BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

| | | |
|---|---|---|
| IN THE MATTER OF: | ) | |
| | ) | |
| PETITION OF GREIF, INC. AND | ) | AS 2011-001 |
| GREIF PACKAGING, LLC | ) | |
| FOR AN ADJUSTED STANDARD FROM | ) | (Adjusted Standard – Air) |
| 35 ILL ADM. CODE PART 218 | ) | |
| SUBPART TT | ) | |

**NOTICE OF FILING**

TO:

John Therriault, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

Charles Matoesian
Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board, **NOTICE OF ELECTRONIC FILING, PETITIONERS' POST-HEARING BRIEF IN SUPPORT OF ITS SECOND AMENDED PETITION FOR ADJUSTED STANDARD** and **CERTIFICATE OF SERVICE**, copies of which are attached herewith and served upon you.

Respectfully submitted,

GREIF, INC. and GREIF PACKAGING, LLC

By: /s/ Susan Charles
One of its Attorneys

Date: January 26, 2012

Thomas W. Dimond
Susan Charles
ICE MILLER LLP
200 West Madison Street
Suite 3500
Chicago, Illinois 60606

**CERTIFICATE OF SERVICE**

I, the undersigned, certify that on this 26th day of January, 2012, I have served electronically the attached NOTICE OF ELECTRONIC FILING and PETITIONERS' POST-HEARING BRIEF IN SUPPORT OF ITS SECOND AMENDED PETITION FOR AN ADJUSTED STANDARD upon the following person:

John Therriault, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

and by electronic and U.S. Mail, first class postage prepaid, to the following person:

Charles Matoesian
Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

/s/ Susan Charles
Susan Charles

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**PETITIONERS' POST –HEARING BRIEF IN SUPPORT OF ITS SECOND AMENDED PETITION FOR AN ADJUSTED STANDARD**

GREIF, INC. and GREIF PACKAGING LLC ("Greif"), through counsel, submit this post-hearing brief to the Illinois Pollution Control Board ("Board") in support of their Second Amended Petition for an Adjusted Standard ("Petition"). Greif seeks an adjusted standard from 35 Ill. Adm. Code § 218.986(a) as it applies to the emissions of volatile organic material ("VOM") into the atmosphere from Greif's fiber drum manufacturing facility located at 5 S 220 Frontenac Road in Naperville, DuPage County, Illinois.

## I. FACTS AND PROCEDURAL BACKGROUND

Greif operates a fiber (paper) drum container manufacturing facility in Naperville, DuPage County, Illinois. The plant has been in operation since 1988 and employs about 90 hourly and salaried personnel. Petition at 8.

In general, fiber drums are produced by cutting fiber material to the appropriate length, forming the material into a cylinder and attaching a top and bottom to the cylinder. Some of the fiber drums require the addition of a polyethylene drum liner to meet customer specifications,

particularly for storage and transport of food-grade products. *Id.*; Exhibit 1, Section 2.0.[1] Greif conducts quality control ("QC") testing of the liners of these drums by spraying a QC test fluid (a denatured alcohol product, which is a VOM) into the interior of the drums at the QC spray station. Exhibit 1, Section 2.0.

Greif uses an automated system to spray the interior of the drum liners with QC test fluid. A mechanical wand drops into the drum and sprays the QC test fluid. The wand is calibrated so each spray releases about the same amount of QC test fluid into each drum. The drums then travel approximately 45 feet to the QC inspection station where Greif visually inspects the interior for pinholes. Drums then are conveyed another 120 feet to a drying oven. Any fluid remaining after drying is vacuumed out and the drum is wiped dry. VOM is emitted throughout the QC Test Process as well as in the paint drying oven. Petition at 9; Exhibit 1, Section 1.0.

