

APPENDIX A

**REASONABLY AVAILABLE CONTROL TECHNOLOGY
ANALYSIS**

**HOUSTON-GALVESTON-BRAZORIA REASONABLY
AVAILABLE CONTROL TECHNOLOGY ANALYSIS UPDATE
STATE IMPLEMENTATION PLAN REVISION FOR THE 1997
EIGHT-HOUR OZONE STANDARD**

Project No. 2010-028-SIP-NR

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1.1 INTRODUCTION

The eight-county Houston-Galveston-Brazoria (HGB) eight-hour ozone nonattainment area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties) is currently classified as severe under the 1997 eight-hour ozone National Ambient Air Quality Standard (NAAQS). Under the 1997 eight-hour ozone standard, the HGB area is required to meet the mandates of the Federal Clean Air Act (FCAA) under §172(c)(1) and §182(b)(2) and (f). According to the United States Environmental Protection Agency's (EPA) final rule to implement the 1997 eight-hour ozone NAAQS (40 Code of Federal Regulations (CFR) §51.912, November 29, 2005), a state containing areas classified as moderate nonattainment and above must submit a state implementation plan (SIP) revision demonstrating that its current rules fulfill the reasonably available control technology (RACT) requirements for all Control Techniques Guidelines (CTG) emission source categories.

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 economic feasibility (44 FR 53762, September 17, 1979). RACT requirements for moderate and above classification nonattainment areas are included in the FCAA to assure that significant source categories at major sources of ozone precursor emissions are controlled to a reasonable extent, but not necessarily to best available control technology levels expected of new sources or to maximum achievable control technology levels required for major sources of hazardous air pollutants.

While RACT and reasonably available control measures (RACM) have similar consideration factors like technological and economic feasibility, there is a significant distinction between RACT and RACM. A control measure must advance attainment of the area towards meeting the NAAQS for that measure to be considered RACM (see FCAA, §172(c)(1)). Advancing attainment of the area is not a factor of consideration when evaluating RACT because the benefit of implementing RACT is presumed under the FCAA.

In the final approval notice for the revised HGB one-hour ozone attainment demonstration SIP revision published in the September 6, 2006, issue of the *Federal Register* (71 FR 52676), the EPA noted that the HGB volatile organic compounds (VOC) rules in 30 Texas Administrative Code (TAC) Chapter 115: *Control of Air Pollution from Volatile Organic Compounds* and nitrogen oxides (NO_x) rules in Chapter 117: *Control of Air Pollution from Nitrogen Compounds* were previously determined to meet the FCAA RACT requirements. Therefore, controls to satisfy RACT for emission source categories addressed in a CTG document issued prior to 2006 were implemented by the Texas Commission on Environmental Quality (TCEQ) under the one-hour ozone attainment demonstration SIP revision and previously approved by the EPA.

The EPA issued 11 CTG documents from 2006 through 2008 with recommendations for VOC controls on a variety of consumer and commercial products. Some of the new CTG recommendations are updates to previously issued CTG documents and some are recommendations for new categories.

The RACT analysis included in the Houston-Galveston-Brazoria Attainment Demonstration State Implementation Plan Revision for the 1997 Eight-Hour Ozone Standard (HGB AD SIP revision) adopted March 10, 2010, addressed the following CTG documents:

- Flat Wood Paneling Coatings, Group II, issued in 2006;
- Offset Lithographic and Letterpress Printing, Group II, issued in 2006;
- Fiberglass Boat Manufacturing Materials, Group IV, issued in 2008; and

- Auto and Light-Duty Truck Assembly Coatings, Group IV, issued in 2008.

The RACT analysis included in this SIP revision addresses the following seven CTG documents:

- Flexible Package Printing, Group II, issued in 2006;
- Industrial Cleaning Solvents, Group II, issued in 2006;
- Large Appliance Coatings, Group III, issued in 2007;
- Metal Furniture Coatings, Group III, issued in 2007;
- Paper, Film, and Foil Coatings, Group III, issued in 2007;
- Miscellaneous Industrial Adhesives, Group IV, issued in 2008; and
- Miscellaneous Metal and Plastic Parts Coatings, Group IV, issued in 2008.

By letter dated December 8, 2008, the TCEQ requested the EPA clarify several issues related to the recommendations in the following three CTG documents: *Control Techniques Guidelines for Large Appliance Coatings* (EPA 453/R-07-004), issued in 2007; *Control Techniques Guidelines for Metal Furniture Coatings* (EPA 453/R-07-005), issued in 2007; and *Control Techniques Guidelines for Miscellaneous Metal and Plastic Parts Coatings* (EPA 453/R-08-003), issued in 2008. A number of the recommended VOC content limits for specific coatings categories in these 2007 and 2008 CTG documents are less stringent than the more general VOC content limits specified in the following EPA guideline series recommendations: *Control of Volatile Organic Emissions from Existing Stationary Sources Volume V: Surface Coating of Large Appliances* (EPA-450/2-77-034), issued in 1977; *Control of Volatile Organic Emissions from Existing Stationary Sources Volume III: Surface Coating of Metal Furniture* (EPA-450/2-77-032), issued in 1977; and *Control of Volatile Organic Emissions from Existing Stationary Sources Volume VI: Surface Coating of Miscellaneous Metal Parts and Products* (EPA-450/2-78-015), issued in 1978. The TCEQ requested clarification to ensure that implementing the new 2007 and 2008 CTG recommendations would not be considered backsliding and to be certain that the TCEQ has the appropriate information to determine whether the CTG recommendations actually represent RACT for Texas. On March 17, 2011, the EPA issued a guidance memorandum regarding these three CTG categories entitled *Approving SIP Revisions Addressing VOC RACT Requirements for Certain Coatings Categories*. The EPA stated in the memorandum that: "...if a state believes the volume usage distribution among the general and specialty categories in the docket is representative of the distribution in the nonattainment area, we believe that if a state undertakes wholesale adoption of the new categorical limits in a specific CTG, the state may rely on the assessments in the docket to demonstrate that the range of new limits will result in an overall reduction in emissions from the collection of covered coatings."

