Revision to
Georgia's State Implementation Plan
To Incorporate the Requirements of
Clean Air Act Section 182(b)(2)(A)
For the Group II Control Techniques Guidelines

****October 17, 2011****

State of Georgia
Department of Natural Resources
Environmental Protection Division
Air Protection Branch

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EXECUTIVE SUMMARY

The Clean Air Act (CAA), Section 182(b)(2)(A) provides that, for certain nonattainment areas, States must revise their State Implementation Plans (SIPs) to include reasonably available control technology (RACT) for each category of volatile organic compound (VOC) sources covered by a control techniques guidelines (CTG) document issued between November 15, 1990, and the date of attainment. In addition, Section 182(b)(2) requires that a CTG issued between November 15, 1990, and the date of attainment include the date by which States subject to Section 182(b) must submit SIP revisions in response to the CTG.

The Environmental Protection Agency (EPA) addressed source categories of VOC emissions in accordance with CAA Section 183(e) on October 5, 2006, by amending 40 CFR Part 59 Subpart A Section 59.1 for Consumer and Commercial Products, Group II [71 FR 58745]: Control Techniques Guidelines in Lieu of Regulations for Flexible Packaging Printing Materials, Lithographic Printing Materials, Letterpress Printing Materials, Industrial Cleaning Solvents, and Flat Wood Paneling Coating.

States with moderate or above ozone nonattainment areas as of that date were required to submit SIP revisions to EPA addressing these requirements on or before October 7, 2009.

Source categories covered under the "Group II" heading are:

- Flexible packaging printing materials;
- Lithographic printing materials;
- Letterpress printing materials;
- Industrial cleaning solvents; and
- Flat wood paneling coatings.

EPA consolidated lithographic printing materials and letterpress printing materials into one CTG document.

The Georgia Environmental Protection Division (Georgia EPD) undertook the task of reviewing existing VOC control measures for industry groups covered by the federal 2006 Group II CTGs using the Group II CTGs and EPA's Blue Book.[1] The location of the industry groups for this study are those located in the current 20-county Atlanta 8-hour ozone moderate non-attainment area consisting of Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Newton, Paulding, Rockdale, Spalding and Walton counties. Each CTG

[1] Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations-Clarification to Appendix D of November 24, 1987 Federal Register, May 25, 1988, EPA Ozone/Carbon Monoxide Program Branch, Air Quality Management Division, Office of Air Quality Planning and Standards.

contains applicability, emission limitation, compliance methods, and monitoring guidelines.

Georgia has adopted the Group II CTGs as follows:

CTG Category	Changes to the Georgia Rules	Adoption Date	Compliance Date
Flexible Package Printing	Amended 391-3-1-.02(2)(mm) "VOC Emissions from Graphic Arts Systems"	1/25/2012	1/1/2015
Lithographic Printing Materials Letterpress Printing Materials	Amended 391-3-1-.02(2)(ddd) "VOC Emissions from Offset Lithography"	1/25/2012	1/1/2015
Industrial Cleaning Solvents	New Rule 391-3-1-.02(2)(aaaa)	1/25/2012	1/1/2015
Flat Wood Paneling Coatings	Amended 391-3-1-.02(2)(jj) "VOC Emissions from Surface Coating of Flat Wood Paneling"	1/25/2012	1/1/2015

Georgia is submitting this Group II CTG SIP revision, in accordance with CAA Section 182(b)(2)(A), that addresses the changes to existing VOC control measures in Georgia Chapter 391-3-1.

It is important to note that the State of Georgia did not rely on the reduction of VOCs as part of its control strategy for the attainment of the National Ambient Air Quality Standards (NAAQS) for 8-hour ozone. Anthropogenic VOCs are overwhelmed by biogenic VOCs in the Southeast resulting in NOx-limited ozone formation as detailed in the Atlanta 8-hour Ozone Attainment Demonstration submitted to EPA on October 21, 2009.

1.0 REGULATORY BACKGROUND

1.1 Atlanta Ozone Nonattainment Area

Under the former 1-hour ozone National Ambient Air Quality Standard (NAAQS), the previous 13-county Atlanta ozone nonattainment area, consisting of Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding and Rockdale Counties, was classified as a severe nonattainment area. As a part of the nonattainment designation, Georgia EPD implemented control measures for ozone precursors VOC and NOx that fulfilled the purposes of Section 182(b)(2) for the 1-hour ozone NAAQS. These control measures' provisions are still in place as part of the approved 1-hour ozone metro Atlanta maintenance plan.

On April 30, 2004, the Atlanta nonattainment area was initially designated as a marginal nonattainment area under the 1997 8-hour ozone NAAQS and expanded from the original 13-county area to a 20-county nonattainment area by adding Barrow, Bartow, Carroll, Hall, Newton, Spalding and Walton Counties. Atlanta was reclassified as a moderate nonattainment area on March 6, 2008.

As presented in the Atlanta 8-hour Ozone Attainment Demonstration submitted to EPA on October 21, 2009, Georgia EPD has demonstrated that the Atlanta Nonattainment area does not rely on VOCs to meet attainment for ozone and is considered a NOx-limited area due to overwhelming naturally occurring biogenic VOCs. The analyses of ozone, NO, and NOx data using the ozone M.A.P.P.E.R. program showed that ozone formation in Atlanta is generally transitional to NOx-limited, but when the results were binned according to the daily maximum 8-hour ozone, ozone formation was strongly NOxlimited on days of elevated ozone. An analysis of weekend/weekday differences in ozone concentration also indicate a generally NOx-limited regime, with ozone formation becoming more NOx-limited in recent years compared to the late 1990s.