Emissions of VOM from the QC Test Process are subject to Federally Enforceable State Operating Permit No. 9707044 ("FESOP"). Condition 3 of the FESOP limits VOM emissions from the QC Test Process to 22.8 tons per year ("tpy"). Exhibit 1, Section 2.0. In 2006 and 2007, the emissions from the QC Test Process exceeded that threshold, but in 2008-2010 emissions from the QC Test Process were below that threshold due to the implementation of the actions proposed in the adjusted standard. *See* Petition at 3. The Illinois Environmental Protection Agency ("Agency") issued Violation Notice A-2007-00132 to Greif. During 2006 and 2007, the Agency alleges that Greif's VOM emissions became subject to 35 Ill. Adm. Code Part 218, Subpart TT, Section 218.986(a) because Subpart TT is a "once in – always in" regulation. *See* Recommendation of Illinois Environmental Protection Agency at 4 (October 11, 2011) ("Recommendation").

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[1] Exhibit 1 is the Reasonably Available Control Technology Study prepared by Thomas C. Ponder, Jr., P.E. for Greif and was admitted into evidence at the hearing. Transcript of December 20, 2011 Hearing at 18-21 (hereafter "Hearing Transcript").

The Board promulgated 35 Ill. Adm. Code Part 218 to implement reasonably available control technology ("RACT") for sources of VOM emissions within certain areas of Illinois. *See In the Matter of Reasonably Available Control Technology for Major Sources Emitting Volatile Organic Materials in the Chicago Ozone Nonattainment Area: 25 Tons,* R93-14, Final Order (January 6, 1994). Section 218.986 provides, in relevant part:

> Every owner or operator of an emission unit subject to [Subpart TT] shall comply with the requirements of subsection (a), (b), (c), (d), or (e) below.
>
> a) Emission capture and control equipment which achieves an overall reduction in uncontrolled VOM emissions of at least 81 percent from each emission unit . . ..

Greif conducted a RACT Study to evaluate whether various emission control options for the QC Test Process satisfy RACT control requirements in Section 218.986(a). Greif submitted the RACT Study to the Agency on September 16, 2010 and subsequently submitted a revised RACT Study in March 2011 ("RACT Study"). Petition at 4; *see* Exhibit 1. The RACT Study evaluated three capture and control systems: capture plus recuperative thermal oxidizers, capture plus carbon adsorbers and capture plus biofilters and material substitution. Exhibit 1, Section 1.0. The RACT Study concluded that each option could achieve at least 81 percent capture and control of VOM emissions as required under Section 218.986(a), but only at a cost per ton of VOM emissions controlled of between $11,667 - $17,672. *Id.* These costs exceed what the Board typically has considered reasonable in adopting RACT regulations. *See infra* at 9-13.

Greif submitted its initial Petition in January 2011. After discussions with the Agency, Greif filed an Amended Petition in May 2011 and a Second Amended Petition in August 2011. Changes included in the amended petitions reflected then-ongoing discussions among Greif and the Agency, as well as comments submitted by U.S. EPA to the Agency. After the filing of the Second Amended Petition in August, Greif continued to work with the Agency to address

concerns that either they or U.S. EPA had with the precise wording of the adjusted standard included in the Second Amended Petition. The Agency filed its Recommendation on Greif's Petition on October 11, 2011. The Recommendation supports granting Greif's Petition but with slightly different language than what was included in the Second Amended Petition. Greif reviewed the adjusted standard language included in the Agency's Recommendation and would accept that language as an adjusted standard. Accordingly, Greif supports the following adjusted standard language, which is included in the Agency's Recommendation at pages 9-11, for adoption by the Board:

1. The proposed adjusted standard applies to the emission of VOM into the atmosphere from the automated QC Test Process line at Greif's fiber drum manufacturing facility located at 5 S 220 Frontenac Road in Naperville, DuPage County, Illinois (the Facility). The Facility manufactures fiber drums. Some of the fiber drums are lined with polyethylene to meet customer specifications, particularly for storage and transport of food-grade products. Lined drums must be tested to ensure the integrity of the polyethylene lining. That testing is performed at the QC Test Process, which consists of the following equipment and steps:

    a. An automated, mechanical wand is lowered into each lined drum on a conveyor system. The wand is calibrated so that each spray releases about the same amount of QC test fluid into each drum.

    b. The drums then are conveyed to the QC inspection station where the interior of the drum is visually inspected for pinholes.

    c. The drum next is conveyed to a drying oven where most of the remaining QC test fluid is evaporated. After leaving the drying oven any remaining QC test fluid is vacuumed from the drum and then the drum is wiped dry. VOM in the QC test fluid is emitted throughout the QC Test Process as well as in the drying oven.