Consistent with this EPA memorandum, on June 8, 2011, the commission proposed rulemaking (Rule Project Number 2010-016-115-EN) concurrent with this SIP revision to implement the 2007 and 2008 CTG-recommended RACT limits for these three emission source categories. The proposed rulemaking provided discussion regarding the estimated percent reductions for these CTG categories that supported the EPA's position that applying the new 2007 and 2008 CTG-recommended limits as a whole will result in net VOC emissions reductions. Despite the state's demonstration that implementing the 2007 and 2008 CTG-recommended approach would not interfere with attainment of, or reasonable progress towards attainment of, the ozone standard for the HGB area, the EPA commented that in order for the proposed rules to be approved as RACT, the state must also demonstrate that the existing Chapter 115 limits for these CTG categories, which were based on the EPA's original 1977 and 1978 recommendations, are no longer technologically or economically feasible.

The commission contends that by promulgating higher CTG-recommended RACT limits for these source categories in 2007 and 2008, the EPA has established that the original 1977 and 1978 recommended limits, and thus the existing Chapter 115 limits, are no longer technologically or economically feasible. However, the EPA's 2007 and 2008 CTG documents do not specifically explain why the lower limits included in the EPA's original 1977 and 1978 recommendations for these source categories are no longer technologically or economically feasible. In absence of any specific information indicating that the existing Chapter 115 limits for these source categories are not technologically or economically feasible, and given the EPA's stated intention to disapprove the rules without such a demonstration, the commission is obligated under the FCAA to revise the proposed limits for these source categories. Therefore, in response to the EPA's comment, the commission is revising the proposed limits for these three source categories to only include the EPA's 2007 and 2008 CTG-recommended limits that are equivalent to or lower than the existing Chapter 115 limits. Where the EPA's 2007 and 2008 CTG-recommended emission limits are less stringent than the EPA's original 1977 and 1978 recommended limits, the TCEQ is retaining the original emission limit in the current Chapter 115 rules, except for the high performance architectural coatings limit for the miscellaneous metal parts and products category. Additional details regarding the changes made in response to the EPA's comments can be found in Section 1.3.2: *VOC RACT Determination* of this appendix and in the preamble for the adopted rulemaking (Rule Project Number 2010-016-115-EN).

1.2 RACT EVALUATION APPROACH

1.2.1 General Discussion

The TCEQ demonstrates that the RACT requirements are being fulfilled in the HGB area by: (1) identifying all CTG source categories of NO_x and VOC emissions and submitting negative declarations for categories where there are no emission sources within the HGB area; (2) identifying all non-CTG major sources of NO_x and VOC emissions; (3) identifying the state regulation that implements or exceeds RACT for each applicable CTG source category or non-CTG major emission source; and (4) describing the basis for concluding that these regulations fulfill RACT. Because this SIP revision focuses specifically on the seven CTG documents issued by the EPA from 2006 through 2008 that were not addressed in the HGB AD SIP revision adopted March 10, 2010, this RACT analysis only provides an update to the HGB VOC RACT demonstration.

1.2.2 Identification of CTG Emission Sources

The EPA has issued CTG documents defining RACT for existing facilities. The TCEQ reviewed the seven Consumer and Commercial Products CTG documents issued from 2006 through 2008 that were not addressed in the HGB AD SIP revision adopted March 10, 2010, to identify all source categories of VOC emissions that require RACT. RACT determinations are not required if there are no sources in the HGB area that are subject to a CTG document.

1.2.3 Determining if State Regulations Fulfill RACT Requirements

The EPA previously approved the VOC rules in 30 TAC Chapter 115 as meeting the FCAA RACT requirements for CTG documents issued prior to 2006. Federally approved state rules and rule approval dates can be found in 40 CFR §52.2270(c), EPA Approved Regulations in the Texas SIP.

RACT for the 11 CTG documents issued from 2006 through 2008 was evaluated by comparing CTG recommendations to TCEQ rules to determine if the existing rules satisfied RACT. The TCEQ reviewed the emission sources in the HGB area and the applicable state rules to verify

that all CTG emission source categories in the HGB area were subject to requirements that meet or exceed the applicable RACT requirements, or that further emission controls on the sources were either not economically feasible or not technologically feasible. RACT determinations for four of the CTG documents issued from 2006 through 2008 were submitted to the EPA on April 6, 2010 (SIP Project Number 2009-017-SIP-NR). Additional discussion regarding the RACT determinations for the remaining seven CTG documents issued from 2006 through 2008 is provided in Section 1.3.2 of this appendix.

1.3 RACT DETERMINATION AND DISCUSSION

1.3.1 General Discussion

The HGB area is subject to some of the most stringent NO_x and VOC emission control requirements in the country, and for many source categories the existing rules are more stringent than recommended RACT standards for those categories. In the final approval notice for the revised HGB one-hour ozone attainment demonstration SIP revision (71 FR 52676, September 6, 2006), the EPA noted that the HGB VOC rules in Chapter 115 and NO_x rules in Chapter 117 were previously determined to meet the FCAA RACT requirements. Under the one-hour ozone NAAQS, the HGB area was also designated severe nonattainment and the threshold for major stationary sources under the one-hour ozone nonattainment designation was identical to the current threshold under the 1997 eight-hour ozone designation. Therefore, controls to satisfy RACT for most major sources under the 1997 eight-hour ozone designation were implemented by the TCEQ under the one-hour ozone attainment demonstration SIP revision and previously approved by the EPA.

1.3.2 VOC RACT Determination

1.3.2.1 Flexible Package Printing

Concurrent with this SIP revision, the commission is adopting revisions to the flexographic and rotogravure printing rules in 30 TAC Chapter 115, Subchapter E: *Solvent-Using Processes*, Division 3: *Flexographic and Rotogravure Printing* to implement the EPA's 2006 Flexible Package Printing CTG recommendations that the TCEQ has determined are RACT in the HGB area (Rule Project Number 2010-016-115-EN). The Chapter 115 rulemaking reduces the VOC content limits of coatings, increases the overall control efficiency of add-on controls used in flexible package printing processes, establishes work practice procedures for materials used during associated cleaning activities, and expands rule applicability to include smaller flexible package printing lines that were previously exempt from these rules.

