed when operated) and agitated through pump recirculation, mechanical mixing (a mixer), or with ultrasonics. Gas or air agitation shall not be used.

This unit may use acetone, isopropyl alcohol and methyl ethyl ketone.

[RESPONSE TO COMMENT 30]

The APCD proposes to delete the 10 gallons capacity enclosed solvent cleaner exemption because the revised rule will govern airless and air-tight solvent cleaning machines. Raytheon's Electronic Warfare's batch cold cleaning machine should be able to continue to use the mentioned solvents per the partial rule exemption in PAR 321.B.8.

[COMMENT 31]

2. The batch-loaded cold cleaner at Santa Barbara Remote Sensing (2 tanks, >10 gallons each):
VCAPCD Rule 74.6.1 (http://www.arb.ca.gov/DRDB/VEN/CURHTML/R74-6-1.HTM)
B. Equipment Requirements
All cold cleaners, except remote reservoir cold cleaners, shall be equipped with the following devices:
d. At least one of the following control devices, if high volatility solvent is used:
1) A freeboard such that the freeboard ratio is at least 0.75.

This unit uses isopropyl alcohol and a hexane/isopropyl alcohol mixture.

With exemptions similar to VCAPCD Rule 74.6 - Surface Cleaning and Degreasing (http://www.arb.ca.gov/DRDB/VEN/CURHTML/R74-6.HTM)
C. Exemptions
3. Cleaning of electronic components or medical devices using solvent with an ROC composite partial pressure of 33 mm Hg @ 20ºC or less and an ROC content of 900 g/l or less. The use of isopropyl alcohol shall be deemed in compliance with this requirement.
and
SCAQMD Rule 1122(k)(2)(A), http://www.aqmd.gov/rules/html/r1122.html, (A) equipment is used only for cleaning electronic parts that are designed to travel over 100 miles above the earth's surface
Both of these units should be able to use solvents with ROC content greater than 50 grams per liter, as required by government contracts for the electro-optical devices used in the aircraft decoys and satellites.

[RESPONSE TO COMMENT 31]

The batch cold cleaning machine should be able to continue to use the mentioned solvents per the PAR 321.B.8 exemptions.

[COMMENT 32]

3. Without an applicable exemption, the three Open-Top Vapor Solvent cleaners at Vision Systems may be required to increase their freeboard to 1 (SCAQMD Rule 1122(e)(1)(B)(v).
Exemption language from Ventura County APCD's Batch Loaded Vapor Degreaser Rule 74.6.2 may be appropriate:
VCAPCD Rule 74.2 - Batch Loaded Vapor Degreasers (http://www.arb.ca.gov/DRDB/VEN/CURHTML/R74-6-2.HTM)
B. Equipment Requirements
3. Degreasers for which an application for an authority to construct was deemed complete on or after June 12, 1990 shall be equipped with at least one of the following devices:
a. For degreasers which have an air-vapor interface area of 1 square meter (10.8 sq ft) or less:
1) Condenser equipment which limits the top of the boiling solvent vapors to a level which maintains a freeboard ratio of at least 1.0.
2) Any device listed in Subsection B.3.b.

b. For degreasers which have an air-vapor interface area larger than 1 square meter (10.8 sq ft):
1) A refrigerated freeboard chiller or refrigerated condenser equipment which covers the air-vapor interface with a cold air blanket at a level which maintains a freeboard ratio of at least 1.0. The temperature of the cold air blanket, measured at the coldest point on the vertical axis of the air-vapor interface, shall be less than 30 percent of the initial boiling point of the solvent being used (degrees Fahrenheit), or no greater than 40º F. If the chiller operates below the freezing temperature of water, it shall be equipped with an automatic defrost.
2) An emission collection system vented to a control device. The overall efficiency of the emission control system (product of the capture efficiency and the control efficiency) shall be at least 85 percent.
Suggestion: For small-scale operations where no control device is required, it may be appropriate to add language such as 'or, An equivalent control system demonstrating an overall efficiency of at least 85 percent by weight approved by the District.'

[RESPONSE TO COMMENT 32]

All of the vapor solvent cleaning machines at the Raytheon Vision Systems facility (FID 4140) have a freeboard ratio equal to or greater than 1.0.

[COMMENT 33]

Again, with exemptions similar to VCAPCD Rule 74.6 and SCAQMD Rule 1122(k)(2)(A), these units should be able to continue to use isopropyl alcohol and a cyclohexane/isopropyl alcohol mixture, both >50 grams per liter ROC. These solvents are required by Government contracts for the high precision optics designed to sense, detect, or transmit light energy.

[RESPONSE TO COMMENT 33]

Under the PAR 321.B.8 provisions, Raytheon should be able to continue to use the solvents mentioned.

[COMMENT 34]

To detail, all components of an assembly require the same high level of cleanliness to ensure all contaminants are removed. Therefore, not only are the optics and sensing chips cleaned with transistor grade solvents; but the supporting structural assembly that supports the optics may be cleaned with these solvents as well. Aqueous cleaning and plasma ashing are primarily used, but when such processes will be detrimental to the critical elements of the assembly, solvent cleaning is employed per industry standard practices. Most products are assembled as 'flight hardware' for tactical or space use. Under vacuum, any contamination, no matter how microscopic, may become loose or outgas causing system failure. Many of our products are, in actuality, subassemblies to a larger overall optical system. This alone qualifies our cleaning processes under the high precision optics cleaning exemption.

Raytheon products are critical for maintaining National and Homeland Security. Our Company makes every effort and is committed to continued compliance with our SBCAPCD Rules and Regulations.

[RESPONSE TO COMMENT 34]

Staff has crafted the revised rule to take into account the need to use high ROC-content solvents for special categories.

[COMMENT 35]

Rule 362 - Solvent Cleaning Operations

Background: Where feasible, Raytheon utilizes aqueous solutions. However, these solutions will not comply with Military Specifications requiring critical cleanliness levels. Raytheon current utilizes solvents such as Isopropyl Alcohol, Cyclohexane, Toluene, Methyl Alcohol, Methyl Ethyl Ketone and Hexane in solvent soak, rinse and wipe cleaning operations (650-900 grams per liter). Many applications use covered beakers or glassware to soak clean parts. Squeeze bottles are used to remove contaminates from product; the rinse is collected in beakers and properly dispose [sic] of. These bottles are also used to moisten towellettes for wipe cleaning. Menda, or pump bottles, contain cleaning solvents applied to cotton swabs.

Following, please find our comments and suggestions related to South Coast Air Quality Management District's (SCAQMD) Rule 1171 - Solvent Cleaning Operations (http://www.aqmd.gov/rules/html/r1171.1html) with some reference to Ventura County APCD's Rule 74.6 - Surface Cleaning and Degreasing (http://www.arb.ca.gov/DRDG/VEN/CURHTML/R74-6.PDF).

1. Rule 1171 (c)(1)(A)(ii) limits Product Cleaning During Manufacturing Process Or Surface Preparation For Coating, Adhesive, Or Ink Application to 500 grams per liter for Electrical

Apparatus Components & Electronic Components (with possible reduction to 100 g/l in 2005).
Rule 1171 (C)(1)(B)(ii) limits Repair and Maintenance Cleaning to 900 grams per liter for Electrical Apparatus Components & Electronic Components (with possible reduction to 100 g/l in 2005).

Although some of our activities may be governed by these categories, several operations will not.
Suggestions:
-Clarify the definition of Electronic Components, specifically the phrase 'except for the actual cabinet in which the components are housed.'
"ELECTRONIC COMPONENT is that portion of an assembly, including circuit card assemblies, printed wire assemblies, printed circuit boards, soldered joints, ground wires, bus bars, and other electrical fixtures, except for the actual cabinet in which the components are housed."

Does this refer to dry boxes used for assembly storage, or to the hardware that the assemblies are integrated into?

[RESPONSE TO COMMENT 35]

Based on the "Background" information provided, Raytheon has already implemented many of the solvent cleaning requirements being proposed.

On the dry box/cabinet question, it is our understanding that it is the final cabinet in which the completed components are housed; not the dry boxes where the finished assembly is stored. Further, under the proposed amended rule, a "dry box" used during the manufacturing/assembling processes would be considered to be a "jig." And when used to hold electrical apparatus components and/or electronic components, the solvent limit would be 900 grams of ROC/liter under the "maintenance cleaning" solvent cleaning category.

The solvent limit for the final cabinets in which the assemblies are housed will be 50 grams per liter. However, this limit may not be applicable to Raytheon assemblies per the Section B.8 exemption provisions.

[COMMENT 36]

As noted in our comments on revised Rule 321, at Raytheon, all components of an assembly require the same high level of cleanliness to ensure all contaminants are removed. Therefore, not only are the optics and sensing chips cleaned with transistor grade solvents; but the supporting structural assembly that supports the optics may be cleaned with these solvents as well. Aqueous cleaning and plasma ashing are primarily used, but when such processes will be detrimental to the critical elements of the assembly, solvent cleaning is employed per industry standard practices. Most products are assembled as 'flight hardware' for tactical or space use. Under vacuum, any contamination, no matter how microscopic, may become loose or outgas causing system failure. Many of our products are, in actuality, subassemblies to a larger overall optical system. Although our cleaning processes should qualify under the high precision optics cleaning exemption, this definition may require clarification.

[RESPONSE TO COMMENT 36]

Various sections of Rule 321 will provide partial exemptions and/or specify what should be easily-met requirements for the cleaning of high-precision optics and space vehicle components (e.g., Section B.8 and Section M.1). Also, the District has used an amplified SC definition of "electronic components" in PAR 321 to clarify the types of products manufactured by Raytheon qualify as electronic components.

[COMMENT 37]

-Ensure the new Rule clearly exempts (and defines) specific operations (e.g., Semiconductor, Aerospace).

[RESPONSE TO COMMENT 37]

PAR 321 does not exempt semiconductor processing or use term "semiconductor." Stripping of photoresist is considered exempt per PAR 321, Section B.4. Section C includes definitions for the terms "aerospace vehicle" and" aerospace vehicle component." Some portions of Rule 321 apply to the cleaning of aerospace vehicles, aerospace vehicle components, and satellites.

[COMMENT 38]

Examples from 1171 include, but are not limited to:
(h) Exemptions
(2) The following solvent cleaning operations or activities are not subject to any provision of this rule:
(A) Cleaning carried out in batch loaded cold cleaners, open top vapor degreasers, conveyorized degreasers, or motion picture film cleaning equipment.
(C) Cleaning operations subject to Rule 1164 - Semiconductor Manufacturing.

-Comment: Until New Rule 358 - Electronics Industry - Semiconductor Manufacturing is proposed (2007-2009), related cleaning operations need to be clearly addressed in the Rules 321 and 362 exemptions.

[RESPONSE TO COMMENT 38]

The District is taking different approaches than those used by the South Coast AQMD:

1. *We crafted one rule for handling both solvent cleaning machines and solvent cleaning (PAR 321); whereas the SC has two rules (1122 and 1171). Thus, having the SC Rule 1171(h)(2)(A) exemption in Rule 321 would not logical.*

2. *Our analysis indicates that adopting a rule (358) similar to the SC Rule 1164 is unnecessary. Electronic device manufacturing, including semiconductor manufacturing, is subject to the existing and the proposed amended Rule 321. The 2001 CAP indicated we would be adopting Rule 358 to regulate semiconductor manufacturing. However, the District noted in the 2004 CAP that we were no longer planning on adopting Rule 358 due to the lack of emission reductions and that most of the emission reductions from the control measure will be obtained by other control measures.*

[COMMENT 39]

(D) Cleaning operations subject to Rule 1124 - Aerospace Assembly and Component Manufacturing Operations, except coating application equipment cleaning, and storage and disposal of VOC-containing materials used in solvent cleaning operations.
-Comment: In APCD Workshop 5/21, it was noted that Rule 337 - Surface Coating of Aircraft or Aerospace Parts and Products may not be revised, thus related cleaning operations need to be clearly addressed in the Rules 321 and 362 exemptions. As previously noted, high volatility solvent cleaning, with Isopropyl Alcohol, Toluene, Methyl Alcohol, etc. is required to prevent rust formation or other microscopic contamination.

[RESPONSE TO COMMENT 39]

The 2001, 2004, and 2007 CAPs indicate that Rule 337 will be revised to reflect enhanced solvent cleaning requirements associated with surface coating of aircraft or aerospace vehicle parts and products. However, for 1) any solvent cleaning unrelated to the surface coating of such parts and products and 2) any solvent cleaning machine, the provisions of Rule 321 will be applicable unless the District revises Rule 337 to include aerospace assembly and component manufacturing operations.

[COMMENT 40]

(G) Stripping of cured coatings, cured ink, or cured adhesives.
-Suggestion: Dried waxes (requires Toluene), photoresist, metal lift off (both require Isopropyl Alcohol, toluene, and Methyl Alcohol), and other related operations may appropriately be addressed under the Stripping exemption.

[RESPONSE TO COMMENT40]

The District disagrees that the removal of dried wax should be considered exempt by the PAR 321.B.4 "stripping" exemption. The process of removing wax from a part or product with a solvent falls within the PAR 102 definition of "solvent cleaning." For the Raytheon products, the PAR 321.M.1 provisions will allow the use of the toluene.

The District agrees that the removal of spent photoresist and metal lift-off operations should be exempt from PAR 321. The proposed Section B.4 provides an exemption for stripping of spent photoresist and new Section B.22 provides an exemption for metal lift-off operations associated with semiconductor manufacturing.

[COMMENT 41]

(3) Provisions of paragraph (c)(1) shall not apply to the following applications:
(A) Cleaning of solar cells, laser hardware, scientific instruments, and high-precision optics.
(B) Cleaning conducted with: performance laboratory tests on coatings, adhesives, or inks; research and development programs; and laboratory tests in quality assurance laboratories.
(4) Cleaning with aerosol products shall not be subject to the provisions of paragraph (c)(1) and paragraph (e)(1) if 160 fluid ounces or less of aerosol product are used per day, per facility.
(5) The provisions of subparagraph (c)(1)(C) shall not apply to the following applications:
(B) Cleaning of application equipment used to apply coatings on satellites and to remove radiation effect coatings.

[RESPONSE TO COMMENT 41]

PAR 321 contains all of these exemptions.

[COMMENT 42]

VCAPCD Rule 74-6.B.1. allows 900 and 950 grams per liter respectively for Repair or Maintenance Cleaning, and Cleanup, Including Cleaning of Application Equipment (with the exception of Manufacturing or Surface Preparation at 70 grams per liter).

[RESPONSE TO COMMENT 42]

At the time of comment submittal, the limits were as stated in the Ventura County APCD Rule 74.6, Section B.1. However, the VCAPCD has since revised Rule 74.6 and the categories and limits have changed. The limits in PAR 321 Section M.1 for the repair cleaning and maintenance cleaning of electrical apparatus components and electronic components is 900 grams per liter. Further, the limit for cleaning coatings application equipment is 950 grams per liter.

[COMMENT 43]

Ventura's Rule exempts specific operations similar to ACAQMD [sic] Rule 1171 and adds the following language:
3. Subsection B.1 of Rule 74.6 shall not apply to:
a. Cleaning of electronic components or medical devices using solvent with an ROC composite partial pressure of 33 mm Hg @ 20ºC or less and an ROC content of 900 g/l or less. The use of isopropyl alcohol shall be deemed in compliance with this requirement.

[RESPONSE TO COMMENT 43]

The PAR 321, Section M, Table 1, sets the solvent ROC content limit at 900 grams per liter for the cleaning of electronic components and medical devices. This will allow the use of undiluted IPA for qualifying solvent cleaning activities.

[COMMENT 44]

As discussed in APCD Workshop 5/21, Cleanroom areas and certain production work benches require solvents such as Isopropyl Alcohol use as the cleaning agent with deionized water. The new Rule will need to address this category of janitorial cleaning.

[RESPONSE TO COMMENT 44]

Per the PAR 321.M, Table 1, the use of solvents with an ROC content up to 900 grams per liter is allowed for maintenance cleaning for these solvent cleaning categories. The PAR 102 includes a new definition for "maintenance cleaning." This definition includes the cleaning of work areas where manufacturing or repair activity is performed. Thus, the cleaning of work benches and cleanrooms with a solvent having an ROC content up to 900 grams per liter will be permissible for electronic device manufacturing facilities.

[COMMENT 45]

2. Use of squeeze bottles, beakers, and bench scale solvent containers are critical to our operations. The language in APCD Rule 321.B.2.a. and b. would allow bench scale operations at Raytheon to continue:
B. Exemptions
2. Except for the Rule 321 Section G.2 requirement that the cleaner be covered when work is not being processed (use of covers are not required for remote reservoir cold cleaners using low volatility solvents), the provisions of this Rule shall not apply to an unheated solvent cleaner that:
a. has a capacity of 3.785 liters (1 gallon) or less, or
b. has an evaporative surface area of less than 929 square centimeters (1 square foot). However, if the aggregate evaporative surface area of all such solvent cleaners at a stationary source is greater than 0.929 square meters (10 square feet), none of the cleaners are exempt.

[RESPONSE TO COMMENT 45]

The PAR 321 Sections B.9 and B.11.b provide partial rule exemptions for the use of small containers (e.g., spray bottles, squirt bottles, and other containers having a capacity of one liter or less). However, such solvent cleaning activities using these small containers will need to comply with the Rule 321 requirement to use low-ROC materials wherever feasible.

Regarding the current exemption provision in Section B.2, the District is proposing that it be deleted in its entirety. Either a container qualifies as a solvent cleaning machine or is used when performing solvent cleaning. The intent is to regulate small containers one way or other under Rule 321. As specified in the PAR 102 definition of "solvent cleaning machine," bucket, pails, beakers, hand-held spray bottles, and similar containers with capacities less than 1 gallon will be subject to the solvent cleaning provisions. The District has taken into account the special needs

of certain industries and do not believe the Raytheon bench scale cleaning operations will be significantly impacted by the revised rule.

[COMMENT 46]

Similar language in SCAQMD 1171, also addresses approved containers. For example:
(8) Provisions of paragraph (e)(1) shall not apply to the following:
(B) Cleaning with spray bottles or containers described in subparagraph (c)(2)(B).
(c) Requirements
(2) Cleaning Devices and Methods Requirements
A person shall not perform solvent cleaning unless one of the following cleaning devices or methods is used:
(B) Closed containers or hand held spray bottles from which solvents are applied without a propellant-induced force
(e) General Prohibitions
(1) A person shall not atomize any solvent unless it is vented to an air pollution control equipment, which meets the requirements of paragraph (c)(5).

Suggestion: Operations related to Semiconductor Manufacturing may require pressurized solvent rinsing to remove stubborn contaminants. As noted in 1171 (e)(1), please include an exemption to atomize solvents similar to 1171 (c)(5), or Ventura County APCD's Rule 74.6 - Surface Cleaning and Degreasing:
B.5 Control Equipment: In lieu of complying with the requirements of section B.1, B.2, B.3a, and D.1, a person may comply by using an emission control system in association with the cleaning activity regulated by this rule provided the emission control system maintains a combined capture and control efficiency (product of the capture efficiency and the control efficiency) of at least 85 percent, by weight, of the emissions generated by the cleaning activity.
As mentioned in the Rule 321 comments, small-scale operations may not be exhausted to control equipment. Installation of best available control technology may not be feasible in all applications. Appropriate language should be included for clarity, and to provide for compliant, cost-effective emission control systems approved by the District.

[RESPONSE TO COMMENT 46]

PAR 321, Sections B.4 and B.22 provide exemptions for some semiconductor manufacturing processes. Also, the PAR 321, Section D.9 indicates solvent atomization is permissible if vented to an emission control system that meets the requirements of Section N.

[COMMENT 47]

3. The following language in SCAQMD Rule 1171(c)(4) governs Storage and Disposal: All VOC-containing solvents used in solvent cleaning operations shall be stored in non-absorbent, non-leaking containers which shall be kept closed at all times except when filling or emptying. It is recommended that cloth and paper moistened with VOC-containing solvents be stored in closed, non-absorbent, non-leaking containers.
Suggestion: When operating using the containers described above, we suggest modifying the language to allow for processing rather than just 'filling or emptying'. For example: Solvent containers shall be kept covered unless addition to or removing material from the container. Material can be defined as solvent, or production components like flight hardware.

[RESPONSE TO COMMENT 47]

The PAR 321 Section D.1 provision includes the "unless adding material to or removing material from the containers." Also, Sections D.5, E.1, and F.2 allow the removal of covers to process work, perform monitoring, inspections, maintenance, and repairs that require the removal of the covers.

[COMMENT 48]

4. In VCAPCD Rule 74.6.C.1.b. cleaning activities using solvent which are purchased in, and applied from, manufacturer or distributor-labeled containers of one liter or less in volume, including aerosol products, are exempt from the ROC limits. If ROC limits are too stringent to meet production requirements, and businesses purchase solvents in these types of containers, we may increase our County's hazardous and solid waste disposal rates defeating the pollution reduction intended.

[RESPONSE TO COMMENT 48]

At the time of comment submittal, the VCAPCD did exempt cleaning activities using the one liter or less size. However, the VCAPCD has since revised Rule 74.6 and no longer has such an exemption. The PAR 321 does not include an exemption for one liter capacity containers. The proposed limits and operating requirements are intended to meet the production requirements of the regulated industry.

[COMMENT 49]

An additional packaging issue was mentioned during the APCD Workshop 5/21. Requiring businesses to buy solvents premixed (e.g., Isopropyl Alcohol and Cyclohexane), rather than separate, may only add to production costs rather than reduce solvent emissions to the atmosphere.

[RESPONSE TO COMMENT 49]

Nothing in the PAR prohibits the mixing of solvents, provided the applicable ROC-content limits and other rule requirements (e.g., Section R.1.b.5) are met.

[COMMENT 50]

5. In SCAQMD Rule 1171(b)(48), the Solvent Cleaning definition notes, 'Each distinct method of cleaning in a cleaning process, which consists of a series of cleaning methods, shall constitute a separate solvent cleaning operation.' Current recordkeeping allows for mass balance calculations at each Stationary Source, or lab area vented to air pollution control equipment. As noted in VCAPCD Rule 74.6.D.1.b., businesses will need to modify recordkeeping to classify each cleaning category such as:
1) Repair or Maintenance cleaning, or
2) Cleanup, including application equipment cleaning, or
3) Manufacturing or Surface Preparation Cleaning, or
4) Solvent used pursuant to an exemption (with exemption specified).
Segregating solvent use into each category may cause increase efforts related to recordkeeping with little benefit or reducing actual emissions to the atmosphere.

[RESPONSE TO COMMENT 50]

The regulated community has indicated that a need exists to allow the use of higher ROC-content solvents for various types of cleaning activities. By allowing the higher limits for these various cleaning activities, additional recordkeeping requirements are triggered to provide a means of verifying that the higher-ROC solvents are used appropriately.

Staff modeled the new recordkeeping requirements in PAR 321.R.1.b.3) and 4) on the SJV Rule 4663 provisions.

**Comments from Inamed Corporation,
Letter dated June 25, 2003**

[COMMENT 51]

Inamed Corporation would like to submit comments regarding the proposed revision to Rule 321 (currently titled Solvent Cleaning Operations but to be re-named Solvent Degreasers) and the proposed new Rule 362 (to be named Solvent Cleaning Operations.)

From the package created for the Public Workshop held on May 21, 2003, the District has included and [sic] excerpt from the SCAQMD's similar rule 1171. From the Solvent Activity Cleaning table and text provided it appears as if the following is implied for the District's new rule and revision:

- Isopropyl alcohol (IPA) is acceptable for product cleaning during the manufacturing process or surface preparation for coating, adhesive, or ink application
- Tools, equipment and machinery may be cleaned with IPA but general work surfaces may not.
- The cleaning of coatings, or adhesives or application equipment must be done with a material that at some time (presumably after the rule takes effect) must have a VOC limit of 0.21 lb/gal.
- Further, from the text of Rule 1171, it appears that an approved VOC emission collection and control system or device may be used in lieu of complying with the above requirements.

Inamed Corporation's concerns regarding these rule revisions are

- IPA is an acceptable cleaner for product cleaning (really "disinfecting" in the case of medical device manufacture) and with a weight of 6.5 lb/gal. However, it is nearly impossible to develop a ≥ 90% (minimum) collection (subsequently directed to a control device) system that will allow parts to dry, because they need to spread over a large area to allow the IPA to evaporate. To collect from a large area, an entire room will need to be "captured." The larger the area captured, the larger the control device will need to be. In Inamed's experience it is costly to do this and the process emits by-products of combustion that are also air quality contaminants. Inamed suggests that the District strongly evaluate the "de-listing" of IPA for two reasons:

1. It is very similar in chemical nature, structure and ozone forming capabilities to acetone which has already been de-listed,
2. Certain organizations such as hospitals and physician's offices use IPA without restraint in much the same manner (i.e., work surface cleaning,

disinfection) as permitted facilities without controls or permits.

[RESPONSE TO COMMENT 51]

IPA is a reactive organic compound that is also a toxic air contaminant. Thus, the proposed amended Rule 321 requirements will apply.

No air districts have regulated IPA use at hospitals or physician's offices. The Santa Barbara County Air Pollution Control District is adopting solvent cleaning provisions that have been adopted elsewhere; rules that have been achieved in practice and are cost-effective. The Response to Comment 56 provides additional information on this issue.

[COMMENT 52]

• It is extremely important that general work surfaces (i.e., table tops) be cleaned with IPA. Medical devices must necessarily be laid on a table top for inspection and other activities. IPA is the only disinfecting agent approved by the FDA that allows for product contact on general work surfaces.

[RESPONSE TO COMMENT 52]

The PAR 321, Section M, Table 1, includes a category for "general work surfaces" associated with medical devices and pharmaceuticals (under repair cleaning and maintenance cleaning) with a 900 grams of ROC per liter limit. Undiluted IPA in its purest form may be used under the proposed provisions.

[COMMENT 53]

• IPA will not work however for cleaning tools and other materials coated with silicone either partially or completely cured. The chemical nature of organosiloxanes is such that the dielectric constant of a solvent like xylene is needed to break apart the bonds of a cured silicone. Other solvents (except for halogenated materials like TCA) will not work; certainly water or water based cleaners have no effect on cured silicones. It is imperative for the silicone industry in Santa Barbara, therefore, that solvents like xylene and IPA are allowed to be used for the cleaning and "degreasing" of parts, tools and devices without the requirement of control.

[RESPONSE TO COMMENT 53]

Xylene and IPA both have ROC contents below 900 grams per liter. This is the limit being proposed in Rule 321, Section M.1 for solvents used to clean tools, equipment, and machinery associated with the manufacturing of medical devices. Therefore, there should be no need to install add-on control equipment.

