pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

MEMO

TO Mark J. Wejkszner, P.E. M.W. 5/15/2023
Air Quality Program Manager

FROM Alan Berardi P.E. A.B. 5/15/2023
Air Quality Engineer

THRU Raymond Kempa P. E. R.K. 5/15/23 EEM,
New Source Review Section

DATE RE May 15, 2023

Mack Trucks Inc.
Title V Operating Permit No. 39-00004
Lower Macungie Township, Lehigh County

Procedural History

As part of the Reasonably Available Control Technology (RACT) regulations codified at 25 Pa. Code §§ 129.111—129.115 (relating to additional RACT requirements for major sources of NO_x and VOCs for the 2015 ozone NAAQS) (RACT III), the Pennsylvania Department of Environmental Protection (Department) has established a method under § 129.114(i) (relating to alternative RACT proposal and petition for alternative compliance schedule) for an applicant to demonstrate that the alternative RACT compliance requirements incorporated under § 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule) (RACT II) for a source that commenced operation on or before October 24, 2016, and which remain in force in the applicable operating permit continue to be RACT under RACT III as long as no modifications or changes were made to the source(s) after October 24, 2016. The date of October 24, 2016, is the date specified in § 129.99(i)(1) by which written RACT proposals to address the 1997 and 2008 8-hour ozone National Ambient Air Quality Standards (NAAQS) were due to the Department or the appropriate approved local air pollution control agency from the owner or operator of an air contamination source located at a major NO_x emitting facility or a major VOC emitting facility subject to § 129.96(a) or (b) (relating to applicability).

The procedures to demonstrate that RACT II is RACT III are specified in § 129.114(i)(1)(i), 129.114(i)(1)(ii) and 129.114(i)(2), that is, subsection (i), paragraphs (1) and (2). An applicant may submit an analysis, certified by the responsible official, that the RACT II permit requirements remain RACT for RACT III by following the procedures established under subsection (i), paragraphs (1) and (2).

Paragraph (1) establishes cost effectiveness thresholds of $7,500 per ton of NO_x emissions reduced and $12,000 per ton of VOC emissions reduced as ‘‘screening level values’’ to determine the amount of analysis and due diligence that the applicant shall perform if there is no new pollutant specific air

cleaning device, air pollution control technology or technique available at the time of submittal of the analysis. Paragraph (1) has two subparagraphs.

Subparagraph (i) under paragraph (1) specifies that the applicant that evaluates and determines that there is no new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis and that each technically feasible air cleaning device, air pollution control technology or technique evaluated for the alternative RACT requirement or RACT emission limitation approved by the Department (or appropriate approved local air pollution control agency) under § 129.99(e) had a cost effectiveness equal to or greater than $7,500 per ton of NO_x emissions reduced or $12,000 per ton of VOC emissions reduced shall include the following information in the analysis:

- A statement that explains how the owner or operator determined that there is no new pollutant specific air cleaning device, air pollution control technology or technique available.
- A list of the technically feasible air cleaning devices, air pollution control technologies or techniques previously evaluated under RACT II.
- A summary of the economic feasibility analysis performed for each technically feasible air cleaning device, air pollution control technology or technique in the previous bullet and the cost effectiveness of each technically feasible air cleaning device, air pollution control technology or technique as submitted previously under RACT II.
- A statement that an evaluation of each economic feasibility analysis summarized in the previous bullet demonstrates that the cost effectiveness remains equal to or greater than $7,500 per ton of NO_x emissions reduced or $12,000 per ton of VOC emissions reduced.