2. The Facility will reduce VOM emissions from its automated QC Test Process by using a test fluid composed of no more than 45 percent denatured alcohol by weight and no less than 55 percent water by weight.

3. The Facility will calibrate the automated QC Test Process equipment to spray an average of no more than 48 grams of QC test fluid per drum with compliance to be measured at least once per calendar quarter by the following procedure.

a. Weigh a plastic bag on a gram scale to determine the weight of the bag.

b. Place the plastic bag over the spray head of the wand of the QC Test Process and secure it in place with a rubber band or binder clip.

c. Cycle the QC Test Process by passing a drum through the process in the normal manner of operation with the plastic bag capturing the QC test fluid. Remove the plastic bag from the spray head of the wand of the QC Test Process and weigh it on the same gram scale used in step a.

d. Calculate the weight of QC test fluid sprayed as the difference between the weight determined in step c and the weight determined in step a.

e. Repeat steps a. through d. for five cycles of the QC Test Process. Calculate the average weight of QC test fluid sprayed per cycle and compare that average to the standard of an average of no more than 48 grams of QC test fluid per drum.

4. All records and logs required by this adjusted standard shall be retained at a readily accessible location at the source for at least five years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.

5. The Facility will maintain records of its QC test fluid usage that will allow the monthly calculation of the amount of QC test fluid used during the month and the calculation of VOM emissions on a 12-month rolling total basis for comparison to annual VOM limits in the FESOP. To allow these calculations, the Facility will:

a. Record the volume of QC test fluid held as inventory on the first and last day of each month.

b. Maintain records of the volume of QC test fluid received at the Facility during each month.

c. The volume of QC test fluid used for a month shall equal the inventory volume on the first day of the month plus the volume received at the Facility during the month, less the volume in inventory on the last day of the month.

d. The volume used during a month calculated in step c shall be multiplied by the VOM content of the QC test fluid (in pounds per unit of volume) to compute the weight (in pounds) of VOM emitted during the month.

e. Using the emissions of VOM in pounds calculated for each month in step d, the Facility will compute the 12-month rolling VOM emissions for the QC Test Process and report those results to Facility management.

6. Greif will continue to investigate the availability of alternative QC test fluids with lower VOM content. Greif will incorporate such lower VOM QC test fluids into its automated QC Test Process provided that the lower VOM QC test fluids allow visual detection of pinholes or other tears or imperfections in the drum linings within an acceptable period of time and does not result in any negative product quality impacts.

7. The proposed adjusted standard will not affect the calculation of Greif's potential Emissions Reduction Market System ("ERMS") baseline or its ERMS allotment if Greif's Naperville plant should participate in the ERMS program.

8. Environmental staff of Greif's parent company will conduct a formal training session for Naperville facility personnel on the requirements of the FESOP and the internal procedures for tracking compliance with FESOP conditions.

9. Emissions and operation of the QC Test Process shall not exceed the following limits:

| | (Tons/Mo) | (Tons/Yr) |
|---|---|---|
| VOM Usage | 2.3 | 22.8 |
| VOM Emissions | 2.3 | 22.8 |

These limits are based on the maximum material usage and the maximum VOM content. Compliance with the annual limit for the QC Test Process shall be determined from a running total of 12 months of data.

## II. GREIF'S PETITION SATISFIES THE APPLICABLE BURDEN OF PROOF TO OBTAIN AN ADJUSTED STANDARD.

Where, as here, the regulation of general applicability does not specify a level of justification required for a petitioner to qualify for an adjusted standard, Section 28.1(c) of the Illinois Environmental Protection Act, 415 ILCS 5/28.1(c), authorizes the Board to grant an adjusted standard upon adequate proof of the following: (1) the factors relating to the petitioner are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to the petitioner; (2) the existence of those factors justifies an adjusted standard; (3) the requested standard will not result in environmental or health effects

substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and (4) the adjusted standard is consistent with applicable federal law. The Agency also cited Section 28.1(c) as establishing the applicable standards for this proceeding. *See* Recommendation at 5.