These findings are generally in agreement with several studies of the trends and limiting factors for ozone formation in Atlanta. Pun et al. (2003)[2] investigated the weekly patterns of ozone in Atlanta and found elevated midweek concentrations compared to weekends, with stronger weekly patterns in later years (1995-1999 compared to 1986-1990), concluding that the availability of NOx drives the weekly ozone cycle in Atlanta. Analyzing various aircraft measurements, Sillman et al. (1997)[3] concluded that Atlanta ozone is mostly NOx limited, using various indicator ratios.

1.2 Clean Air Act Section 182(b)(2) Requirements

Section 182(b)(2) of the Clean Air Act (CAA) requires that a federal Control Technique Guideline (CTG) issued between November 15, 1990, and the date of attainment include the date by which States subject to Section 182(b) must submit SIP revisions in response

[2] Pun, B. K., C. Seigneur, and W. White (2003). Day-of-week behavior of atmospheric ozone in three U.S. cities. J. Air & Waste Management Assoc. 53, 789-801.

[3] Sillman, S., D. He, C. Cardelino, and R. E. Imhoff (1997). The use of photochemical indicators to evaluate ozone-NOx-hydrocarbon sensitivity: Case studies from Atlanta, New York, and Los Angeles. J. Air & Waste Management Assoc., 47, 1030-1040.

to the CTG to include reasonably available control technology (RACT) for each category of volatile organic compound (VOC) sources covered by a CTG.

RACT is defined as the lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economical feasibility (44 FR 53762; September 17, 1979). Documents useful in establishing RACT include Control Techniques Guidelines (CTGs), Alternative Control Technique guidance (ACT), Maximum Achievable Control Technology (MACT) standards, New Source Performance Standards (NSPS), and Best Available Control Technology (BACT) standards. RACT requirements are included in the CAA to assure that significant source categories at major sources of ozone precursor emissions are controlled to a "reasonable" extent, but not necessarily to BACT levels expected of new major sources or major modifications to existing major sources or to MACT required for major sources of hazardous air pollutants.

EPA addressed the Group II source categories with promulgation of a "Notice of Final Determination and Availability of Final Control Techniques Guidelines" dated October 5, 2006 [71 FR 58745]. States with ozone nonattainment areas classified as moderate or above as of that date were required to submit SIP revisions to EPA addressing these requirements on or before October 7, 2009. Source categories covered under the "Group II" heading are:

- Flexible packaging printing materials;
- Lithographic printing materials;
- Letterpress printing materials;
- Industrial cleaning solvents; and
- Flat wood paneling coatings.

1.3 Conclusion

Georgia EPD undertook the task of reviewing existing VOC control measures for industry groups covered by the federal 2006 Group II CTGs. This SIP revision contains a chapter for each Group II CTG.

2.0 FLEXIBLE PACKAGE PRINTING

2.1 Regulatory Background - Federal

Flexible packaging refers to any package or part of a package, the shape of which can be readily changed. Flexible packaging includes, but is not limited to, bags, pouches, liners, and wraps utilizing paper, plastic, film, aluminum foil, metalized or coated paper or film, or any combination of these materials. Printing on flexible packaging is almost entirely conducted by rotogravure and wide-web flexographic printing.

There have been two federal actions that affect flexible package printing operations prior to 2006. In December 1978, EPA issued a CTG document (1978 CTG) for graphic arts (rotogravure printing and flexographic printing) that included flexible package printing.[4] Then, in May of 1996, EPA promulgated a national emission standard for the printing and publishing industry, *40 CFR Part 63 Subpart KK -National Emission Standards for Hazardous Air Pollutants* (NESHAP*) for the Printing and Publishing Industry* which is applicable to flexible package printing.

2.2 Regulatory Background - State

Georgia EPD implemented Georgia Rule 391-3-1-.02(2)(mm) "VOC Emissions from Graphic Arts Systems" [a.k.a. Georgia Rule (mm)] to fulfill the VOC RACT requirements for the 1-hour ozone NAAQS.

Georgia Rule (mm) was based on the 1978 federal CTG. This CTG addressed both flexible package and publication printing industries, the nature of VOC emissions from those industries and the available control options along with the cost of those options. Because historically, graphic arts operations utilized coatings and inks with a high solvent content, the 1978 CTG recommended control technology as a technologically and economically feasible option. A seventy-five percent (75%) capture efficiency with a ninety percent (90%) control efficiency was considered a reasonable control option. Additionally, VOC content limits were recommended as alternatives. It should be noted that Georgia Rule (mm) did NOT specify a capture efficiency but instead required a "capture system approved by the Director." The 1978 CTG did not, however, recommend an applicability threshold.

2.3 Does the Existing Georgia 1-hour Ozone RACT Fulfill the 8-hour Ozone RACT for this Industry Sector?

In December 2006, EPA issued an updated CTG (2006 CTG) document for controlling VOC emissions from flexible package printing. The following tables compare the applicability threshold recommendations under the 2006 CTG and the existing state rule used to regulate the category.