Subparagraph (ii) under paragraph (1) specifies that the applicant that evaluates and determines that there is no new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis and that each technically feasible air cleaning device, air pollution control technology or technique evaluated for the alternative RACT requirement or RACT emission limitation approved by the Department (or appropriate approved local air pollution control agency) under § 129.99(e) had a cost effectiveness less than $7,500 per ton of NO_x emissions reduced or $12,000 per ton of VOC emissions reduced shall include the following information in the analysis:

- A statement that explains how the owner or operator determined that there is no new pollutant specific air cleaning device, air pollution control technology or technique available.
- A list of the technically feasible air cleaning devices, air pollution control technologies or techniques previously evaluated under RACT II.
- A summary of the economic feasibility analysis performed for each technically feasible air cleaning device, air pollution control technology or technique in the previous bullet and the cost effectiveness of each technically feasible air cleaning device, air pollution control technology or technique as submitted previously under RACT II.
- A statement that an evaluation of each economic feasibility analysis summarized in the previous bullet demonstrates that the cost effectiveness remains less than $7,500 per ton of NO_x emissions reduced or $12,000 per ton of VOC emissions reduced.
- A new economic feasibility analysis for each technically feasible air cleaning device, air pollution control technology or technique.

Paragraph (2) establishes the procedures that the applicant that evaluates and determines that there is a new or upgraded pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis shall follow.

- Perform a technical feasibility analysis and an economic feasibility analysis in accordance with § 129.92(b) (relating to RACT proposal requirements).
- Submit that analysis to the Department (or appropriate approved local air pollution control agency) for review and approval.

The applicant shall also provide additional information requested by the Department (or appropriate approved local air pollution control agency) that may be necessary for the evaluation of the analysis submitted under § 129.114(i).

Facility details

Mack Trucks operates a truck assembly facility in Macungie, Pennsylvania under Title V operating permit No. 39-00004. This facility includes a number of paint booths/bake ovens, where 25 PA Code 129.52 compliant coatings are applied and cured. The facility also includes a number of ancillary operations, including paint mixing, paint lab, fresh solvent and waste solvent storage tanks, cleanup, heaters, emergency electric generators, and fire pumps. various paint booths, bake ovens, electric generators, fire pumps, and heaters.

The Mack site's potential to emit NOx is less than 100 tons per year (tpy); therefore, the site is classified as a minor NOx facility under the RACT 3 rule, and hence is exempted from this rule for NOx emission sources. Potential VOC emissions exceed 50 tpy, subjecting the VOC sources at the facility to the RACT 3 VOC requirements. There are no changes to the specific sources undergoing RACT II = RACT III after October 24, 2016 (source IDs 120 and 121).

The EPA approved RACT II case-by-case RACT requirements for the facility on January 25, 2022 in 87 FR 3670.

The applicant submitted the RACT II equals RACT III proposal on December 30, 2022.

- List of sources(s) subject to § 129.114(i) - RACT II determination assures compliance with RACT III requirements

Source ID	Source Name	RACT III provision
120	GUN CLEANER	129.114(i)(1)(i)
121	MISC. SOLVENT OPERATIONS	129.114(i)(1)(i)

The RACT II determination/requirements can be found in the attached RACT II review memo and at the following link:

RACT III analysis performed by the Department (or appropriate approved local air pollution control agency) under § 129.114(j)(1):

Mack Trucks Inc. has determined that there are no new air cleaning devices, air pollution control technologies or techniques available to control VOC emissions from Source ID's 120 and 121. Those technologies identified for RACT III are the same as RACT II being

1. Thermal/catalytic oxidation
2. Carbon adsorption
3. Condensation/refrigeration
4. Wet scrubbing

Thermal control devices such as thermal and catalytic oxidizers are only effective in treating high-VOC gas streams. Thermal systems are not technically feasible for the Gun Cleaning application because of the low inlet VOC concentration (40 ppm). Generally, thermal treatment technology can only reduce the VOC concentration in the stack gases to 20 ppm, as recognized by EPA in numerous regulations. Since the inlet concentration would be 40 ppm, the oxidizer efficiency would be only 50 percent. Moreover, a thermal treatment system would generate a substantial amount of NOx, CO, GHG, and other combustion products, more than offsetting the amount of VOC emissions reduced. Accordingly, thermal treatment devices are not considered a technically feasible control option.

Condensation/refrigeration technology is best suited for low-flow applications. A single system designed to handle the exhaust streams from each gun cleaning station, or dedicated systems to handle the flow from each individual station would be extremely large and would require a substantial amount of energy. Therefore, condensation is not considered a technically feasible option.