Comments from Custom Colors
Auto Body Supplies,
Letter dated June 30, 2003

[COMMENT 54]

This letter is in response to the meeting in Buellton on 5-21-03 regarding proposed revision of rule 321 and proposed rule 362. When I left the meeting that day you told me you were looking forward to my written response. Well here it is.
I have been in the auto body industry for thirty-six years I have to tell you that I have been involved with the A.P.C.D. on several occasions. John Garnet [sic], Tad Bixler and Fred White are three good and fair representatives of your organization. The A.P.C.D. has not always been like that (Jerry Top) I will say no more. Most of the changes we in the auto body industry have gone through were very tough and expensive. We are still having a few problems but we can work with what has been put on us at this point. In the meeting I asked you were [sic] do you get your information in order to set V.O.C. limits you held up a list of manufacturers and supplies. I would like to stress to you that the auto body refinish and industrial refinish are as different as left and right. For example, industrial finishes are not as critical in most cases on say, steel structures, metal buildings, heavy equipment, small implements etc. Therefore you could use water-based cleaners that leave behind residue. Then the problems such as fisheyes and delamination are easier to accept on something of that nature. On the other hand if you have a 10 to 40 thousand-dollar car that you wash weekly and wax regularly, and are involved in an accident you are less likely to accept those delaminations or fisheyes in you [sic] finish. A technician will use what works best, and since most of them work on a commission basis and do not get paid for the redo compliance does not matter. Not to mention the fact that when you redo a job additional pollutants are emitted that could have been avoided. The manufacturers of these products will tell you that they work. The same thing happened when we were required to use water-based primer, guess what they didn't work then they don't work now. As for the people in the La. Area, I am told the end users could not attend the A.Q.M.D. meetings. If you ask the shop owners if they use water based cleaners they will tell you yes because they don't want to get a N.O.V. The fact is if this

solvent is taken away, then some other none [sic] compliant solvent will be used. There are products that come in from out of state now, transported by mail or personally driven in. I have taken the time to ask our paint manufactures what water base cleaners they use in rule 1151. I got a laugh, and well guy's cheat, they have to. As I told you in the meeting we at custom colors worked with John Garnet [sic] and Tad Bixler. We took them to a shop and went through the cleaning process. They agreed that the water-based cleaners would not take the road tar off a vehicle, the residue left behind was still present. That is when they put in the rule that a solvent cleaner could be used prier [sic] to sanding. The one thing that I thought was a great idea is putting the cleaner in a spray bottle that can be pressurized. There is allot [sic] of spillage onto the floor when used as a hand applied method. Thank you for allowing my input. One last comment I did not see any auto paint manufacturers on the list of certified CAS products and companies.

[RESPONSE TO COMMENT 54]

At the time of the May 21, 2003 workshop, staff indicated we would propose solvent provisions applicable to the auto body industry as part of the Rule 321/362 rulemaking effort. The APCD later modified this approach and decided to locate the solvent cleaning requirements within Rule 339, Motor Vehicle and Mobile Equipment Coating Operations.

Staff addressed the auto body industry's solvent concerns through the June 19, 2008 Rule 339 amendment. The currently proposed amended Rule 321 provides an exemption for facilities subject to Rule 339.

Comments from Santa Barbara Industrial Association,
Letter dated July 9, 2003

[COMMENT 55]

The Santa Barbara Industrial Association (SBIA) is very concerned regarding the proposed enactment of Rule 362 (Solvent Cleaning). We respectfully request that you seriously consider the information and suggestions presented herein and we encourage you to contact us if additional information is required.

At the May 21, 2003 "clean slate" public meeting to discuss proposed Rule 362 District staff suggested that aqueous cleaners are effective for most wipe cleaning operations. From the perspective of the regulated industrial community, this assertion is categorically incorrect as was borne out in public comments from the regulated community. The reality is that most local businesses have evaluated these alternative cleaning materials and determined that they do not possess the required solvent strength. For many solvent-cleaning operations, aqueous cleaners are functionally ineffective. The suggestion that solvent cleaning operations are not aware of non-solvent alternatives is an overly simplistic analysis if [sic] the issue. The ever-diminishing list, and increasing expense, or "approved" wipe cleaning materials has a direct economic impact on local business. Stated simply, if aqueous cleaners worked effectively for all operations, Santa Barbara businesses would already be using them.

[RESPONSE TO COMMENT 55]

The proposed amended Rule 321 solvent ROC limits take into account the special needs for the various industries. For electronic and medical device manufacturing processes that require a higher degree of cleanliness, the rule will allow up to 900 grams of ROC per liter. Similar limits for the different types of facilities and processes have been used successfully in other air districts. Thus, there should not be any significant impacts to any of the industries subject to the revised rule requirements.

[COMMENT 56]

It is puzzling why only certain industries that performing solvent cleaning are selected with the scope of this restrictive regulation. On it's [sic] face, the applicability of Rule 362 is inequitable given that the proposed rule fails to provide equal protection to Santa Barbara County industries. Manufacturing and service companies, which perform solvent cleaning, are selectively targeted by this regulation whereas hospitals, clinics and janitorial services are exempted entirely.

[RESPONSE TO COMMENT 56]

PAR 321 solvent cleaning provisions are not intended to apply to hospitals, clinics, and janitorial services.[a] We believe that there are several valid reasons for exempting them, including:

1. *The need for the District to adopt provisions similar to those in the Surface Cleaning and Degreasing Performance Standard recommended by the ARB (http://www.arb.ca.gov/ssps/ssps.htm#tables).*

2. *The need to fulfill the commitment the APCD made in the EPA- approved Clean Air Plan to modify the solvent rule.*

3. *It would be inappropriate to add such requirements in a rule without first fulfilling certain preliminary legal requirements (e.g., those provisions indicated in Health and Safety Code Section 40913(a) and Section 40922). One of these tasks involves performing a further study, which is akin to a feasibility study. And, depending on the results of that analysis, the District would then list the project as a proposed emission control measure in a draft clean air plan. The public, regulated community, ARB, and EPA staff would then have an opportunity to provide comments on the project through the draft clean air plan review process. If the project was found to meet certain requirements (e.g., technologically feasible, had appropriate emission reductions, was publically acceptable, was cost-effectiveness, etc.), then the District would proceed with the adoption of the revised control measure.*

4. *Health care and janitorial emissions are a small portion of the overall emissions associated with degreasing and solvent cleaning and disinfecting in Santa Barbara County. The cleaning techniques used in health care facilities and by janitors do not lend themselves well to the usual solvent cleaning control techniques found in the industrial setting. Also, it is unlikely that a further study analysis would support modifying the emission control measure consistent with the provisions in Health and Safety Code Section 40913 (Contents of plan).*

   In Santa Barbara County, the health care emissions associated with the use of isopropyl alcohol for cleaning and disinfecting surfaces is less than 0.5 percent of the total ROC emissions associated with degreasing and solvent cleaning and disinfecting. And for janitorial cleaning, the emissions are less than 7 percent of the total ROC emissions associated with degreasing and solvent cleaning and disinfecting.

---

[a] *However, Rule 321* ***solvent cleaning machine*** *requirements apply (and will continue to apply) to any person (including hospitals, clinics, or janitorial services) using a* ***solvent cleaning machine****.*

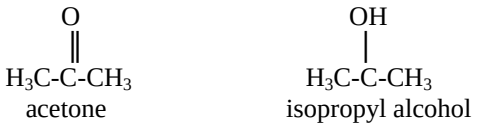
For rule clarity, the District has added the following exemptions to proposed amended Rule 321:

a. *Section B.7 for janitorial cleaning, and*
b. *Section B.14 for health care facilities performing solvent cleaning to disinfect and decontaminate surface and equipment.*

[COMMENT 57]

Proposed Solutions:

1.) Provide Santa Barbara County with an exemption whereby isopropyl alcohol (IPA) would be exempted from the solvent cleaning regulation. This would preclude the creation of a discriminatory regulation that punishes selectively targeted Santa Barbara County businesses. Scientific justification for exemption of IPA can be found in the chemical structure of IPA in comparison to the structure of acetone which is currently exempted in SB, [sic] county and the entire United States. Acetone and IPA are differentiated by the mere substitutions of an atom of oxygen for a hydroxyl group.



acetone isopropyl alcohol

[RESPONSE TO COMMENT 57]

The APCD disagrees with the premise that there needs to be a proposed solution for the reasons provided in the Response to Comment 56. Further, we disagree that IPA should be considered to be an exempt compound (or a non-ROC). Acetone is not a reactive organic compound, whereas IPA is. The APCD is required to adopt every feasible control measures, which generally includes control measures that other air districts have adopted and successfully implemented.

No air district with a solvent cleaning rule has exempted IPA solvent cleaning from their rules. To do so, would be inconsistent with the mandate to adopt all feasible control measures.

It should be noted that PAR 321 will allow the use of full strength, undiluted IPA for medical device manufacturing processes, medical device repair cleaning, and medical device manufacturing maintenance cleaning.

[COMMENT 58]

2.) "Leave well enough alone". Presently, while Santa Barbara's air quality continues to improve it is particularly perplexing why this type of law that restricts basic manufacturing competitiveness would be proposed as essential to maintaining compliance with current state and Federal ozone standards.

[RESPONSE TO COMMENT 58]

Medical device manufacturers in other areas in the state (e.g., South Coast AQMD, San Joaquin Valley Unified APCD, Ventura County, Bay Area AQMD, Sacramento Metropolitan AQMD areas) have complied with requirements similar to the ones proposed for many years. Adopting the revised Rule 321 could be viewed as achieving more-equitable production requirements for the manufacturing of medical devices in Santa Barbara County when compared to facilities that have already comply with the solvent cleaning requirements elsewhere in the state.

Adoption of Rule 321 revisions is necessary to help achieve the state ozone standards, reduce emissions of toxic air contaminants, and as part of the federal ozone maintenance plan.

[COMMENT 59]

The SBIA is proud of our shared history of constructive cooperation with the APCD on previously challenging issues that together, were equitably resolved. We welcome any questions and encourage further discussion regarding to the matter at hand.

[RESPONSE TO COMMENT 59]

Thank you. The APCD appreciates that SBIA (now known as the Santa Barbara Technology & Industry Association or SBTIA) wants to work with us on developing changes to the solvent rule.

Comments from LyondellBassell Industries, Email dated August 13, 2008

[COMMENT 60]

I noticed that you are about to revise your solvent cleaning rule (321) and may also revise several other rules in 2008-2009 that could benefit from a TBAC exemption. As you may know, TBAC was recently exempted in your Motor Vehicle and Mobile Equipment Coating rule (339) and is exempt in most of the United States.

TBAC is a useful compliance tool in cleaning operations and is DoD-approved for use as a hand-wipe solvent to replace MEK and toluene-based cleaners. It is also a potential SNAP-approved replacement for n-propyl bromide and other halogenated solvents. If exempted, it could replace VOCs, TACs, ozone depleting and GHG solvents from cleaning operations and products in your county.

I would appreciate if you would consider exempting TBAC in this and other rules (330, 337, 349, 351, 353 and 354) as you revise them and notify me so we have an opportunity to comment publicly. Alternatively, you could add it to your list of exempt compounds in rule 102. Attached are two recent articles that demonstrate TBAC's superior degreasing ability compared to other Low-VOC technologies. Our web site is also a useful resource.

[RESPONSE TO COMMENT 60]

The APCD has decided to add tBAc to the exempt compounds in the Rule 102 definition of "reactive organic compound." However, under the proposed amended rules, tBAc may be subject to Rule 321 due to the APCD considering it to be a toxic air contaminant (TAC).

We rely on the definition of toxic air contaminant found in the California Health and Safety Code, Section 39655. This definition has a clause indicating "may pose a present or potential hazard to human health." This provides some latitude for chemicals not yet listed by the Clean Air Act as a hazardous air pollutant or listed by the California Office of Environmental Health Hazard Assessment as a TAC.

We concluded that tBAc is a TAC due to it having a byproduct (tertiary-butyl alcohol, TBA), which is a known carcinogen. Thus we consider the use of tBAc to pose a potential hazard to human health and will treat it as a TAC.

The APCD proposes to add a definition in Rule 102 for "solvent" that will include any liquid containing an ROC or a toxic air contaminant. Further, the revised Rule 321 control techniques will be applicable to cleaning agents that contain more than 2% solvent. Therefore, any cleaning agent containing more than 2% tBAc will be subject to the Rule 321 provisions.

Comments from United Launch Alliance, Letter dated September 3, 2008

[COMMENT 61]

1) Isopropyl alcohol should be exempted from Rule 321 prohibitory limits when used as a wipe solvent. The use of isopropyl alcohol (IPA) as a wipe solvent is common to many industries including medical and hospital facilities, electronics manufacturing and processing, clean rooms and aerospace. Allowances for the use of isopropyl alcohol are made in South Coast Air Quality Management District's (SCAQMD) Rule 1164 for Semiconductor Manufacturing Rule in section 3.A and also the Solvent Cleaning Rule 1171 c. (1) B. iii for medical devices. Hospitals and clinics may be exempted from Rule 1171, the District would have to be contacted for this interpretation. Some facilities, such as medical clinics and hospitals, may not use 100% IPA for their operations. The District could explore requiring lower concentrations of IPA in water for certain types of operations as appropriate as part of this rulemaking effort. If that is not feasible, the exemption should apply to all operations in all concentrations.

[RESPONSE TO COMMENT 61]

An outright exemption for IPA solvent wipe cleaning would be inconsistent with the rules adopted by the South Coast AQMD and San Joaquin Valley Unified APCD. We need to implement all feasible control measures. The proposed amended rule will include ROC limits for semiconductor and other manufacturing facilities, but at levels that are high enough to allow the use of IPA without regard to its strength (dilution with water or other exempt-ROC material).

[COMMENT 62]

2) The District should consider the interplay between Rule 202, Exemption U.3., the practice of issuing solvent (and coating) use permits in pounds instead of gallons, and the proposed amendments to Rule 321. Currently, per Rule 202, section U.3., equipment used for solvent wipe cleaning in excess of 55 gallons per year at a stationary source prompts the requirement for an air permit. The VOC content of the solvent used for wipe cleaning is not a factor in this determination.

[RESPONSE TO COMMENT 62]

We agree that a revision to Rule 202.U.3 is needed to take into account the use of low-ROC solvents. Thus, we have added text to this section that will exclude low-ROC solvents from the 55 gallons per year per source threshold figure.

On the practice of issuing permit conditions based on pounds instead of gallons, the APCD already issues such permits. For further discussion on the relationship and interplay between permit conditions, NSR provisions, and compliance with prohibitory rules, please see the Response to Comment 7.

[COMMENT 63]

The permit exemption rules of four other air districts were reviewed for comparison.

Section (O)(4) of South Coast Air Quality Management District's Rule 219 exempts "hand application of solvents for cleaning purposes including, but not limited to use of rags, daubers, swabs and squeeze bottles".

Section 6.9 of San Joaquin Valley APCD Rule 2020 exempts "unheated, non-conveyorized cleaning equipment (not including the control enclosure):" that meet certain requirements. Wipe cleaning is not specifically called out, but doesn't appear to fit into the category of "cleaning equipment". A permit engineer was contacted and he confirmed that this District does not require air permits for area sources such as wipe cleaning. There are, however, prohibitory rules regarding the VOC content of solvents used in various applications.

Section J.2 of San Luis Obispo County APCD Rule 201 contains identical language to the San Joaquin Valley rule. The District would have to be contacted to determine their position on requiring permits for wipe cleaning.

Section10.d. of Ventura County APCD Rule 23, revised 4/08/08, exempts "solvent cleaning operations including cold cleaners, vapor degreasers, wipe cleaning, dip cleaning and flush cleaning…"

The permit trigger for "equipment used in wipe cleaning operations" is 55 gallons per year per stationary source in Santa Barbara County. If the wipe cleaning solvent VOC limit in Rule 321 is lowered to 50 grams per liter or .41 pounds per gallon, as proposed, per Rule 202 U.3., a permit would be required for a process that emits 22 pounds of VOC per year or .06 pounds per day. This is not a productive use of time for either the District or the regulated sources.

[RESPONSE TO COMMENT 63]

Regarding exemption Rule 202.U.3 and recognizing the use of low-ROC solvent and, please see the Response to Comment 62 (first paragraph).

[COMMENT 64]

(Note: "Equipment" is not defined in Rule 102. Wipe cleaning is typically done by hand. If there is no "equipment", is hand-wipe cleaning an exempt operation?)

[RESPONSE TO COMMENT 64]

The APCD recognizes this clarification issue and proposes additional text changes in Rule 202.U.3 to address it.

[COMMENT 65]

The permits, when issued, have limits in units of pounds per day, pounds per month and pounds per year. This is in contrast to the South Coast Air Quality Management District, who issues their permits in units of gallons per day, month and year. In South Coast, if a VOC limit is lowered for a category of coating or solvent, the VOC emissions attributed to the permit will automatically be lowered. When a permit is issued in pounds per day, as in Santa Barbara County, lowering the VOC content of the individual materials does not result in a net air quality improvement, unless the permit is also amended. This is particularly true if offsets were purchased to obtain the permit. Purchasing offsets gives the source some quantity of emissions which have been bought and paid for.
The District cannot take credit for air emission reductions from prohibitory rule amendments at facilities that have air permits issued in units of pounds.

SBCAPCD Rules 202 and the proposed amendments to Rule 361 do not work well together and are not consistent with rules in other Districts. The Santa Barbara County District's approach to issuing solvent use permits with limits in pounds per gallon further compounds this situation. ULA suggests the following measures to mitigate this problem:

a) Exempt hand or solvent-wipe operations from permitting requirements. Delete the 55 gallon per year gatekeeper in Rule 202 U.3. and all references to recordkeeping in the adjacent paragraphs. Delete the word "equipment". This would make Rule 202 consistent with other District permit exemption rules. As the Rule 321 VOC content gets lower, overall District emissions decrease. The current interpretation of the U.3. exemption is that any facility at a stationary source that uses more than 55 gallons per year of wipe solvents is required to get an air permit for its overall solvent use. Typically, all VOC-containing materials used at the site are incorporated into this permit. If overall emissions are permitted in units of pounds, the District cannot claim a net emissions decrease when VOC levels are decreased in prohibitory rules.

b) Exempt sources with permits that have been issued in pounds per day from all prohibitive rule VOC limit requirements. If a facility is permitted and has purchased offsets to emit some total VOC quantity in pounds per day, it should not matter what the VOC content of the material is. Future permits should be issued in gallons per day. Once this is implemented, reductions from the prohibitory rules will result in a permanent reduction in permit emissions.

Implementing one or both of these measures will help correct inconstancies between several SBCAPCD rules and the permitting policies for miscellaneous solvent or coating use.

[RESPONSE TO COMMENT 65]

The District disagrees that there is a problem requiring mitigation. For further information on our position, please see the discussion in the Response to Comment 7.

[COMMENT 66]

These comments are the product of United Launch Alliance at Vandenberg Air Force Base and do not reflect the policies or views of the United States Air Force or any other Governmental entity. ULA will be happy to discuss these comments further with the Engineering Staff of the District at their offices at a time that is convenient for both parties. ULA appreciates the District's efforts at public outreach and looks forward to future rule-making activities.

[RESPONSE TO COMMENT 66]

Thank you for your interest in helping to develop the Santa Barbara County Air Pollution Control District revised solvent rules.

Comments from
Santa Barbara Technology & Industry
Association, Letter dated September 15, 2008

[COMMENT 67]

The Santa Barbara Technology and Industrial Association (SBTIA) strongly opposes Rule 321 as currently proposed by the Santa Barbara County Air Pollution Control District (District). This proposed rule would make certain hydrocarbon solvents illegal for use in wipe cleaning operations. The employment of these compounds is essential for certain wipe cleaning operations performed by a broad class of private businesses, medical practitioners, and citizens in Santa Barbara County.

[RESPONSE TO COMMENT 67]

The District hopes that the SBTIA's comment regarding strong opposition of the proposed amended rule has been allayed now that the APCD has provided a draft rule for public review. The solvent ROC limits in PAR 321 are customized for different solvent cleaning activities and should not pose any hardships on the regulated community.

In general, the District intends to adopt provisions that have been implemented elsewhere.

[COMMENT 68]

The most impalpable aspect of this proposed rule is that the local businesses, which Rule 321 would impact, are already operating under permit with the District. Effectively, the "reward" that businesses would receive for their years, and in many cases decades, of compliant operation and fee remittance is an outright ban on select materials that are essential to performing the ordinary course business activities of their enterprises. SBTIA believes District can achieve the reduction in ozone precursors required by their Clean Air Plan by adoption of other proposed rules.

[RESPONSE TO COMMENT 68]

We believe our approach to regulating solvent cleaning is reasonable, consistent with the APCD Clean Air Plan, fulfills the requirement to adopt an "all feasible" measure, and will achieve more than one-half a ton per day of ROC emission reductions. The ROC emission reduction associated with this proposed revised control measure exceeds all of the combined emission reductions from the other proposed revised control measures in the 2007 CAP, Table 4-3. Thus, the APCD disagrees that the emission reductions from revising Rule 321 can be achieved through the adoption of the other proposed control measures.

[COMMENT 69]

A particularly baffling feature of Rule 321 is that the stationary sources which are likely responsible for emitting the greatest amounts of one particular material, isopropyl alcohol (lPA), are entirely excluded from mention. At the time of the Rule 321 Public Comment Meeting, District staff indicated that they could not provide any IPA emission data for hospitals, clinics and janitorial operations. No satisfactory justification for the selective exclusion of hospitals, clinics and janitorial operations was provided at this meeting. SBTIA suggested that the undocumented exemption given to these stationary wipe cleaning operations might be due to the unfavorable political fallout that likely would foment if hospitals, clinics and janitorial operations were to be required to obtain wipe cleaning permits like other Santa Barbara County businesses. This point was not disputed by District staff.

[RESPONSE TO COMMENT 69]

Please see the Response to Comment 56.

[COMMENT 70]

It is District's responsibility to inform the public of the emission sources impacting our local air regardless of business class. In order for the District's Community Advisory Council, the APCD Board and the general public to make an informed decision regarding a ban on IPA use in our County, they should rightly be provided full disclosure of the stationary sources currently allowed to operate without permits.

[RESPONSE TO COMMENT 70]

The APCD has provided the public with data on emissions that impact the local air quality in our Clean Air Plans. The 2007 CAP, Section 3, provides emission inventory data. Table 3-1 breaks down the ROC emissions for different categories.

Concerning IPA use, as shown in the draft proposed amended Rule 321, the APCD is not proposing to ban IPA. The PAR 321, Section M.1 will limit the ROC content for certain operations. Based on other air districts' experiences or compelling support provided by industry that certain ROC-content limits will not work for certain solvent cleaning activities, we will consider alternative limits.

[COMMENT 71]

Despite the general understanding and agreement that these entities currently account for the preponderance of IPA emissions in the county, they would apparently be exempt from Rule 321 regulation.

[RESPONSE TO COMMENT 71]

Please see the Response to Comment 56.

[COMMENT 72]

We appreciate the District is considering SBTIA's suggestion that Rule 321 be revised to include a documented exemption for IPA use by hospitals, clinics and janitorial operations, as is currently provided for other select industries using this commercially ubiquitous and safe compound.

[RESPONSE TO COMMENT 72]

Staff added such exemptions in proposed amended Rule 321, Sections B.7 and 14.

[COMMENT 73]

Enforcement efforts of the District are not legislatively mandated to address transportation and natural sources which locally contribute the vast majority of hydrocarbon emissions. Accordingly, we request the rulemaking and enforcement authority assigned to the District, allowing regulation of stationary sources, be applied evenhandedly to all local businesses and with objective scientific rationale.

[RESPONSE TO COMMENT 73]

Please see the Response to Comment 56.

[COMMENT 74]

As pertaining to Rule 321, SBTIA believes that this rule should not be adopted, or at the very least, should provide an exemption from permit requirement for ALL wipe cleaning operations using IPA, not just for the select few entities who, as it turns out, are likely responsible for the greatest amount of IPA emissions.

[RESPONSE TO COMMENT 74]

Please see the Response to Comment 56.

Comments Submitted by
Western States Petroleum Association,

Email dated September 23, 2008

[COMMENT 75]

Exemptions

1.) The provisions of the proposed rule 321 should not apply to any source operation that is subject to or specifically exempted by any of the following rules:

- Rule 320, Petroleum Solvent Dry Cleaners
- Rule 326, Storage of Reactive Organic Compound Liquids;
- Rule 330, Surface Coating of Metal Parts and Products;
- Rule 337, Surface Coating of Aircraft or Aerospace Parts and Products;
- Rule 339, Motor Vehicle and Mobile Equipment Coating Operations;
- Rule 349, Polyester Resin Operations;
- Rule 351, Surface Coating of Wood Products;
- Rule 353, Adhesives and Sealants; and
- Rule 354, Graphic Arts.

[RESPONSE TO COMMENT 75]

PAR 321.B.3 and 6 lists these rules.

[COMMENT 76]

2.) Except for the recordkeeping requirements proposed for the rule, the organic solvent Volatile Organic Compound (VOC) limits of the rule should not apply to an operator using 55 gallons or less of organic solvent products in all source operations subject to Rule 321 at a stationary source, in any rolling 12 month period.

[RESPONSE TO COMMENT 76]

The District added the PAR 321, Section B.15 exemption to exempt qualifying sources from the Section M.1 Table 1 ROC limits. The "good housekeeping" requirements of Section D and the provisions in Sections M.2 and 3 will apply to sources exempt by Section B.15.

[COMMENT 77]

3.) The organic solvent VOC limits of the proposed rule should not apply to cleaning

in laboratory tests and analyses, or bench scale or research and development projects.

[RESPONSE TO COMMENT 77]

PAR 321, Section B.8.b provides such an exemption.

[COMMENT 78]

4.) Of particular concern to the oil and gas production industry is that mineral spirits or other organic solvents used for crude oil "cuts" laboratory analyses be exempt from this rule.

[RESPONSE TO COMMENT 78]

Use of solvent as a diluent in lab analysis should be exempt by PAR 321, Section 8.b and Section B.19.

[COMMENT 79]

5.) Cleaning with aerosol products should not be subject to VOC limits of the proposed rule if 160 fluid ounces or less of non-compliant aerosol are used per day per facility. The use of such product shall comply with ARB regulations. For the purpose of this exemption request the definition of "facility" should not be implied to mean the "stationary source" definition.

[RESPONSE TO COMMENT 79]

The District has a similar exemption in PAR 321, Section 9, which is based on the SC Rule 1171(g)(4) exemption. It should be noted that the text uses the term "stationary source." This is generally consistent because the definition of "facility" in the SC Rule 1171(b)(14) is akin to the SBC definition of "stationary source": FACILITY means a business or businesses engaged in solvent cleaning operations which are owned or operated by the same person or persons and are located on the same or contiguous parcels.

