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RACT 2 Case-by-Case Evaluation

Amended Title V Permit No. 0057-OP18a

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Pennsylvania Department of Environmental Protection
Bureau of Air Quality

RACT SIP COMPLETENESS CHECKLIST

TO BE FILLED IN BY REGIONAL STAFF AND SUBMITTED TO CENTRAL OFFICE

Facility Name: PPG – Springdale Plant

RACT Plan Approval/Permit Number: #0057-OP18a

Plan Approval/Permit Issuance Date: 02/28/2020

TECHNICAL MATERIALS

<u>Included</u>	<u>Not Included</u>	<u>Not Applicable</u>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Identification of all regulated (NO _x and VOC) pollutants affected by the RACT plan (Review memo and RACT Permit)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Quantification of the changes in plan allowable emissions from the affected sources as a result of RACT implementation. (Review Memo)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Rationale as to why applicable CTG or ACT regulation is not RACT for the facility. (Review Memo)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Demonstration that the NAAQS, PSD increment, reasonable further progress demonstration, and visibility, as applicable, are protected if the plan is approved and implemented. (Review Memo)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	In the event of actual emission increase as a result of RACT SIP revision: Modeling information to support the proposed revision, including input data, output data, model used, ambient monitoring data used, meteorological data used, justification for use of offsite data (where used), modes of models used, assumptions, and other information relevant to the determination of adequacy of the modeling analysis. (Review Memo)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Include evidence, where necessary that emission limitations are based on continuous emission reduction technology. (Review Memo)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	State in RACT PA/OP that expiration date shown in PA or OP is for state purposes. Either use the statement below or redact the expiration date on the permit. (Sample: The expiration date shown in this permit is for state purposes. For federal enforcement purposes the conditions of this operating permit which pertain to the implementation of RACT regulations shall remain in effect as part of the State Implementation Plan (SIP) until replaced pursuant to 40 CFR 51 and approved by the U.S. Environmental Protection Agency (EPA). The operating permit shall become enforceable by the U.S. EPA upon its approval of the above as a revision to the SIP.) (RACT Permit)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Include evidence that the State has the necessary legal authority under State law to adopt and implement the RACT plan. (Reference of PA's Air Pollution Control Act (January 8, 1960, P.L. 2119, as amended and 25 PA Code Chapter 127 (NSR), and 25 PA Code Chapter 129 §§129.91 – 95 in RACT PA/OP). (Review memo or more likely operating permit)

(Back)

- | | | | |
|-------------------------------------|--------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | State that independent technical and economic justification for RACT determination <u>by the Department</u> was performed. As long as you reviewed the companies proposal you may agree with it but that must be stated. (Review memo) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Confidential Business Information excluded, highlighted or marked. Please also redact all checks from the application. (Review Memo, RACT Permit, RACT Plan by the company) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Adequate compliance demonstration, monitoring, recordkeeping, work practice standards, and reporting requirements. (Review memo and RACT Permit) |

ADMINISTRATIVE DOCUMENTS

<u>Attached</u>	<u>Not Attached</u>	<u>Not Applicable</u>
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- | | | | |
|-------------------------------------|--------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <u>Signed</u> copy of final RACT Plan Approval/Operating Permit. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Redacted copy of the RACT Plan Approval/Operating Permit. Reviewer should be able to read the redacted text. (We can do electronically if the PA/OP is uploaded in AIMS or available in pdf format). Make sure that the expiration date of the operating permit is redacted. SIPs do not expire. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Signed Technical Support Document or Review Memorandum. The review memo should contain a discussion about previous case by case RACT determinations so that requirements can be compared |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Public Notice evidence: Include a copy of the actual published notice of the public hearing as it appeared in the local newspaper(s). The newspaper page must be included to show the date of publication. The notice must specifically identify by title and number each RACT regulation adopted or amended. A signed affidavit showing the dates of publication and the newspaper clipping is best. Next best is a copy of the newspaper clippings from all days the article was published. An email showing that the newspaper article was purchased is acceptable unless the EPA receives comments during their comment period stating that there is no proof of publication. The newspaper notice must say that the case by case requirements will be submitted to the EPA as an amendment to the SIP |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A separate formal certification duly signed indicating that public hearings were held. If no public hearings were held the review memo should state that. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Public hearing minutes: This document must include certification that the hearing was held in accordance with the information in the public notice. It must also list the RACT regulations that were adopted, the date and place of the public hearing, and name and affiliation of each commenter. If there were no comments made during the notice period or at the hearing, please indicate that in the review memo. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Comment and Response Document: A compilation of EPA, company, and public comments and Department's responses to these comments. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Copy of RACT proposal, amendments, and other written correspondence between the Department and the facility. |