[4]Guideline Series. Control of Volatile Organic Emissions from Existing Stationary Sources – Volume VIII: Graphic Arts – Rotogravure and Flexography. Publication No. EPA-450/2-78-033. U.S. EPA, June 1978.

Applicability: Table 2.3.1 specifies the existing VOC emission applicability thresholds for flexible package printing:

Table 2.3.1 VOC Emission Applicability Thresholds – Flexible Package Printing

Atlanta Metro Area of Concern	Georgia Rule (mm) Applicability Threshold VOC (tpy)	2006 CTG Recommended Emission Threshold	Revised Georgia Rule (mm) Applicability Threshold VOC*
13-County	PTE: 25 from a facility	Actual: 15 lbs/day before controls for work practice standards PTE: 25 tpy from an individual press for emission control measures	Actual: 15 lbs/day before controls for work practice standards PTE: 25 tpy from a facility for existing control measures and 25 tpy from a press for new control measures
7-County	PTE: 100 from a facility	Actual: 15 lbs/day before controls for work practice standards PTE: 25 tpy from an individual press for emission control measures	Actual: 15 lbs/day before controls PTE: 100 tpy from a facility for existing control measures and 25 tpy from a press for new control measures

*Note: 15lbs/day of actual facility-wide emissions before controls is the applicability threshold for the rule and results in a facility being subject to work practice standards for cleaning. At the higher potential emission threshold of 25tpy from an individual press, EPA recommends control options.

Applicability thresholds for flexible package printing were not referenced in EPA's Blue Book or in the 1978 CTG. The VOC applicability threshold for Georgia Rule (mm) has varied depending on the attainment designation of the Atlanta area, but currently is set at 25 tons per year in the original thirteen 1-hour ozone nonattainment counties because of the Atlanta area's status as a severe ozone nonattainment area for the previous 1-hour standard [Section 182(b)(2)(C)]. When the nonattainment area was expanded for the 1997 8-hour ozone standard with a marginal designation, the applicability threshold remained at 100 tons per year for those additional 7 counties that were previously attainment for the 1-hour standard. There are twelve known affected facilities subject to Georgia Rule (mm).

Emission Standards for Flexible Package Printing: For facilities with actual emissions greater than 15 lbs per day, EPA recommends that the facility implement work practice standards for cleaning that include storing all VOC-containing cleaning materials and used shop towels in closed containers; ensuring that storage containers used for these materials are kept closed at all times except when accessing the containers; minimizing spills of the VOC-containing cleaning materials; conveying these materials from one location to another in closed containers or pipes; and minimizing VOC emissions from the cleaning processes associated with application, storage, mixing, and conveying equipment. This should be done by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers.

For individual presses with a potential to emit (PTE) of 25 tons of VOCs per year, EPA recommends an overall VOC control efficiency based on both the year a printing press was installed and the year any add-on air pollution control device was initially installed. The following timelines indicate the recommended control efficiency:

1. Sixty-five percent (65%) for a press that was first installed **prior to** March 14, 1995, and that is controlled by an add-on air pollution control device whose first installation date was **prior to** the effective date of the rule.

2. Seventy percent (70%) for a press that was first installed **prior to** March 14, 1995, and that is controlled by an add-on air pollution control device whose first installation date was **on or after** the effective date of the rule.

3. Seventy-five percent (75%) for a press that was first installed **on or after** March 14, 1995, and that is controlled by an add-on air pollution control device whose first installation date was **prior to** the effective date of the rule.

4. Eighty percent (80%) for a press that was first installed **on or after** March 14, 1995 and that is controlled by an add-on air pollution control device whose first installation date was **on or after** the effective date of the rule.

Table 2.3.2 compares the recommended control strategies of the 2006 federal CTG with the existing emission standards in Georgia Rule (mm).

Table 2.3.2 VOC Emission Control Strategies for Flexible Package Printing

2006 federal CTG	Existing Georgia State Rule	More Stringent Limitation?
Sixty-five percent (65%) overall control efficiency	Ninety percent (90%) reduction efficiency and an approved capture system.	unable to determine
Seventy percent (70%) overall control efficiency		unable to determine
Seventy-five percent (75%) overall control efficiency		unable to determine
Eighty percent (80%) overall control efficiency		unable to determine

There is no exact correlation to determine if Georgia Rule (mm) or the 2006 CTG is more stringent. Most printing facilities in the nonattainment area have capture systems that qualify as permanent total enclosures, which are assumed to have 100% capture around each press. There are multiple reasons for this, including the cost of the testing for capture efficiency, and more flexibility in meeting VOC coating content limits, monthly VOC limits and yearly VOC limits. The permanent total enclosures installed at existing facilities have been determined to be a capture system approved by the Division. For facilities with permanent total enclosures, the 100% capture efficiency along with a required 90% control efficiency indicate that Rule (mm) is more stringent than the CTG even at a maximum 2006 CTG requirement of 80% overall control. However, permanent total enclosures are not required by the rule. Therefore, in order to meet the CTG, a

requirement that the overall control efficiency must meet 65%, 70%, 75%, or 80% is added to the rule.

As an alternative to the control efficiencies discussed above, EPA recommends the use of low VOC content materials for a single press not to exceed 0.16 kilograms of VOC per kilogram of material applied or 0.8 kilograms of VOC per kilogram of solids applied.