[COMMENT 80]

6.) The provisions of the proposed rule should not apply to janitorial cleaning, including graffiti removal.

[RESPONSE TO COMMENT 80]

PAR 321, Section B.7 provides such an exemption.

[COMMENT 81]

7.) The provisions of the proposed rule should not apply to stripping of cured coatings, cured adhesives, and cured inks.

[RESPONSE TO COMMENT 81]

PAR 321, Section B.4 provides a similar exemption. The District did not include the terms "cured adhesives or cured inks" because use of those materials and/or operations are subject to Rules 353 and 354 and PAR321, Section B.6 exempts such material stripping from Rule 321.

[COMMENT 82]

Removal of Existing Exemptions

It is WSPA's understanding that the SBCAPCD is proposing to require solvent VOC limits (g/l, lbs/gal) for certain solvent cleaning activities, and that the SBCAPCD is proposing to eliminate the exemptions in the rule for wipe cleaning and spray gun cleaning operations. WSPA further understands that for general cleaning operations, that the VOC solvent limit is proposed at 50 g/l.

The proposed removal of the wipe cleaning exemption and the proposed general cleaning solvent VOC limit of 50 g/l present potential operational and environmental problems for cleaning operations that take place on certain offshore platforms. These problems are related to the cleaning of crude oil residues that occur on offshore platforms that must be removed. In many cases crude oil extracted from wells offshore of Santa Barbara County is heavy gravity crude oil. During well workovers, drilling operations, and other related activities that occur on the platforms, these heavy crude oil residues that require cleaning have been removed using high-VOC content solvents such as mineral spirits and similar cleaners. After these cleaning operations are completed, the resultant waste solution of mineral spirits and crude oil is diverted back into the crude oil production process.

If these high-VOC content cleaning solvents are required to be replaced by the low-VOC content solvents (50 g/l), then the cleaning process would change from current practices as follows:

- Greater amounts of low-VOC solvents and water would have to be used for the cleaning process due to the fact that the

low-VOC content solvents are not as effective in removing crude oil as solvents such as mineral spirits;

- The resultant waste solution of water and solvent can not be diverted back into the production line and must be diverted to the platform wastewater sumps, which is eventually discharged into the ocean; and
- A potential exists for discharges of these wastewaters to the ocean that could be in violation of National Pollutant Discharge Elimination System (NPDES) permit conditions. Although platform operators monitor and test wastewaters for compliance with NPDES regulations and permit conditions before they are discharged into the ocean, there is a potential for sheen on the ocean surface from wastewater discharges which are a result of cleaning operations. This would be a violation of NPDES regulations and permit conditions.

Therefore, WSPA requests that SBCAPCD staff and WSPA conduct further discussions in order to craft an exemption or a solvent cleaning activity category with appropriate solvent VOC limits to accommodate these crude oil cleaning operations on the offshore platforms.

[RESPONSE TO COMMENT 82]

The District has added an exemption (Rule 321, Section B.16.h) to address this concern. This new exemption limits the solvent ROC content to 800 grams per liter and the solvent ROC composite partial pressure to no greater than 8 mmHg at 20 °C. Mineral spirits are available that will comply with these restraints.

[COMMENT 83]

Gas/Liquid-Path Cleaner Operations

WSPA requests that the definition for these operations and the operating requirements contained in Section F of the current version of the rule be clarified in order to reconcile requirements for using cleaning equipment and cleaning solvents.

[RESPONSE TO COMMENT 83]

The District has modified this term to be "Gas-Path Solvent Cleaner," revised the definition in PAR 321, Section C for clarity, and modified the Section F for consistency.

[COMMENT 84]

Requests for Information

At the scoping meeting SBCAPCD staff stated that the ROC emission reductions that were estimated for the full implementation of this proposed stationary source emission control measure was 0.0245 tons per day. WSPA requests verification of this estimate, and that the SBCAPCD provide the inventory sources from which this estimate was derived.

[RESPONSE TO COMMENT 84]

The District responded to this request for information via email on September 23, 2008.

Click here to return to the list of Appendices in the Background Paper.

Appendix J
Santa Barbara County
Comparison of the Adjoining Air District Permitting and Prohibitory Rules for Solvent Cleaning Machines and Solvent Cleaning

The Air Pollution Control Districts that border the Santa Barbara County APCD (SBC) include the San Joaquin Valley Unified APCD (SJV), the San Luis Obispo County APCD (SLO), and the Ventura County APCD (VC). For performing the comparisons of the proposed revised rules, staff considered the following categories:

1. Definitions,
2. Exemptions and general provisions for permit exemptions,
3. Prohibitory rule requirements for solvent cleaning machines, and
4. Prohibitory rule requirements for solvent cleaning.

The following provides a summary of the similarities and differences for each of these categories.

DEFINITIONS (SBC RULE 102)

In general, the SJV, SLO, and VC rules relative to solvent cleaning machines and solvent cleaning include definitions that are similar to the ones we are proposing for Rule 102. Generally, the definitions being added to Rule 102 are needed to clarify terms that are used in Rule 202 (Exemptions to Rule 201) and Rule 321 (Solvent Cleaning Machines and Solvent Cleaning). Some of the new Rule 321 terms may also be added to operation-specific rules (323, 330, 337, 349, 351, 353, or 354) when the SBC modifies them to include enhanced solvent cleaning requirements.

PERMIT EXEMPTIONS (SBC RULE 202)

These are in several categories.

- **Exceptions to Permit Exemptions.** Currently, SBC has two exceptions to the permit exemptions. Rule 202, Section B.1 indicates any equipment, activity, or operations proposed by an application to be subject to an Emission Reduction Credit is not exempt. And Section B.2 indicates emission units that function for distributed electrical generation that are not certified under the ARB regulations are not exempt.

  SJV and SLO have several exceptions to their permit exemptions. Their exceptions range from negating the exemption for an emission unit subject to New Source Performance Standards to negating an exemption where the owner of an otherwise exempt emission unit specifically requests a permit to operate. VC does not have any exceptions to its exemption rule.

- **Temporary Equipment Exemption.** SBC Rule 202.D.5 exempts temporary equipment provided certain conditions are met (e.g., emissions are 1 ton per year or less). The only temporary equipment exemption found in the SJV rules is for the temporary storage of gasoline in flexible containers used for certain purposes (Rule 2020.I.5). SLO and VC do not have an exemption provision for temporary equipment.

- **Exemption for Stationary Sources that have Uncontrolled Actual Emissions less than 1 Ton per Year.** This is an existing permit exemption in SBC Rule 202, Section D.7. SJV, SLO, and VC do not have a stationary source exemption provision.

- **Exemptions for Low Emitting Units if Uncontrolled Emissions Never Exceed Two Pounds Per Day.** The SJV Rule 2020.6.19 exempts low emitting units provided the equipment meets certain requirements. In general, the emissions need to be less than or equal to 2 pounds per day or less than or equal to 75 pounds per year. Also, the equipment cannot have emissions of hazardous air pollutants that pose a significant health risk.

SLO Rule 201.A.1 provides an equipment exemption if uncontrolled emissions never exceed two pounds per day, provided certain requirements are met. The exemption does not apply if the equipment is subject to a NSPS or a NESHAPS, emits a TAC, is located at a source that requires a Federal Title V (Part 70) permit, or the APCO has made a determination that the equipment may not operate in compliance with the SLO rules.

The VC and SBC rules do not have a similar exemption for low emitting equipment.

- **Exemptions for Unheated Nonconveyorized Cleaning Equipment.** Exemptions in the SJV Rule 2020.6.9 and the SLO Rule 201.J.2 are essentially the same. They provide an exemption for solvent cleaning using unheated nonconveyorized cleaning equipment. Both of these exemptions require that certain provisions be met (limited open surface area, limited solvent volume, only solvents with an initial boiling point above a given threshold are used, no more than 25 gallons per year of solvent may be lost to the atmosphere from all such equipment at a stationary source, and records are maintained to substantiate the exempt status).

  The exemption in the VC Rule 23.F.10.c is somewhat similar (it has an allowable aggregated surface area and an allowable minimum initial boiling point for the solvent). However, the exemption differs from the SJV and SLO exemption in that it applies to *cold cleaners* and the equipment cannot emit 1,000 pounds of ROC or greater from all such cleaners at a stationary source during any rolling period of 12 consecutive calendar months.

  The SBC exemption in proposed amended Rule 202.U.1 will apply to nonconveyorized solvent rinsing containers of 1 gallon capacity or less. The Section 202.U.2 exemption for solvent cleaning machines will continue to have exemptions similar to those in the adjoining air districts (e.g., exemptions for small surface area, aqueous cleaning solutions, and high boiling point solvent).

- **Exemptions for Solvent Wipe Cleaning Operations.** SBC Rule 202.U.3 provides an exemption for wipe cleaning operations provided the usage rate does not exceed 55 gallons per year per stationary source, records are maintained, and the aggregate emissions from all equipment subject to Rule 202.U do not exceed a 10 tons per calendar year gatekeeper.

  The VC Rule 23.F.10.d includes an exemption for wipe cleaning as discussed further in the next item. The SLO and SJV rules do not include a specific exemption for wipe cleaning.

- **Exemptions for Solvent Cleaning Machines and/or Solvent Cleaning.** The VC Rule 23.F.10.c was previously discussed under the *exemptions for unheated nonconveyorized cleaning equipment* category. In addition to that exemption (Rule 23.F.10.c) for *cold cleaners,* the VC Rule 23.F.10.d provides exemptions for qualifying *cold cleaners, vapor degreasers, wipe cleaning, dip cleaning, and flush cleaning*. To qualify for the Rule 23.F.10.d exemption, each of the following air pollutant emission rates need to be less than 200 pounds at a stationary source during any rolling period of 12 consecutive calendar months: ROC, methylene chloride, 1,1,1 trichloroethane, and perchloroethylene. The exemption does not include solvents used for coating, graphic arts, adhesive/sealant and polyester resin operations.

  The SBC Rule 202.U.2 exemption for solvent cleaning machines only applies to unheated devices. The wipe cleaning exemption in SBC Rule 202.U.3 has a 55 gallon per year per stationary source exemption applicability threshold limit and other provisions as mentioned in the *exemptions for solvent wipe cleaning operations* category above. The only solvent cleaning machine exemptions specified in the SJV and SLO rules are the one discussed in the *unheated nonconveyorized cleaning equipment* category above. As previously mentioned, the SLO and SJV rules do not include a specific exemption for wipe cleaning.

- **Exemptions that Could Apply to Solvent Cleaning and Exemptions for Miscellaneous Solvent Use.** VC Rule 23.F.6 provides an exemption that could apply to solvents: nonrefillable aerosol cans. The exemptions in VC Rules 23.F.7, 8, and 9 cover organic compound emissions from a variety of operations.

These include:

1. facility, grounds, and building maintenance and repair - not including maintenance and repair of process and industrial equipment when performed by contractors;

2. janitorial maintenance (including graffiti removal); and

3. office and administrative use of solvents - does not include production activities by facility involved in graphic arts.

The SLO, SJV, and existing SBC exemptions do not include these VC exemptions. The District is proposing to add exemptions for 1) janitorial cleaning (Rule 202.U.5) and 2) solvent cleaning to disinfect and decontaminate surfaces and equipment at hospitals, health care facilities, etc. (Rule 202.U.4). The adjoining air districts do not have an exemption similar to the proposed Rule 202.U.4 provision.

- **Exemptions for Low-ROC Solvent Use.** VC Rules 23.F.10.a and b exempt cleaning operations and materials if the cleaning agents:

  1. are certified by the SCAQMD as Clean Air Solvents, or

  2. contain no more than 25 grams per liter of ROC as used or applied, and no more than 5 percent by weight combined of methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and chloroform.

  SBC Rule 202.U.2.c exempts solvents with a VOC content of 2 percent or less by weight. An exact comparison of the percent by weight and the number of grams per liter is not possible without knowing the solvents density.

  SJV and SLO rules do not include a specific exemption for low-ROC solvents.

PROHIBITORY RULE REQUIREMENTS FOR SOLVENT CLEANING MACHINES AND SOLVENT CLEANING (SBC RULE 321)

The solvent cleaning machine and solvent cleaning requirements have several components, as outlined below.

- **Applicability.** The SLO Rule 416 does not have an *applicability* section. The SJV Rule 4662 indicates it applies to all organic solvent degreasing operations. The SJV Rule 4663 indicates it applies to any organic solvent cleaning performed outside a degreaser during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at stationary sources. Further, the rule shall also apply to the storage and disposal of all solvents and waste solvent materials at stationary sources.

  The VC Rule 74.6 *applicability* provision covers solvent cleaning and degreasing. It basically indicates that the rule applies to any person who performs solvent cleaning activities and any person who manufactures or supplies solvent for use in solvent cleaning activities in Ventura County (unless the cleaning activity is exempt from Rule 74.6 or the solvent used has an ROC content of 25 grams per liter or less). The VC Rule 74.6.1 indicates it applies to batch loaded vapor degreasers.

  The SBC proposed amended Rule (PAR) 321 *applicability* provision indicates the rule will apply to *solvent cleaning machines* and *solvent cleaning*. The use of the *solvent cleaning machine* terms is a new approach adopted only by the SBC. These terms are the same as those found in 40 CFR, Part 63, Subpart T. Thus, there is an inherent difference in terms used to describe *degreasers* vs. *solvent cleaning machines* throughout the rule when compared with the adjoining APCD rules. The *solvent cleaning* terms are the same as those found in the SJV and SC rules.

  The SBC PAR 321 *applicability* provision is similar to the one found in the SJV Rule 4663. However,

PAR 321, Section A, indicates, "This rule shall apply to any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning ..." Thus, the owner, operator, and end user are responsible for compliance with Rule 321.

- **Exemptions.** These are in several categories:

  - **Wipe Cleaning.** SLO exempts wipe cleaning from the solvent rule requirements. There is no such exemption in the SJV, or the SBC PAR 321.

  - **Low-ROC Solvents.** VC Rules 74.6 and 74.6.1exempt solvents certified by the SCAQMD as Clean Air Solvents and solvent with an ROC-content no more than 25 grams per liter (as applied). The SJV Rule 4662 and 4663 have implied exemptions for solvents containing less than 50 grams per liter of ROC via the rules' definition of *solvent*. The SBC exemption for cleaning agents containing 2 percent or less of ROC is in the current and PAR 321. However, the District proposes to change this to be containing 2 percent or less of *solvent*. The effect of this change, coupled with the definition of *solvent* including toxic air contaminants, is that a cleaning agent with no ROCs but a TAC content greater than 2 percent, will be subject to Rule 321.

    SLO does not have an exemption in this category.

  - **Small Capacity and/or Limited Surface Area.** The SLO Rule 416 provides partial exemptions from emission reduction techniques for various units not exceeding certain thresholds.

    The SJV Rule 4662, Sections 4.2 and 4.3 provide an exemption for qualifying degreasers that have an open top surface area of less than 1.0 square foot or with a capacity < 2 gallons.

    The VC Rule 74.6, Surface Cleaning and Degreasing, does not include exemptions in this category. However, the VC Rule 74.6.1, Batch Loaded Vapor Degreasers, Section G.3 small vapor degreaser provisions provide exemptions from the requirements to install an automated parts handling system and enhanced emission control equipment. To qualify, the unit must meet certain size/capacity provisions and not emit more than 55 gallons per month.

    The SBC is proposing to delete the general small cleaner exemptions (Rule 321.B.2) because the PAR 321 has new provisions applicable to these smaller-sized containers and devices. The District is adding two limited exemptions (321.B.18 and 20) for vapor solvent cleaning machines. These provisions will exempt qualifying units from some of the new requirements for vapor solvent cleaning machines.

  - **Solvent Cleaning Machines Subject to 40 CFR, Part 63, Subpart T Provisions.** The SLO Rule 416 and the SJV Rule 4662 do not have any exemptions in this category. Both the VC Rule 74.6 and 74.6.1 provide this exemption. Staff proposes that the SBC PAR 321 retain this exemption.

  - **Equipment and Operations Subject to Other Rules.** The SLO Rule 416 does not have any exemptions in this category. The SJV Rule 4662 does not have any explicit exemptions in this category. However, SJV Rule 4662, Section 4.1, exempts cleaning outside a degreaser. This implies solvent cleaning subject to the SJV Rule 4663 is exempt from Rule 4662. The SJV Rule 4663, Section 4.3, provides exemptions to operations specifically subject to or exempted by 13 other rules.

    VC Rule 74.6, Section E.1.f provides exemptions for any cleaning operation subject to one of the listed six prohibitory rules. Also, Section E.1.d of this rule includes an exemption for vapor degreasers. Batch loaded vapor degreaser are subject to Rule 74.6.1.

    The SBC PAR 321, Section B.3 exempts dry cleaning operations (either subject to Rule 320 or the state airborne toxic control measure) from the entire Rule 321 provisions. Section B.6 provides

exemptions from the *solvent cleaning* aspects of Rule 321 for eleven SBC prohibitory rules.

- **Exemption from the ROC Limits for Solvent Cleaning When Using Limited Amounts of Solvent.** The SLO solvent rule does not have an exemption in this category. The VC Rule 74.6, Section E.2.o, allows use of non-compliant solvent in certain circumstances. The facilitywide usage is to be less than 1 gallon per week, compliant solvents cannot be available, and records substantiating the exemption claim need to be maintained.

  The SJV Rule 4663, Section 4.4, provides an exemption to the solvent cleaning ROC limits for stationary sources using no more than 55 gallons per any rolling, consecutive 365-day period. This SJV exemption requires that daily records be maintained to support the exemption claim. The SBC PAR 321, Section B.15 provides a similar exemption to the solvent cleaning ROC limits for stationary sources using no more than 55 gallons per year. PAR 321.R.2 requires that monthly and calendar year total records be maintained to support the exemption claim.

- **Janitorial Cleaning (Including Graffiti Removal).** This exemption is for solvent wipe cleaning associated with janitorial cleaning, but does not include the cleaning of general work areas at stationary sources. The SBC PAR 321, Section, B.7, the VC Rule 74.6, Section E.1.c, and the SJV Rule 4663, Section 4.1, include an exemption for janitorial cleaning. The SLO solvent rule does not have a similar exemption specific to janitorial cleaning, but their rule is for solvent cleaning machines. Further, the SLO rule has a general solvent wipe cleaning exemption.

- **Aerosol Solvent Cleaning.** The PAR 321 has a limited exemption (from the solvent atomization prohibition and the solvent ROC limit) for cleaning with aerosol solvents. The genesis of this exemption stems from provisions in the South Coast AQMD Rule 1171, Section (h)(4). The VC Rule 74.6, Section E.1.b, provides an exemption for the use of aerosol products. The VC rule limits such use to 160 fluid ounces per facility; whereas, the PAR 321, Section B.9 rule limits the usage to 160 fluid ounces per stationary source.

  The SLO and SJV solvent rules do not include an exemption for the use of aerosol solvent cleaning.

- **Special Parts Cleaning.** The SLO Rule 416 does not have any exemptions in this category.

  The SJV Rule 4662 exempts the cleaning of electrical, high precision optics, electronic applications, aerospace and military applications for cleaning of solar cells, laser hardware, fluids systems, and space vehicle components and components used in research and development programs and laboratory tests for quality assurance. These items are listed within the Section 4.2 exemption, which is discussed in the preceding *small capacity and/or limited open top surface area or solvent/air interface area* category.

  The VC Rule 74.6, Section 2 provides exemptions from the solvent partial pressure and ROC content limits for equipment similar to the ones listed in the SJV Rule 4662. The VC Rule exemption list includes additional items as well (e.g., manufacturing cleaning of nuts and bolts intended for automotive racing applications and cleaning of precision-lapped mechanical seals in pumps).

  The SBC PAR 321 includes exemptions on the solvent ROC content limit for several special parts cleaning categories. The District modeled these exemptions on similar exemptions in the SJV and VC rules.

- **Gas-Path Cleaner.** The SLO and SJV rules do not have any exemptions in this category. VC Rule 74.6, Section E.3 exempts aircraft engine gas path cleaning and gas turbine gas path cleaning from the requirements in 1) Section B.1 (solvent partial pressure and ROC content limits) and 2) Section B.2 (required cleaning devices and methods) if the solvent's ROC content is 200 grams per liter or less.

  The SBC PAR 321 has special provisions applicable to gas-path cleaners and therefore does not have

an exemption for these types of cleaners.

- **Aircraft and Aerospace Vehicle De-Icing.** None of the adjoining APCDs have this exemption. The SBC is adding the exemption because 1) the removal of moisture with a solvent (e.g., diluted ethylene glycol) is considered to be solvent cleaning, and 2) no other air districts regulate this type of solvent cleaning.

- **Exemption from the Enhanced Vapor Cleaning Machine Requirements for Qualifying Small Machines.** For qualifying small units (solvent/air interface area less than1 square foot or capacity less than 2 gallons), the SBC Rule 321 will allow equipment use without an automated parts handling system, a freeboard refrigeration device, or a superheated vapor zone. The genesis for this exemption stems from an exemption in the VC Rule 74.6.1. The SJV Rule 4662 provides a broader exemption, which has more qualifiers. The SLO solvent rule does not provide a similar exemption.

- **Solvents Not Used for Cleaning.** The VC Rule 74.6 includes an exemption for the use of solvent for purposes other than solvent cleaning activities. For example, a solvent may be used as coating thinner. It is not the intent of Rule 321 to regulate such use. Thus, the SBC staff added a similar exemption. The SJV and SLO rules do not include such an exemption.

- **Exemption from the Enhanced Vapor Cleaning Machine Requirements for Qualifying Equipment Used in the Manufacturing of Electronic Components.** This is a limited exemption for vapor cleaning machines used in the manufacturing of electronic components. This exemption (PAR 321.B.20) is unique to SBC and will allow qualifying vapor solvent cleaning machines to be operated without an automated parts handling system, a freeboard refrigeration device, or a superheated vapor zone. The APCD is proposing this exemption based on input from Raytheon and their existing operations. Raytheon has indicated that they have a highly-specialized cleaning process for a sensitive product for which they have been unable to find suitable solvent replacements and/or equipment that would otherwise comply with the PAR 321 provisions and meet their high standards.

- **Solvent Wash Stations used in Medical Device Manufacturing Processes.** The SBC proposes to exempt solvent sinks used during medical device manufacturing for product leak testing from certain rule requirements. The exemption (PAR 321.B.21) will allow such sinks to be used without meeting the requirements to have a minimum freeboard height/ratio and be employed without a low-ROC solvent. These sinks are currently exempt by the Rule 321, Section B.2 – small surface area and/or capacity – exemption. Product solvent cleaning during the quality control/assurance testing is incidental to the process. Providing this exemption is consistent with the intent of PAR 321 to control emissions from solvent cleaning and solvent cleaning machines. The adjoining air districts do not include a similar exemption in their rules.

- **Metal Lift-Off Operations.** This exemption is unique to SBC; the adjoining air districts solvent rules do not include this category. SBC is adding this exemption because 1) the District does not have a separate rule for semi-conductors, and 2) to clarify that such a photoresist operation is not subject to Rule 321 (the metal lift-off operation is more akin to "stripping").

- **Definitions.** Generally, the definitions used in the SBC PAR 321 are different from those used by the adjoining air districts. As previously mentioned, the terms for *degreasers* are being modified to be consistent with the terms found in 40 CFR, Part 63, Subpart T. SBC is recommending that some of the definitions currently found within Rule 321 be relocated into the general definition rule (102).

- **Requirements.** There are several components to these provisions, as shown in the following summaries.

  - **Operating Requirements.** These are listed in SLO Rule 416, Section C, SJV Rule 4662, Sections 5.1.1, 5.2.2, 5.3.1, and 5.4.2, VC Rule 74.6, Section D, VC 74.6, Section C, and SBC PAR 321, Sections D, E, F, M, N, and O. The operating requirements are generally the same for all the air districts, with some minor variations. The SBC PAR 321 includes additional operating requirements

not found in the other air district's rules, as listed below:

1. Operating requirements for batch vapor and in-line vapor cleaning machines to have their idling mode covers and downtime mode covers in place when the equipment is in the respective mode.
2. Operating requirements for gas-path solvent cleaners.

- **Equipment Requirements.** These are listed in various sections of the SLO, SJV, SBC, and VC rules. The equipment requirements are generally the same for all the air districts, with some minor variations. The SBC PAR 321 includes additional equipment requirements not found in the other air district's rules. These additional equipment requirements are associated with the operating requirements listed in the preceding item.

  The SBC PAR 321 will implement several revised equipment requirements, which become effective one year after the date of the revised rule adoption:

  1. Vapor cleaning machines are to have dimensions such that their freeboard ratio is 1.0 or greater,
  2. Cold cleaning machines, including remote reservoir cold cleaning machines, are to use solvents with an ROC-content of 50 grams per liter or less,
  3. Vapor cleaning machines employing a solvent with an ROC content of 50 grams/liter or greater need to have an automatic parts handling system, a superheated vapor zone, a freeboard refrigeration device, and other associated items.

  The SLO Rule 416 does not have similar requirements.

  The VC rules have similar requirements on the freeboard ratio, the solvent ROC content (at 25 grams of ROC per liter), and the requirement for an automatic parts handling system. However, the vapor cleaner requirement specifies the use of at least one of these techniques (not both as in the SBC PAR 321): superheated vapor zones or refrigerated freeboard chillers.

  The SJV Rule 4662, Section 5.1.2.1.1 requires all cleaners to have a freeboard ratio of 1.0 or greater. SJV Rule 4662, Sections 5.2.1 and 5.4.1 require cold cleaners and conveyorized cleaners to use a solvent with an ROC content of 50 grams per liter or less. Also, SJV Rule 4662, Sections 5.3.2.1 and 5.4.3.4 require the use of an automatic parts handling system, a superheated vapor zone, and a freeboard refrigeration device.

- **Solvent ROC Content Limits.** The SLO Rule 416 does not limit the solvent ROC content. The VC and SJV generally limit the solvent ROC content to 25 grams per liter for solvent cleaning machines and solvent cleaning. Both air districts provide exceptions to these limits. In general the SBC is taking the same approach, but with a solvent limit of 50 grams per liter.

- **Solvent Cleaning Devices and Methods.** The District modeled the proposed Rule 321, Section M.2 provisions on the requirements in SJV Rule 4663, Section 5.2 (Cleaning Methods) and, to a larger degree, on the VC Rule 74.6, Section B.2 (Cleaning Devices and Methods Requirements). However, the APCD used most of the VC text verbatim as they had modified their rule to address EPA concerns. The SLO Rule 416 does not have similar provisions on solvent cleaning.