Carbon adsorption of the VOCs in the exhaust stream would be of limited effectiveness in view of the low VOC concentration. In addition, the presence of acetone in a carbon bed would pose a fire hazard. Therefore, adsorption is not a technically feasible technology. In addition, the presence of a significant amount of acetone (a ketone) in the gas stream represents a fire hazard.

Wet scrubbing is not a technically viable option since the coating solvents and thinners are not soluble in water.

Accordingly, no add-on emission control option is technically feasible.

The Department confirmed this through each of the following means.

1. A review of the RACT/Best Available Control Technology (BACT)/Lowest Achievable Emissions Rate (LAER) Clearinghouse (RBLC) determined no new air cleaning devices, air pollution control technologies, or techniques could be applied to these sources.
2. In addition, I performed a series of online searches for new controls and found Biofiltration as a possible new control device for VOC control. Biofiltration is an oxidation process which is in common use abroad and is beginning to find some use in the U.S. In biofiltration, a VOC containing air stream is passed through a biofilter, which is a filter bed on which bacteria or

other microorganisms are supported. Biofilters have been as simple as beds of earth, peat, or sewage sludge. More recently used biofilters have been bacteria supported on manufactured supports such as activated carbon.

Biofiltration may provide very high VOC removal efficiencies, but is limited to concentrations below 2000 ppm, and works best for very low VOC concentrations such as is in this case. However, this control technology is only applicable to off-gases that contain readily biodegradable pollutants in low concentrations which is not the case with the VOC's emitted by the Mack facility. Therefore, this option is not technically feasible.

Based on the control technology review, the Department concludes that no new control technologies or sufficient changes to the technical capabilities of the existing technologies were identified.

Source ID	Source Name	Control Technology	VOC Emissions Before Control	VOC Emissions After Control	Total Annual Cost of Control Equipment	VOC ($/Ton)
120	GUN CLEANER	Thermal/catalytic oxidation				N.A. – not technically feasible
120	GUN CLEANER	Carbon adsorption				N.A. – not technically feasible
120	GUN CLEANER	Condensation/refrigeration				N.A. – not technically feasible
120	GUN CLEANER	Wet scrubbing				N.A. – not technically feasible
121	MISC. SOLVENT OPERATIONS	Thermal/catalytic oxidation				N.A. – not technically feasible
121	MISC. SOLVENT OPERATIONS	Carbon adsorption				N.A. – not technically feasible
121	MISC. SOLVENT OPERATIONS	Condensation/refrigeration				N.A. – not technically feasible
121	MISC. SOLVENT OPERATIONS	Wet scrubbing				N.A. – not technically feasible

Public discussion

No discussions occurred with EPA, the company, or the public beyond the initial application, which would materially impact the decision to include any of these sources under the RACT II is RACT III proposal application.

Conclusion

The Department has analyzed the applicant's proposal for considering RACT II requirements as RACT III and also performed independent analysis. Based on the information provided by the applicant or owner/operator of the facility and independently verified by the Department, the Department determines that the RACT II requirements satisfy the RACT III requirements. The RACT III requirements are identical to the RACT II requirements and are as stringent as RACT II.

cc: NERO, PERMIT NUMBER TV 39-00004
EPA District 3

Attachment: RACT II Review Memo Plan Approval 39-00004F

RACT II PERMIT REVIEW

TO: Mark J. Wejkszner, P.E. M.W. 11/27/2019
Air Quality Program Manager

DATE: November 27, 2019

THRU: Raymond Kempa, PE R. K. 11/27/19
Chief, New Source Review Section

FROM: Alan Berardi, PE A.B. 11/27/2019
Air Quality Engineer

NORTHEASTERN REGION:	Lehigh County
PERMIT NUMBER:	39-00004F
COMPANY NAME:	Mack Trucks Inc.
SOURCE:	(ID120) Gun Cleaner, (ID121) Misc. Solvent Operations
AIR POLLUTION EQUIPMENT:	None
LOCATION:	Lower Macungie Township Lehigh County