Table 2.3.3 compares the recommended solvent content for coatings from the 2006 federal CTG with the existing emission standards in Georgia Rule (mm).

Table 2.3.3 Comparison Of The 2006 Federal CTG VOC Emission Standards for Flexible Package Printing with Existing Emission Standards in Georgia Rule (mm).

2006 federal CTG	Existing Georgia State Rule	More Stringent Limitation?
0.16 kg of VOC / kg of coating as applied (with water) OR 0.8 kg of VOC / kg of solids applied	40 percent VOC by volume of the coating or ink, minus water OR 25 percent VOC by volume of the volatile content of the coating, OR 0.5 lbs of VOC / lb of coating solids applied	Georgia Rule (mm)

Appendix D contains the calculations used to convert the emission limits for low solvent coatings and inks into the same units of measurement. Georgia Rule (mm) was determined to be the more stringent emission limitation for the emission limit of 0.5 lbs of VOC per lb of coating solids applied and for the emission limit of 25% VOC by volume of the volatile content of the coating.

Compliance Methods: Facilities subject to the updated Georgia Rule (mm) will be able to comply with the requirements of the rule by following the work practice standards spelled out in the rule. Those facilities with individual presses that have a potential to emit 25 tons per year or more will have the option of meeting a low VOC content coating or installing control equipment with the required control efficiency. Although not spelled out in the rule, control equipment can be used to meet the content coating emission limits.

Procedures for Testing and Monitoring: No changes are prescribed for PTM Sections 2.040 and 2.112.

Conclusion: Georgia EPD adopted revisions to Georgia Rule (mm) for the 20-county Atlanta ozone nonattainment area on January 25, 2012 with a compliance date of January 1, 2015.

Prior to January 1, 2015, facilities that perform packaging rotogravure, publication rotogravure, and flexographic printing located in the original 13-county nonattainment

area whose potential VOC emissions from theses activities are greater than or equal to 25 tons per year will be subject to the original requirements of this rule. The original requirements will also apply for these types of facilities with potential VOC emissions greater than 100 tons per year that are located outside of the original 13-county nonattainment area.

On or after January 1, 2015, the rule will apply to flexible packaging facilities within the entire 20-county nonattainment area with actual VOC emissions equal to or greater than 15 pounds per day before controls. For individual presses with potential VOC emissions equal to or greater than 25 tons per year, the facility must meet additional control requirements for those presses. Individual presses with less than 25 tons per year of potential emissions must meet the requirements of the original rule.

In the case of facilities that perform packaging rotogravure, publication rotogravure, and flexographic printing on or after January 1, 2015, a facility with potential VOC emissions that are equal to or greater than 25 tons per year within the 13-county nonattainment area but at which the actual emissions of VOCs from only flexible package printing, before controls, are less than 15 pounds per day, must comply with the original requirements in the rule.

In the additional seven counties in the nonattainment area, facilities that perform packaging rotogravure, publication rotogravure, and flexographic printing facilities with potential emissions equal to or greater than 100 tons per year but at which the actual emissions of VOCs from only flexible packaging are less than 15 pounds per day, must comply with the original requirements of the rule.

See Table 2.3.1 for a concise description of the requirements on or after January 1, 2015.

However, because the metro Atlanta area has attained the 1997 ozone NAAQS without these rules in place, if the area is re-designated attainment before January 1, 2015, and those counties continue to maintain the standard, the revisions will no longer apply. In the event that the 1997 ozone standard is violated in the specified nonattainment counties, the revised requirements will only be reinstated if they are determined to be a necessary measure to meet the requirements of the maintenance contingency plan.

3.0 LITHOGRAPHIC AND LETTERPRESS PRINTING

3.1 Regulatory Background - Federal

Lithographic printing refers to a printing process where the image and non-image areas are chemically differentiated; the image area is oil receptive and the non-image area is water receptive. This method differs from other printing methods, where the image is a raised or recessed surface. Offset lithographic printing refers to a printing process that transfers the ink film from the lithographic plate to an intermediary surface (blanket), which, in turn, transfers the ink film to the substrate. Letterpress printing means a printing process in which the image area is raised relative to the nonimage area and the paste ink is transferred to the substrate directly from the image surface.

There are many similarities between the offset lithographic printing industry and the letterpress industry including similar sources of VOC emissions and similar control options. As such, even though EPA has in the past only addressed the offset lithographic industry through federal action, this 2006 CTG addresses both categories.

There have been two Federal actions that concern the offset lithographic printing industry prior to 2006. In November 1993, EPA issued a draft CTG document for offset lithographic printing.[5] Then, in June 1994, after reviewing comments received on the draft CTG, EPA published an alternative control techniques document (ACT) on offset lithographic printing[6] in order to supply supplemental information to the States for rule development.

3.2 Regulatory Background - State

Georgia EPD implemented Georgia Rule 391-3-1-.02(2)(ddd) "VOC Emissions from Offset Lithography" [a.k.a. Georgia Rule (ddd)] to fulfill the VOC RACT requirements for the 1-hour ozone NAAQS.

Georgia EPD also implemented Georgia Rule 391-3-1-.02(2)(tt) "VOC Emissions from Major Sources" [a.k.a. Georgia Rule (tt)] for any major source of VOCs not covered by another Georgia Rule. This case-by-case RACT analysis, was implemented to fulfill the VOC RACT requirements for the 1-hour ozone NAAQS. Any letterpress printing facility that is a major source of VOC emissions in the nonattainment area would be subject to Georgia Rule (tt).