- **Cleaning of Application Equipment.** PAR 321.M.3 will require the cleaning of application equipment to use:

  1. A cleaning solvent with an ROC content of 50 grams per liter or less, or
  2. An enclosed system (or equipment that is proven to the satisfaction of the Control Officer to equally effective as an enclosed system).

  The SLO *degreasing operations* rule does not have specific requirements for the cleaning of application equipment. VC Rule 74.6 requires application equipment cleanup solvents to have 1) an

ROC composite partial pressure no greater than 33 millimeters of mercury at 20 degrees Celsius and 2) an ROC content no greater than 900 grams per liter.

The application equipment cleaning requirements in SJV Rule 4663, Section 5.2.3, are essentially the same requirements proposed in the SBC revised Rule 321.

- **Compliance Statement Requirement.** The SJV Rule 4663, Section 6.1, and the VC 74.6, Section B.7, require the specification of the solvent's ROC content on the solvent container or a separate product sheet. The SBC PAR 321 and SLO Rule 416 do not have a similar requirement.

- **Emission Control System Requirements.** All of the adjoining air districts have provisions on emission control systems. However, the District's PAR 321.N.1 is the only rule provision to also require that TACs be controlled with an overall efficiency of 85 percent or greater.

- **Alternative Operating and Equipment Requirements for An Airless Solvent Cleaning Machine or an Air-Tight Solvent Cleaning Machine.** The PAR 321 includes an alternative compliance method for airless or air-tight solvent cleaning machines.

  The SLO rule does not include a similar provision. The two VC rules governing solvent cleaning and solvent cleaning machines provide for the use of an alternative cleaning system, provided that the system is approved by the APCO and EPA and the emission rate from the system are lower than the emission rate from complying with the other rule requirements.

  The SJV Rule 4662, Section 5.5, provisions on the use of air-tight or airless cleaning systems are similar to the SBC PAR 321, Section O, provisions.

- **Test Methods.** The current and PAR 321 contain test methods, as do all of the adjoining air district solvent rules, except for SLO.

- **Operation and Maintenance Plan.** The requirement for an operation and maintenance plan is in the current and PAR 321. These plans need to be developed and implemented when a source is using an emission control device. None of the adjoining air districts have a comparable requirement.

- **Recordkeeping Requirements.** Currently, the SBC Rule 321 recordkeeping provision requires quarterly records for sources having a solvent cleaning machine Permit to Operate. The APCD proposes to make the recordkeeping frequency monthly and expand the requirements to any person that uses a solvent cleaning machine or performs solvent cleaning. The SBC PAR 321 modified recordkeeping provision also includes requirements to:

  1. Document the solvents' ROC content,
  2. When performing solvent cleaning, keep track of the type of solvent cleaning activity performed (per the rule's Table 1 categories) and the solvent type used for the activity,
  3. Specify the type of solvent cleaning machine used,
  4. When using an emission control system, record key operating parameters, and
  5. When using aerosol products and claiming an exemption per Section B.9, maintain daily records on the solvent usage rates.
  6. When keeping the solvent usage rate for solvent cleaning below the Rule 321.B.15 exemption applicability threshold and when claiming the exemption, maintain daily records on the solvent usage rates.

  The SLO rule does not include any recordkeeping provisions. The SJV recordkeeping provisions in their two solvent rules (4662 and 4663) are similar to the SBC PAR 321 recordkeeping requirements. However, the SJV Rule 4663 recordkeeping provisions do not include the documentation of aerosol product use because the rule does not include this exemption.

In general, the combined VC recordkeeping provisions from their two solvent rules are less rigorous then those in the PAR 321.

- **Reporting Requirements.** The SBC current and PAR 321 require the submittal of an annual report, but only for sources holding a permit for a solvent cleaning machine or solvent cleaning. None of the adjoining air districts require the submittal of an annual report.

- **Compliance Schedule.** The SJV Rules 4662 and 4663 included some new provisions with an effective date one year from the date of the rule amendment. VC adopted revisions to Rule 74.6 and the new Rule 74.6.1 on November 11, 2003 and made both of the rules effective July 1, 2004. The SLO Rule 416 was adopted June 18, 1979 with an effective date of January 1, 1980.

  In general, the provisions in proposed amended Rule 321 will become effective on the date of rule adoption, with a few exceptions:

  1. The owners or operators of equipment becoming subject to Rule 321 due to a Rule 102, Rule 202, and/or Rule 321 change will have phased compliance periods, as specified in Rule 321, Section T.3.[a] Similarly, the equipment previously subject to a Rule 321 exemption that is lost through the rule revisions will also have similar phased compliance deadlines per PAR 321.T.2.b.[b]

  2. Certain new provisions in Sections H through and including M provide for a one-year compliance deadline.[c]

Click here to return to the list of Appendices in the Background Paper.

[a] For example, existing solvent cleaning employing smaller containers (1 gallon capacity or less) subject to the PAR 202.U.1 permit exemption will need to comply with the Rule 321 provisions within the phased compliance period in Section T.3.
[b] For example, a remote reservoir cleaning machine had been subject to the Rule 321.B.2 exemption and will now be required to comply with Rule 321 provisions due to a loss in an exemption.
[c] Table 1 in Appendix E (page E-3) provides a summary of the provisions with a one-year deadline for compliance.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix K
Santa Barbara County
Impacts from the Revised Rules

Industry Impacts

The impacts from the revised rule will depend on the type of parts being cleaned and the cleaning processes used by a particular source. Most sources performing *maintenance cleaning* will need to limit the solvent's ROC content to 50 grams per liter or less. Medical device and pharmaceutical manufacturers will have a "not to exceed" limit of 900 grams of ROC per liter for *maintenance cleaning* of general work surfaces. Some of the rule impacts (e.g., application and permit fees for compliance modifications and annual reporting) will depend on whether the solvent cleaning machine or solvent cleaning is subject to a Permit to Operate.

The following provides information on the impacts from the various rule revisions and data on the sources potentially impacted by the changes.

RULE 102, DEFINITIONS

The APCD is unaware of any source that will be impacted by the addition of the new definitions.

RULE 321, SOLVENT CLEANING MACHINES AND SOLVENT CLEANING

Impacts from the proposed amended Rule 321 will occur for several general reasons:

a. The *solvent cleaning machine* configuration, operating methods, and/or solvent may need to be changed to comply with the rule provisions;

b. The solvent used for *solvent cleaning* may need to be replaced with a lower ROC content solvent;

c. Existing *solvent cleaning* techniques may need to be modified to comply with the new requirement to use sanctioned devices and methods; and/or

d. The recordkeeping frequency is being changed from quarterly to monthly, which also affects the data to be included in annual reports.

To determine the companies and agencies that may be impacted by these rulemaking actions, staff reviewed:

- APCD records for permitting and exempting solvent users and the APCD water-based cleaner rebate program,
- Phonebook listings, and
- Internet search engine listings.

Due to the ubiquitous nature of solvent use and the APCD permit-exempt status of many of the devices and operations, a comprehensive listing of all sources that may be impacted by the rule revision is not possible. Tables 1 and 2 in Appendix B list the facilities and automobile repair shops that may be impacted by the rule revisions.[a]

The following information describes the anticipated rule impacts to the owners and operators of 1) various solvent cleaning machines and 2) facilities performing solvent cleaning. This section does not include the *in-*

[a] Automobile repair shops are facilities that repair engines, transmissions, brakes and other similar components of motor vehicles and should not be confused with automobile body shops. Painting activities at body shops are regulated under Rule 339, Motor Vehicle and Mobile Equipment Coating Operations.

line cleaning machines category because the APCD is unaware of any current use of these machines in Santa Barbara County.

Batch Cleaning Machines (Sections D, E, G, H, I, and J)

Tables 1 and 2 list facilities that possibly use batch solvent cleaning machines (vapor and cold types).

Table 1. BATCH VAPOR CLEANING MACHINES

Company	FID
Advanced Vision Science	02463
Digital Instruments	03858
Kilovac Corporation	01670
Lockheed Martin (Santa Barbara Focalplane)	09424
Microwave Applications Group	01820
Raytheon - Buildings B1, B2, B3, & B6 (Infrared)	04140
Raytheon - Building B8	03890
Raytheon - Hollister (Electronic Warfare)	01971
Renco Encoders, Incorporated	04574
Special Technologies Laboratory	02758

Vapor cleaning machines not otherwise exempt from the requirements will need to have a minimum freeboard ratio of 1.0 and automatic sump heat shut off devices for various operating conditions. In addition, any such machine that is employed with a solvent having an ROC content in excess of 50 grams per liter will need to have an automated parts handling system, circumferential trough, water separator, freeboard refrigeration device, and a superheated vapor zone.[a] The installation of these devices on a currently permitted solvent cleaning machine will require the submittal of an Authority to Construct modification application.

Staff has not identified any permitted vapor cleaning machines that will need modifications under the proposed amended Rule 321. If a source needs to install a new device to comply with Rule 321, it will be impacted by the Authority to Construct (ATC) and Permit to Operate (PTO) application filing fees (currently $335/application). In addition, the ATC and PTO fees will be assessed (on a reimbursable basis).

Owners and operators of vapor solvent cleaning machines needing to comply with the revised Rule 321 requirements may encounter retrofit costs on the order of those shown below.

- Extending the freeboard: $2,718[b]
- Automated parts handing system (simple manually actuated hoist): $2,278.[c]
- Freeboard refrigeration device: $12,256.[b]

Superheated vapor zones systems are relatively common on new solvent cleaning machines, but they may not be available as retrofits.[d] Thus, sources using vapor cleaning machines with solvents above the 50 grams per liter threshold may need to replace their machines to comply with the revised rule requirements. Staff estimates the capital cost of a unit (using isopropyl alcohol-cyclohexane solvent mixture) may be on the order of

[a] Unless the solvent cleaning machine is equipped with an APCD-approved emission control system or is subject to a Rule 321.B.18 or 20 exemption.
[b] Staff used the freeboard extension cost estimate from the SCAQMD Staff Report for Proposed Amended Rule 1122, dated June 6, 1997, with a CPI adjustment ($2,000/unit, 40.0% CPI increase).
[c] Based on estimates in the VCAPCD Rule 74.6 Draft Staff Report dated July 10, 2003 (with a 17.4% CPI increase).
[d] Reference, "Solvent Cleaning (Degreasing) An Assessment of Emission Control Options," November 1992, Center for Emissions Control, Inc., page 32.

$155,000 (plus installation costs).[a] In addition, the APCD estimates the annual solvent cost for such a unit is about $400 per year.

Table 2. BATCH COLD CLEANING MACHINES[b]

Company	FID
Advanced Vision Science	02463
Allergan Corporation	10084
Arguello, Inc., Platforms Harvest, Hermosa, and Hidalgo	08013 - 08015
Bardex Corporation	01152
Celite Corporation	00012
DCOR, LLC., Platform A	08003
DCOR, LLC., Platform B	08004
DCOR, LLC., Platform C	08006
DCOR, LLC., Platform Habitat	08012
DCOR, LLC., Platform Henry	08007
DCOR, LLC., Platform Hillhouse	08005
Digital Instruments	03858
Dupont Displays	10307
Dupont Displays	08709
Essex Electronics, Inc.	01480
ExxonMobil Production Company, Las Flores Canyon	01482
ExxonMobil Production Company, Platform Harmony	08018
ExxonMobil Production Company, Platform Heritage	08019
ExxonMobil Production Company, Platform Hondo	08009
ExxonMobil Production Company, POPCO Plant	03170
Fortistar Methane Group LLC	08676
Helix Medical, Incorporated	04487
Indigo Systems Corporation	09745
International Transducer Co.	01634
Karl Storz Imaging, Incorporated	45883
Kilovac Corporation	01670
Lockheed Martin (Santa Barbara Focalplane)	09424
Medtronic PS Medical	04635
National Aeronautics & Space Admin.	06100
Pacific Hydraulic Systems	04617
Pacific Scientific, EKD	08934
Plains Exploration & Production Company, Lompoc Oil and Gas Plant	03095
Plains Exploration & Production	08016

[a] Based on data in a Michigan Manufacturing Technology Center document titled, "Background Information - IPA-Cyclohexane Vapor Degreaser," 1999 (with a 37.5% CPI increase).
[b] Includes remote reservoir batch cold cleaning machines.

Company	FID
Company, Platform Irene	
Raytheon	04140
Raytheon	01971
Raytheon	03890
Renco Encoders, Incorporated	04574
Skate One Corp.	03750
Spaceport Systems International	08698
Southern California Gas Company	01734
The Okonite Company	01900
Plains Exploration & Production Company, Platform Irene	08016
The Point Arguello Companies, Platform Hermosa	08014
The Point Arguello Companies, Platform Hidalgo	08015
Vandenberg Air Force Base	00201 (+ Others)

Depending on the items or parts being cleaned, batch cold cleaning machines (including remote reservoir batch cold cleaning machines) may need to be used with a solvent having an ROC content of 50 grams per liter or less. The cleaning of certain items (e.g., electronic components and medical devices) is exempt from the requirement that the solvent ROC content be limited to 50 grams per liter.

Some previously exempt solvent wash stations will become subject to the Rule 321 provisions for the first time.[a] These units will need to comply with the general equipment requirements for solvent cleaning machines (Rule 321.G) and the additional equipment requirements for batch cold cleaning machines (Rule 321.I). And, if such a solvent wash station is used with isopropyl alcohol, some of the things the owner or operator will need to make sure the equipment is equipped with include:

1. A cover that is a sliding, rolling, or guillotine type; designed to easily open and close (Rule 321.I.1).
2. A drainage apparatus or device, so the parts are under the cover while draining (Rule 321.I.2),
3. If the *freeboard ratio of 0.75* compliance option is employed (Rule 321.I.4), a maximum solvent fill mark, which complies with the freeboard ratio requirement (Rule 321.I.6).

However, unheated solvent wash stations using xylene (dimethyl benzene), a low volatility solvent, are not required to comply with items 1 and 2 above. Further, if such a solvent wash station is used in the manufacturing, repairing, or maintenance of electrical apparatus components, electronic components, satellites, space vehicle components, or medical devices, the rule allows the use of xylene to be continued. Section B.8 exempts solvent wash stations involved in these activities from the requirement to meet the 50 grams per liter requirement in Section I.7.

In general, the permitted cold solvent cleaning machines are used in electronic device manufacturing facilities and medical device manufacturing facilities. Thus, these devices will not need to employ low-ROC solvents. Further, the parts washer and brake washers used by the automotive repair shops will need to be converted to low-ROC solvents to comply with the revised rule (if they have not already switched to aqueous cleaning solutions).

[a] "Solvent wash stations" include, but are not limited to, sinks and basins that typically contain unheated solvent used to clean parts and products by immersion and/or rinsing methods (batch cleaning mode). In general, such sinks and basins were subject to the Rule 321.B.2 exemption (capacity ≤ 1 gallon or evaporative surface area < 1 square foot; aggregate of such units < 10 square feet/stationary source). This exemption is deleted in the proposed amended Rule 321. However, a new provision (PAR 321.B.21) may provide limited exemptions for qualifying solvent wash stations.

The APCD cost-estimates for replacing existing batch cold solvent cleaning machines with complying machines are shown below.

Sink-on-a-drum..... $645 – $1,935[a]
Enzyme system ..... $1,290 – $1,935[b]
Immersion Washer..... $1,032 – $2,193[b]
Spray Cabinet..... $2,580 – $7,740[b]
Ultrasonic System ..... $3,870 – $15,480[b]
Heated brake cleaner..... $1,290[b]
Unheated brake cleaner..... $645[c]
Birdbath brake cleaner ..... $903[b]
Stand mounted brake cleaner ..... $452[b]

Generally, there are lower operating costs associated with aqueous cleaners. Thus, the equipment initial cost will be offset by lower operating costs.

Gas-Path Solvent Cleaners (Also Called "Corrosion Control Carts") (Sections D, G, and F)

These machines (or ancillary equipment) are used to clean the interiors of gas turbine or jet engines. The APCD has not identified any facilities that employ these cleaners that will be subject to the rule. Thus, there is no impact expected to the revised rule to this equipment category.

Air-Tight and Airless Solvent Cleaning Machines (Sections D and O)

Staff has identified only one facility with air-tight cleaning machines: Raytheon's Infrared facility (FID 4140). Table 3 lists the Raytheon air-tight solvent cleaning machines that will become subject to Rule 321.

Table 3. AIR-TIGHT SOLVENT CLEANING MACHINES THAT WILL BECOME SUBJECT TO RULE 321

Device Identification No.	Description
107323	TAS Automated Solvent Cleaner
108304	SSEC Solvent Cleaning Unit

Raytheon will need to ensure that these air-tight cleaning machines comply with the Rule 321, Section O provisions. There are no known impacts from Rule 321 becoming applicable to these units.

[a] Based on cost figures from the Institute for Research and Technical Assistance's Pollution Prevention Center document titled, "Switching to Water-Based Cleaners for Repair and Maintenance Parts Cleaning," CAL-EPA's Dept. of Toxic Substances Control Office of Pollution Prevention and Technology Development, Document No. 616, dated 1999 (with a CPI increase of 29%).
[b] Based on cost figures from the Institute for Research and Technical Assistance's Pollution Prevention Center document titled, "Switching to Water-Based Cleaners for Automotive Brake Cleaning," CAL-EPA's Dept. of Toxic Substances Control Office of Pollution Prevention and Technology Development, Document No. 619a, dated 1999 (with a CPI increase of 29%).
[c] Based on cost figures from the Institute for Research and Technical Assistance's Pollution Prevention Center document titled, "Switching to Water-Based Cleaners for Repair and Maintenance Parts Cleaning," CAL-EPA's Dept. of Toxic Substances Control Office of Pollution Prevention and Technology Development, Document No. 616, dated 1999 (with a CPI increase of 29%).

Solvent Cleaning (Section M)

Facilities that may be performing solvent cleaning that will become subject to Rule 321 are listed in Appendix B, Tables 1 and 2.[a]

Depending on the general work surface category, items, products, or parts being cleaned, solvent cleaning will need to be performed with a solvent having an ROC content of 50 grams per liter or less. The proposed revised rule allows the use of solvents with higher ROC content when used in certain solvent cleaning categories (e.g., cleaning of electronic components or medical devices). Also, the revised rule will require that sanctioned cleaning devices and methods be used.

These requirements become effective one year after the date of adoption of the revised rule. The APCD proposes this compliance deadline to provide the regulated community adequate time to find suitable solvent replacements and/or make the necessary changes to the cleaning devices and methods to achieve compliance with the new provisions in Section M.

Facilities (e.g., repair shops) complying with the 50 grams per liter limits (Rule 321 Table 1) should experience an overall savings of about $86,000 per year.[b, c]

The APCD is unaware of any impacts from the new Section M.2 (cleaning devices and methods) or Section M.3 (use of an enclosed gun washer or a cleaning material containing 50 grams per liter of ROC or less). Most facilities performing surface coating will be exempt from Section M.3 (per Section B.6). However, for cases where the spray gun cleaning is not exempt from Section M.3, the owners or operators may comply by switching to a low-ROC cleaning material.

The cost savings from changing to a cleaning material that contains 50 grams of ROC per liter or less would likely be on the order of $0.75 per pound of ROC emissions reduced.[a] If switching to a low-ROC cleaning material is infeasible, the cost for an enclosed gun washer is about $1,800 per facility. The enclosed gun washer costs will be offset by reduced labor costs and reduced solvent costs (purchase and disposal).[d]

New and Increased Recordkeeping and Reporting Impacts to the Owners and Operators (Sections R and S)

The APCD estimates that the average new costs for performing monthly recordkeeping will be about $1,000 per facility per year for facilities becoming subject to Rule 321 for the first time (e.g., the facilities identified in Appendix B, Table 2). Staff estimate the average annual increased recordkeeping costs for the facilities listed in Appendix B, Table 1, will be $700 per facility.

Sources using aerosol products and claiming the Section B.9 exemption or claiming the Section B.15 exemption will need to maintain daily records on the solvent usage rates. The APCD anticipates that sources claiming this exemption will have administrative costs of $500 per facility per year. Thus, a stationary source with several facilities will have higher recordkeeping costs compared to a stationary source with one facility.

---

[a] Additional facilities may exist that perform solvent cleaning that will become subject to Rule 321 that the District is unaware of.
[b] Based on a $1,325 per ton of ROC reduced factor for other solvent cleaning operations indicated in an EPA document titled, "Control Techniques Guidelines: Industrial Cleaning Solvents," EPA 453/R-06-001, September 2006 (with a CPI increase of 17%).
[c] Also based on estimated 55.48 tons per year of ROC emission reduced for the "handwiping" category.
[d] EPA Proposed Rule, "National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources," 40CFR63, Draft of September 6, 2007.

There will likely be a slight increase in the administrative costs associated with preparing annual reports due to the change from quarterly to monthly recordkeeping and reporting. This increase only affects permitted facilities and the District estimates it will be on the order of $200 to $300 per facility.

District Impacts

There should be a minimal amount of application processing associated with the revised rule. Staff has not identified any solvent cleaning machines that will require modification to comply with the rule. Thus, the number of applications expected from the Rule 321 revisions is anticipated to be minimal.

The majority of the staffing impacts from this rulemaking action will involve outreach and education efforts and enforcement activities.

Inspection staff shall randomly spot-check unpermitted sources subject to the rule to ensure that they are complying with the appropriate provisions. These costs will be integrated into the APCD general compliance verification program.

Click here to return to the list of Appendices in the Background Paper.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix L
Santa Barbara County
Flowchart Overviews of Key Provisions of Rule 202 and Proposed Amended Rule 321

Table 1. TABLE OF CONTENTS FOR FLOWCHARTS

Click here to return to the Flowchart Table of Contents.

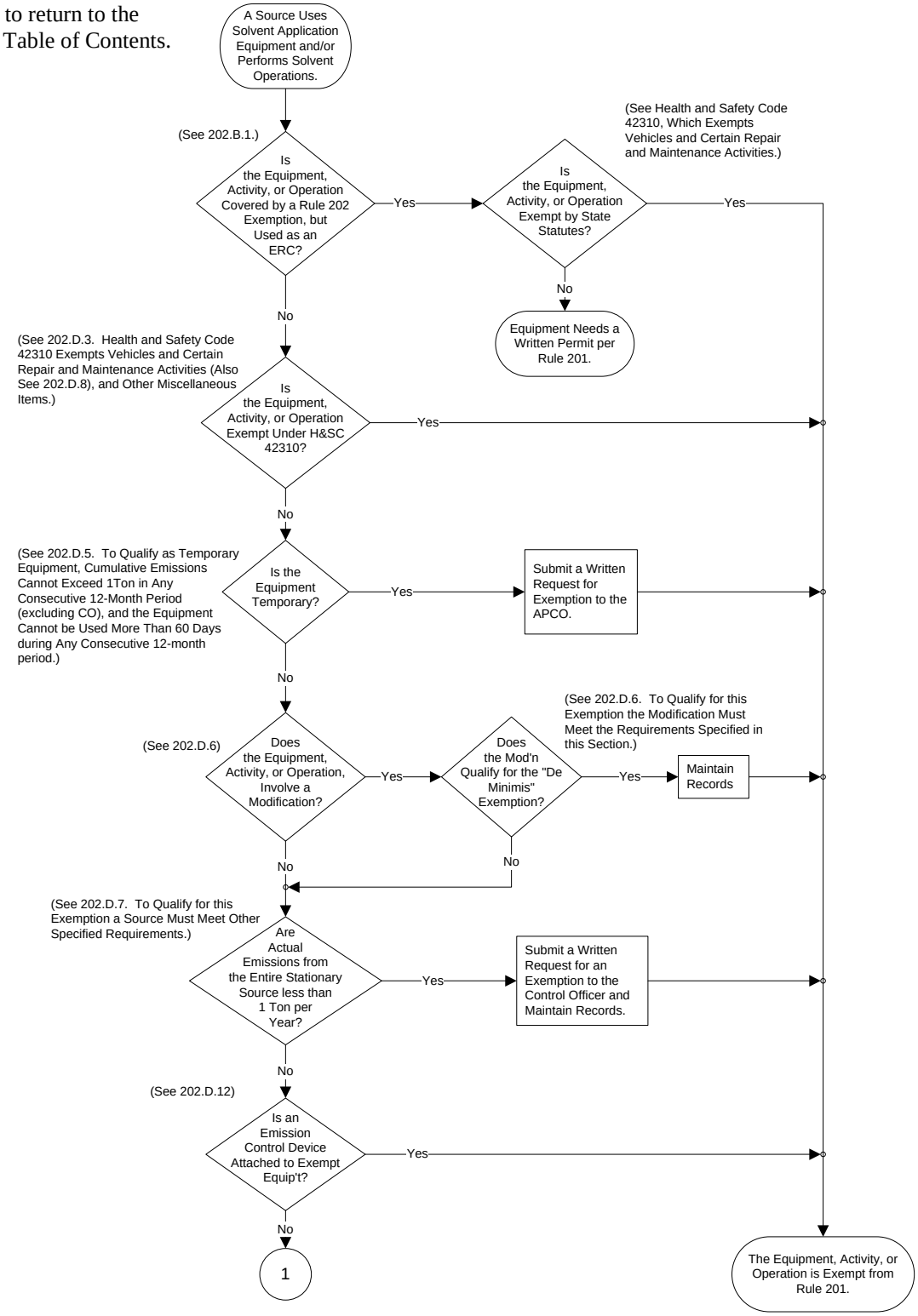


Figure 1. Permit exemptions (from Rule 201) for solvent cleaning machines and solvent cleaning.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the
Flowchart Table of Contents.