THE COMPANY HAS SUBMITTED THE FOLLOWING DOCUMENTATION AS REQUIRED FOR THE PLAN APPROVAL APPLICATION TO BE COMPLETE:

1. A completed/updated Air Pollution Control Act Compliance Review Form dated June 26, 2019.
2. Municipal notification received by the host municipality on June 18, 2019 as required by Act 14.
3. Municipal notification received by the host county on June 18, 2019 as required by Act 14.
4. A check in the amount of $1,000 consistent with Subchapter I of Chapter 127 of the Rules & Regulations of the Department.
5. The General Information Form was submitted as part of the application on July 1, 2019.

THE FOLLOWING ACTIONS HAVE BEEN TAKEN BY THE DEPARTMENT:

1. Coordination with other agencies was done by eFACTS dated July 1, 2019 and is not required.
2. An Acceptance/Administrative Completeness Letter was sent to the company on July 18, 2019.
3. Notification in the Pennsylvania Bulletin on December 7, 2019 to allow an additional 30-day comment period for the public to respond.

GENERAL INFORMATION:

Mack Trucks, Inc., has submitted a Plan Approval for a revised RACT II proposal for their facility located in Lower Macungie Township, Lehigh County, Pennsylvania. This RACT II proposal is being submitted in accordance with the compliance obligations under the Additional RACT Requirements for Major Sources of NOx and VOC codified in §§129.96-129.100. The Macungie facility has potential NOx emissions below 100 tons per year (tpy), exempting the NOx emission sources from the RACT II regulation. However, potential VOC emissions are greater than the 50 tpy threshold, requiring Mack Trucks to comply with the applicable RACT II requirements for VOC sources.

The facility has previously submitted, and was issued, Plan Approval 39-00004B which included these two sources (ID 120, 121) requiring case-by-case analyses, resulting in proposed alternative VOC emission limit of 7.5 TPY VOC each. Mack Trucks did not propose the installation of any add-on control devices.

The Macungie facility operates under Title V Operating Permit No. 39-00004, which was issued on December 30, 2015, and expires on December 30, 2020. Upon the Department's approval of the proposed alternative RACT emission limits, Mack Trucks, Inc. will submit an application for administrative amendment to incorporate the plan approval requirements into the operating permit.

SOURCE DESCRIPTION/ POTENTIAL EMISSIONS:

Mack Trucks operates a truck assembly facility in Macungie, Pennsylvania. This facility includes various paint booths, bake ovens, electric generators, fire pumps, and heaters. The facility operates under Title V operating permit, No. 39-00004.

The Title V permit includes sources (ID 120) gun cleaner and (ID 121) miscellaneous solvent operations. They are also among seven sources that comprise Source Group 11 – RACT II VOC Requirements. The TV permit imposes a VOC limit of 7.5 tpy each for ID 120 and 121, on a 12month rolling average. This VOC limit was established in RACT II Plan Approval No, 3900004B. It should be noted that the Roller Wash portion of the ID 121 source is no longer performed at the facility.

Since the time of the original RACT II submittal that established the 7.5 tpy limit, the global demand for heavy-duty trucks increased unexpectedly leading to parts shortages. At the Macungie facility, these shortages have caused a doubling of the stoppages of the assembly line. The line stoppages, in turn, have caused a sharp increase in the amount of paint gun cleaning activity since the paint in the guns and lines will solidify if the flow of paint stops for more than 7 or 8 minutes. This increase in gun cleaning has caused a corresponding increase in VOC emissions from ID 120 and ID 121.

While the parts shortage is expected to be temporary, its duration is not known. Mack Trucks has implemented a number of administrative measures aimed at reducing gun cleaning activities to the extent possible, however it is also possible that the parts shortage may continue. Therefore, Mack is proposing that the individual 7.5-tpy VOC limits for these two sources be consolidated into a single limit of 20 tpy, on a 12-month rolling basis.

Following the Department's issuance of the RAC T II plan approval, Mack Trucks will submit an application for an administrative amendment to incorporate this plan approval requirements into the Title V permit.