3.3 Does the Existing Georgia 1-hour Ozone RACT fulfill the 8-hour Ozone RACT for this Industry Sector?

Applicability: Table 3.3.1 specifies the existing VOC emission applicability thresholds for this industry category.

[5]Guideline Series. Control of Volatile Organic Emissions from Offset Lithographic Printing, Draft. Publication No. EPA-453/D-95-001. U.S. EPA, September, 1993.
[6]Alternative Control Techniques Document: Offset Lithographic Printing. Publication No. EPA 453/R-94-054. U.S. EPA, June, 1994.

Table 3.3.1 VOC Emission Applicability Thresholds – Lithographic and Letterpress Printing			
Atlanta Metro Area of Concern	**Georgia Rule (ddd) and Georgia Rule (tt) Applicability Threshold VOC (tpy)**	**2006 CTG Recommended Emission Threshold**	**Revised Georgia Rule (ddd) Applicability Threshold VOC***
13-County	PTE: 25 tpy from a facility	Actual: 15 lbs/day before controls PTE: 25 tpy from an individual heatset web offset press	Actual: 15 lbs/day before controls for fountain solution and work practice standards PTE: 25 tpy from an individual heatset web offset press for new press control measures and 25 tpy from all heatset web offset presses at a facility for existing control measures
7-County	PTE: 100 tpy from a facility	Actual: 15 lbs/day before controls PTE: 25 tpy from an individual heatset web offset press	Actual: 15 lbs/day before controls PTE: 25 tpy from an individual heatset web offset press for new press control measures and 100 tpy from all heatset web offset presses at a facility for existing control measures

*Note: 15lbs/day of actual emissions before controls is the applicability threshold for the rule and results in a facility being subject to work practice standards for cleaning, cleaning material standards, and fountain solution standards. At the higher potential emission threshold of 25tpy from an individual press, EPA recommends control options.

Applicability thresholds for lithographic printing and letterpress printing were not referenced in EPA's Blue Book. The 1993 CTG was not finalized; therefore, the VOC applicability thresholds for Georgia Rule (ddd) and Georgia Rule (tt) have varied depending on the attainment designation of the Atlanta area. Currently both are set at 25 tons per year in the original 13 one-hour ozone nonattainment counties because of the Atlanta area's status as a severe ozone nonattainment area for the previous 1-hour standard [Section 182(b)(2)(C)]. When the nonattainment area was expanded for the 1997 8-hour standard, the applicability threshold remained at 100 tons per year for those additional seven counties that were previously attainment for the 1-hour standard. There are three known affected owners/operators subject to Georgia Rule (ddd), and there are no known letterpress printing facilities.

Emission Standards Lithographic and Letterpress Printing: For facilities with actual emissions greater than 15 pounds per day, EPA recommends that the facility implement work practice standards for cleaning that include storing all VOC-containing cleaning materials and used shop towels in closed containers; ensuring that storage containers used for these materials are kept closed at all times except when accessing the containers; minimizing spills of the VOC-containing cleaning materials; conveying these materials from one location to another in closed containers or pipes; and minimizing VOC emissions from the cleaning processes associated with application, storage, mixing, and

conveying equipment. This should be done by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers.

EPA also recommends that these facilities use cleaning materials with a VOC composite vapor pressure less that 10mm Hg at 20 degrees Celsius or cleaning materials containing less than seventy (70) weight percent VOC. For those cleaning tasks that cannot be accomplished with cleaning materials that meet these requirements, the facility can exclude up to one hundred and ten gallons per year.

Additionally, the 2006 CTG recommends different emission limits for fountain solutions.

These limits are compared to the emission limits specified in existing Georgia Rule (ddd) in Table 3.3.2 below:

Table 3.3.2 Comparison Of The 2006 Federal CTG VOC Emission Standards for Fountain Solution With Existing Emission Standards In Georgia Rule (ddd).

Existing VOC Limit	2006 CTG VOC Limit	More Stringent Limitation
Fountain Solution containing: 8% or less VOCs by volume; (equivalent to 6.6% or less alcohol by weight, 6.8% or less alcohol and alcohol substitute by weight, or 7.26% or less alcohol substitute by weight).	Fountain solution for: **Heatset web offset lithographic printing** 1.6% or less alcohol by weight; **OR** an equivalent solution of 3% alcohol by weight or less (on press) and refrigerated below 60 degrees F; **OR** 5% alcohol substitute or less by weight (on-press) and no alcohol in fountain solution.	2006 CTG
	Sheet-fed offset lithographic printing 5% or less alcohol by weight. **OR** an equivalent solution of 8.5% alcohol by weight or less (on press) and refrigerated below 60 degrees F; **OR** 5% alcohol substitute or less by weight (on-press) and no alcohol in fountain solution.	2006 CTG
	Coldset web offset lithographic printing 5% alcohol substitute or less by weight (on-press) and no alcohol in fountain solution.	2006 CTG

For heatset web offset lithographic and heatset web letterpress printing presses with a potential to emit (PTE) before controls of 25 tons of VOC (petroleum ink oil) per year from the dryer, EPA recommends an overall VOC control efficiency based on the year an add-on air pollution control device is initially installed.