AIR QUALITY PROGRAM
301 39th Street, Bldg. #7
Pittsburgh, PA 15201-1811

Title V Operating Permit
& Federally Enforceable State Operating Permit

Issued To: PPG Industries, Inc.

ACHD Permit #:

0057-OP18a

Facility: PPG Industries – Springdale Plant
125 Colfax Street
Springdale, PA 15144-1506

Date of Issuance:

May 10, 2018

Amendment Date:

February 28, 2020


Expiration Date:

~~May 9, 2023~~

Renewal Date:

~~December 9, 2022~~

Issued By:


JoAnn Truchan, P.E.
Section Chief, Engineering

Prepared By:


Bernadette Lipari
Air Quality Engineer

V. EMISSION UNIT LEVEL TERMS AND CONDITIONS

Pages 2 through 36
have been redacted.A. Process P001: Paint Plant (Controlled Emissions)

Process Description: CP Cell, Light Cell, Dark Cell, and Environ Work Centers; Large Batch Center; Solvent Still, Small Order Department, and Tank Cleaning

Raw Materials: Pigment, Resin, Solvent

Control Device(s): Paint Plant Regenerative Thermal Oxidizer (RTO); Ohio Blowpipe Dust Collector; Environ Baghouse

Capacity: 1.6 MMBtu/hr

Fuel: Natural Gas

1. Restrictions:

- a. ~~The permittee shall not operate any equipment from the CP Cell, Light Cell, Dark Cell, and Environ work centers; Large Batch Center, or Solvent Still at any time while generating VOC emissions unless the Paint Plant RTO is in service and operating properly. [§2103.12.a; IP #0057-I003, VI.1.a; IP #0057-I005c, V.A.1.a]~~
- b. The permittee shall equip each stationary mixer and stationary process vessel with a tightly fitting vented cover or lid that must be closed at all times when the vessel contains HAP, except for material additions and sampling. [§2103.12.a; §2104.08; §63.8005(a)(1); 40 CFR Part 63 Subpart HHHHH Table 1.2.b.i; RACT Order #254, 1.13, 1.14; 25 Pa. Code §129.99]
- c. The permittee shall not operate or allow to be operated any dispensing or filling systems for solvent-borne coatings unless they are of closed design or minimize free-fall of liquids. [§2103.12.a; RACT Order #254, 1.16 & 1.17; 25 Pa. Code §129.99]
- d. The Paint Plant RTO shall be properly operated and maintained according to good engineering practices (as proscribed in Monitoring Section V.A.3 below), manufacturer's recommendations, and the following conditions at all times while treating process emissions: [§2103.05; §2105.30; IP #0057-I003, VI.1.b; IP #0057-I005c, V.A.1.b]
 - 1) A minimum VOC destruction efficiency of 98% by weight; or [25 Pa. Code §129.99]
 - 2) A VOC concentration less than 20 ppm by volume, dry basis.
- e. ~~The permittee shall reduce emissions of total organic HAP from stationary process vessels by the amount specified in condition V.A.1.d.1) above or greater by venting emissions through the existing Paint Plant regenerative thermal oxidizer (RTO) at all times when paint is being produced. [§2103.12.a; §2104.08; §63.8005(a)(1); 63 Subpart HHHHH Table 1.2.b.i; §63.988(a)(2)]~~
- f. The RTO shall be operated at a minimum operating temperature of 1,500 °F or the temperature at which a destruction efficiency of 98% is demonstrated during the most recent stack test, whichever is greater. [§2103.05; §2105.30.b; IP #0057-I005c, V.A.1.c; 25 Pa. Code §129.99]
- g. ~~The permittee shall meet the requirements of condition V.A.1.e above for emissions during automatic cleaning operations. [§2103.12.a; §2104.08; §63.8005(a)(1)(ii)]~~
- h. The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [§2103.12.a; RACT Order #254, 1.20; 25 Pa. Code §129.99]