The TCEQ is not implementing the EPA's 2006 CTG recommendation to exempt flexible package printing operations from all VOC coating content limits if the operations have total actual VOC emissions less than 15 pounds per day from inks, coatings, and adhesives. For the HGB area, the existing Chapter 115 rules provide an exemption for combined flexographic and rotogravure printing operations with the potential to emit less than 25 tons per year (tpy) of VOC from inks. Calculating only the VOC emissions resulting from flexible package printing operations to determine exemption from the required controls may create backsliding issues for properties already complying with the current Chapter 115 rules because sources currently subject to the Chapter 115 rules could potentially become exempt. The existing Chapter 115 exemption limit is equal to or potentially more stringent than the 2006 CTG-recommended exemption threshold for properties conducting multiple flexographic and rotogravure printing operations, and is retained in the rules.

Additionally, the TCEQ is not implementing the EPA's 2006 CTG recommendation to exempt a flexible package printing line from complying with VOC coating content limits if the line has the potential to emit less than 25 tpy of uncontrolled VOC emissions from the dryer, inks, coatings, and adhesives. As previously stated, the current Chapter 115 rules require combining the VOC emissions from all flexographic and rotogravure printing lines to determine exemption from the VOC coating content limits. Implementing the 2006 CTG recommendation may exempt flexible package printing lines co-located on a property with other flexographic and rotogravure printing lines that are currently required to comply with the VOC control limits. The Chapter 115 rules retain the existing VOC content limits for a flexible package printing line with VOC emissions below the 2006 CTG-recommended exemption threshold.

The EPA's 2006 CTG recommends requiring control equipment to have an overall control efficiency ranging from 65% to 80% depending on the first installation date of the press and control equipment. The TCEQ disagrees with the 2006 CTG recommendation for flexible package printing to correlate control device efficiency requirements with the first installation date of the printing press or control device regardless of where the equipment was first installed. Imposing this policy may encourage the installation of older, less efficient equipment and may create potential backsliding issues if a source becomes subject to a lower efficiency standard as a result of equipment replacement. The policy may also create significant practical enforceability issues for TCEQ investigators with regard to verifying the first installation date of the control equipment. Instead, the TCEQ is requiring the CTG-recommended 80% overall control efficiency for flexible package printing, regardless of the first installation date.

1.3.2.2 Industrial Cleaning Solvents

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter E, to create new Division 6: *Industrial Cleaning Solvents* to implement the EPA's 2006 Industrial Cleaning Solvents CTG recommendations that the TCEQ has determined are RACT in the HGB area (Rule Project Number 2010-016-115-EN). The Chapter 115 rulemaking establishes VOC content limits for cleaning solvents used in specific cleaning activities, provides exemptions for certain cleaning activities from all or portions of the rule, and requires certain work practice procedures for the use, storage, and disposal of cleaning solvents. In response to comments on the proposed industrial cleaning solvents rules, the commission is adopting new §115.461(c) to exempt a solvent cleaning operation from the requirements in this division if the VOC emissions from that solvent cleaning operation are controlled by the control requirements or emission specifications in another division in Chapter 115. The adopted new exemption provides flexibility and reduces the compliance burden for affected sources. Additionally, the commission expects that complying with requirements in other Chapter 115 rules is at least as effective as meeting the industrial cleaning solvents rule requirements. The adopted exemption is consistent with the EPA's 2006 CTG recommendation to ensure that a particular cleaning activity is not subject to duplicative requirements.

1.3.2.3 Large Appliance Coatings

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter E, to create new Division 5: *Control Requirements for Surface Coating Processes* to implement the EPA's 2007 Large Appliance Coatings CTG recommendations that the TCEQ has determined are RACT in the HGB area (Rule Project Number 2010-016-115-EN). The Chapter 115 rulemaking reduces VOC content limits of coatings, increases the overall control efficiency for add-on controls used in large appliance coating operations, and establishes minimum transfer efficiency for coating application methods. The rules also require certain work practice procedures for coating-related activities and materials used during associated cleaning operations.

The EPA's 2007 CTG recommends exempting large appliance coating operations from the coating VOC content limits and work practice standards if total uncontrolled VOC emissions from coatings and associated cleaning solvents are less than 15 pounds per day. The current TCEQ rules provide an exemption from the coating VOC content limits for large appliance coating operations if total uncontrolled VOC emissions from all applicable coating processes on a property subject to Chapter 115, Subchapter E, Division 2: *Surface Coating Processes* are less than 3.0 pounds per hour and 15 pounds per day. The existing exemption from the required VOC controls may be more stringent for properties conducting multiple coating operations specified in Division 2 because the exemption is not based on VOC emissions from a single coating category. To prevent potential backsliding for properties already required to comply with the state's regulations, the Chapter 115 rules retain the existing exemption criteria.