Cooling a fountain solution that contains isopropyl alcohol is a process modification that reduces VOC emissions by reducing the evaporation of the alcohol. The recommended level of control for VOC emissions from on-press (as-applied) fountain solution for sheet-fed printing is five percent alcohol (by weight) in the fountain or equivalent. One approach for achieving this recommended level of control involves using 8.5 percent alcohol or less (by weight) on-press (as-applied) in the fountain solution provided the fountain solution is refrigerated to below 60ºF (15.5 ºC).

Control equipment with an initial installation date **prior to** the compliance date of a rule based on the 2006 CTG is required to have a control efficiency of 90%. However, for control equipment with an initial installation date **after** the compliance date of an updated rule, the CTG recommends a control efficiency of 95%. Alternatively, an outlet concentration reduced to 20 ppmv as hexane on a dry basis can be used for those situations where the inlet VOC concentration is low or there is no identifiable inlet.

Compliance Methods: Facilities subject to the updated Georgia Rule (ddd) will be able to comply with the requirements of the rule by following the work practice standards spelled out in the rule and by meeting the VOC limitations for cleaning materials and fountain solution. Those facilities with presses that have a potential to emit 25 tons per year or more will also be required to either meet the VOC content limits for coatings and inks or install control equipment with the required control efficiency. Although not spelled out in the rule, control equipment can be used to meet the content coating emission limits.

Procedures for Testing and Monitoring: No changes are prescribed for PTM Sections 2.040 and 2.112.

Conclusion: Georgia EPD adopted revisions to Rule Georgia Rule (ddd) for the 20-county Atlanta ozone nonattainment area on January 25, 2012, with a compliance date of January 1, 2015.

Prior to January 1, 2015, offset lithographic printing facilities located in the original 13-county nonattainment area whose potential VOC emissions from these activities are greater than or equal to 25 tons per year will be subject to the original requirements of this rule. The original requirements will also apply for these types of facilities with potential VOC emissions greater than 100 tons per year that are located in the seven additional nonattainment counties.

Prior to January 1, 2015, letterpress printing facilities are subject to the provisions of Georgia Rule (tt), a case-by-case RACT analysis.

Beginning on or after January 1, 2015, the rule revisions will apply to both offset lithographic and letterpress printing facilities within the entire 20-county nonattainment area with actual VOC emissions equal to or greater than 15 pounds per day before controls.

Individual heatset web offset and individual heatset web letterpress printing presses located in the original 13-county nonattainment area with potential VOC emissions equal to or greater than 25 tons per year must meet additional control requirements for those presses while those with less than 25 tons per year of potential emissions must meet the requirements of the original rule.

The original rule also continues to apply to individual heatset web offset lithographic printing presses with less than 25 tons per year of potential emissions from the individual press at a facility whose overall potential emissions are equal to or greater than 100 tons per year in the seven additional nonattainment counties.

However, because the metro Atlanta area has attained the 1997 ozone NAAQS without these rules in place, if the area is re-designated attainment before January 1, 2015, and those counties continue to maintain the standard, the revisions will no longer apply. In the event that the 1997 ozone standard is violated in the specified nonattainment counties, the revised requirements will only be reinstated if they are determined to be a necessary measure to meet the requirements of the maintenance contingency plan.

4.0 INDUSTRIAL CLEANING SOLVENTS

4.1 Regulatory Background - Federal

Industrial cleaning solvents refers to a variety of products that are used to remove contaminants such as adhesives, inks, paint, dirt, soil, oil, and grease. These contaminants are removed from production related equipment including parts, products, tools, machinery, equipment, vessels, floors and walls. Other work production areas may be cleaned for a variety of reasons including, safety, operational effectiveness, and to remove product contamination. Many industrial solvents are purchased in bulk and used for other purposes such as paint thinner.

There is only one previous federal action that concerns industrial cleaning operations. In 1994, EPA issued an Alternative Control Techniques (1994 ACT) document for industrial cleaning solvents.

4.2 Regulatory Background - State

Georgia EPD implemented Georgia Rule 391-3-1-.02(2)(tt) "VOC Emissions from Major Sources" [a.k.a. Georgia Rule (tt)] to fulfill the VOC RACT requirements for the 1-hour ozone NAAQS. Georgia Rule (tt), a case-by-case RACT analysis, was implemented for any major source of VOCs not covered by another Georgia Rule. With the development of the 2006 CTG, more specific requirements for facilities that use industrial cleaning solvents are available; therefore, Georgia EPD has developed **a new state rule category**. This new rule is Georgia Rule 391-3-1-.02(2)(aaaa) or Georgia Rule (aaaa).