- i. ~~The permittee shall not operate or allow to be operated any grinding mills unless they are completely closed at all times. [§2103.12.a; RACT Order #254, 1.18]~~
- j. ~~The permittee shall not operate, nor allow to be operated, the Paint Plant RTO using a fuel other than utility-grade natural gas. [§2103.12.a.2.B; IP #0057-I005e, V.A.1.e]~~
- k. ~~Emissions from the Paint Plant RTO shall not exceed the limits in Table V-A-1 at any time: [§2103.12.a; IP #0057-I005e, V.A.1.d]~~

Table V-A-1: Paint Plant RTO Emission Limitations

Pollutant	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.013	0.056
Particulate Matter < 10 µm (PM ₁₀)	0.013	0.056
Particulate Matter < 2.5 µm (PM _{2.5})	0.013	0.056
Nitrogen Oxides (NO _x)	0.180	0.790
Sulfur Oxides (SO _x)	0.001	0.005
Carbon Monoxide (CO)	0.152	0.664
Volatile Organic Compounds (VOCs)	2.37	10.42
Hazardous Air Pollutants (HAPs)	1.49	6.52

¹ A year is defined as any 12 consecutive month period.

- l. ~~The Paint Plant RTO shall be equipped with instrumentation that continuously monitors the thermal oxidizer combustion chamber temperature to within 0.75% of the temperature measured, and records to the nearest 1 °F. The permittee shall at all times properly maintain and calibrate the continuous temperature monitor and recorder in accordance with manufacturer's specifications and good engineering practices. [§2103.12.a.2.B; IP #0057-I003, VI.1.e; IP #0057-I005e, V.A.1.f]~~
- m. ~~The Paint Plant RTO shall meet the requirements of 40 CFR Part 63, Subpart SS, §63.982(e)(2), as specified in 40 CFR Part 63, Subpart HHHHH. [§2103.12.a; §2104.08; §63.8000(e)(1); §63.8005(a)(2)]~~
- n. ~~The permittee shall at no time, conduct or allow to be conducted, charging of solid materials into the Environ processes and Large Batch Cells processes unless the Environ Baghouse and Ohio Blowpipe collection and control system are properly maintained and operated at all times, according to the following conditions: [§2103.12.a.2.B; IP #0057-I003, VI.1.d]~~
- 1) ~~All particulate emissions from the charging of solid materials into the Environ processes shall be vented through the Environ Baghouse and all particulate emissions from the charging of the Large Batch Cells processes shall be vented through the Ohio Blowpipe dust collection and control system. Each baghouse shall be equipped with automatic cleaning controls and instrumentation that shall continuously measure the differential pressure drop across the baghouse to within 2.0% of the measuring span of the device.~~
- 2) ~~The differential pressure drop across the baghouse shall not exceed a maximum of 6.0" w.e. of water column and a minimum of 1.0" w.e. at any time except during cleaning cycles.~~
- o. ~~Emissions from the Environ Baghouse shall not exceed the limits in Table V-A-2 at any time:~~

~~§2103.12.a.2.B; IP #0057-1003, VI.1.h}~~

~~Table V-A-2: Controlled Emission Limits~~

Pollutant	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.62	2.72
Particulate Matter < 10 µm (PM₁₀)	0.62	2.72
Hazardous Air Pollutants (particulates)	0.25	1.10

¹ ~~A year is defined as any 12 consecutive month period.~~

- ~~p. Emissions from the Ohio Blowpipe Baghouse shall not exceed the limits in Table V-A-3 at any time: [§2103.12.a.2.B; IP #0057-1003, VI.1.j]~~