A. Factors Relating to Greif are Substantially and Significantly Different.

As demonstrated by well-established Board precedent the factors relating to Greif's ability to reduce VOM emissions are substantially and significantly different from any the Board may have relied on in adopting Subpart TT.

1. *The Board Did Not Consider Factors Involving the Drum Manufacturing Business in Adopting Subpart TT.*

Subpart TT of Part 218 is essentially a "catch-all" RACT regulation applicable to VOM sources that are not governed by other subparts of Part 218. In adopting Subpart TT, the Board did not consider factors relating to any specific industry or practice – including the fiber drum manufacturing business. Rather, the purpose of Subpart TT was to cover sources that had not otherwise been specifically considered. *See* 35 Ill. Adm. Code § 218.980(a) and (b). The Board previously has reasoned that, because it did not consider any specific factors in adopting Subpart TT, virtually any factors specific to an industry or specific source not covered by another subpart of Part 218 would be "substantially and significantly different." *See Ford Motor Company* (2000), AS 00-6, Slip. Op. at 5 (granting adjusted standard from Subpart TT).

In *Ford Motor Company*, the Board considered an adjusted standard petition in which Ford sought an alternative emissions control plan to address solvent cleanup operations at its Chicago assembly plant. *Id.* Slip Op. at 1. The Board stated that Subpart TT applies to VOM sources with certain characteristics that are not governed by other subparts of Part 218 and, in adopting Subpart TT, the Board did not consider factors relating to any specific industry or

practice. *Id.* Slip. Op. at 5. The Board then ruled that, because factors relating to Ford's cleaning operations were not considered in adopting Section 218.986(a), the requirement to demonstrate significantly different factors "is therefore met." *Id.* Likewise, the Board did not consider the unique factors applicable to fiber drum manufacturers or to Greif's Naperville facility in adopting Section 218.986(a). Accordingly, Section 28.1(c)(1) should be deemed satisfied.

2. *Greif's Ability to Manage VOM Emissions Through Dilution of its QC Test Fluid and Limitations on the Amount of QC Test Fluid Used Constitute Substantially and Significantly Different Factors.*

Even if the Board had considered factors impacting the capture and control of VOM emissions at fiber drum manufacturers when it promulgated Section 218.986(a), it did not consider Greif's unique QC Test Process. Capturing emissions from the QC Test Process would involve particular complexity because of the need to construct capture equipment over an extended conveyor line, which also requires larger control equipment to handle the volume of captured air. Exhibit 1, Section 1.0; Hearing Transcript, 12. Construction of effective capture equipment is further complicated by the need to maintain physical access to the drums for visual inspection. This means the conveyor line cannot be totally enclosed to maximize capture. In addition, the Board did not consider the ability to manage VOM emissions by diluting the QC test fluid with water and limiting the amount of QC test fluid applied to each drum. Exhibit 1, Section 1.0. These factors are substantially and significantly different from emission units where material substitution is not possible and the construction and operation of emission capture equipment is less extensive, and Section 28.1(c)(1) should be considered satisfied for this reason, too.

*3. Greif's QC Test Process is Substantially and Significantly Different from Other Manufacturing Activities Considered by the Board.*

In addition, even assuming, *arguendo,* that capture and control could be an economically reasonable option, Greif's specific system would be complicated by the physical location of different production activities within the Naperville plant, the slow evaporation of the testing fluid and the need for Greif to inspect drums visually after the QC test fluid has been sprayed into the drum. The testing fluid begins to evaporate while being sprayed in the QC spray station. Evaporation continues while the drum is being conveyed to and awaiting QC inspection and also as the drums are conveyed from the inspection area to the drum paint oven and, possibly, afterward. Because the lined drums must be accessible for visual inspection, complete enclosure of the drum conveyor line is not possible. These factors would require large capture systems, including a hood at each QC station and along the conveyor line transporting the drums. *See* Exhibit 1 at Section 1.0. The need to construct and operate a capture system this complex and this large was not considered by the Board in adopting Subpart TT, and Section 28.1(c)(1) should be considered satisfied for this reason, as well.