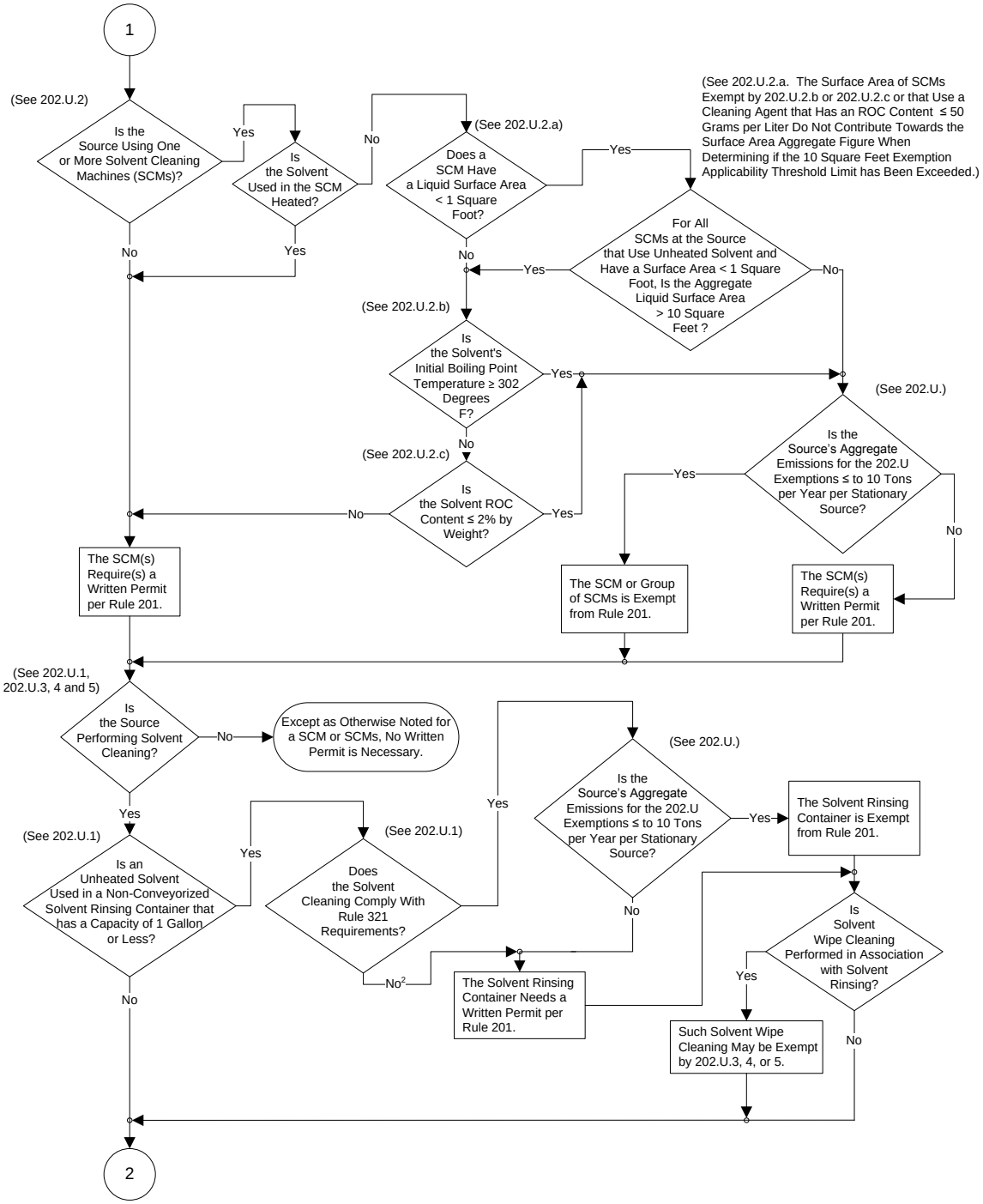


Figure 1. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. If the owner or operator revises the method of operation to conform to Rule 321 provisions and the APCO concurs that the source has achieved compliance with the Rule 321 requirements, the solvent cleaning will no longer be subject to permitting. Situations may arise where a Rule 202.U.1 exemption is not available because the solvent cleaning does not comply with Rule 321, but is brought into compliance through a modification, conditional abatement order, variance, permit condition, or other means. In which case, the owner or operator may request that the District review and determine if a permit or permit exemption is warranted under the current circumstances where solvent cleaning has been brought into compliance and will remain in compliance with Rule 321 requirements.

Click here to return to the
Flowchart Table of Contents.

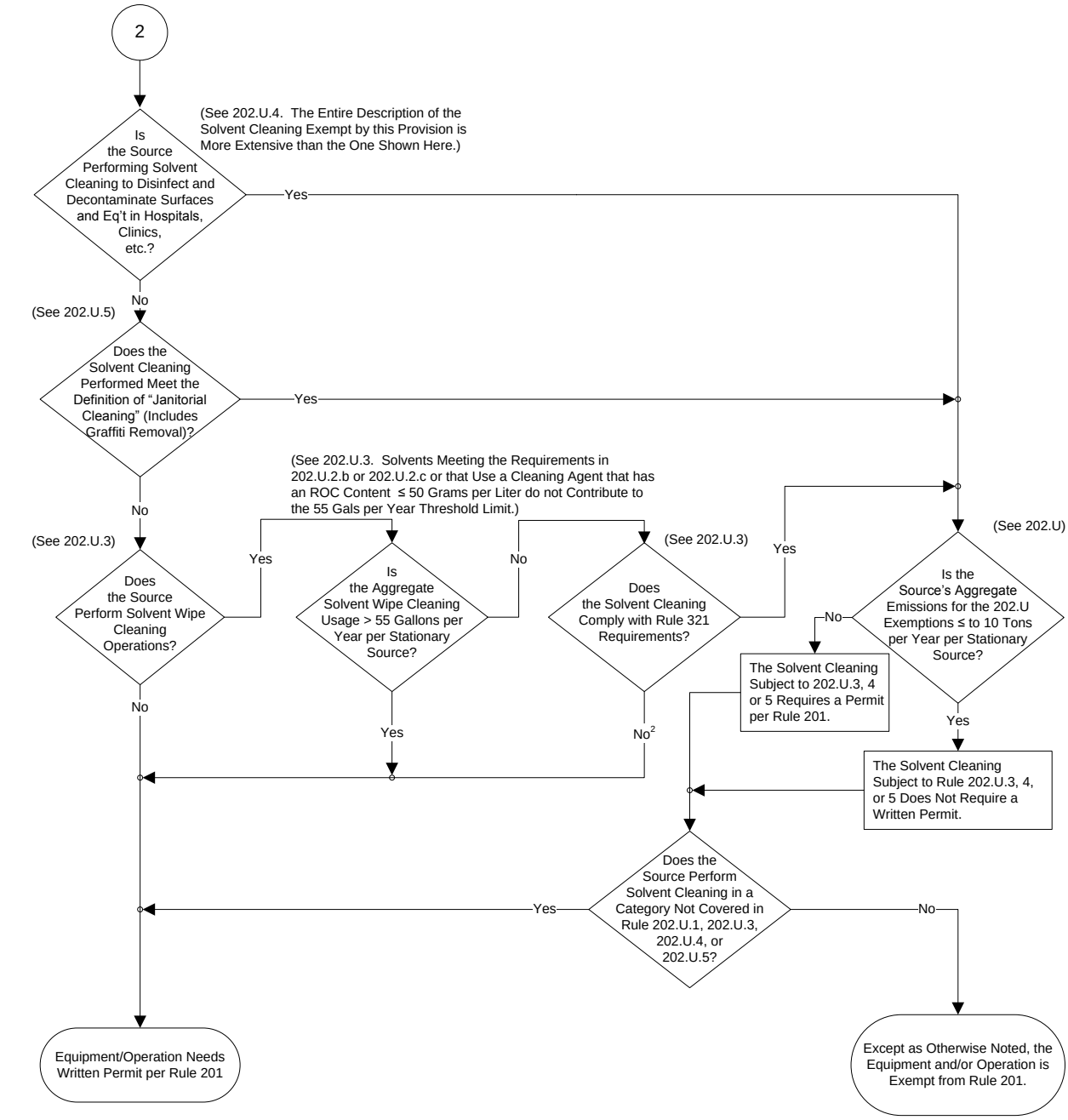


Figure 1. (cont.)[1]

---

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. If the owner or operator revises the method of operation to conform to Rule 321 provisions and the APCO concurs that the source has achieved compliance with the Rule 321 requirements, the solvent cleaning will no longer be subject to permitting. Situations may arise where a Rule 202.U.3 exemption is not available because the solvent cleaning does not comply with Rule 321, but is brought into compliance through a modification, conditional abatement order, variance, permit condition, or other means. In which case, the owner or operator may request that the District review and determine if a permit or permit exemption is warranted under the current circumstances where solvent cleaning has been brought into compliance and will remain in compliance with Rule 321 requirements.

Click here to return to the
Flowchart Table of Contents.

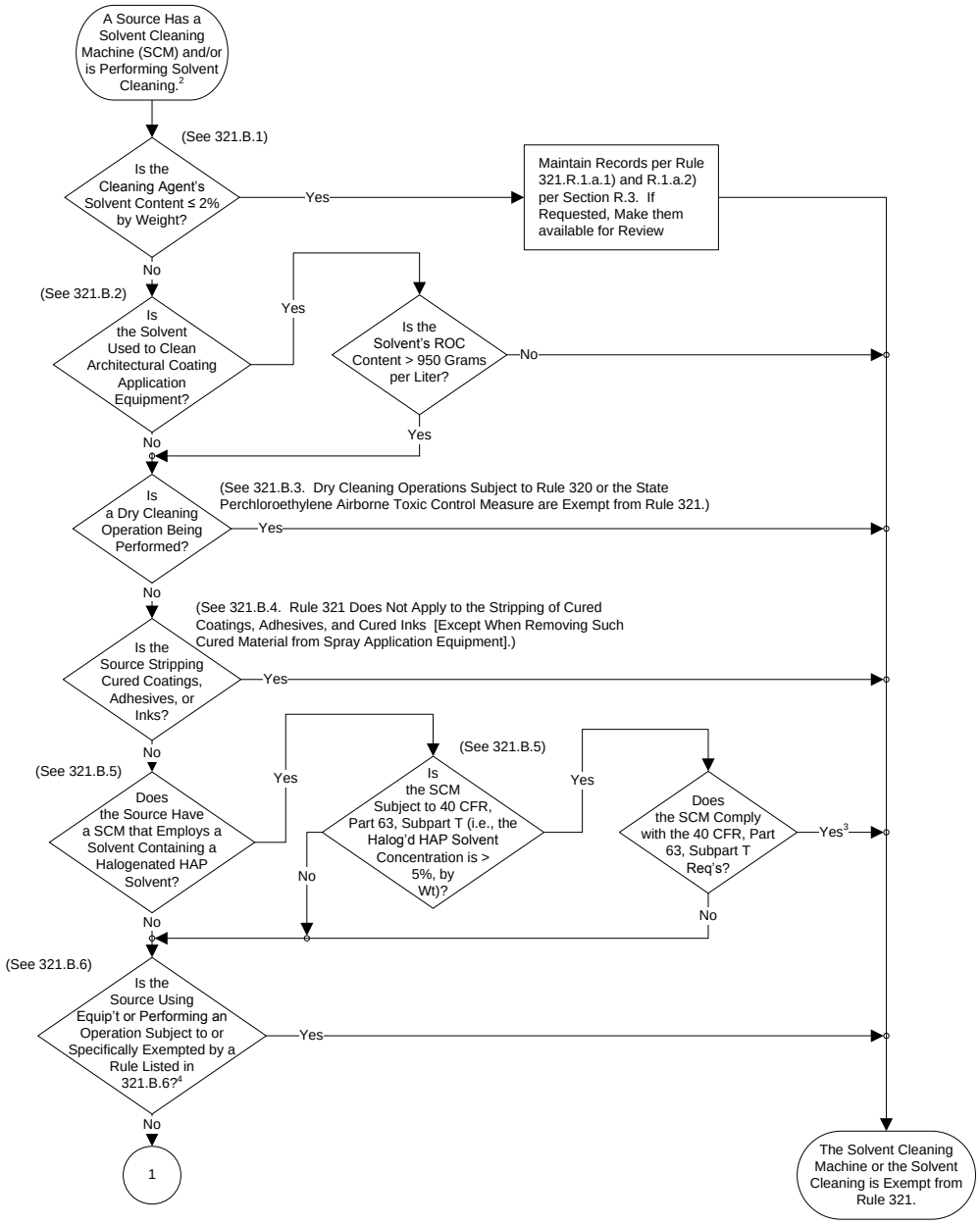


Figure 2. Rule 321, Section B, Exemptions for solvent cleaning machines and solvent cleaning.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. Section A, Applicability, indicates that the rule applies to any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning outside of a solvent cleaning machine during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at stationary sources.

3. The Section B.5 provision trumps the Section B.1 exemption. Thus, a SCM subject to and complying with 40 CFR, Part 63, Subpart T, is exempt irrespective that the unit uses a cleaning agent that contains more than 2 percent solvent that is a toxic air contaminant.

4. The rules listed in 321.B.6 include:

Rule 325, Crude Oil Production and Separation.
Rule 326, Storage of Reactive Organic Compound Liquids.
Rule 330, Surface Coating of Metal Parts and Products.
Rule 337, Surface Coating of Aircraft or Aerospace Vehicle Parts and Products.
Rule 339, Motor Vehicle and Mobile Equipment Coating Operations.
Rule 343, Petroleum Storage Tank Degassing.
Rule 344, Petroleum Sumps, Pits and Well Cellars.
Rule 349, Polyester Resin Operations.
Rule 351, Surface Coating of Wood Products.
Rule 353, Adhesives and Sealants.
Rule 354, Graphic Arts.

Click here to return to the
Flowchart Table of Contents.

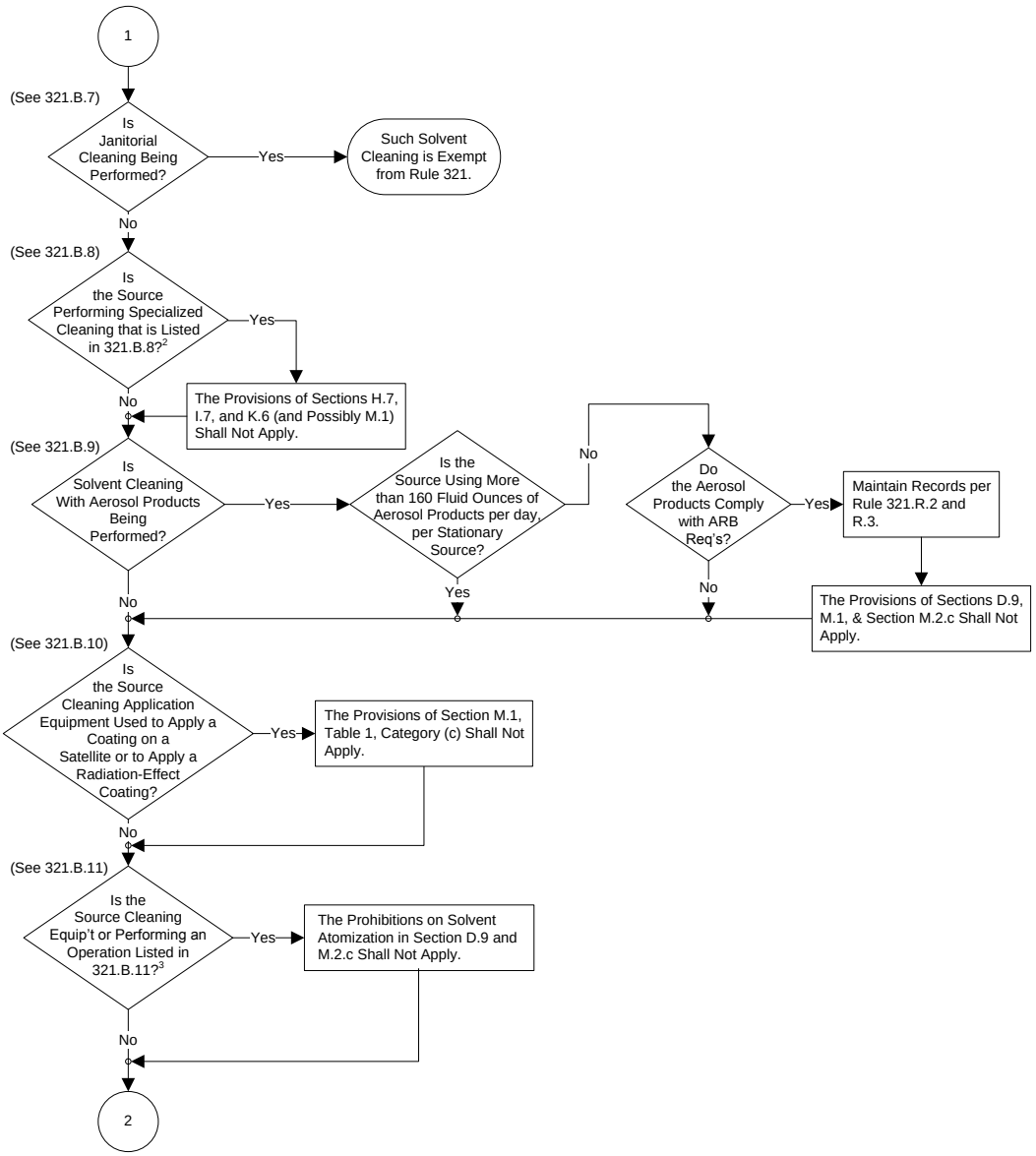


Figure 2. (cont.)[1]

---

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. Rule 321.B.8 provides exemptions from the 321.H.7, 321.I.7, 321.K.6, and 321.M.1 provisions for the:

   a. Cleaning of solar cells, laser hardware, scientific instruments, high-precision optics, and aerospace and military fluid systems.
   b. Cleaning in laboratory tests and analyses, including quality assurance and quality control applications, or bench scale or short-term (less than 2 years) research and development projects.
   c. Cleaning of cotton swabs to remove cottonseed oil before cleaning of high-precision optics.

In addition, the 321.H.7, 321.I.7, and 321.K.6 provisions do not apply to SCMs employed with solvents having 900 grams of reactive organic compound per liter of material or less used in the manufacturing, repairing, or maintenance of electrical apparatus components, electronic components, satellites, aerospace vehicles, aerospace vehicle components, or medical devices.

3. Rule 321.B.11 provides exemptions from the 321.D.9 and 321.M.2.c prohibitions on solvent atomization for:

- Cleaning of the nozzle tips of automated spray equipment systems, except for robotic systems.
- Cleaning with hand-held spray bottles, squirt bottles, and other closed containers having a capacity of one liter or less.
- Cleaning of gas turbines or jet engines using a gas-path solvent cleaner.

Click here to return to the
Flowchart Table of Contents.

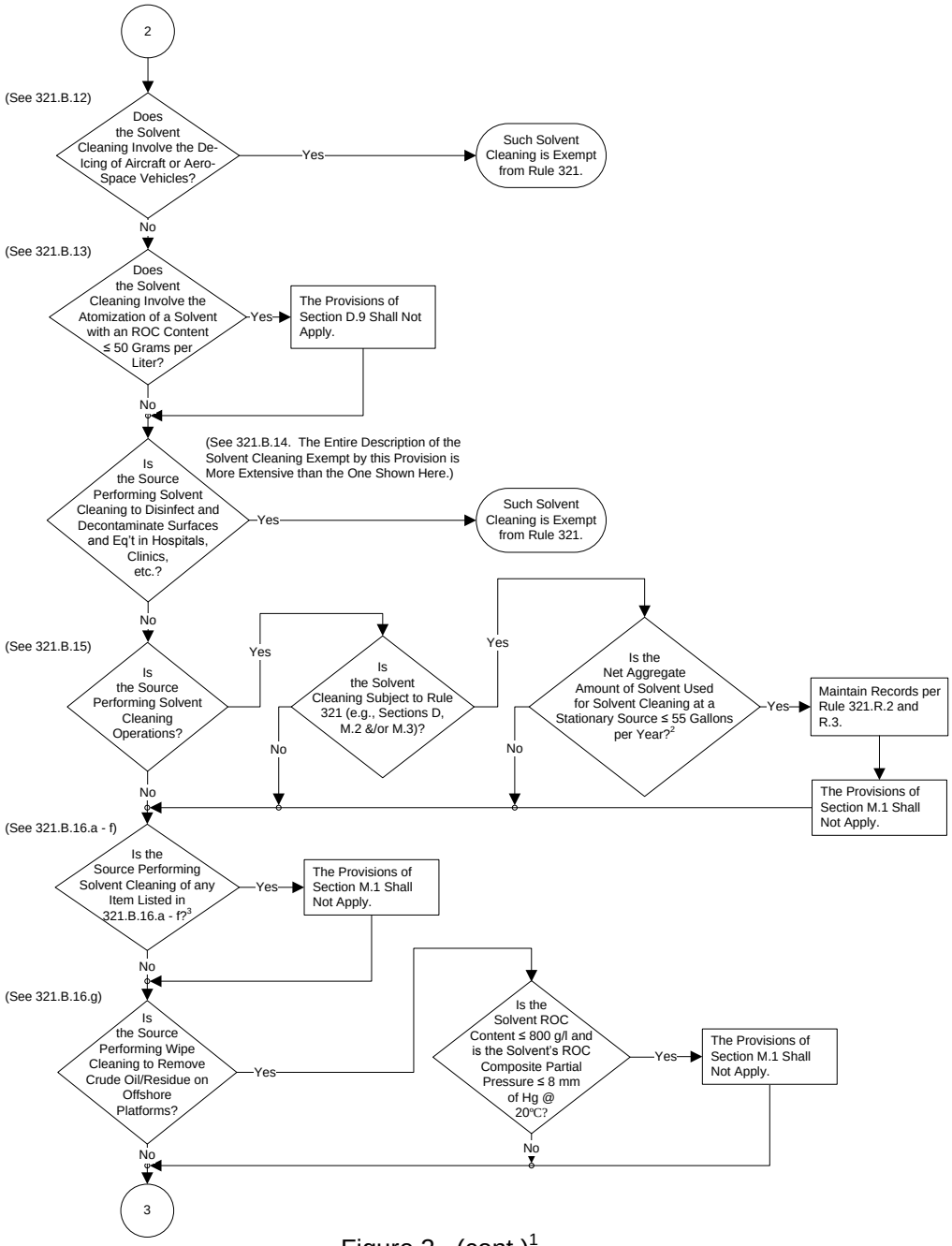


Figure 2. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. Solvents with a reactive organic compound content of 50 grams per liter of material or less do not count towards the exemption nonapplicability threshold limit.

3. 321.B.16.a – f include the cleaning of:

- ultraviolet lamps used to cure ultraviolet inks coatings, adhesives, or resins.
- mold release compounds from molds.
- aerospace assembly and subassembly surfaces that are exposed to strong oxidizers or reducers such as nitrogen tetroxiode, liquid oxygen, or hydrazine.
- paper gaskets.
- clutch assemblies where rubber is bonded to metal by means of an adhesive.
- hydraulic actuating fluid from filters and filter housings.

Click here to return to the
Flowchart Table of Contents.

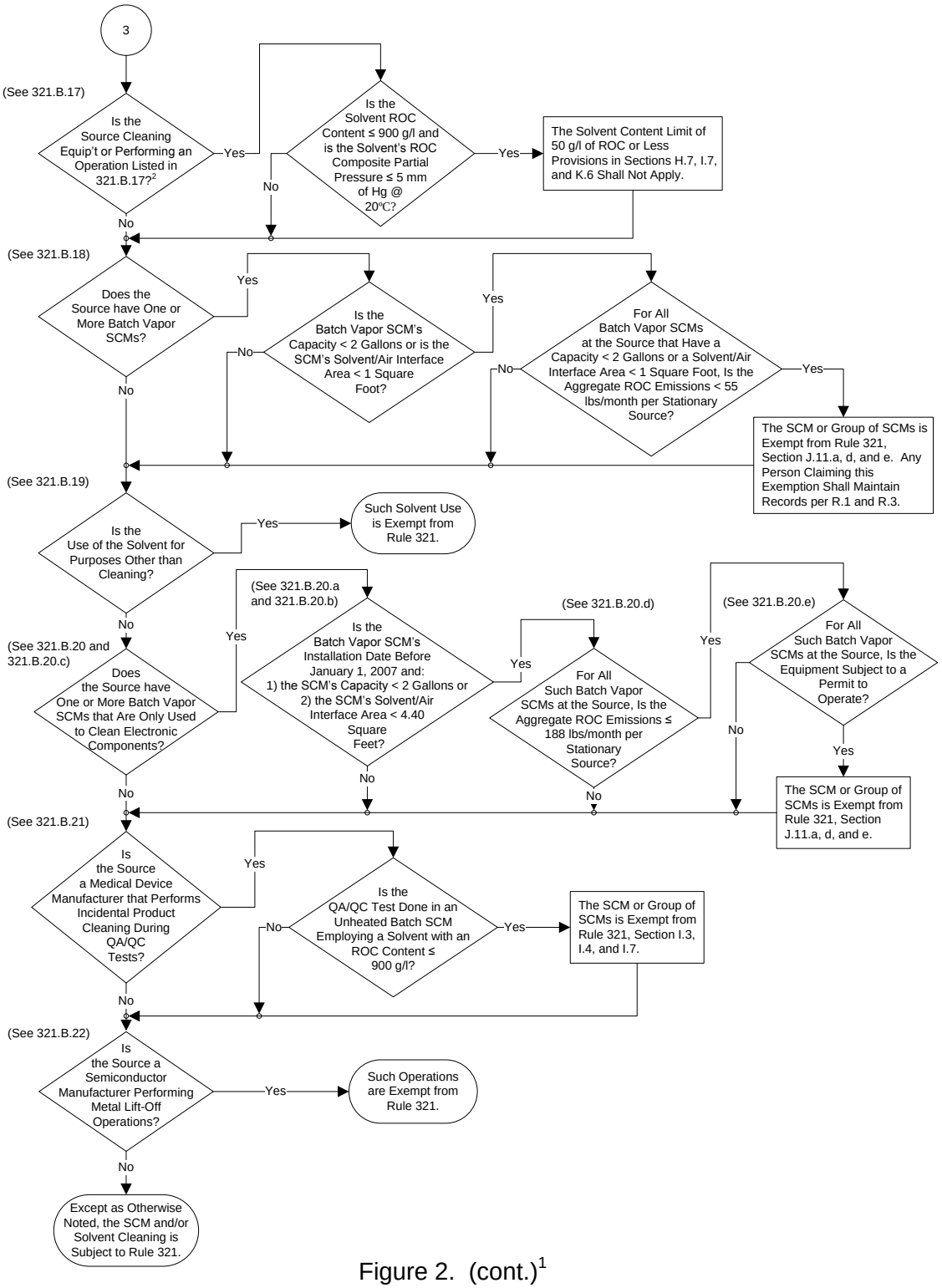


Figure 2. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The activities identified in 321.B.17 include:

a. Manufacturing cleaning of nuts and bolts designed for automotive racing applications.
b. Cleaning of precision-lapped mechanical seals in pumps that handle liquefied gasses.

Click here to return to the
Flowchart Table of Contents.