~~Table V-A-3: Controlled Emission Limits~~

Pollutant	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.73	3.20
Particulate Matter < 10 µm (PM₁₀)	0.73	3.20

¹ ~~A year is defined as any 12 consecutive month period.~~

- ~~q. The permittee shall determine whether wastewater from the emission unit is Group 1 or Group 2 wastewater according to 40 CFR §63.8020. Group 1 wastewater streams shall be conveyed using hard-piping and shall be treated as a hazardous waste in accordance with 40 CFR part 264, 265, or 266 either onsite or offsite. Alternatively, if the wastewater contains <50 ppmw of partially soluble HAP, the permittee may elect to treat the wastewater in an enhanced biological treatment system that is located either onsite or offsite. [§2103.12.a; §2104.08; §63.8020(a); §63.8105; 40CFR Part 63 Subpart HHHHH Table 4, 2.a.b]~~
- ~~r. To maintain Group 2 transfer rack status, the permittee shall not allow bulk loading of coating products that contain greater than or equal to 3.0 million gallons per year of HAP with a weighted average HAP partial pressure greater than or equal to 1.5 psia. If the permittee exceeds these requirements, the permittee shall control the transfer rack to the RTO and complete appropriate permit modification applications. [§2103.12.b; §2104.08.a; §63.8015]~~
- ~~s. The permittee shall develop and implement a written startup, shutdown, and malfunction plan (SSMP) that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the conditions of this permit. The SSMP shall meet the requirements of 63 Subpart A, §63.6(e)(3). [§2103.12.a; §2104.08; §63.6(e)(3)]~~
- ~~1) During periods of startup, shutdown, and malfunction, the permittee shall operate and maintain such source (including associated air pollution control equipment) in accordance with the procedures specified in the SSMP.~~
 - ~~2) When actions taken by the permittee during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the SSMP, the permittee shall keep records for that event that demonstrate that the procedures specified in the plan were followed. In addition, the permittee shall keep records of these events as specified in condition V.A.4.f below, including records of the occurrence and duration of~~

~~each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control equipment.~~

- ~~3) If an action taken by the permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the SSMP, the permittee shall record the actions taken for that event and shall report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event.~~
 - ~~4) The permittee shall keep the written SSMP on record to be made available for inspection, upon request, by the Department for the life of the affected source or until the affected source is no longer subject to the provisions of this part. In addition, if the SSMP is revised, the permittee shall keep previous versions of the SSMP on record, to be made available for inspection, upon request, by the Department, for a period of 5 years after each revision to the plan.~~
- t. ~~Opening of a safety device, as defined in §63.8105, is allowed at any time conditions require it to avoid unsafe conditions. [§2103.12.a; §2104.08; §63.8000(b)(2)]~~

2. Testing Requirements:

- a. The permittee shall conduct VOC and HAP emissions testing on the inlet and the outlet of the Paint Plant RTO to demonstrate compliance with condition V.A.1.e above. Such testing shall be conducted in accordance with US EPA approved test methods and §2108.02 of Article XXI. The testing shall be performed after initial start-up and once every five (5) years after the most recent stack test. [§2103.12.h.1; §63.982(c)(2); IP #0057-I005c, V.A.2.a; 25 Pa. Code §129.100]
- b. ~~The permittee shall conduct tests to measure emissions using the following methods. [§2103.12.h; §2104.08; §63.8000(d)(1); §63.997(e)(2)(i)-(iv)]~~
 - ~~1) Conduct gas molecular weight analysis using Method 3, 3A, or 3B in appendix A to 40 CFR Part 60.~~
 - ~~2) Measure moisture content of the stack gas using Method 4 in appendix A to 40 CFR Part 60.~~
 - ~~3) The gas volumetric flow rate shall be determined using Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR Part 60, appendix A, as appropriate.~~
 - ~~4) TOC concentration shall be determined using Method 18 or 25/25A of 40 CFR Part 60, appendix A, as applicable.~~
 - ~~5) As an alternative to using Method 18, Method 25/25A, or Method 26/26A of 40 CFR Part 60, appendix A, the permittee may use Method 320 of 40 CFR part 60, appendix A. When using Method 320, the permittee shall follow the analyte spiking procedures of section 13 of Method 320, unless the permittee demonstrates that the complete spiking procedure has been conducted at a similar source.~~
- e. ~~Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for at least 1 hour and under the conditions specified in condition V.A.2.e below. For the purpose of determining compliance, the arithmetic means of results of the three runs shall apply. [§2103.12.h; §2104.08; §63.997(e)(1)(v)]~~
- d. The permittee shall determine the minimum operating temperature as required under condition V.A.1.f from the most recent valid stack test that demonstrates compliance with the requirements in condition V.A.1.e above, as approved by the Department. On and after the date the approved stack test results are available, the permittee shall operate the Paint Plant RTO at or above the average temperature as observed during the compliant stack test. [§2103.12.h.1; §63.8005(e); §63.998(a)(2)(ii)(B)(I); IP#0057-I005c, V.A.2.b; 25 Pa. Code §129.100]