*4. Costs of Achieving RACT Control Standard Exceed those Considered by Board in Setting RACT Standard.*

As shown in Greif's RACT Study, feasible technologies to achieve the 81 percent combined capture and control objective of Section 218.986(a) would require costs per ton of annual VOM removed ranging from $11,667 to $17,672. Exhibit 1 at Section 1.0. These costs exceed the threshold cost level the Board previously has found to be economically unreasonable. *See In the Matter of: Petition of Formel Industries, Inc. for an Adjusted Standard from 35 Ill. Adm. Code. 218.401(a), (b) and (c),* AS 00-13, Slip. Op. at 9 (January 18, 2001) (Board granted adjusted standard and the Agency agreed that costs of $10,911 - $18,041 per ton of VOM

reduced were economically unreasonable); *Ford Motor Company (2000)*, Slip. Op. at 5 (citing *In re: Petition of Louis Berkman,* AS 97-5 (Dec. 4, 1997) *aff'd sub nom EPA v. PCB*, 308 Ill. App. 3d 741, 746 & 752-53, 721 N.E.2d 723, 726-27 & 731 (2d Dist. 1999); *In the Matter of: Joint Petition of Reynolds Metals Company and the Illinois Environmental Protection Agency for an Adjusted Standard from 35 IAC 218.980,* AS 91-8 (Sept. 21, 1995) (Board found $40,000 per ton of VOM reduced to be economically unreasonable). In addition, while the Agency has stated that costs in excess of any particular dollar amount are not *per se* economically unreasonable, the Agency does agree that the "alternative compliance methods and add-on options investigated by Greif have costs which are not RACT." *See* Recommendation at 11-12.

Greif investigated multiple compliance alternatives capable of achieving an 81 percent capture and control of VOM emissions from its QC Test Process and their associated costs. *See* Exhibit 1 at Section 3. As shown below, the RACT study demonstrates that dilution of the QC test fluid with water is the only technically feasible and economically reasonable alternative.

a. *Capture Systems*

Due to the physical set-up of Greif's QC test process, an effective capture system would require a tunnel enclosure covering the 165 foot conveyer system from the QC spray station to the inspection station and, later, to the drum paint oven. *See* Exhibit 1 at Section 3.1. Enclosures also would be needed for the hood at the QC spray station and the opening of the drum paint oven to ensure adequate capture of emissions. *Id.* Ducting to the associated control device(s) also would be required from the QC Test Process hood, the conveyor tunnel enclosure and the drum paint oven. *Id.* This type of capture system is assumed for each control method discussed below. The capital and annual operating costs for the capture system are included within the cost summary for each control system.

b. *Control Technologies.*

Greif's RACT Study includes a thorough evaluation of the following add-on control technologies: (a) recuperative thermal incinerator; (b) carbon adsorption; and (c) biofilter and material substitution. *Id.* at Section 3.2. As detailed below, each of these potential control systems are economically unreasonable.

i. **Recuperative Thermal Incinerators**

A recuperative thermal incinerator requires a large amount of natural gas as compared to other control options. *Id.*at Section 3.2.1. In addition, frequent operation cycles in thermal oxidizers cause condensation corrosion and thermal deterioration of the insulation which requires ongoing maintenance costs. *Id.* at Section 1.0. The RACT Study concluded that total capital costs of the capture system and the recuperative thermal incinerator control technology at Greif's Naperville facility would be $1,752,000 with annualized capital and operating costs of $17,672 per ton of VOM controlled. *See id.* at Table 4-1.

ii **Carbon Adsorbers**

A carbon adsorber typically consists of two or more beds of activated carbon – one treats the exhaust emissions while the other is being regenerated. *Id.*at Section 3.2.2. Carbon adsorbers work best with insoluble VOM, which simplifies the recovery of the VOM from the saturated beds. *Id.* The QC test fluid is water soluble and would be expensive to recover. *Id.* The RACT Study concluded that capital costs of the capture system and the carbon adsorbers control technology would be $1,170,000. This control option would result in total annualized capital and operating costs of $12,594 per ton of VOM controlled. *See id.* at Table 4-1.