RACT II Analysis

In the 2016 RACT II Proposal (39-00004B), control technology reviews were conducted for the Gun Cleaning (ID 120) and Miscellaneous (ID 121). These two sources are spread throughout the plant in multiple locations, which would make capture and collection impractical. Those reviews concluded that thermal treatment and carbon adsorption are not technically feasible control options because of the low VOC inlet concentrations, and in the case of thermal treatment devices, the products of combustion created by the control device would exceed the VOC emission reduction.

The following RACT analysis examines the feasibility of measures that could be implemented to reduce VOC emissions from the Gun Cleaner and Miscellaneous Solvent Operations, individually and in combination with a combine emission limit of 20 tpy.

ID 120 Gun Cleaning

The Gun Cleaning process involves flushing of the paint spray assemblies in each paint booth with cleaning solvents. Gun cleaning occurs at the G-Line Chassis Booth (ID 108), the new Chassis Line (ID 127), and the Final Touchup Booth (ID 114). There are multiple cleaning stations at each Chassis Booth and the Final Touchup Booth, for a total of 12 cleaning stations.

Flushing is completed every time spraying is stopped for more than 7 minutes, including during color changes and worker breaks. The cleaning solvent used in the gun cleaning operation is primarily a reclaimed solvent that is nominally 60 percent acetone, which is not a VOC.

At each paint spray station, there is a cleaning solvent connection. When an operator has stopped painting and is ready to clean, the following steps occur:

1. The paint hose is removed from the spray gun and replaced with a solvent hose and the air hose is removed from the gun.
2. The gun is flushed into a normally covered trough.

3. The paint hose that was removed from the gun in Step 1 is attached to a solvent drain hose.
4. The solvent is flushed through the paint hose to the solvent drain hose. The drain hose is piped to a portable "gondola" tank.
5. The spray gun outside tip is then cleaned in the trough.

6. Periodically, the troughs are emptied into buckets and poured into a gondola.
7. Gondolas are periodically pumped to the waste solvent storage tank outdoors.
8. After emptying a gondola, a quantity of isobutanol is added to help retard paint curing in the gondola during the next run. This is the only use of isobutanol in the gun cleaning system.

Mack Trucks calculates emissions from Gun Cleaning on a mass flow basis, based on the assumption that 85% of the waste solvent removed is from the cleaning solvent plus isobutanol added to the gondolas; the balance is from thinners in the paints.

Currently, any losses from the gun cleaning operation that occur in the booth are exhausted through the booth system, Other losses, including working losses from the gondolas and tanks are either fugitive or occur at the main waste tank.

ID 121 Miscellaneous Solvent Operation

The Miscellaneous Solvent operation is not a single process, but a grouping of several hundred solvent usage points that are otherwise not ascribed to a particular source. Some of the emissions are from paints used in the booths; other emissions include various cleaners and coatings that are used outside booths and therefore would not be possible to collect due to the low quantities and large area for which collection would be required, entailing a very large airflow.

The only usage that would lend itself to capture is the solvent cleaning of paint visors. This process is as follows:

1. Solvent is placed in safety cans with a top plate and screen, and a small pump is set up.
2. The operator moves from the booth to the can, which is sitting on a small cart, takes a wipe, and presses it on the plate/screen area.
3. The pressing action pumps solvent to the screen which saturates the wipe.
4. The wipe is then used to clean the paint from the outside of the visor.
5. After cleaning the visor, the wipe is disposed into a closed container.

Emission Capture and Control

Gun Cleaning

Because there are 12 gun cleaning locations throughout the facility, either multiple add-on control devices would be necessary or an extensive amount of ductwork would be required to exhaust all of the solvent-laden air to a single control device.

The Gun Cleaning solvent consists mainly of acetone, with lesser amounts of ethyl acetate, isopropyl acetate, n-butyl acetate, n-butyl alcohol, and heptane. The weighted average molecular weight of the Gun Cleaning solvent is 77.5, as calculated below.