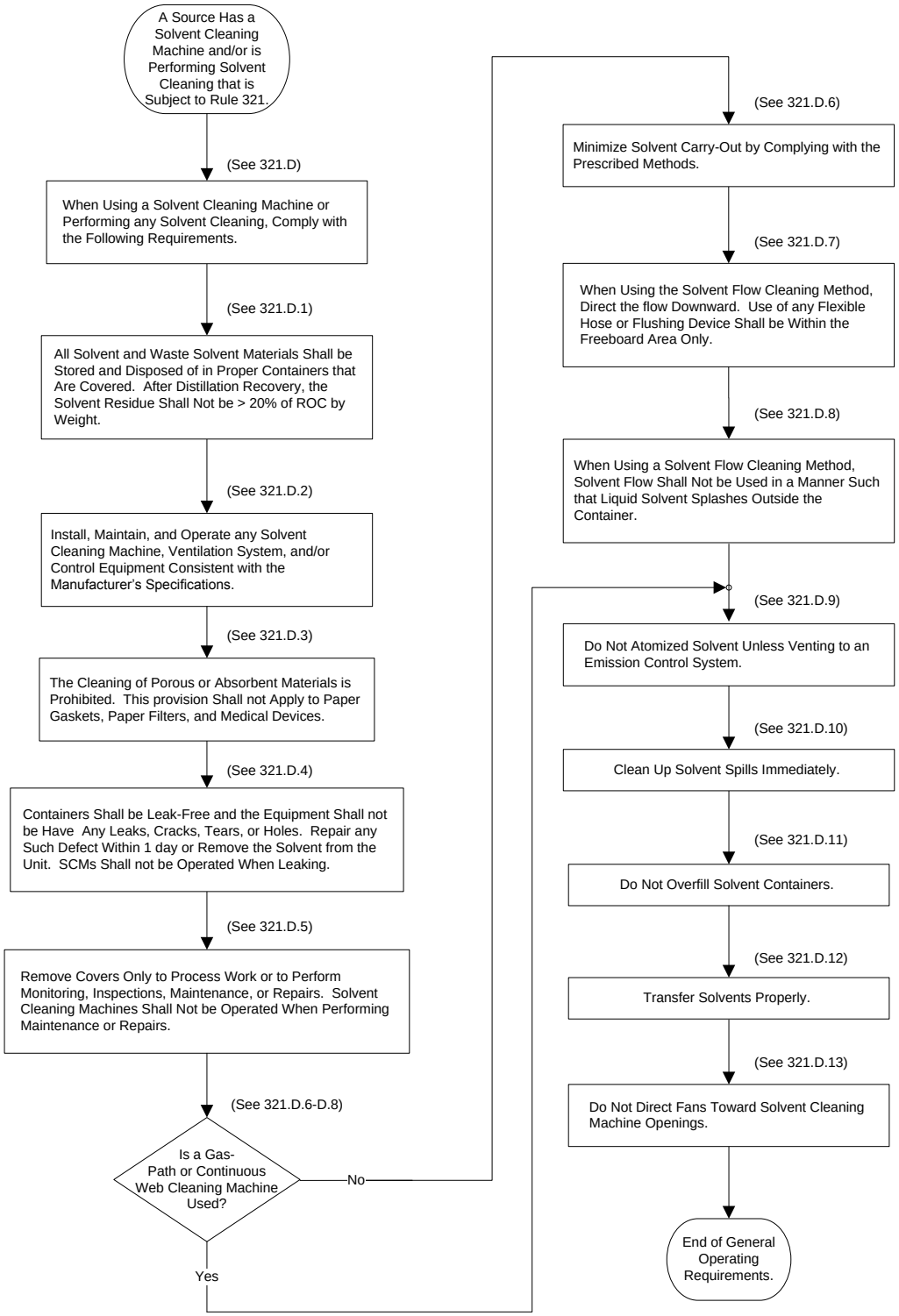


Figure 3. Rule 321, Section D, General operating requirements.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the
Flowchart Table of Contents.

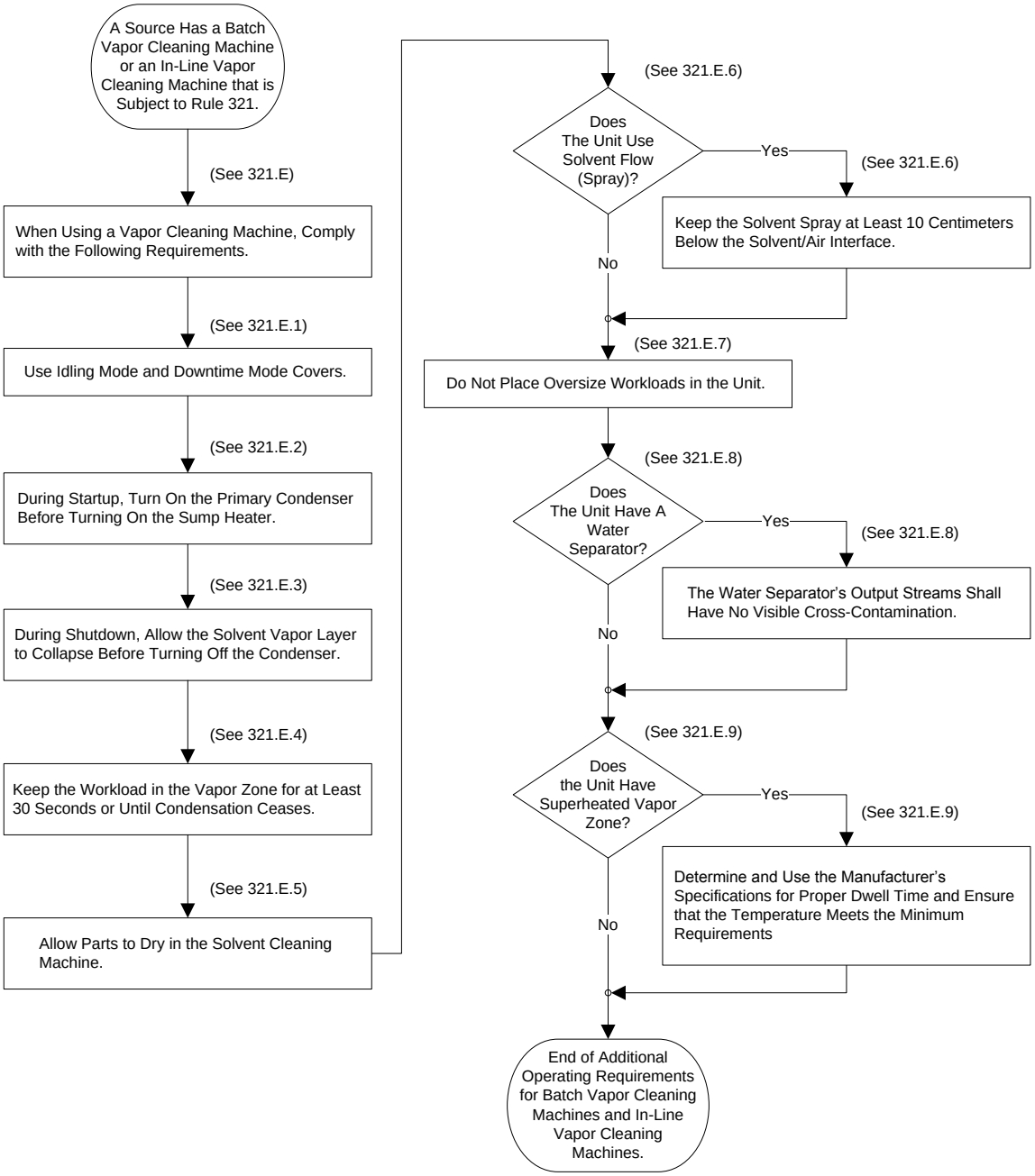


Figure 4. Rule 321, Section E, Additional operating requirements for batch vapor cleaning machines and in-line vapor cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the
Flowchart Table of Contents.

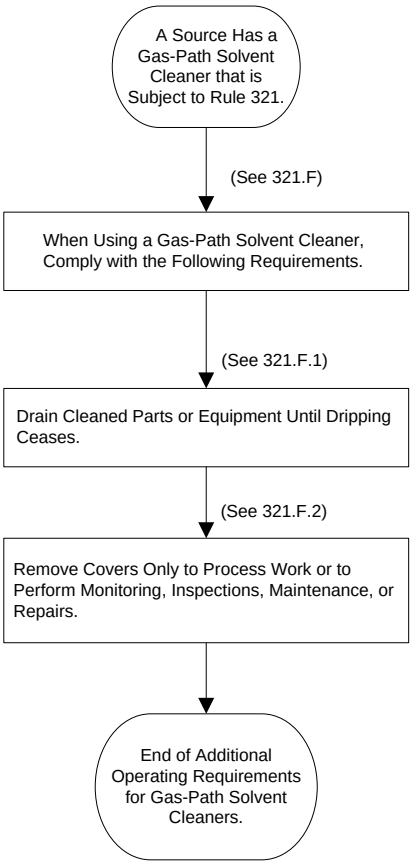


Figure 5. Rule 321, Section F, Additional operating requirements for gas-path solvent cleaners.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the
Flowchart Table of Contents.

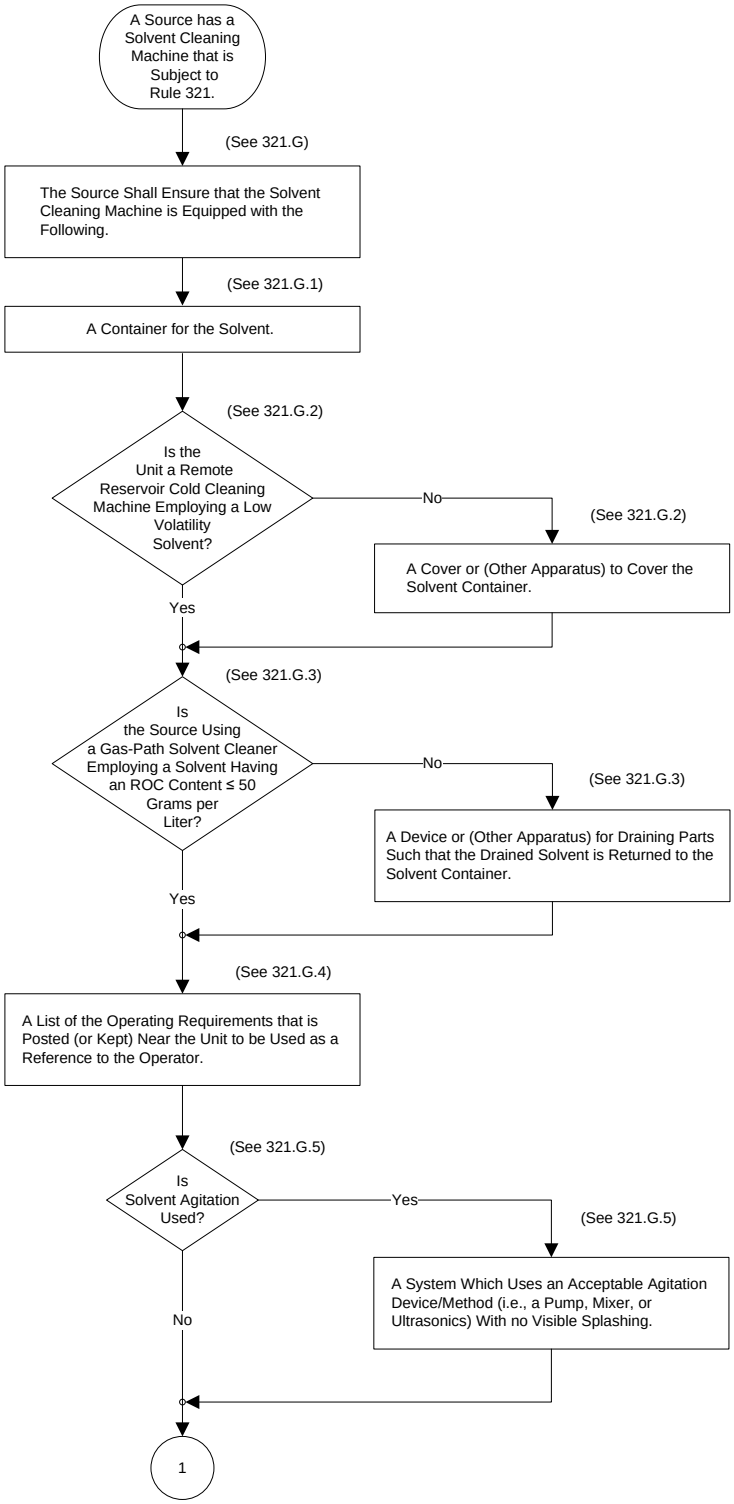


Figure 6. Rule 321, Section G, General equipment requirements for solvent cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the
Flowchart Table of Contents.

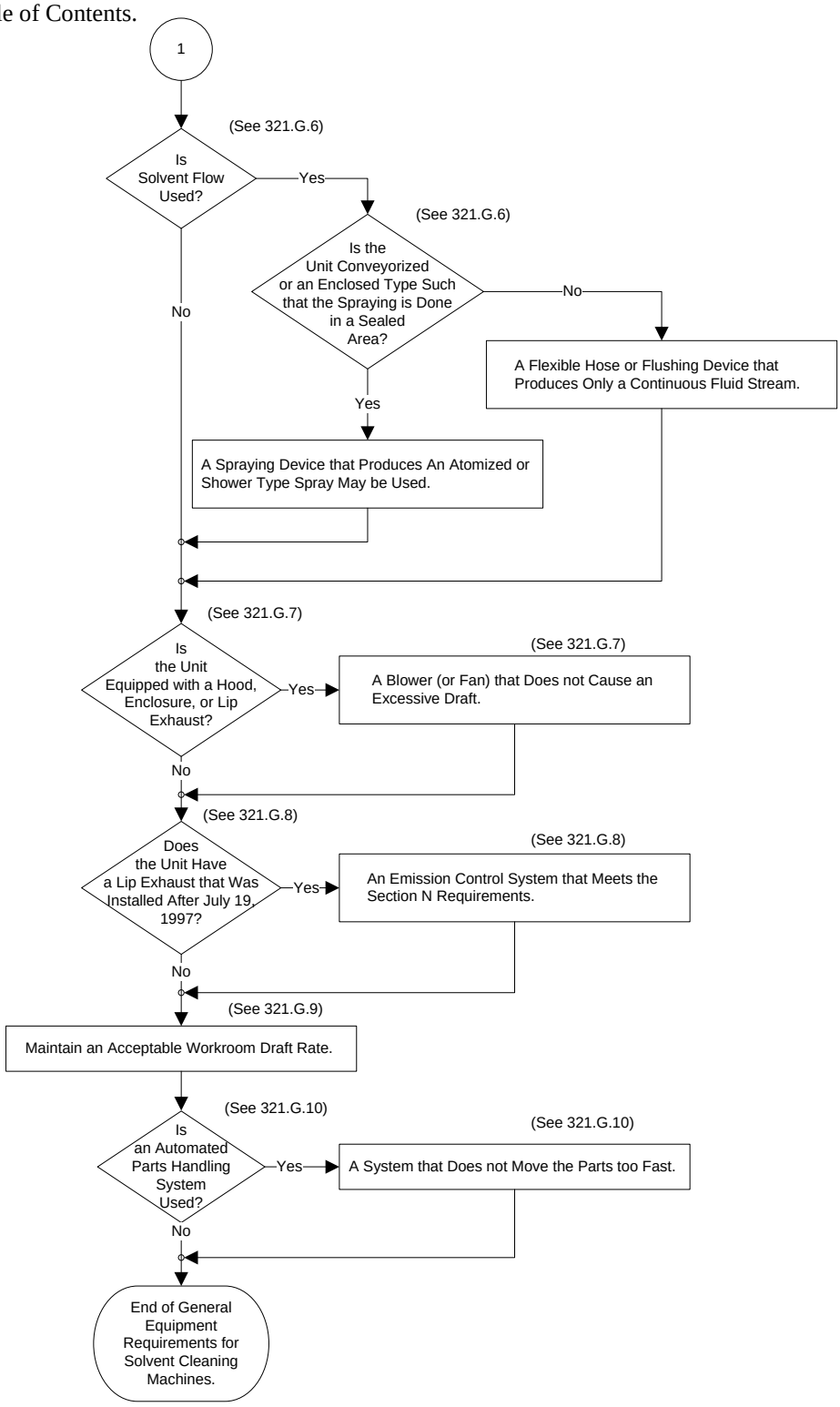


Figure 6. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the
Flowchart Table of Contents.

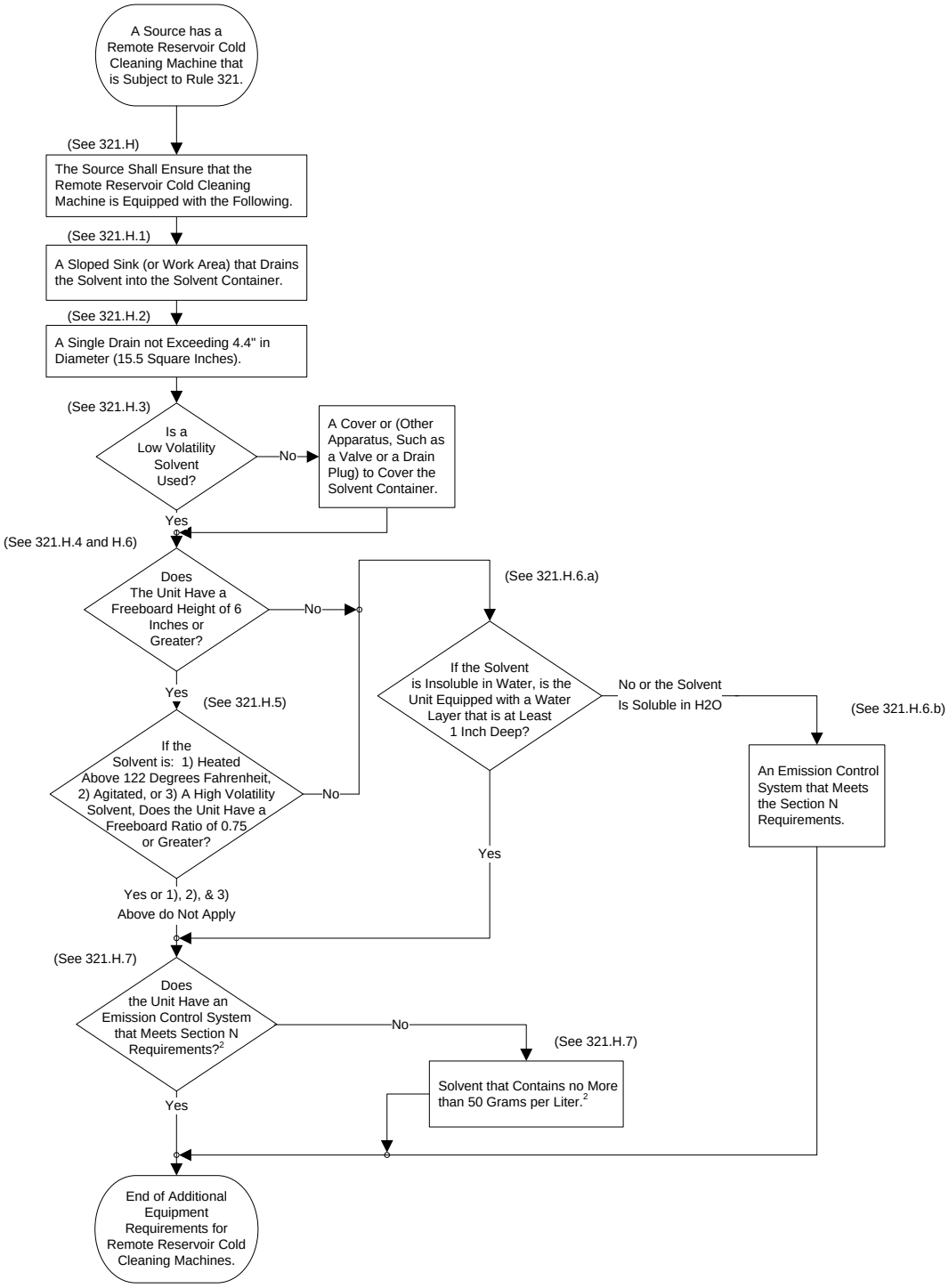


Figure 7. Rule 321, Section H, Additional equipment requirements for remote reservoir cold cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

Click here to return to the
Flowchart Table of Contents.

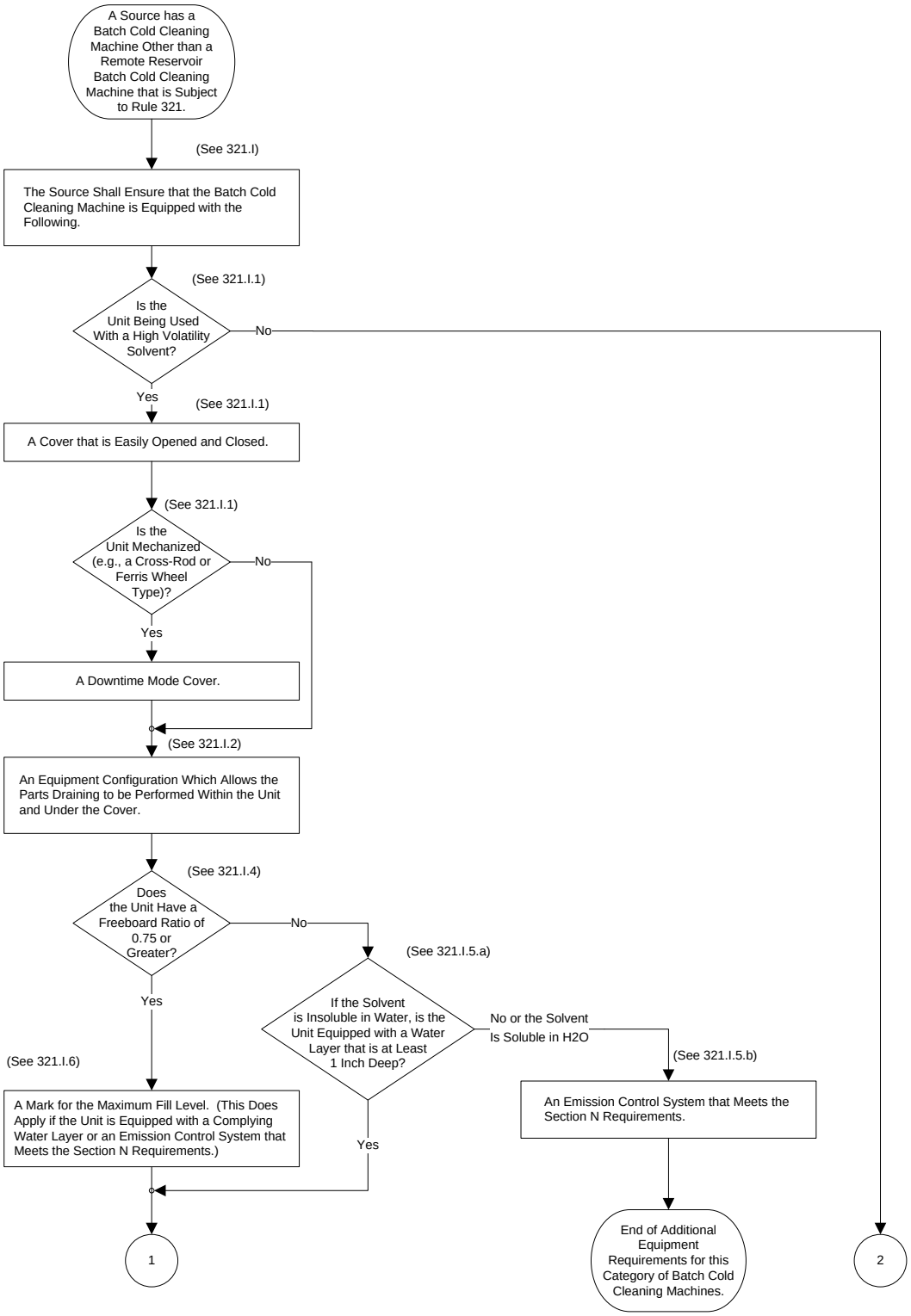


Figure 8. Rule 321, Section I, Additional equipment requirements for batch cold cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the
Flowchart Table of Contents.

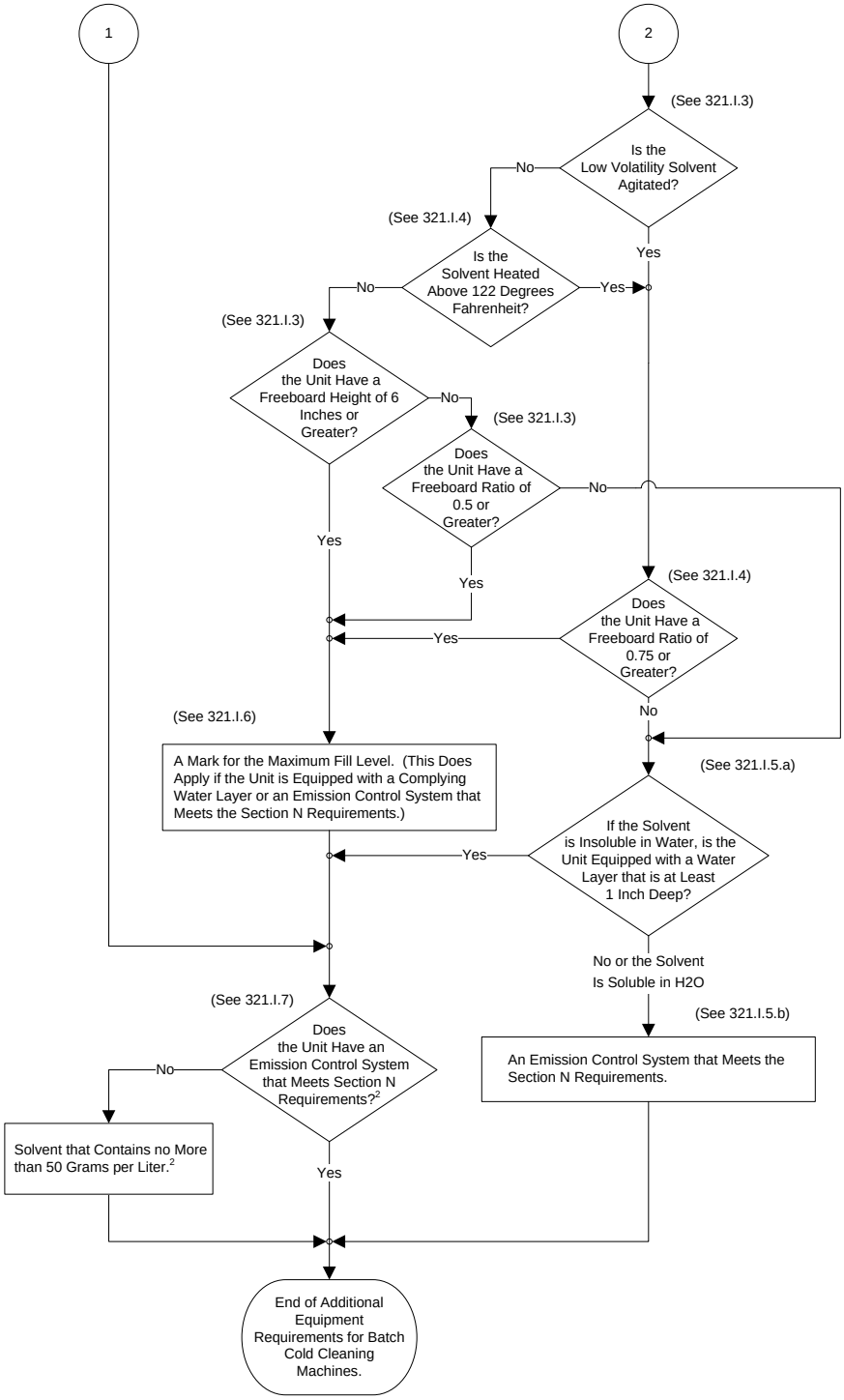


Figure 8. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

Click here to return to the Flowchart Table of Contents.