- e. ~~The permittee shall conduct all tests while operating the Paint Plant at maximum routine operating conditions. Documentation of the Paint Plant operating conditions shall be included in the stack test report. Such documentation shall include but not be limited to: [§2108.02.e.2.A; §63.8005(d)(1); IP#0057-I005e, V.A.2.e]~~
~~1) A listing of all vessels and equipment in use and connected to the RTO during the stack test.~~
~~2) A listing of the production of each vessel in use and connected to the RTO during the stack test.~~
~~3) Total material in process during the stack test.~~
~~4) Tank cleaning that occurs during the stack test, including type and amount of solvent used.~~
- f. ~~The Department reserves the right to require additional emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Article XXI §2108.02. [§2103.12.h.1; §63.997(c)(2)]~~

3. Monitoring Requirements:

- a. ~~The permittee shall externally inspect the Paint Plant RTO and associated ductwork weekly for proper operation as well as for integrity of the thermal oxidizer, process equipment, and gaseous collection systems. [§2103.12.i; §63.8000(e)(1); IP #0057-I005e, V.A.3.a]~~
- b. The permittee shall continuously monitor and record the Paint Plant RTO combustion chamber to the nearest 1°F of actual temperature at all times while treating process emissions. [§2102.04.b.6; §2103.12.i; §63.996(c); IP #0057-I003, VI.3.b; IP #0057-I005c, V.A.3.b; 25 Pa. Code §129.100]
- c. ~~If the permittee chooses to demonstrate compliance with the outlet concentration standard in condition V.A.1.d.2) above, then the permittee shall install and properly operate and maintain a continuous monitoring system (CMS) to measure and record the amount of VOC (in ppm by volume, dry basis) exiting the Paint Plant RTO stack. [§2103.12.i; IP #0057-I005e, V.A.3.e; §63.998(2)(ii)(B)(4)]~~
- d. ~~The permittee shall inspect the Environ Baghouse and Ohio Blowpipe collection and control system weekly to ensure compliance with conditions V.A.1.a and V.A.1.n through p. [§2103.12.i; IP #0057-I003, VI.3.a]~~
- e. ~~The permittee shall perform monthly Leak Detection and Repair (LDAR) in accordance with condition V.B.3.a. [§2103.12.i; §2104.08; §63.8015(a); 63 Subpart HHHHH Table 3.1.a; §63.424(a)-(d)]~~

4. Record Keeping Requirements:

- a. ~~The permittee shall record the monthly usage of all raw materials necessary to demonstrate compliance with this permit. Such records shall provide sufficient data and calculations to clearly demonstrate that all requirements of this permit are met. Such records shall include, but not be limited to the following: [§2103.12.j; IP #0057-I003, VI.4.a; RACT Order #254, I.22]~~
~~1) Records of specific solvents and quantities used;~~
~~2) Records of paint production rates by number of batches and quantity of paint produced in each batch.~~
- b. ~~The permittee shall record the results of the inspection required by condition V.A.3.d above and~~