Component	Molecular Wei ht	Percent of Solution	Product
Acetone	58	60	34.8
Ethyl acetate	130	10	13.0
Isopropyl acetate	102	10	10.2
n-But I acetate	1 16	8	9.3
n-But I alcohol	74	7	5.2
Heptane	100	5	5.0
Total		100	77.5

While some of the cleaning emissions occur as fugitive emissions from the buckets, it is conservatively assumed that all of the Gun Cleaning emissions occur in the paint booths. Since we are requesting a 20-tpy limit for ID 120 and ID 121, it must be assumed that either source could emit the entire amount. Therefore, hourly emissions from ID 120 are:

20 ton/yr x 2,000 lb/ton + 8,760 hr/yr = 4.57 lb/hr

Each station would require an exhaust air flow of 930 cfm; therefore, total flow would be:

930 cfm/station x 12 stations = 1 1,160 cfm The

corresponding VOC concentration is:

(4.57 lb/hr x 385 ft3/lb-mole x 106) + (77.5 lb/lb-mole x 60 min/hr x I l , 160 scfm) = 40 ppmv

It should be noted that 60 percent of this concentration is acetone, which is not a VOC.

Add-on control device options for reducing VOC emissions are: (i) thermal treatment devices including regenerative thermal oxidizers, catalytic oxidizers, and afterburners; condensation/refrigeration; (iii) adsorption, and (iv) wet scrubbing.

Thermal control devices such as thermal and catalytic oxidizers are only effective in treating high-VOC gas streams. Thermal systems are not technically feasible for the Gun Cleaning application because of the low inlet VOC concentration (40 ppm). Generally, thermal treatment technology can only reduce the VOC concentration in the stack gases to 20 ppm, as recognized by EPA in numerous regulations. Since the inlet concentration would be 40 ppm, the oxidizer efficiency would be only 50 percent. Moreover, a thermal treatment system would generate a substantial amount of NOx, CO, GHG, and other combustion products, more than offsetting the amount of VOC emissions reduced. Accordingly, thermal treatment devices are not considered a technically feasible control option.

Condensation/refrigeration technology is best suited for low-flow applications. A single system designed to handle the exhaust streams from each gun cleaning station, or dedicated systems to

handle the flow from each individual station would be extremely large and would require a substantial amount of energy. Therefore, condensation is not considered a technically feasible option.

Carbon adsorption of the VOCs in the exhaust stream would be of limited effectiveness in view of the low VOC concentration. In addition, the presence of acetone in a carbon bed would pose a fire hazard. Therefore, adsorption is not a technically feasible technology. In addition, the presence of a significant amount of acetone (a ketone) in the gas stream represents a fire hazard.

Wet scrubbing is not a technically viable option since the coating solvents and thinners are not soluble in water.

Accordingly, no add-on emission control option is feasible. RACT for the Gun Cleaning operation is as follows:

> Source ID 120, shall be operated and maintained in accordance with manufacturers specifications and good operating practices below.

a. Store gun cleaner and bronze brushes in closed top cleaning trough containers.

b. Ensure that the troughs containing gun cleaner are kept closed at all times except when depositing or removing these materials. These tops shall be opened by a foot lever that will close automatically when the operator foot is removed.

c. Minimize spills of gun cleaner and clean up spills immediately.

d. Used gun cleaner shall be discharged into a sealed container.

e. VOC emissions from cleaning of spray guns shall be minimized by working as quickly as possible.

f. Operators shall be trained in these work practices.

ID 121 Miscellaneous Solvent Operations

There are dozens of miscellaneous solvent usage points throughout the facility, many handling only aerosol cans or other small-volume containers. The multiplicity of these sources and the extremely low emissions involved would preclude any type of add-on emission control. As stated above, only the 15 visor wiping stations would lend themselves to a technology feasibility analysis.

The solvent is maintained in a closed can until wetting the wipe, so the only capture method available would be to build a booth around each station. The booth would be 24" wide and extend from below the safety can to above the head of the tallest worker. Estimated height would be approximately 48 inches,

The area of each booth would be 8 ft^2. With a minimum velocity of 200 ft/min for total capture, the booth flow would be 1,600 cfm. There is a total of 15 of wipe stations in the plant, so the total required air flow would be 24,000 cfm.