The existing Chapter 115, Subchapter E, Division 2 large appliance coating limit is based on the EPA guideline series recommendations in *Control of Volatile Organic Emissions from Existing Stationary Sources Volume V: Surface Coating of Large Appliances* (EPA-450/2-77-034), issued in 1977. Several of the EPA's recommended VOC content limits for specific coating categories in the 2007 CTG document are less stringent than the limit specified in the EPA's original 1977 recommendation for this coating category. The 2007 CTG also recommends minimum solids transfer efficiency for coating application equipment. Despite the higher VOC content limits for the specialty coatings, the EPA's 2007 CTG claims that implementing the limits as recommended would result in an overall emissions reduction and provides documentation containing the methodology used to estimate the reduction. The TCEQ also conducted a comprehensive comparison of the 2007 CTG recommendations to the existing Chapter 115 VOC limit and determined that implementing the 2007 CTG-recommended coating VOC content limits will not negatively impact the status of the state's attainment of, or reasonable further progress toward attainment of, the 1997 eight-hour ozone NAAQS. Despite the full demonstration of noninterference provided in the proposed rule preamble (Rule Project Number 2010-016-115-EN), the EPA commented that in order for the proposed rules to be approved as RACT, the state must also demonstrate that the existing Chapter 115 VOC emission limit for large appliance coatings, which was based on the EPA's original 1977 recommendation, is no longer technologically or economically feasible. The commission contends that by promulgating higher CTG-recommended RACT limits for large appliance coatings in 2007, the EPA has established that the original 1977-recommended limit, and thus the existing Chapter 115 limit, is no longer technologically or economically feasible. However, the EPA's 2007 CTG did not specifically explain why the lower limit included in the EPA's original 1977 recommendation is no longer technologically or economically feasible. In absence of any specific information indicating that the existing Chapter 115 large appliance coating emission limit is no longer technologically or economically feasible, the adopted Chapter 115 rules only include the EPA's 2007 CTG-recommended limits that are equivalent to or lower than the existing Chapter 115 limit.

1.3.2.4 Metal Furniture Coatings

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter E, to create new Division 5 to implement the EPA's 2007 Metal Furniture Coatings CTG recommendations that the TCEQ has determined are RACT in the HGB area (Rule Project Number 2010-016-115-EN). The Chapter 115 rulemaking reduces VOC content limits of coatings, increases the overall control efficiency for add-on controls used in metal furniture coating operations, and establishes minimum transfer efficiency of coating application methods. The rules also require certain work practice procedures for coating-related activities and materials used during associated cleaning operations.

The EPA's 2007 CTG recommends exempting metal furniture coating operations from the coating VOC content limits and work practice standards if total uncontrolled VOC emissions from coatings and associated cleaning solvents are less than 15 pounds per day. The current TCEQ rules provide an exemption from the coating VOC content limits for metal furniture coating operations if total uncontrolled VOC emissions from coatings in all applicable coating processes located on a property subject to Chapter 115, Subchapter E, Division 2 are less than 3.0 pounds per hour and 15 pounds per day. The existing exemption from the required VOC controls may be more stringent for properties conducting multiple coating processes specified in Division 2 because the exemption is not based on VOC emissions from a single coating category. To prevent potential backsliding for properties already required to comply with the state's regulations, the Chapter 115 rules retain the existing exemption criteria.

The existing Chapter 115, Subchapter E, Division 2 metal furniture coating limit is based on the EPA guideline series recommendations in *Control of Volatile Organic Emissions from Existing Stationary Sources Volume III: Surface Coating of Metal Furniture* (EPA-450/2-77-032), issued in 1977. Several of the EPA's recommended VOC content limits for specific coating categories in the 2007 CTG document are less stringent than the limit specified in the EPA's original 1977 recommendation for this coating category. The 2007 CTG also recommends minimum solids transfer efficiency for coating application equipment. Despite the higher VOC content limits for the specialty coatings, the EPA's 2007 CTG claims that implementing the limits as recommended would result in an overall emissions reduction and provides documentation containing the methodology used to estimate the reduction. The TCEQ also conducted a comprehensive comparison of the 2007 CTG recommendations to the existing Chapter 115 VOC limit and determined that implementing the 2007 CTG-recommended coating VOC content limits will not negatively impact the status of the state's attainment of, or reasonable further progress toward attainment of, the 1997 eight-hour ozone NAAQS. Despite the full demonstration of noninterference provided in the proposed rule preamble (Rule Project Number 2010-016-115-EN), the EPA commented that in order for the proposed rules to be approved as RACT, the state must also demonstrate that the existing Chapter 115 VOC emission limit for metal furniture coatings, which was based on the EPA's original 1977 recommendation for metal furniture coatings, is no longer technologically or economically feasible. The commission contends that by promulgating higher CTG-recommended RACT limits for metal furniture coatings in 2007, the EPA has established that the original 1977 CTG-recommended limit, and thus the existing Chapter 115 limit, is no longer technologically or economically feasible. However, the EPA's 2007 CTG for metal furniture coatings did not specifically explain why the lower limit included in the original 1977 recommendation is no longer technologically or economically feasible. In absence of any specific information indicating that the existing Chapter 115 metal furniture coating limit is no longer technologically or economically feasible, the adopted Chapter 115 rules only include the EPA's 2007 CTG-recommended limits that are equivalent to or lower than the existing Chapter 115 limit.

1.3.2.5 Paper, Film, and Foil Coatings

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter E, to create new Division 5 to implement the EPA's 2007 Paper, Film, and Foil Coatings CTG recommendations that the TCEQ has determined are RACT in the HGB area (Rule Project Number 2010-016-115-EN). The Chapter 115 rulemaking reduces the VOC content limits of coatings; increases the overall control efficiency for add-on controls used in paper, film, and foil coating operations; and establishes work practice procedures for materials used during cleaning operations associated with paper, film, and foil coating.

The EPA's 2007 CTG recommends exempting all paper, film, and foil coating operations on a property from the coating VOC content limits and work practice standards if total uncontrolled VOC emissions from paper, film, and foil coatings and associated cleaning solvents are less than 15 pounds per day. The current TCEQ rules provide an exemption from the coating VOC content limits for paper, film, and foil coating operations if total uncontrolled VOC emissions from all applicable surface coating processes on a property subject to Chapter 115, Subchapter E, Division 2 are less than 3.0 pounds per hour and 15 pounds per day. The existing exemption from the required VOC controls may be more stringent for properties conducting multiple coating processes specified in Division 2 because the exemption is not based on VOC emissions from a single coating category. To prevent potential backsliding for properties conducting paper, film, and foil coating operations already required to comply with the state's regulations, the Chapter 115 rules retain the existing exemption criteria.