4.3 Does the Existing Georgia 1-hour Ozone RACT fulfill the 8-hour Ozone RACT for this Industry Sector?

Applicability: Tables 4.3.1 specifies the existing VOC emission applicability thresholds for industries covered under this CTG:

Table 4.3.1 VOC Emission Applicability Thresholds – Industrial Cleaning Solvents

Atlanta Metro Area of Concern	Georgia Rule (tt) Applicability Threshold VOC (tpy)	2006 CTG Recommended Emission Threshold	New Georgia Rule (aaaa) Applicability Threshold VOC
13-County	PTE: 25	Actual: 15 lbs/day	Actual: 15 lbs/day
7-County	PTE: 100	Actual: 15 lbs/day	Actual: 15 lbs/day

The applicability threshold for Georgia Rule (tt) has varied depending on the attainment designation of the Atlanta area. Currently it is set at 25 tons per year in the original 13 nonattainment counties because of the Atlanta area's status as a severe ozone nonattainment area for the previous 1-hour standard [Section 182(b)(2)(C)]. When the nonattainment area was expanded for the 1997 8-hour standard with a marginal designation, the applicability threshold remained at 100 tons per year for those additional

seven counties that were previously attainment for the 1-hour standard. There are no known affected owners/operators subject to the new Georgia Rule (aaaa) for industrial cleaning solvents. Some industries with solvent cleaning operations may already be covered under an existing rule based on a current CTG with control approaches that are more specific to that particular industry. Because of this, the 2006 CTG recommends that these industries should be considered exempt.

Emission Standards: The 2006 CTG recommends work practice standards for cleaning operations that include covering open containers and used applicators; minimizing air circulation around cleaning operations; properly disposing of used solvent and shop towels; and implementing equipment practices that minimize emissions (e.g., keeping parts cleaners covered, maintaining cleaning equipment to repair solvent leaks, etc.).

In addition to work practice standards for cleaning processes, the 2006 CTG recommends a VOC content limit of fifty grams of VOC per liter (0.42 lb/gal) for cleaning materials used in certain cleaning operations unless emissions are controlled by an emission control system with an overall control efficiency of eighty-five percent. These specific unit operations include spray gun cleaning, spray booth cleaning, large manufactured components cleaning, parts cleaning, equipment cleaning, line cleaning, floor cleaning, tank cleaning, and small manufactured components cleaning.

Alternatively, EPA recommends the inclusion of a composite vapor pressure limit of eight millimeters of mercury (8 mmHg) at twenty degrees Celsius, as a replacement for the 50g/l VOC content limit.

Compliance Methods: Facilities subject to the new Georgia Rule (aaaa) will be able to comply with the requirements of the rule by following the work practice standards spelled out in the rule and by meeting the VOC limitations for cleaning materials. Facilities will have the option of meeting a composite vapor pressure limit or installing a control system with eighty-five percent control efficiency rather than meeting the VOC content limit for the cleaning materials.

Procedures for Testing and Monitoring: Georgia EPD's PTM has been updated by adding new section 2.127 for this federal CTG.

Conclusion: EPD has adopted the new Georgia Rule (aaaa) for the 20-county Atlanta ozone nonattainment area on January 25, 2012, with a compliance date of January 1, 2015.

Beginning on or after January 1, 2015, the rule will apply to facilities located in 20-county nonattainment area at which actual emissions of volatile organic compounds from the use of organic solvents for cleaning operations equal or exceed 15 pounds per day.

However, because the metro Atlanta area has attained the 1997 ozone NAAQS without this rule in place, if the area is re-designated attainment before January 1, 2015, and these counties continue to maintain the standard, the new rule will no longer apply. In the

event that the 1997 ozone standard is violated in the specified nonattainment counties, the requirements will only be reinstated if they are determined to be a necessary measure to meet the requirements of the maintenance contingency plan.

5.0 FLAT WOOD PANELING

5.1 Regulatory Background - Federal

Flat wood paneling products refer to decorative interior panels, exterior siding, and tileboard used in construction. Decorative interior panels are usually grooved, frequently embossed, and sometimes grain printed to resemble various wood species. The substrate can be hardboard, plywood, medium density fiberboard (MDF), or particleboard. Exterior siding may be made of solid wood, hardboard, or waferboard. Siding made of solid wood and hardboard is typically primed at the manufacturing facility and finished in the field, although some finishing may be performed during manufacturing on a limited basis. Field-applied coatings are not subject to this CTG. Tileboard is a premium interior wall paneling product made of hardboard that is used in high moisture areas of the home such as kitchens and bathrooms.

There have been two Federal actions that apply to flat wood paneling prior to 2006. In June 1978, EPA issued a final CTG document (1978 CTG) for flat wood paneling coatings.[7] In May of 2003, EPA promulgated a national emission standard covering the surface coating of wood building products including flat wood paneling, *40 CFR Part 63 Subpart QQQQ -National Emission Standards for Hazardous Air Pollutants* (NESHAP*) for the Printing and Publishing Industry.*

5.2 Regulatory Background - State

Georgia EPD implemented Georgia Rule 391-3-1-.02(2)(jj) "VOC Emissions from Surface Coating of Flat Wood Paneling" [a.k.a. Georgia Rule (jj)] to fulfill the VOC RACT requirements for the 1-hour ozone NAAQS.

5.3 Does the Existing Georgia 1-hour Ozone RACT fulfill the 8-hour Ozone RACT for this Industry Sector?

Applicability: Tables 5.3.1 specifies the existing VOC emission applicability thresholds for industries covered under this CTG:

Table 5.3.1 VOC Emission Applicability Thresholds – Flat Wood Paneling

Atlanta Metro Area of Concern	Georgia Rule (jj) Applicability Threshold VOC (tpy)	2006 CTG Recommended Emission Threshold*	EPA Blue Book Recommendations	Revised Georgia Rule (jj) Applicability Threshold VOC (tpy)
13-County	Actual: 15 lbs/day	Actual: 15 lbs/day before controls	PTE: 10 tpy Actual: 15 lbs/day	Actual: 15lbs/day before controls
7-County	PTE: 100	Actual: 15 lbs/day before controls	PTE: 10 tpy Actual: 15 lbs/day	Actual: 15lbs/day before controls

[7]Guideline Series. Control of Volatile Organic Emissions from Existing Stationary Sources – Volume VII: Factory Surface Coating of Flat Wood Paneling. Publication No. EPA-450/2-78-032. U.S. EPA, June 1978.