- ~~the differential pressure drop across the Environ Baghouse and Ohio Blowpipe collection and control system weekly. [§2103.12.j; IP #0057-I003, VI.4.b]~~
- c. The temperature in the combustion chamber of the Paint Plant RTO shall be continuously recorded, at all times, while processing emissions from the Paint Plant. [§2103.12.j; §2104.08; §63.8000(d)(5); §63.998(b)(1)-(3), & (6); IP #0057-I003, VI.4.c; IP #0057-I005c, V.A.4.a; 25 Pa. Code §129.100]
- d. ~~The permittee shall maintain the following records for the thermal oxidizer unit: [§2103.12.j; IP #0057-I005c, V.A.4.b]~~
- ~~1) Hours of operation;~~
 - ~~2) All data required to demonstrate compliance with the minimum temperature requirements of condition V.A.1.f above;~~
 - ~~3) All data recorded under condition V.A.4.c above; and~~
 - ~~4) Records of operation, maintenance, inspection, calibration, and/or replacement of combustion equipment.~~
- e. ~~For the Paint Plant RTO temperature monitoring system, the permittee shall keep and maintain the calibration records outlined in 40 CFR Part 63, Subpart SS, §63.998(e). [§2103.12.j; §2104.08; §63.8000(e); §63.8000(d)(5); §63.8080(a)]~~
- f. ~~The permittee shall maintain the following information for each startup, shutdown, or malfunction: [§2103.12.j; §2104.08; §63.10(b)(2)(i)-(v)]~~
- ~~1) The occurrence and duration of each startup, shutdown, or malfunction of operation (i.e., process equipment);~~
 - ~~2) The occurrence and duration of each malfunction of the air pollution control equipment;~~
 - ~~3) All maintenance performed on the air pollution control equipment;~~
 - ~~4) Actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) when such actions are different from the procedures specified in the SSMP required under condition V.A.1.s above; and~~
 - ~~5) All information necessary to demonstrate conformance with the SSMP required under condition V.A.1.s above when all actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan.~~
- g. ~~The permittee shall keep and maintain records of each time a safety device is opened to avoid unsafe conditions. [§2103.12.j; §2104.08; §63.8000(b)(2); §63.8080(e)]~~
- h. ~~The permittee shall maintain all manufacturer specification and recommendations required to demonstrate compliance with condition V.A.1.d on file. These files shall be made available to the Department upon request. [§2103.12.j]~~
- i. ~~The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.j; §63.998(d)(5); IP #0057-I003, VI.4.b; IP #0057-I005c, V.A.4.c]~~

- j. ~~All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; RACT Order #254, 1.23]~~

5. Reporting Requirements:

- a. ~~The permittee shall submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin. [§2103.12.k; §2104.08; §63.8070(e); §63.999(a)(1)]~~
- b. ~~The permittee shall report the following information to the Department semiannually in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report, and shall include but not be limited to all of the information required under §63.999(e) and the information below: [§2103.12.k.1; §2104.08; 63 Subpart HHHHHH Table 9.3 & Table 3.1; §63.8075(b); §63.8075(e)(1) (6); §63.999(e); IP #0057 I003, VI.5.a; IP #0057 I005c, V.A.5.a]~~
- ~~1) Company name and address.~~
 - ~~2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.~~
 - ~~3) Date of report and beginning and ending dates of the reporting period.~~
 - ~~4) Monthly minimum temperatures, minimum temperature for the reporting period, and daily average temperatures for any days when the temperature was below the minimum in condition V.A.1.f.~~
 - ~~5) For each startup, shutdown, or malfunction (SSM) during which excess emissions occur, the compliance report shall include the following information:~~
 - ~~a) Records that the procedures specified in the startup, shutdown, and malfunction plan (SSMP) were followed or documentation of actions taken that are not consistent with the SSMP.~~
 - ~~b) A description of each malfunction.~~
 - ~~6) Non-compliance information required to be recorded by condition V.A.4.h above; and~~
 - ~~7) A certified statement signed by the responsible official that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.~~
- e. ~~The semiannual compliance report must also contain the following information for any deviations: [§2103.12.i; §2104.08; §63.8075(e)(6); 63 Subpart HHHHHH Table 9.3 & Table 3.1]~~
- ~~1) If there are no deviations from any emission limit, operating limit, or work practice standard, include a statement that there were no deviations from the emission limits, operating limits, or work practice standards during the reporting period.~~
 - ~~2) For each deviation from an emission limit or operating limit, the permittee shall include the following information. This includes periods of startup, shutdown, and malfunction (SSM).~~
 - ~~a) The date and time that each continuous monitoring system (CMS) was inoperative, except for zero (low level) and high level checks.~~
 - ~~b) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.~~
 - ~~c) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.~~
 - ~~d) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.~~
 - ~~e) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total source operating time during that~~