Additionally, the TCEQ is not implementing the EPA's 2007 CTG recommendation to exempt a paper, film, and foil coating line from complying with VOC coating content limits if the line has the potential to emit less than 25 tpy of uncontrolled VOC emissions from coatings. As previously stated, the current Chapter 115 rules require combining the VOC emissions from all applicable surface coating processes located on a property subject to Subchapter E, Division 2 to determine exemption from the VOC coating content limits. Implementing the 2007 CTG recommendation may exempt paper, film, and foil coating lines co-located on a property with other coating lines subject to Division 2 that are currently complying the VOC coating content limits. To prevent backsliding, the Chapter 115 rules retain the existing VOC content limits for a paper, film, and foil coating line with VOC emissions below the 2007 CTG-recommended exemption threshold.

1.3.2.6 Miscellaneous Industrial Adhesives

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter E, to create new Division 7: *Miscellaneous Industrial Adhesives* to implement the EPA's 2008 Miscellaneous Industrial Adhesives CTG recommendations that the TCEQ has determined are RACT in the HGB area (Rule Project Number 2010-016-115-EN). The Chapter 115 rulemaking implements VOC content limits for general adhesive application processes, specialty adhesive application processes, and adhesive primer application processes; provides exemptions for certain cleaning activities from all or portions of the rule; incorporates test methods and recordkeeping requirements; and establishes minimum transfer efficiency of adhesive application methods. The rules also require certain work practice procedures for adhesive-related activities and materials used during associated cleaning operations. In response to comments, the commission is revising §115.470(a) to clarify the rules in Division 7 apply to manufacturing operations that use adhesives for any of the adhesive application processes specified in the control requirements in §115.473(a); adhesives applied in the field (e.g., adhesives applied at construction jobs in the field) are not subject to this division. The revised rule applicability in §115.470(a) more accurately reflects the sources affected by the CTG recommendations as described by the EPA in the final rule for the 2008 Miscellaneous Industrial Adhesives CTG (73 FR 58489).

1.3.2.7 Miscellaneous Metal and Plastic Parts Coatings

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter E, to create new Division 5, to implement the EPA's 2008 Miscellaneous Metal and Plastic Parts Coatings CTG recommendations that the TCEQ has determined are RACT in the HGB area (Rule Project Number 2010-016-115-EN). The miscellaneous plastic parts category of the CTG represents a new RACT CTG category for the HGB area, and the current coatings rules in Chapter 115, Subchapter E, Division 2 do not apply to miscellaneous plastic parts. The

Chapter 115 rulemaking expands the scope of the existing rule applicability to include the new coating categories recommended in the 2008 CTG. The Chapter 115 rulemaking reduces VOC content limits of coatings, increases the overall control efficiency of add-on controls, and establishes minimum transfer efficiency of coating application methods. The rules also require certain work practice procedures for coating-related activities and materials used during associated cleaning operations.

The EPA's 2008 CTG recommends exempting miscellaneous metal and plastic parts coating operations from the VOC control requirements if total uncontrolled VOC emissions from coatings and cleaning solvents are less than 15 pounds per day. The current TCEQ rules exempt miscellaneous metal parts and products coating operations from the required VOC coating limits if located on a property where total uncontrolled VOC emissions from all applicable surface coating processes subject to Chapter 115, Subchapter E, Division 2 are less than 3.0 pounds per hour and 15 pounds per day. The existing exemption from the required controls may be more stringent for properties conducting multiple coating processes specified in Division 2 because the exemption is not based on VOC emissions from a single coating category. To prevent potential backsliding for sources already subject to the Chapter 115 rules, the rule revisions integrate the new 2008 CTG coating categories into the existing exemption from the VOC control requirements. The Chapter 115 rules retain the state's approach to maintain consistency with the current exemption criteria.

The existing Chapter 115, Subchapter E, Division 2 miscellaneous metal part and product coating limits are based on the EPA guideline series recommendations in *Control of Volatile Organic Emissions from Existing Stationary Sources Volume VI: Surface Coating of Miscellaneous Metal Parts and Products* (EPA-450/2-78-015), issued in 1978. Several of the EPA's recommended VOC content limits for specific coating categories in the 2008 CTG document are less stringent than the limits specified in the EPA's original 1978 recommendations for this coating category. The 2008 CTG also recommends minimum solids transfer efficiency for coating application equipment. Although the 2008 CTG does not quantify the estimated VOC emissions reduced as a result of implementing the recommended VOC content limits, the TCEQ applied an approach consistent with the methodology the EPA used to estimate VOC emission reductions associated with implementing the 2007 Large Appliance Coating CTG and 2007 Metal Furniture Coating CTG recommendations. The TCEQ determined that implementing the 2008 CTG-recommended coating VOC content limits for miscellaneous metal part and product coatings will not negatively impact the status of the state's attainment of, or reasonable further progress toward attainment of, the 1997 eight-hour ozone NAAQS. Despite the full demonstration of noninterference provided in the proposed rule preamble (Rule Project Number 2010-016-115-EN), the EPA commented that in order for the proposed rules to be approved as RACT, the state must also demonstrate that the existing Chapter 115 VOC limits for miscellaneous metal part and product coatings, which were based on the EPA's original 1978 recommendations, are no longer technologically or economically feasible. The commission contends that by promulgating higher CTG-recommended RACT limits for miscellaneous metal part and product coatings in 2007, the EPA has established that the original 1978-recommended limits, and thus the existing Chapter 115 limits, are no longer technologically or economically feasible. However, the EPA's 2008 CTG did not specifically explain why the lower limits included in the EPA's original 1978 recommendations are no longer technologically or economically feasible, with the exception of the 2007-recommended limit for high performance architectural coatings. In absence of any specific information indicating that the existing Chapter 115 miscellaneous metal part and product coating limits are no longer technologically or economically feasible, the adopted Chapter 115 rules only include the EPA's 2008 CTG-recommended limits that are equivalent to or lower than the existing Chapter 115 limits. In light

of the technological and economic feasibility issues detailed in the EPA's 2008 CTG that are associated with high performance architectural coatings containing less than 6.2 pounds of VOC per gallon of coating (lb VOC/gal coating), the commission is adopting to retain the EPA's 2008 CTG-recommended 6.2 lb VOC/gal coating limit for high performance architectural coatings in the adopted Chapter 115 miscellaneous metal parts and products rules.