iii. **Biofilter and Material Substitution**

A biofilter would only meet the 81 percent capture and control objective by combining the biofilter with another control technology or by considering the reductions in VOM emissions from the use of the water diluted test fluid as a control technology reduction. *Id.* Based on the RACT Study, total capital costs to install the capture system and the biofilter control technology (which includes use of the water diluted test fluid) is $1,800,000 and annualized capital and operating costs are $11,667 per ton of VOM controlled. *See id.* at Table 4-1.

c. *Material Substitution Options*

i. **QC Test Fluid – Dilution with Acetone**

Greif considered dilution of the QC test fluid with acetone (a non-VOM material) as a possible alternative. However, dilution of the testing fluid with acetone can cause the gasket material sealing the bottom of the drum to the drum walls to dissolve. *See* Exhibit 1 at Section 3.3.2. Due to the potential for product damage, diluting the QC testing fluid with acetone is considered technically infeasible and specific costs were not calculated. *Id.*

ii. **QC Test Fluid – Dilution with Water**

Greif evaluated the operational impact of diluting the QC test fluid with varying amounts of water to reduce VOM emissions. Exhibit 1, Section 3.3.1. Greif experimented with five different ratios of water to denatured alcohol to identify the composition able to reduce VOM emissions to the greatest extent possible while maintaining the ability to visually detect pinholes or other tears or imperfections in the drum linings. Based on these test runs, Greif determined that 55 percent dilution with water was the highest dilution percentage that would allow the plant to meet its customer's quality assurance requirements. *Id.* Greif then conducted additional testing to determine whether the amount of QC test fluid applied to each drum could be reduced.

Based on this testing, Greif determined that it could reduce the QC test fluid sprayed into each drum to an amount not to exceed 48 grams. *Id.* Total capital costs to dilute the QC test fluid with water would be $0 and annualized capital and operating costs are reduced by $541 per ton of VOC controlled. *See id.* at Table 4-1.

d. *Conclusions of RACT Study*

Three capture and control systems would be technically feasible: capture plus recuperative thermal oxiders, capture plus carbon adsorbers and capture plus biofilters and material substitution. While each of these options could achieve the 81 percent capture and control objectives of Subpart TT, the cost/ton of VOM controlled range from $11,667 to $17,672. Greif and the Agency agree that these costs exceed what the Board has considered reasonable in adopting RACT regulations. *See* Exhibit 1, Section 1.0; Recommendation at 11. The alternative included in the proposed adjusted standard, material substitution using 55 percent water and 45 percent denatured alcohol combined with reducing the amount of QC test fluid applied to each lined drum that is tested, results in an overall reduction in costs while achieving an over 70% reduction in VOM emissions compared to pre-substitution levels. Thus, for the Naperville plant, this material-substitution alternative constitutes RACT.

B. The Existence of These Factors Justifies an Adjusted Standard.

The intent of the regulations promulgated under 35 Ill. Adm. Code Part 218 is to implement RACT for VOM emission sources in the Chicago ozone non-attainment area. *See In the Matter of Petition of Ford Motor Company (Chicago Assembly Plant) for an Adjusted Standard from 35 Ill. Adm. Code 218.986*, AS 02-3, Slip. Op. at 4 (November 21, 2002). Greif has demonstrated that, due to manufacturing limitations that are unique to Greif's operations and substantially and significantly different from those considered by the Board in developing

Subpart TT, costs to comply with an 81 percent capture and control requirement exceed RACT. In addition, the use of the water-diluted test fluid as an adjusted standard reduces emissions from the QC Test Process below the applicability threshold for Subpart TT[2] and below applicable FESOP limits while reducing costs. Petition at 3 (reporting QC Test Process emissions for 2008-2010).

In addition, construction and operation of control equipment capable of achieving 81 percent capture and control (as opposed to the over 70 percent capture and control associated with the QC test fluid) could result in marginally better emissions reductions but would yield negative environmental, health and safety impacts not associated with use of the QC Test fluid. *See* Exhibit 1 at Section 3.2.1. For example, use of recuperative thermal incinerators requires large amounts of natural gas and generates NOx and CO emissions and small quantities of VOM and HAPs. *Id.* at Section 4.4. These emissions would partially offset any benefits obtained from Greif's associated VOM reduction. The Board previously has demonstrated a concern for capture and control technologies, such as incinerators, that create alternate emissions, *e.g.*, NOx, which also contribute to ozone formation or hazardous waste generation that offset any environmental gains from reducing VOM emissions. *See, e.g., Alumax,* AS 92-13, Slip. Op. at 7 (Board granted adjusted standard from Subpart TT where use of control technologies created offsetting emissions of NOx and VOM); *In the Matter of: Joint Petition of Quantum Chemical Corporation, USI Division (and the Illinois Environmental Protection Agency) for an Adjusted Standard from Parts of 35 Ill. Adm. Code 218.966 and 218.986,* AS 92-14, Slip. Op. at 9 (Board