The 1978 CTG does not recommend an applicability threshold, however in EPA's Blue Book, flat wood paneling was listed as a source category for the recommended exemption level of 15 lbs per day of actual emissions.

There are no known affected owners/operators subject to the Georgia Rule (jj) for the surface coating of flat wood paneling in the nonattainment area.

Emission Standards: The 2006 CTG recommends that all flat wood paneling facilities will need to implement a work practice plan to ensure that VOC emissions from manufacturing processes are minimized. These work practice standards should include storing all VOC-containing materials in closed containers, ensuring that mixing and storage containers used for VOC-containing materials are kept closed at all times except when depositing or removing these materials, minimizing spills of VOC-containing materials; and conveying VOC-containing materials from one location to another in closed containers or pipes.

The 2006 CTG also recommends low-VOC materials for inks, coatings and adhesives in weight per volume of coating (lbs/gal or g/l) with an equivalent emission limit, expressed in weight per volume of solids (lbs/gallon of solids or g/l of solids).

Alternatively, the 2006 CTG recommends the option of add-on control equipment to meet an overall control efficiency of ninety percent. Table 5.3.2 compares the emission standards in the 2006 Federal CTG for flat wood paneling with those in existing Georgia Rule (jj).

Table 5.3.2 Comparison Of The 2006 Federal CTG VOC Emission Standards for Flat Wood Paneling with Existing Emission Standards in Georgia Rule (jj)

Flat Wood Paneling Category	2006 Federal CTG	Existing Georgia Rule (jj)	More Stringent Limitation?
Printed interior panels made of hardwood plywood, or thin particleboard	2.1 lbs VOC per gallon, **or** 2.9 lbs VOC per gallon of solids	6 lbs VOC/1000square ft (equivalent to 2.5 lbs/gallons as per the CTG)	2006 CTG
Natural finish hardwood plywood panels	2.1 lbs VOC per gallon, **or** 2.9 lbs VOC per gallon of solids	12 lbs VOC/1000square ft (equivalent to 3.3 lbs/gallons as per the CTG)	2006 CTG
Class II finishes on hardboard panels	2.1 lbs VOC per gallon, **or** 2.9 lbs VOC per gallon of solids	10 lbs VOC/1000square ft (equivalent to 3.6 lbs/gallons as per the CTG)	2006 CTG
Tileboard*	2.1 lbs VOC per gallon, **or** 2.9 lbs VOC per gallon of solids	No previous existing limit.	2006 CTG
Exterior siding	2.1 lbs VOC per gallon, **or** 2.9 lbs VOC per gallon of solids	No previous existing limit.	2006 CTG

*Note: Emission limits for tileboard and exterior siding were not recommended in the 1978 CTG.

Compliance Methods: Facilities subject to the updated Georgia Rule (jj) will be able to comply with the requirements of the rule by following the work practice standards spelled out in the rule and by meeting the VOC limitations for cleaning materials. Facilities will have the option of meeting a solids equivalent limit or installing a control system with ninety percent control efficiency in order to meet the coating limits.

Procedures for Testing and Monitoring: Georgia EPD's PTM has been updated by adding new Section 2.129 for this federal CTG.

Conclusion: Georgia EPD adopted revisions to Georgia Rule (jj) for the 20-county Atlanta ozone nonattainment area on January 25, 2012, with a compliance date of January 1, 2015.

Prior to January 1, 2015, flat wood paneling facilities located in the original 13-county nonattainment area whose potential VOC emissions from these activities are greater than or equal to 15 pounds per day will be subject to the original requirements of this rule. The original requirements will also apply for these types of facilities with potential VOC emissions greater than 100 tons per year that are located in the seven additional nonattainment counties.

Beginning on or after January 1, 2015, the rule revisions instead, will apply to flat wood paneling facilities within the entire 20-county nonattainment area with actual VOC emissions equal to or greater than 15 pounds per day before controls. The current limitations will continue to apply to facilities in counties outside of the 20-county nonattainment area to facilities with potential VOC emissions greater than 100 tons per year.

However, because the metro Atlanta area has attained the 1997 ozone NAAQS without these rules in place, if the area is re-designated attainment before January 1, 2015, and those counties continue to maintain the standard, the revisions will no longer apply. In the event that the 1997 ozone standard is violated in the specified nonattainment counties, the revised requirements will only be reinstated if they are determined to be a necessary measure to meet the requirements of the maintenance contingency plan.

APPENDIX A

RULE LANGUAGE

APPENDIX B

REVISIONS TO GEORGIA'S *PROCEDURES FOR TESTING AND MONITORING AIR POLLUTANTS*

APPENDIX C

POTENTIALLY AFFECTED SOURCE LISTING

APPENDIX D

EQUIVALENT EMISSION CALCULATIONS