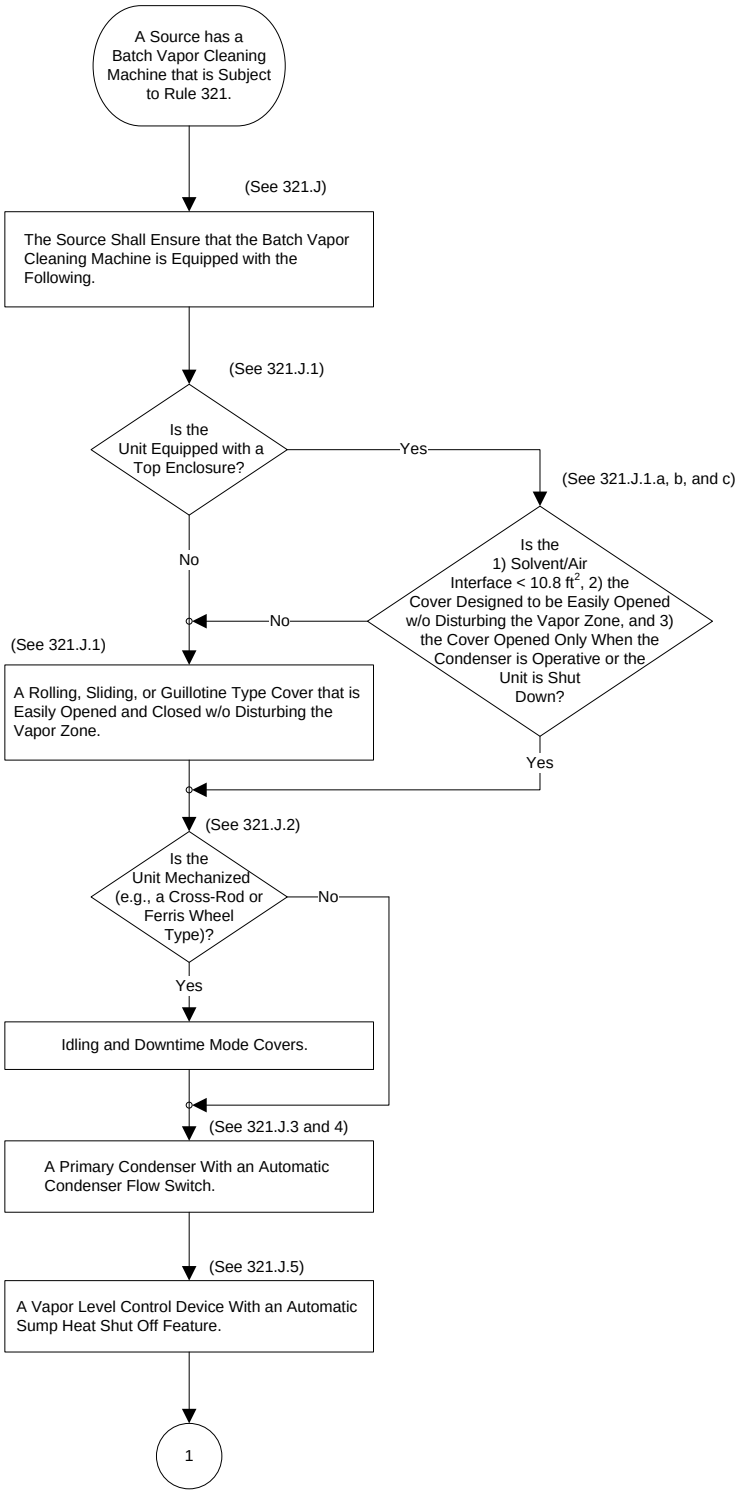


Figure 9. Rule 321, Section J, Additional equipment requirements for batch vapor cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the Flowchart Table of Contents.

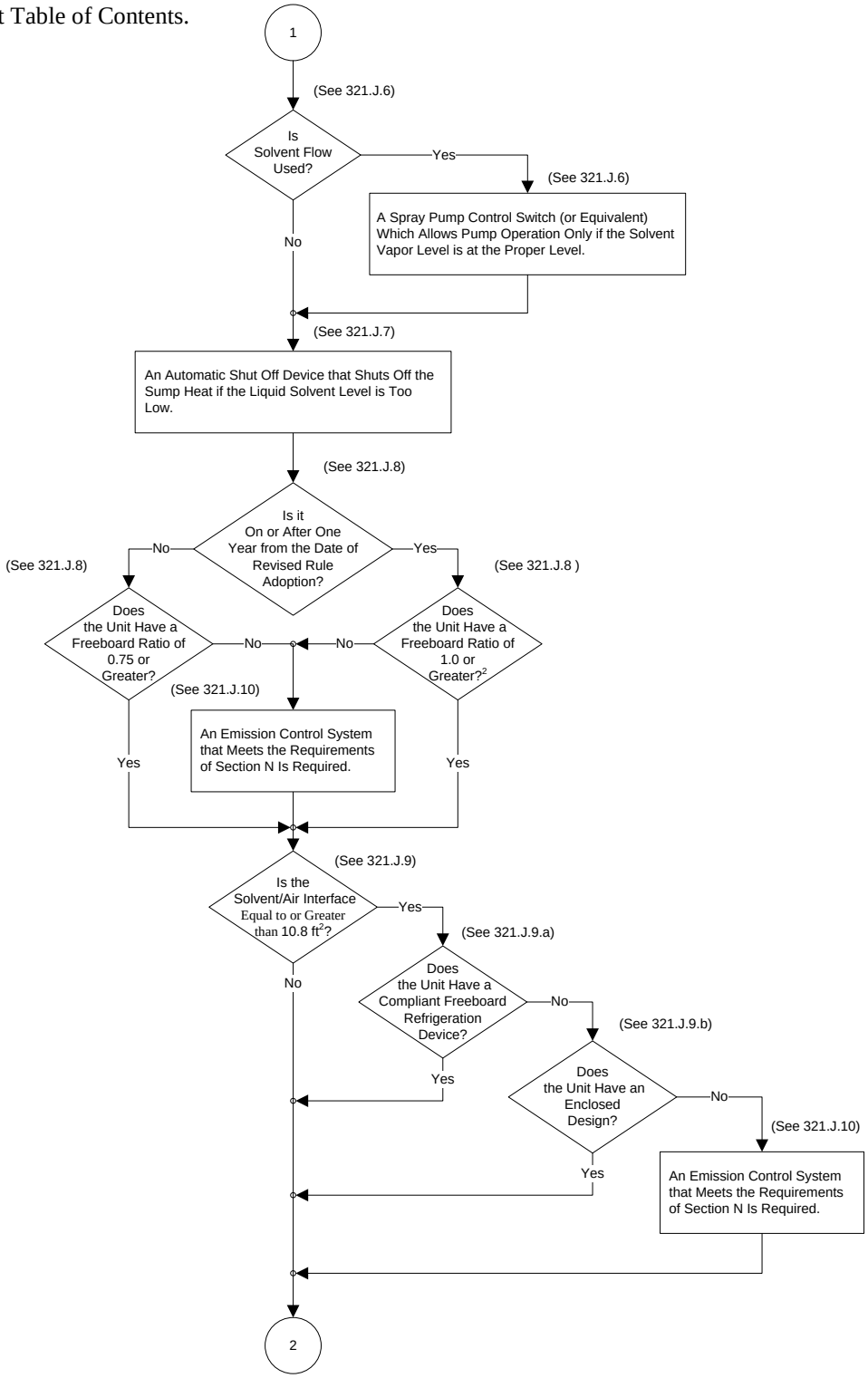


Figure 9. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

Click here to return to the
Flowchart Table of Contents.

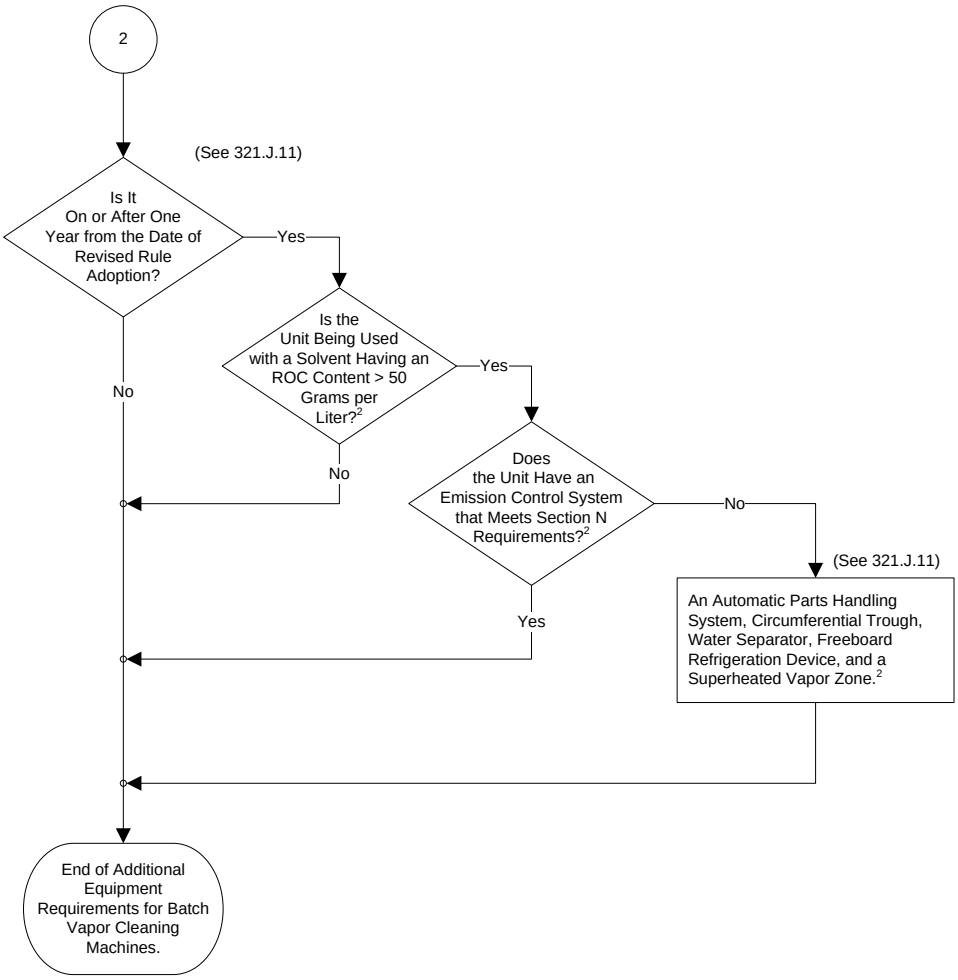


Figure 9. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

Click here to return to the Flowchart Table of Contents.

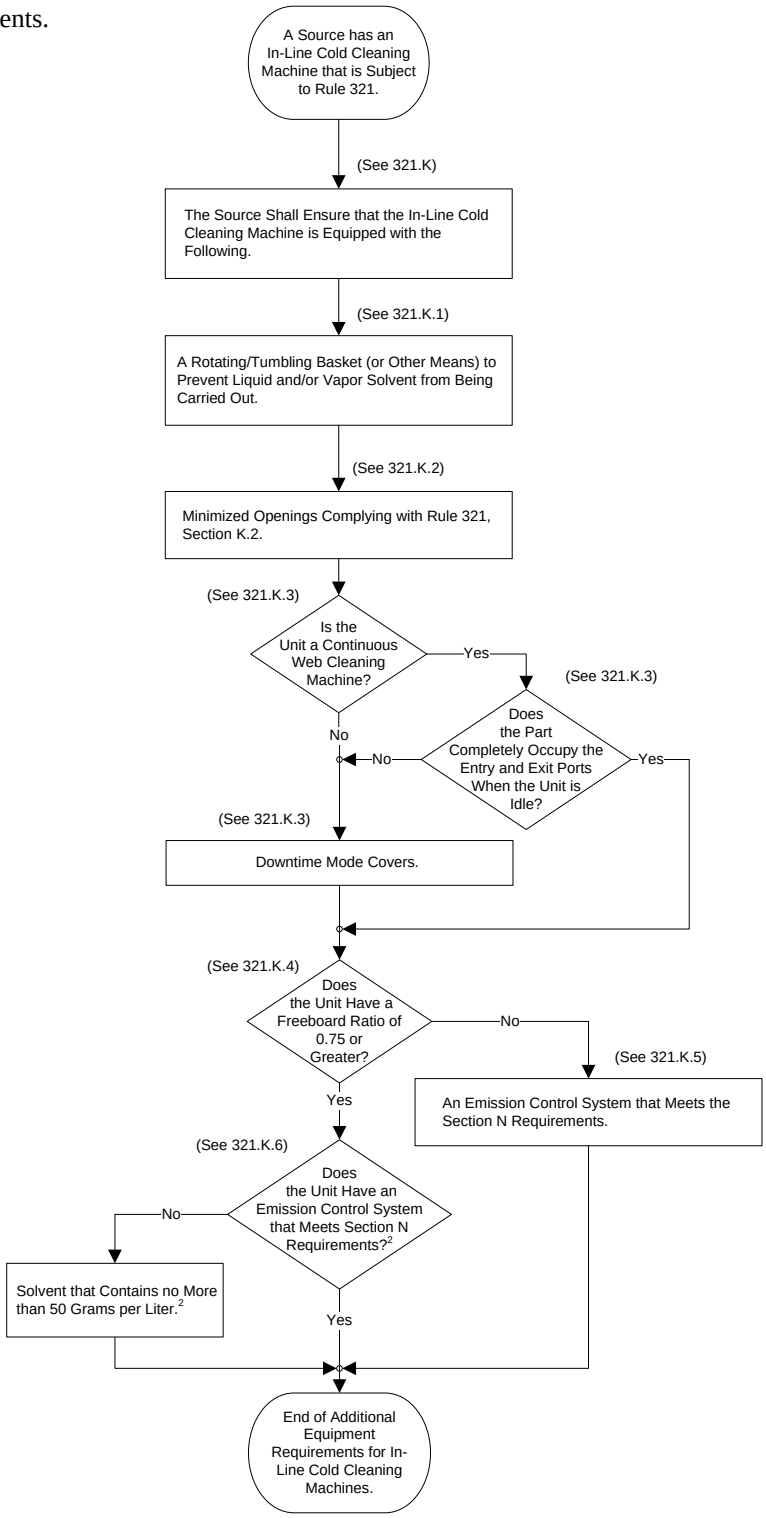


Figure 10. Rule 321, Section K, Additional equipment requirements for in-line cold cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

Click here to return to the Flowchart Table of Contents.

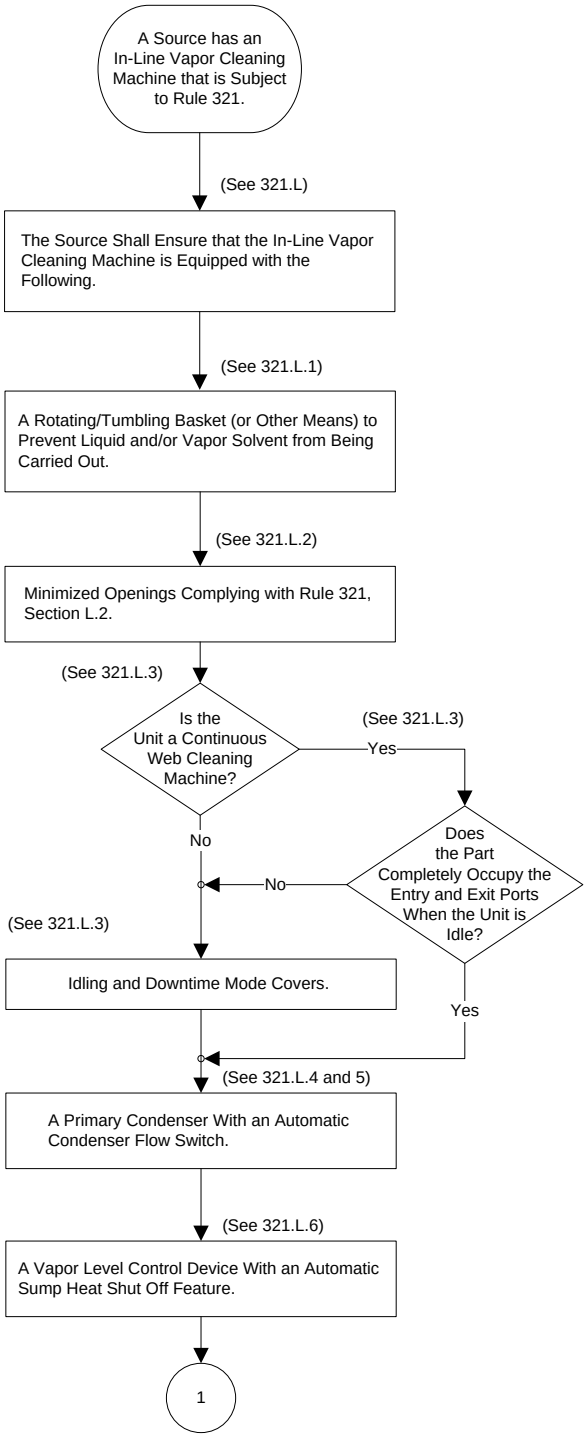


Figure 11. Rule 321, Section L, Additional equipment requirements for in-line vapor cleaning machines.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the Flowchart Table of Contents.

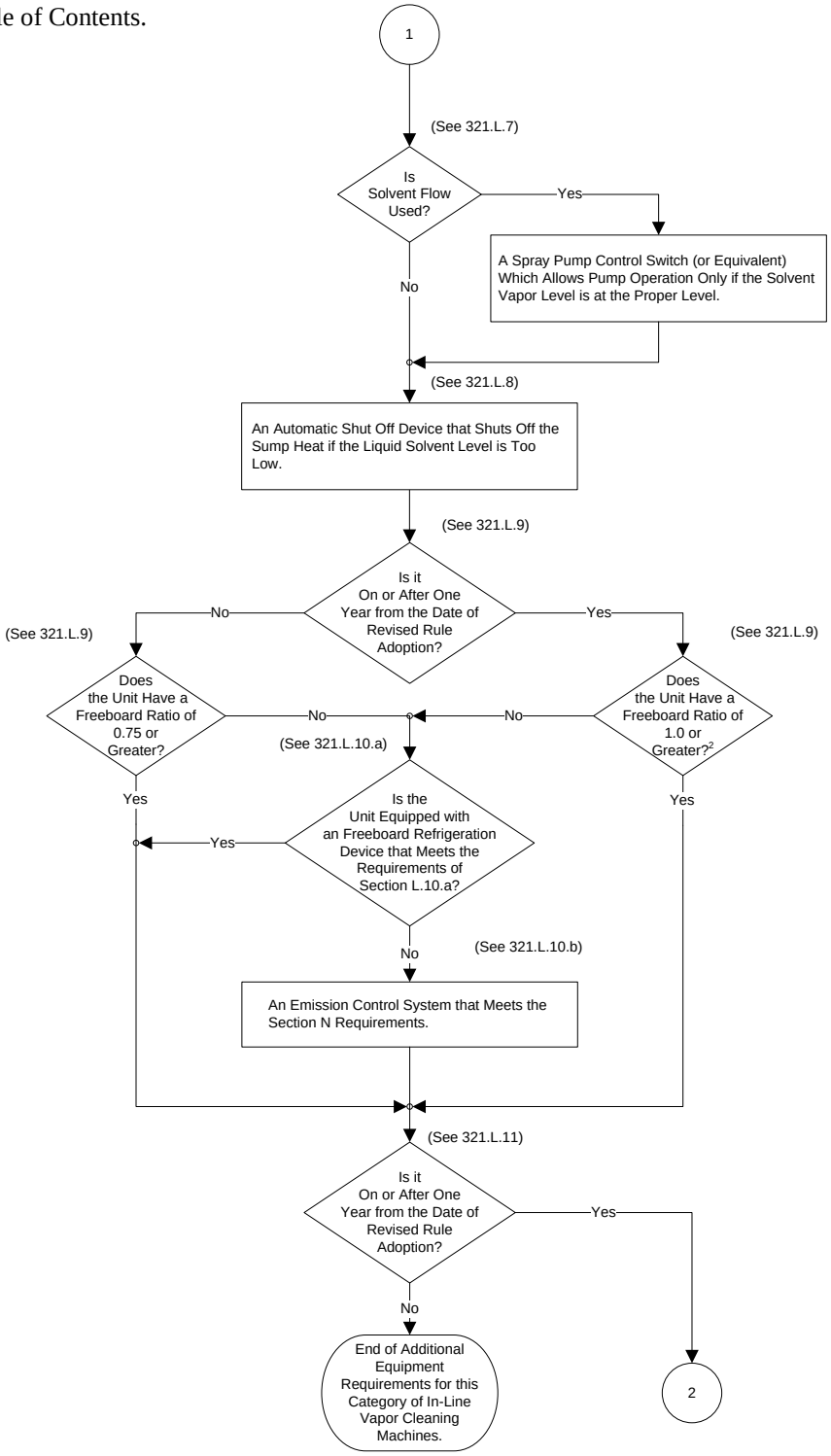


Figure 11. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

Click here to return to the
Flowchart Table of Contents.

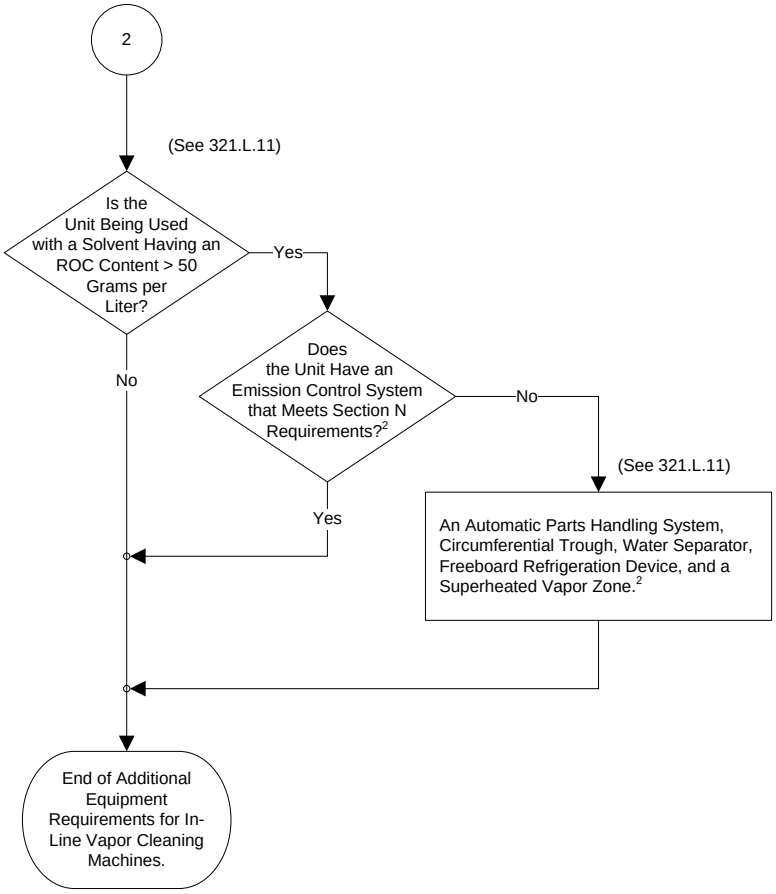


Figure 11. (cont.)[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. This provision becomes effective one year from the date of the revised rule adoption.

Click here to return to the
Flowchart Table of Contents.

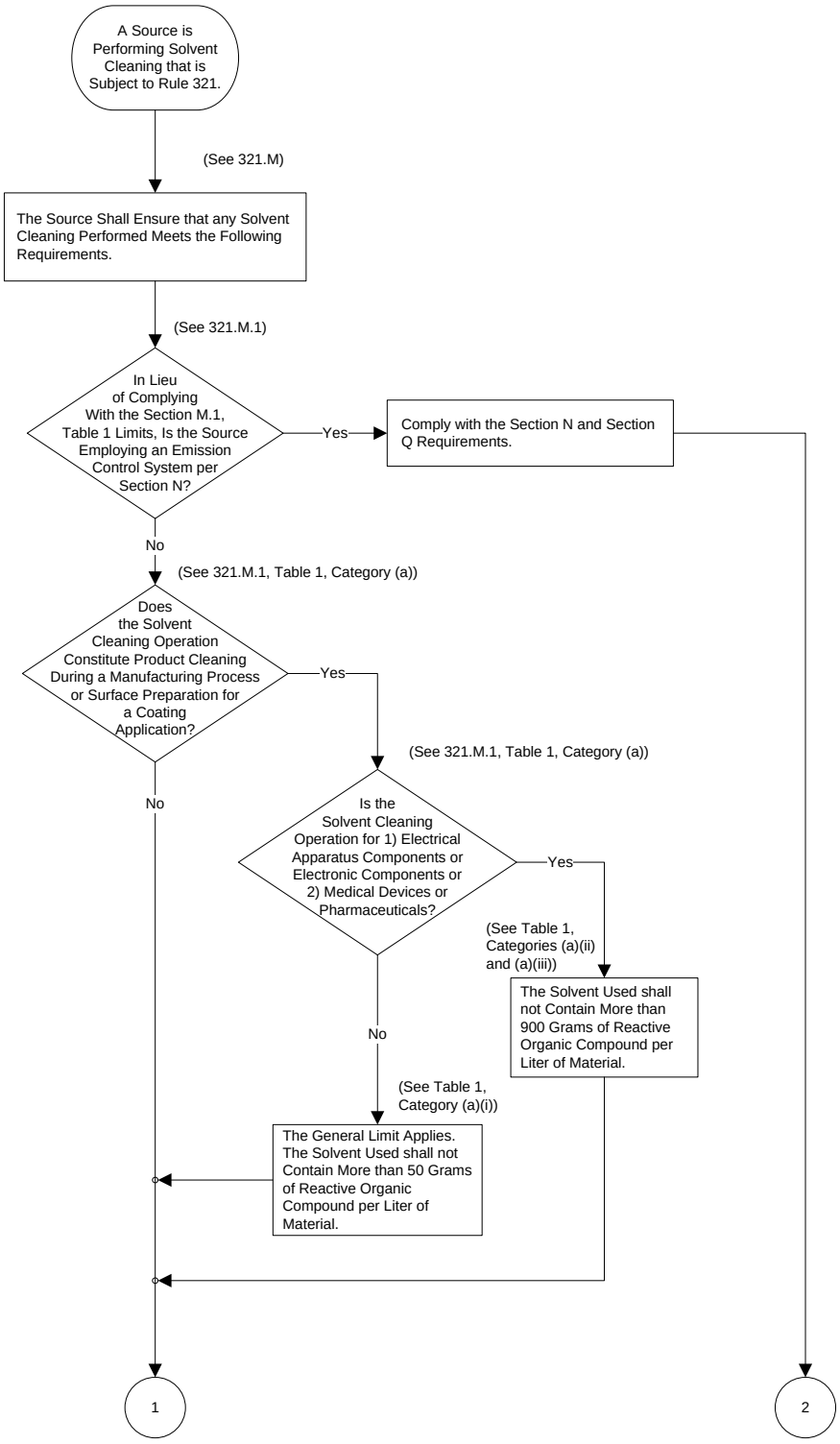


Figure 12. Rule 321, Section M, Requirements – solvent cleaning.[1, 2]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The Section M provisions become effective one year from the date of the revised rule adoption.