Since the entire 20 tpy emission limit could theoretically come from either of the two sources, it must be assumed for purposes of this analysis that the Miscellaneous Solvent operation will emit 20 tpy. Corresponding hourly emissions are:

20 ton/yr x 2,000 lb/ton + 8,760 hr/yr = 4.57 lb/hr

The molecular weight of the cleaning solvent is 32. The VOC concentration in a 24,000 cfm air stream is:

(4.57 lb/hr x 385 ft3/lb-mole x 1 06) + (32 lb/lb-mole x 60 min/hr x 24,000 scfm) = 38 ppmv

As discussed above, this concentration is too low for effective destruction using thermal treatment or carbon adsorption systems. Moreover, the cleaning solvent is not readily adsorbed onto carbon because of its low molecular weight. In thermal treatment devices the use of natural gas as an auxiliary fuel would create significant amounts of combustion products, including NOX (a nonattainment pollutant), CO, greenhouse gases, and PM10. In reality, the NOX emissions created would exceed the amount of VOC emissions controlled. Therefore, the installation of a thermal treatment device or a carbon system to control emissions from the Miscellaneous Solvent operation is not technically feasible.

Accordingly, no add-on emission control option is feasible. RACT for the Miscellaneous Solvent Operations is as follows:

Source ID 121, shall be operated and maintained in accordance with manufacturers specifications and good operating practices below.

a) Store solvents and used shop towels in closed containers.

b) Ensure that the storage containers containing solvents are kept closed at all times except when depositing or removing these materials.

c) Minimize spills of solvent cleaning materials and clean up spills immediately.

d) Fill the one-gallon containers from a drum in the chemical storage area and convey back to the work benches with covers in place.

e) Minimize VOC emissions from cleaning of spray guns by working as quickly as possible.

f) Operators shall be trained on these work practices.

<u>Combined Gun Cleaning and Miscellaneous Solvent Operation</u>

Since Mack Trucks is proposing to combine the Gun Cleaning and Miscellaneous Solvent operations, it is appropriate to evaluate the feasibility of RACT controls on a combined basis:

Emissions: 20.0 tpy•, 4.57 lb/hr

Air Flow: 160 + 24,000 = 35, 160 scfm

Molecular Weight: 46.5 lb/lb,,mole (weighted average)

The inlet concentration to a control device sized to handle the combined flow would be: (4.57

lb/hrx 385 ft3/lb-mole x 106) : (46.5 lb/lb-mole x 60 min/hr x 35,160 scfm) = 18 ppmv

The low inlet concentration prohibits the use of thermal or absorption control technology.

Therefore, RACT for ID 120 and 121 is to operate and maintain the Gun Cleaning and Miscellaneous Solvent operations in accordance with manufacturer's specifications and good operating practices.

MONITORING & RECORDKEEPING REQUIREMENTS:

The company shall be required to monitor and keep records of VOCs, including clean up solvents, to show compliance with the Departments regulations**.** In order to demonstrate continuous compliance, Mack Trucks will monitor and record the solvent usage from the cleaning operations - Gun Cleaning (ID 120) and Miscellaneous (ID 121). Using a process mass balance, Mack Trucks will calculate the VOC emissions from these sources and will compare the calculated emissions with the proposed emission limits to demonstrate continuous compliance.

These records shall be updated monthly and kept on a 12-month rolling sum so as not to exceed permit limits.

SPECIAL CONDITIONS:

1. The VOC emissions for source ID's 120, 121 from the facility must never exceed 20.0TPY combined, based on a 12-month rolling sum.

2. The company must keep chemical composition data for all solvents used. These shall be recorded and kept on file at the facility.

RECOMMENDATION:

It is therefore recommended that the Plan Approval be issued with these special conditions.

Public notice was done on November 23, 2019. No comments have been received, and no meeting was held.