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[2] Greif understands that Subpart TT is a "once in-always in" rule. 35 Ill. Adm. Code Section 218.980(c). However, the fact that the diluted QC test fluid will bring emissions below the applicability threshold is of some significance because the Board certainly did not consider sources with uncontrolled emissions less than the threshold being subject to Subpart TT.

granted adjusted standard from Subpart TT where use of control technology would emit NOx which would partially offset the benefits of VOM reduction).

In addition, the regeneration fluid associated with carbon adsorbers likely could be sent to a local sewage district along with Greif's other process wastewaters. *See* Exhibit 1 at Section 3.2.2. Most sewer districts use equalization basins to reduce biological oxygen demand loading, which in this context includes VOM, by blowing solvents into the atmosphere; meaning that VOM emissions may not truly be reduced by the use of carbon beds. Further, ketones found in the denatured alcohol present an inherent safety risk of fires from reactions between the ketones and the carbon in the beds. *Id.* Although carbon beds that handle ketones utilize water deluge systems to control bed fires, the increased health and safety risks remain. *Id.*

Finally, a biofilter system must be heated to maintain destruction activity during winter months and heat for the filter can be supplied by the direct combustion of natural gas, steam or electricity. *See* Exhibit 1 at Section 3.2.3. Natural gas used for combustion would increase NOx emissions from the facility, partially offsetting the benefit from reductions in VOM emissions. *Id.*

An analysis of the costs of the various control technologies that are available to address VOM emissions from Greif's Naperville facility demonstrate that dilution of the QC test fluid with water constitutes RACT. In addition, dilution of the QC test fluid with water provides meaningful reductions in VOM emissions without the negative environmental, health and safety impacts associated with operation of capture and control systems. The existence of these factors justify the proposed adjusted standard.

C. The Requested Standard Will Not Result in Adverse Health Effects.

The requested adjusted standard will have little, if any, adverse impact on human health or the environment. In 2009, state-wide VOM point source emissions were 54,668 tons. *See* Illinois Annual Air Quality Report, Table C-5 (IEPA November 2009) (available at www.epa.state.il.us/air/air-quality-report/2009/air-quality-report-2009.pdf ). And, 2009 VOM point source emissions for the Metropolitan Chicago area, which includes Naperville, were 11,884 tons. *See* Amended Petition for an Adjusted Standard, Exhibit B (May 31, 2011). Thus, even at the maximum emission differential between the proposed adjusted standard and compliance with Subpart TT for the Naperville plant (6.7 tpy, *see* Exhibit 3 at 2, admitted into evidence, Hearing Transcript at 20-21), maximum incremental VOM emissions from the QC Test Process would amount to about 0.012% of state-wide point source emissions and only about 0.056% of Metropolitan Chicago emissions. The Board has previously found that adjusted standards from Subpart TT from sources with much higher VOM emission levels would have no significant impact on air quality. *See, e.g., Alumax,* AS 92-13, Slip. Op. at 9 (board found foregone emission reductions of 76 tpy from not achieving 81 percent control would not significantly impact human health.). In this case, the maximum incremental emissions from not complying with Subpart TT are far less than those the Board found to have no significant impact in *Alumax*. Further, the Board previously has found that a control plan resulting in an overall emissions reduction constitutes a ***positive*** environmental impact. *See Ford Motor Company (2002),* AS 02-3, Slip. Op. at 4 (50 tpy reduction of VOM emissions (from 390 tpy to 340 tpy – or 13%) was "significant" and would have a "positive impact on air quality."). Here, dilution of the QC test fluid and limitation on the amount of QC test fluid used per drum is producing just

over a 70% reduction of VOM emissions an even greater reduction on a percentage basis than what was at issue in the *Ford* petition.