In response to comments, the commission has revised §115.427 to limit the rule applicability to only those designated on-site maintenance shops that re-coat used parts or products that were required to comply with the rules in Division 2 prior to January 1, 2012, which is the beginning of the calendar year shortly after the expected effective date of the rule revision. Additionally, in response to this same comment, the commission has revised §115.450(a) to exclude designated on-site maintenance shops from the miscellaneous metal parts and products coatings rule applicability in Division 5. The adopted revisions prevent any potential backsliding concerns by requiring sources that are currently complying with these rules in Division 2 to continue to meet these VOC limits. The adopted revisions are consistent with the intent of the EPA's 1977 and 2008 CTG RACT recommendations for miscellaneous metal parts and products coatings and the commission maintains the rules continue to satisfy RACT requirements in FCAA, §172(c)(1) and §182(b)(2) for this CTG emission source category. Regulating the coating of miscellaneous metal parts and products at a new designated on-site maintenance shop is not appropriate since VOC reductions do not advance attainment of the 1997 eight-hour ozone standard for the HGB area, as demonstrated in the RACM analyses in the HGB AD SIP revision adopted on March 10, 2010.

In response to comments, the commission added new §115.451(2)(D) to exempt all other coating categories regulated in Divisions 2 and 5 from the miscellaneous metal and plastic parts coatings rules. Incorporating this new exemption into §115.451 clarifies that the miscellaneous metal parts and products coatings rules do not apply to the coating operations characterized by another rule specified in Division 2 and Division 5.

Based on information provided during the public comment period, the commission determined that some of the pleasure craft coating VOC limits included in the EPA's 2008 CTG recommendations are not technologically feasible at this time and therefore do not represent RACT. In response to comments, the commission is increasing the VOC limit for *extreme high-gloss coatings* to 5.0 lb VOC/gal coating and revising the definition include any coating that achieves greater than 90% reflectance on a 60 degree meter. In response to comments, the commission is increasing the VOC limit for *finish primer/surfacer coatings* to 5.0 lb VOC/gal coating. In response to comments, the commission is increasing the VOC limit for *other substrate antifoulant coatings* to 3.34 lb VOC/gal coating. In response to comments, the commission is introducing a new specialty coating category for *antifoulant sealer/tie coatings*, which are coatings applied over biocidal antifoulant coating for the purpose of preventing release of biocides into the environment, or to promote adhesion between an antifoulant and a primer or other antifoulants, and is establishing a VOC limit of 3.5 lb VOC/gal coating for this new category. In response to comments, the commission is revising the definition of *pretreatment wash primer coatings* to include any coating that contains no more than 25% solids, by weight, and at least 0.1% acids, by weight; is used to provide surface etching; and is applied directly to fiberglass and metal surface to provide corrosion resistance and adhesion of subsequent coatings.

APPENDIX A

REASONABLY AVAILABLE CONTROL TECHNOLOGY ANALYSIS

Attachment 1

**December 8, 2008, Letter to Mr. William T. Harnett, Director,
Air Quality Policy Division, United States Environmental Protection Agency
on Issues Related to Control Techniques Guidelines Documents**

Buddy Garcia, *Chairman*
Larry R. Soward, *Commissioner*
Bryan W. Shaw, Ph.D., *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 8, 2008

Mr. William T. Harnett, Director, Air Quality Policy Division
Office of Air Quality Planning and Standards Organization
United States Environmental Protection Agency
Mail Drop C504-01
Research Triangle Park, North Carolina 27711

Dear Director Harnett:

The Texas Commission on Environmental Quality (TCEQ), Air Quality Division is currently reviewing the Consumer and Commercial Products Group II, Group III, and Group IV Control Techniques Guidelines (CTG) documents released by the United States Environmental Protection Agency (EPA) from 2006 through 2008. Our evaluation of these CTG documents has prompted several questions regarding the CTG documents for Large Appliance Coatings, Metal Furniture Coatings, and Miscellaneous Metal and Plastic Parts Coatings. The issues and questions related to these CTG documents are detailed below.

Texas' existing rules in 30 Texas Administrative Code (TAC) Chapter 115 for controlling volatile organic compound (VOC) emissions from the surface coating of large appliances¹, metal furniture², and miscellaneous metal parts and products³ were based on the EPA's Office of Air Quality Planning and Standards (OAQPS) corresponding 1977 and 1978 Guideline Series⁴ (GS) recommendations. The existing emission standards for surface coating of large appliances and metal furniture are not specific to coating types; however, the 2007 CTG documents for Large Appliance Coatings⁵ and Metal Furniture Coatings⁶ recommend setting coating type specific emission standards. Some of the recommended emissions standards are equivalent or more stringent than the existing generic standards while some recommended emission standards are less stringent than the existing standards. Similarly, the 2008 CTG for Miscellaneous Metal and Plastic Parts Coatings⁷ also recommends emission standards for certain coating types that are less stringent than the existing 30 TAC Chapter 115 emission standards. Please see the enclosed table for a more detailed comparison of the existing VOC emission standards based on the 1977 and 1978 GS recommendations (and TCEQ rules) versus the 2007 and 2008 CTG documents for these categories.

Since some of the limits recommended for these specific coating types are less stringent than the existing emission standards based on the EPA's original GS recommendations, TCEQ's Air Quality Division has

Mr. William T. Harnett
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December 8, 2008

concerns that implementing the new CTG recommendations could be perceived as backsliding. In addition, these discrepancies may make it impossible for TCEQ staff to determine if actual VOC reduction benefit would occur from implementing the CTG recommendations. Given the limited explanation⁸ of how these differences should be considered in light of the original GS standards, the TCEQ Air Quality Division is requesting written guidance to clarify the intent of the EPA's new CTG recommendations with regard to the following issues.