Click here to return to the Flowchart Table of Contents.

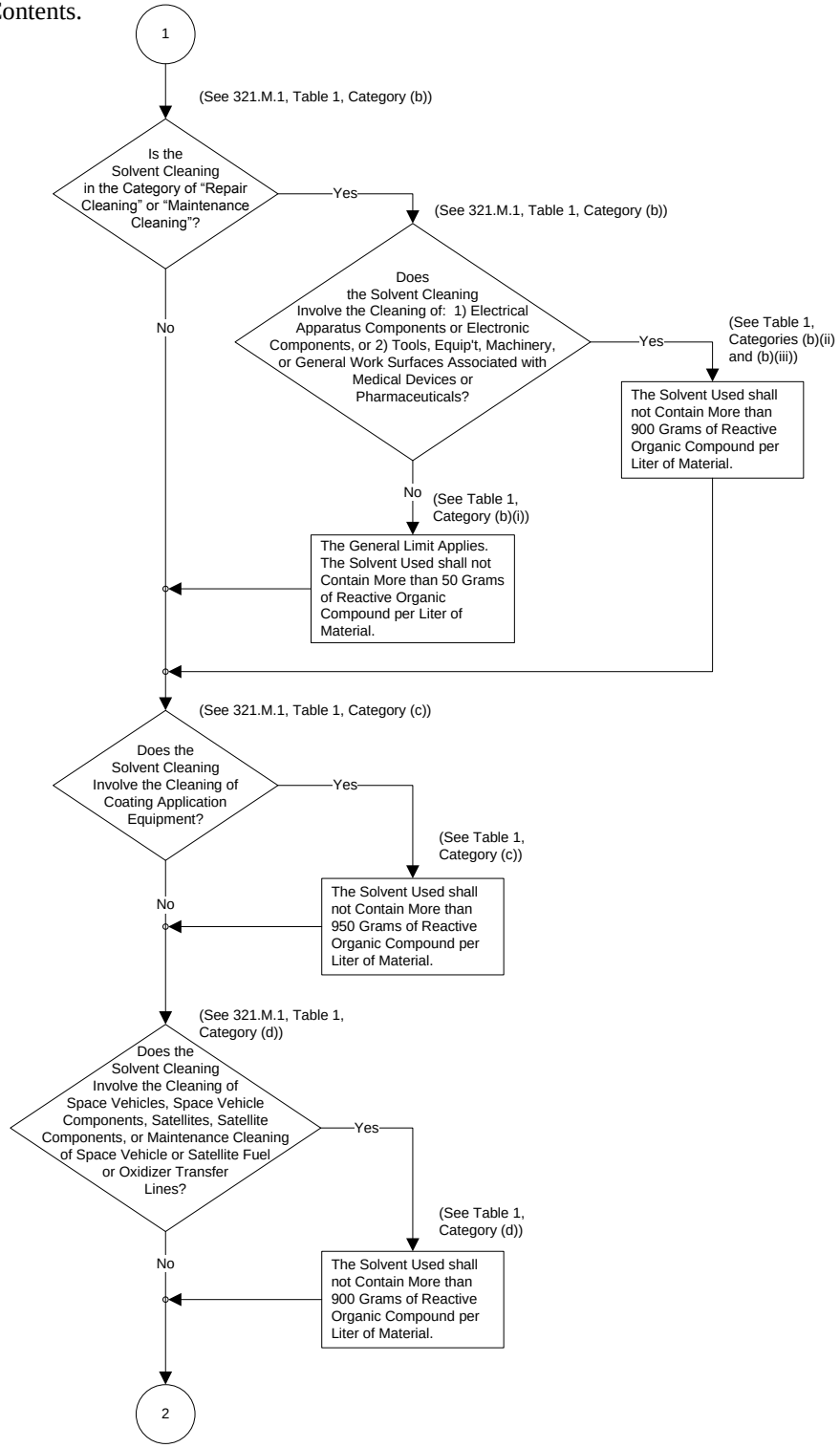


Figure 12. (cont.)[1, 2]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The Section M provisions become effective one year from the date of the revised rule adoption.

Click here to return to the
Flowchart Table of Contents.

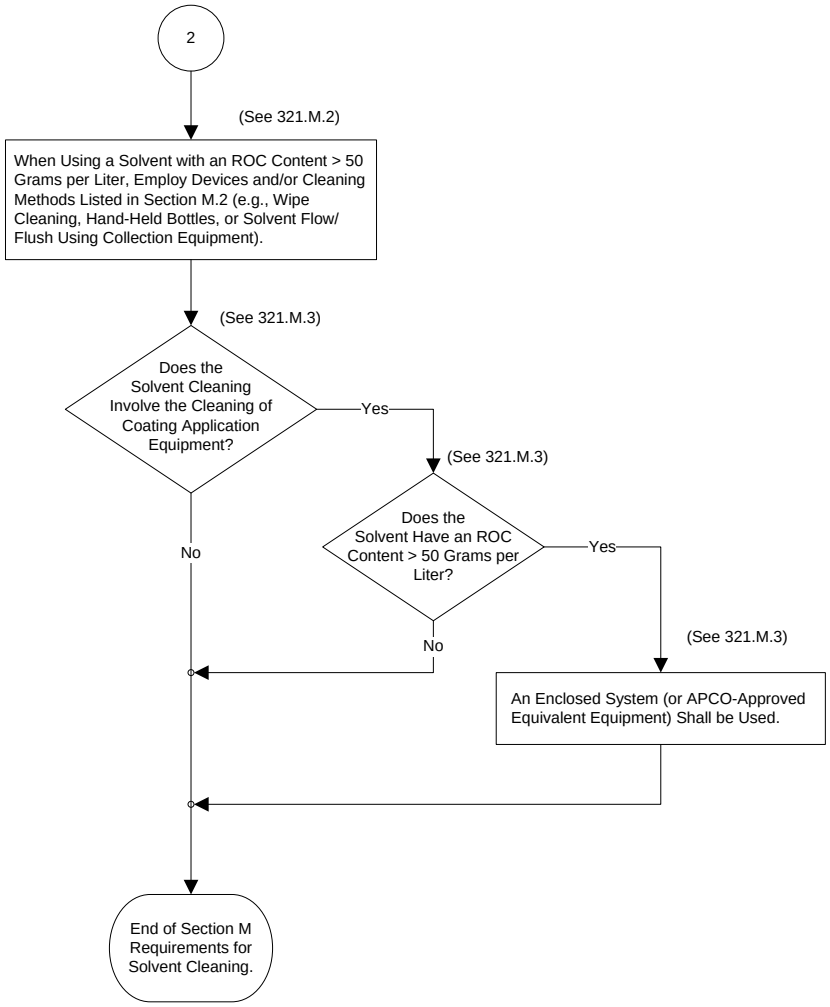


Figure 12. (cont.)[1, 2]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The Section M provisions become effective one year from the date of the revised rule adoption.

Click here to return to the
Flowchart Table of Contents.

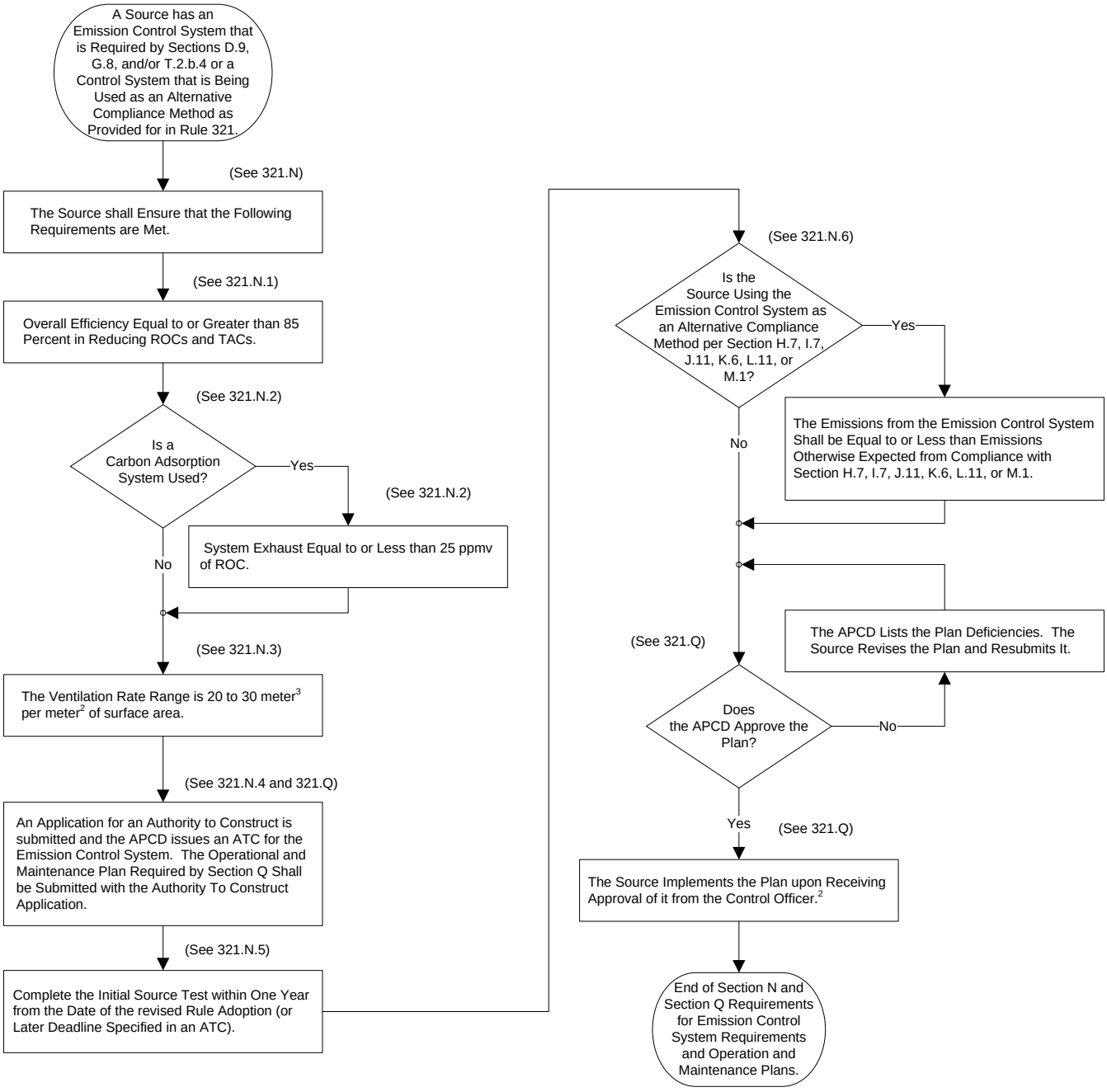


Figure 13. Rule 321, Section N, Emission control system requirements, and Section Q, Operation and maintenance plan.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The records required by the Operational and Maintenance Plan are to comply with the requirements in Sections R.1.c and R.3.

Click here to return to the
Flowchart Table of Contents.

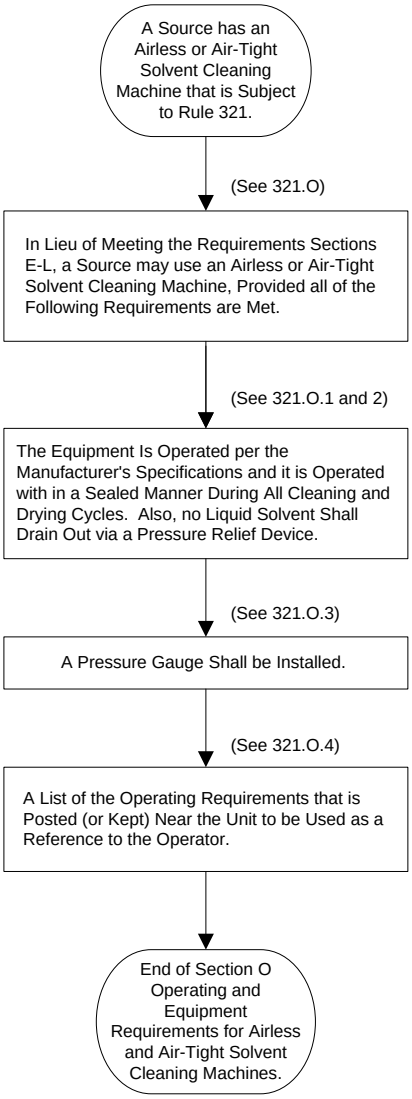


Figure 14. Rule 321, Section O, Alternative operating and equipment requirements for an airless solvent cleaning machine or an air-tight solvent cleaning machine.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the
Flowchart Table of Contents.

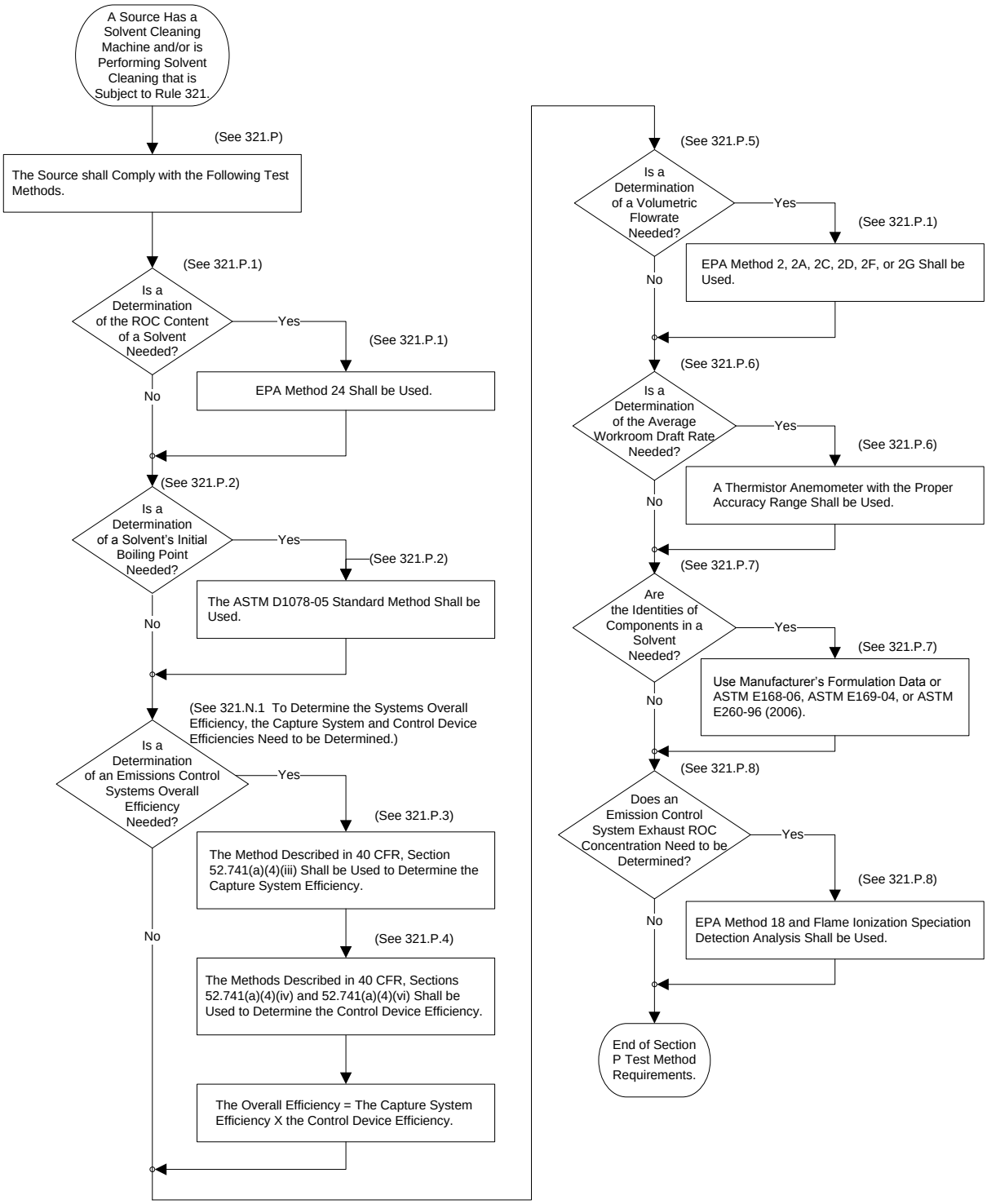


Figure 15. Rule 321, Section P, Test methods.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

Click here to return to the
Flowchart Table of Contents.

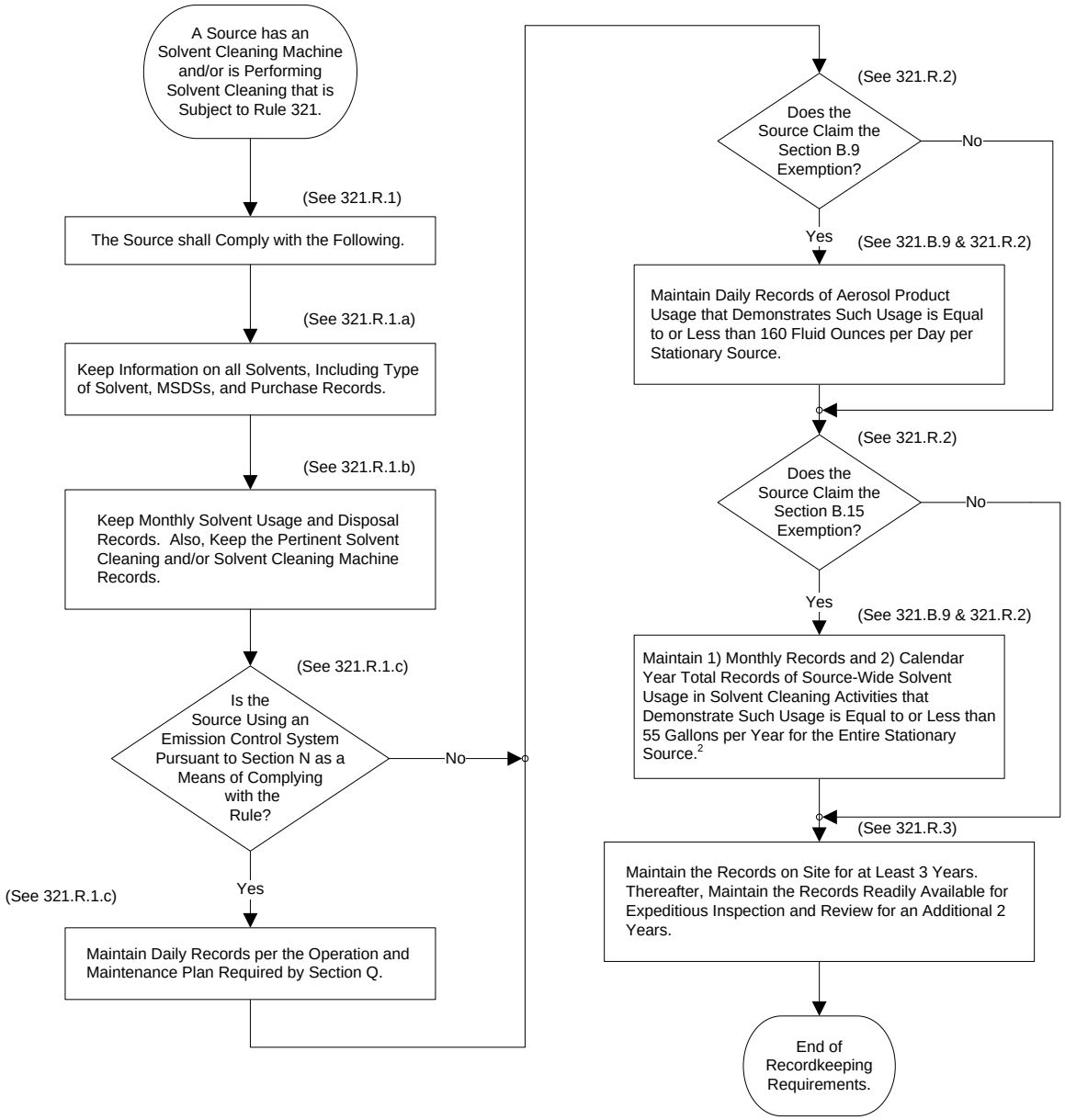


Figure 16. Rule 321, Section R, Recordkeeping requirements.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. Solvents with an ROC content of 50 grams per liter or less do not count toward the exemption nonapplicability threshold figure.

Click here to return to the
Flowchart Table of Contents.

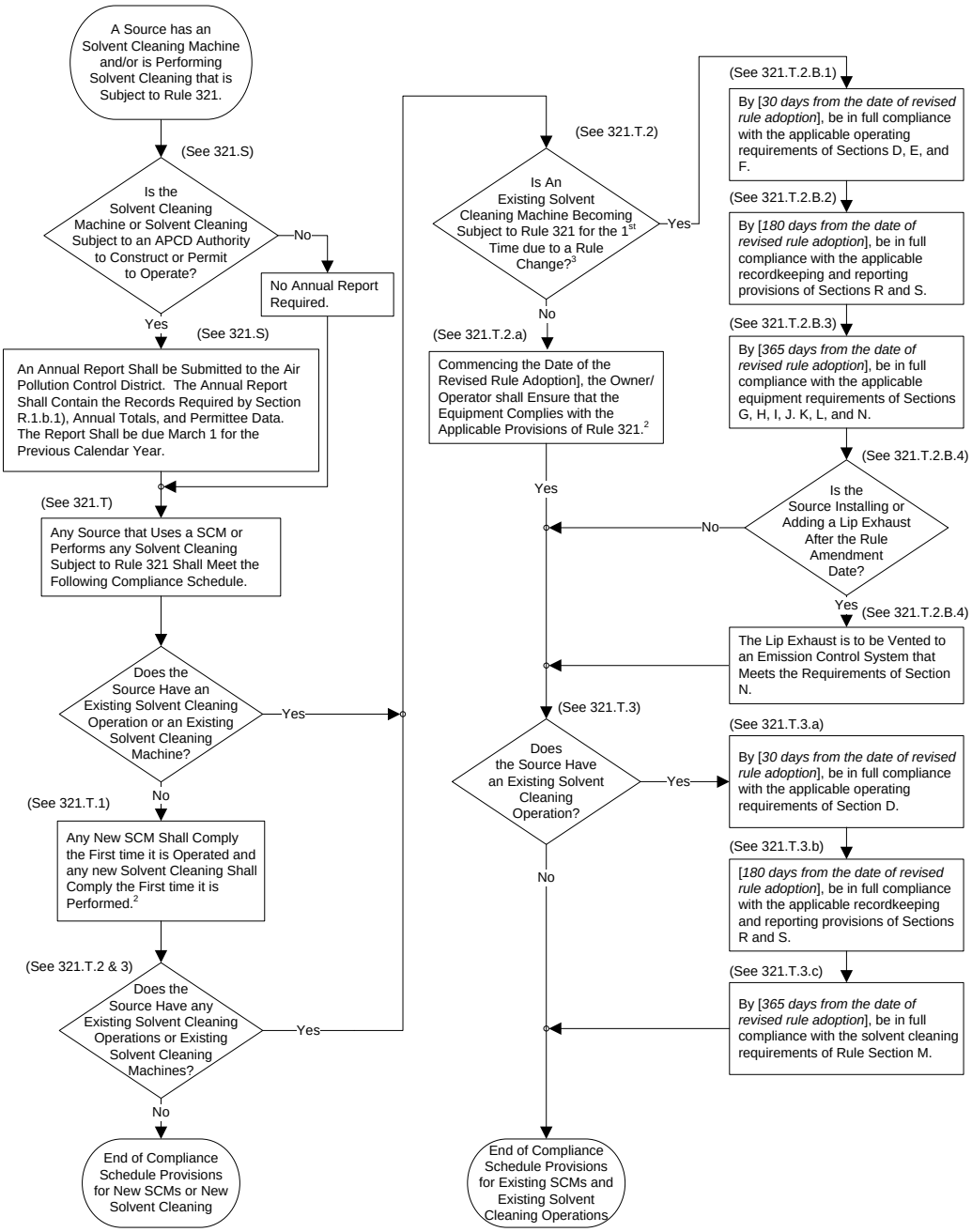


Figure 17. Rule 321, Section S, Reporting requirements, and Section T, Compliance schedule.[1]

1. These flowcharts are presented on an informational basis to assist the reader in understanding the requirements. If there is any conflict between the flowcharts and the rule, rule text takes precedent.

2. The provisions in Sections H.7, I.7, J.8, J.11, K.6, L.9, and L.11 have an effective date of one year from the date of revised rule adoption.

3. Some solvent cleaning machines have been exempt from the September 18, 1997 amended Rule 321, but will lose the exemption by the adoption of the proposed amended Rules 102 (Definitions), 202 (Exemptions to Rule 201), and/or Rule 321 (Solvent Cleaning and Solvent Cleaning Machines).

Click here to return to the list of Appendices in the Background Paper.