To further address the issue of potential environmental impact, at the request of the Board, Greif's consultant, Tom Ponder, prepared an Air Quality Impact Analysis using the Scheffe method. *See* Exhibit 2 (admitted at Hearing Transcript at 19-21). As detailed in that analysis, assuming the maximum emission differential between complying with the adjusted standard and complying with Subpart TT, the Scheffe method predicted a conservative ozone increment estimate of 1.47 ppb of ozone. *Id.* at 2. That increment when added to the monitored ozone levels at the nearest Illinois monitoring station in Lisle would not predict exceedances of either of the national ambient air quality standards ("NAAQS") for ozone. *Id.* at 2-3 (addressing the 1-hour ozone NAAQS and the 8-hour average ozone NAAQS).

Further, the Agency has not identified any material concerns for air quality or health effects resulting from a grant of the proposed adjusted standard. The Agency's Recommendation acknowledges that the "technical factors [associated with operation of Greif' QC test process] and the emission reductions Greif has already made offset the Agency's concern" with regard to any negative impacts to air quality. *See* Recommendation at 7-8. The Agency supported this position in response to questions raised during the hearing. The Board's technical adviser asked for the Agency's views as to whether a 1.47 ppb estimated ozone increment was "potentially significant" and as to whether granting of this proposed adjusted standard will cause or contribute to the violations of the NAAQS for ozone or delay efforts to attain the ozone NAAQS in a timely manner. *See* Hearing Transcript at 31-32.

In response to those questions, the Agency stated:

> United States Environmental Protection Agency has not defined a level of significance for ozone. However, the Agency reviewed

> the impact of an increment of 1.47 parts per billion on the current air quality in the area. For 2007 – 2009, the one- hour design value at Lisle, the closest monitoring site to the facility, is 70.7 parts per billion. The Agency believes that an increase of 1.47 parts per billion to the design value will not cause the violation of 120 parts per billion one-hour National Ambient Air Quality Standards for ozone. Also, the Agency believes that adding 1.47 parts per billion to the design value of 62.7 parts per billion for 8-hour ozone standard (2007-2009) at Lisle monitoring site will not cause or contribute to a violation of the 8-hour ozone National Ambient Air Quality Standards of 75 parts per billion.

*See* Illinois EPA Answers to Illinois Pollution Control Board Questions at Hearing at 1 (January 12, 2012). The Agency also stated its view that granting of this proposed adjusted standard will not cause or contribute to violations of the ozone NAAQS or delay the Agency's efforts to attain or maintain the NAAQS for ozone in a timely manner. *Id.* at 2. Thus, there is no evidence suggesting that granting the requested adjusted standard will result in any adverse health effects.

D. The Requested Standard is Consistent with Federal Law.

Section 110 of the federal Clean Air Act, 42 U.S.C. § 7410, grants individual states the authority to promulgate a plan for implementation, maintenance and enforcement of air quality standards, subject to approval by U.S. EPA. Based on the RACT Study, the proposed adjusted standard constitutes RACT for the Greif facility, and is therefore consistent with the federal Clean Air Act. A state may revise its SIP, again subject to U. S. EPA approval. 42 U.S.C. § 7410. Greif will work with the Agency to submit a SIP revision to U. S. EPA that is consistent with any adjusted standard granted by the Board, and the Agency has indicated it will submit the adjusted standard as a SIP revision to U.S. EPA if the adjusted standard is adopted by the Board. Recommendation at 8. Further, the Agency has represented to Greif that it has discussed Greif's Petition and the associated SIP revision with U.S. EPA and any concerns raised by U.S. EPA have been addressed. *See id.*

## III. CONCLUSION

For the reasons stated herein, Greif has demonstrated that the proposed adjusted standard satisfies the requirements of Section 28.1(c) of the Illinois Environmental Protection Act, that granting of the proposed adjusted standard is recommended by the Agency and that the adjusted standard from 35 Ill. Adm. Code § 218.986(a) for Greif's automated QC Test Process should be granted.

Respectfully submitted,

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January 26, 2012