1. Specific clarification is needed that implementing the recommendations in the new CTG would not be considered backsliding.
2. Are the coating type categories in the new CTG considered by the EPA to be coating types that were unregulated by the original GS recommendations or is this a situation where these specific coatings were covered under the original guidance, but the EPA has re-evaluated what is technically feasible for these specialty coating types? What data was used to make this determination?
3. In light of the varying stringency of the recommended coating standards in these new CTG documents, how did the EPA determine the overall reduction benefit? Additional information, beyond what is provided in the docket, is necessary for the state to determine whether implementing the CTG recommendations will result in a net VOC reduction in the specific nonattainment areas where these CTG recommendations would be implemented.

The EPA's clarification regarding these issues is critical for the Air Quality Division to complete our evaluation of the CTG recommendations and proceed with any recommendation to TCEQ's executive management and the commission regarding the potential implementation of the EPA's CTG recommendations. Therefore, your expeditious response regarding these issues is greatly appreciated. You may contact me at 512-239-4696.

Sincerely,



S Susana M. Hildebrand, P.E.
Director, Air Quality Division
Texas Commission on Environmental Quality

SMH/LA/sy

Enclosures: References
 Emission Limit Comparison Table

cc: Mr. Guy Donaldson, EPA Region 6
 Ms. Ellen Belk, EPA Region 6
 Mr. Bruce Moore, EPA, Office of Air Quality Planning and Standards
 Mr. Bill Johnson, EPA, Office of Air Quality Planning and Standards

Enclosure: References

- 1: Title 30 TAC §115.421(a)(1), Emission Specifications for Large Appliance Coating (Amended January 17, 2003).
- 2: Title 30 TAC §115.421(a)(2), Emission Specifications for Metal Furniture Coating (Amended January 17, 2003).
- 3: Title 30 TAC §115.421(a)(9)(A), Emission Specifications for Miscellaneous Metal Parts and Products Coating (Amended January 17, 2003).
- 4: Guideline Series. Control of Volatile Organic Emissions from Existing Stationary Sources - Volume V: Surface Coating of Large Appliances, Publication number EPA-450/2-77-0.34.
Guideline Series. Control of Volatile Organic Emissions from Existing Stationary Sources - Volume III: Surface Coating of Metal Furniture, Publication number EPA-450/2-77-032.
Guideline Series. Control of Volatile Organic Emissions from Existing Stationary Sources - Volume VI: Surface Coating of Miscellaneous Metal Parts and Products, Publication number EPA-450/2-78-015.
- 5: Control Techniques Guidelines for Large Appliance Coatings. Publication number EPA 453/R-07-004.
- 6: Control Techniques Guidelines for Metal Furniture Coatings. Publication number EPA 453/R-07-005.
- 7: Control Techniques Guidelines for Miscellaneous Metal and Plastic Parts Coatings. Publication number EPA 453/R-08-003.
- 8: EPA Docket Number EPA-HQ-OAR-2007-0329-0009 and EPA Docket Number EPA-HQ-OAR-2007-0334-0010.

Enclosure: Emission Limit Comparison Table

Comparison of 30 TAC Chapter 115 Emission Limits and 2006-2008 CTG Recommended Emission Limits			
Coating Type*	Chapter 115 Emission Limit**	CTG Recommended Emission Limit**	
		Baked Coating	Air-Dried Coating
Large Appliance Coating			
General, One Component	2.8	2.3	2.3
General, Multi-Component	2.8	2.3	2.8
Extreme High Gloss	2.8	3.0	2.8
Extreme Performance	2.8	3.0	3.5
Heat Resistant	2.8	3.0	3.5
Metallic	2.8	3.5	3.5
Pretreatment Coatings	2.8	3.5	3.5
Solar Absorbent	2.8	3.0	3.5
Metal Furniture Coating			
General, One Component	3.0	2.3	2.3
General, Multi-Component	3.0	2.3	2.8
Extreme High Gloss	3.0	3.0	2.8
Extreme Performance	3.0	3.0	3.5
Heat Resistant	3.0	3.0	3.5
Metallic	3.0	3.5	3.5
Pretreatment Coatings	3.0	3.5	3.5
Solar Absorbent	3.0	3.0	3.5
Miscellaneous Metal Parts and Products Coating			
General One Component	3.0	2.3	2.8
General Multi Component	3.0	2.3	2.8
Camouflage	3.0	3.5	3.5
Electric-Insulating Varnish	3.0	3.5	3.5
Etching Filler	3.0	3.5	3.5
Extreme High-Gloss	3.0	3.0	3.5
Extreme Performance	3.5	3.0	3.5
Heat-Resistant	3.5	3.0	3.5
High Performance Architectural	3.0	6.2	6.2
High Temperature	3.0	3.5	3.5
Metallic	3.0	3.5	3.5
Military Specification	3.0	2.3	2.8
Mold-Seal	3.0	3.5	3.5
Pan Backing	3.0	3.5	3.5
Prefabricated Architectural Multi-Component	3.0	2.3	3.5
Prefabricated Architectural One-Component	3.0	2.3	3.5
Pretreatment Coatings	3.0	3.5	3.5
Repair and Touchup	3.0	3.0	3.5
Silicone Release	3.0	3.5	3.5
Solar-Absorbent	3.0	3.0	3.5

Comparison of 30 TAC Chapter 115 Emission Limits and 2006-2008 CTG Recommended Emission Limits

Coating Type*	Chapter 115 Emission Limit**	CTG Recommended Emission Limit**	
		Baked Coating	Air-Dried Coating
Vacuum-Metalizing	3.0	3.5	3.5
Drum Coating, New, Exterior	3.0	2.8	2.8
Drum Coating, New, Interior	4.3	3.5	3.5
Drum Coating, Reconditioned, Exterior	3.0	3.5	3.5
Drum Coating, Reconditioned, Interior	4.3	4.2	4.2

* The CTG recommended emission limits for coating types listed in red font are less stringent than existing Chapter 115 limits.

** Limit expressed in pounds per gallon of coating (minus water and exempt solvent) delivered to the application system.

Mr. William T. Harnett
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bcc: Theresa Pella
Ashley Forbes
Vincent Meiller
Lindley Anderson
Amy Browning

APPENDIX A

**REASONABLY AVAILABLE CONTROL TECHNOLOGY
ANALYSIS**

Attachment 2

March 17, 2011, Memorandum from
Scott Mathias, Air Quality Policy Division, United States Environmental Protection
*Approving SIP Revisions Addressing VOC RACT Requirements for Certain Coatings
Categories*



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

MAR 17 2011

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Approving SIP Revisions Addressing VOC RACT Requirements for Certain Coatings Categories

FROM: Scott Mathias, Interim Director *Scott Mathias*
Air Quality Policy Division (C539-01)

TO: Regional Air Division Directors

The Office of Air Quality Planning and Standards has received requests from Regional Offices for guidance on approving State Implementation Plan (SIP) revisions resulting from newly-issued Control Techniques Guidelines (CTGs) documents. These CTGs provide recommendations to inform state determinations as to what constitutes reasonably available control technology (RACT). In some cases, the newly-issued CTGs contain recommended emission limits that are less stringent than limits recommended in older CTGs covering the same industry, and may be less stringent than limits already adopted into SIPs based on the older CTGs. This is the case for industries covered by CTGs pertaining to Large Appliance Coatings, Metal Furniture Coatings, and Miscellaneous Metal and Plastic Parts Coatings.

The U. S. Environmental Protection Agency (EPA) issued new CTGs for these categories in 2007 and 2008, under authority of Clean Air Act (CAA) section 183(e), to address volatile organic compound (VOC) emissions from categories of consumer and commercial products. They replace similar CTGs issued by EPA in 1977 and 1978. The new CTGs recommend more stringent limits for general use coatings, but also include new recommendations for several "specialty use" categories that are less stringent than the general use limits established in the 1970s guidelines.

States are required to submit a SIP revision in response to any newly-issued CTGs.¹ If an existing SIP contains requirements that are not less stringent than the applicability thresholds and/or coating operations limits recommended in new CTGs, the state may choose to submit as a SIP revision a certification that the existing SIP meets RACT requirements.

¹ CAA section 182(b)(2) requires Moderate and above ozone nonattainment areas to revise SIPs when a new CTG is issued by EPA after 1990. EPA is required to set a SIP submission deadline with the issuance of each CTG. For CTGs we have issued in the past several years, we have specified a submission deadline of one year after the CTG was issued (See 72 FR 57215 Oct 9, 2007 and 73 FR 5848 Oct 7, 2008).

We anticipate that EPA Regional Offices would be able to approve the RACT determinations in these circumstances. We note that EPA's recommendations in CTGs are generally treated as "presumptive" RACT and states may demonstrate that other limits are RACT for one or more sources within the source category addressed by the CTG. Where a state has previously determined that more stringent applicability thresholds and/or control levels are RACT for one or more sources in a source category and the sources have complied with those requirements, then those existing controls should be considered RACT for such sources.

If a state chooses to revise more stringent rules that are already in the approved SIP, so that those rules reflect the less-stringent recommended limits in the new CTGs, there are additional considerations that must be factored into any EPA decision to approve the SIP revision. The state would need to first demonstrate that the SIP-approved control requirements are not reasonably available considering technological and economic feasibility, consistent with EPA's definition of RACT. *See* 44 FR 53762 (September 17, 1979). In addition, in order to comply with the SIP approval conditions of CAA section 110(l), the state would need to demonstrate that the revision to the SIP would not interfere with attainment of, or reasonable further progress toward attainment of, the National Ambient Air Quality Standards, nor interfere with any other applicable requirement of the CAA. This would be demonstrated if the stricter limits on general use coatings provide sufficient emission reductions to entirely offset any emission increase caused by adopting the less stringent limits for specialty coatings. Alternatively, the state could adopt supplemental measures that achieve additional emission reductions from another source category in another industry to offset the increased emissions from the specialty coatings. In general, if a proposed SIP revision achieves the same or greater emission reductions as the approved SIP within the same timeframe as provided under the existing plan, the Regional Office should be able to determine that the SIP revision is consistent with the approval conditions of CAA section 110(l).

The public dockets for the Large Appliance Coatings and the Metal Furniture Coatings CTGs contain information that states may find helpful in determining the reductions that can be achieved by adopting the new general use category CTG limits for these industries. According to the docketed information, the estimated reductions from the new CTGs are 30 to 35 percent greater than from the older CTGs. *See* documents EPA-HQ-OAR-2007-0329-0009 and EPA-HQ-OAR-2007-0334-0010 in dockets EPA-HQ-OAR-2007-0329 and EPA-HQ-OAR-2007-0334, respectively. The increase in emissions reductions in any specific nonattainment area may vary depending on the volume usage distribution among the general and specialty categories in that area. The dockets for the new CTGs do not contain area-specific analyses of potential emissions reductions. Generally, if a state believes the volume usage distribution among the general and specialty categories in the docket is representative of the distribution in the nonattainment area, we believe that if a state undertakes wholesale adoption of the new categorical limits in a specific CTG, the state may rely on the assessments in the docket to demonstrate that the range of new limits will result in an overall reduction in emissions from the collection of covered coatings. However, if a state adopts some specialty category limits, but not all of the new categorical limits, or determines that it has a different volume usage distribution among categories, the state may need to do an area-specific assessment of whether tighter restrictions for some coatings, coupled with

less stringent restrictions on other coatings would provide overall equal or greater emissions reductions than the set of rules based on the recommendations in the 1970s guidelines.

If you have further questions on SIP-related issues you should contact Butch Stackhouse at (919) 541-5208. If you have further technical questions on the topics covered in this memorandum you should contact Kaye Whitfield at (919) 541-2509.

cc: Robin Dunkins, SPPD
Kimber Scavo, AQP
David Orlin, OGC
Sara Schneeberg, OGC