- ~~reporting period.~~
- ~~f) An identification of each HAP that is known to be in the emission stream or wastewater stream, as applicable.~~
- ~~g) A description of the product being produced.~~
- ~~h) Identification of the CMS.~~
- ~~i) The date of the latest CMS certification or audit.~~
- ~~j) The operating day or operating block average values of monitored parameters for each day(s) during which the deviation occurred.~~
- d. ~~The permittee shall notify the Department at least ten (10) days prior to the use of a new hazardous air pollutant in the Environ Work Center that will exceed 500 pounds consumption during any one month period. [§2103.12.k; IP #0057-1003, VI.5.e]~~
- e. ~~If the permittee makes any changes to the proposed process, the following notifications must be submitted: [§2103.12.k; §2104.08; §63.8075(c)(8); 63 Subpart HHHHHH Table 3.1]~~
- ~~1) Except as specified in paragraph condition V.A.5.c.2) below, whenever the permittee changes any of the information submitted in either the notification of compliance status report or any previously reported change to the notification of compliance status report, the permittee shall document the change in the compliance report. The notification shall include revisions to any of the information reported in the original notification of compliance status report.~~
- ~~2) The permittee shall submit a report 60 days before the scheduled implementation date of any of the following changes:~~
- ~~a) Any change to the information contained in either the precompliance report or any previously reported change to the precompliance report.~~
- ~~b) A change in the status of a control device from small to large.~~
- ~~c) A change in compliance status.~~
- f. ~~Reporting instances of non-compliance and malfunction, does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2102.04.b.4; §2108.01.e]~~

6. Work Practice Standard:

- a. The permittee shall be properly operate and maintain the Paint Plant in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; 25 Pa. Code §129.99]
- 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;
- 2) Keep records of any maintenance; and
- 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Paint Plant and associated thermal oxidizer and baghouses shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; 25 Pa. Code §129.99]
- 1) Properly calibrate all instrumentation;
- 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
- 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
- 4) Cover all open solvent containers when not in use.

- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j; 25 Pa. Code §129.99]

B. Process P002: Paint Plant (Uncontrolled Emissions)

Process Description: CP Cell, Light Cell, Dark Cell, and Environ Work Centers; Large Batch Center; Solvent Still, Small Order Department, and Tank Cleaning

Control Device: None

1. Restrictions:

- a. ~~Uncontrolled emissions from the Paint Plant shall not exceed the limits in Table V-B-1 at any time: [§2103.12.a.2.B]~~

~~Table V-B-1: Uncontrolled Paint Plant Emission Limits~~

Pollutant	Short-term Emissions (lb/hr²)	Annual Emissions (tons/year¹)
VOC's	54.34	238.0
HAP's	26.92	117.9

¹ ~~A year is defined as any 12 consecutive months.~~

² ~~Based on a daily average.~~

- b. The permittee shall equip each portable process vessel with a cover or lid that must be in place at all times when the vessel contains a HAP, except for material additions and sampling. The covers shall be maintained in good condition, such that when in place, they maintain contact with their respective rims for at least 90% of the circumference of the rim. [§2103.12.a; §2104.08; §63.8005(a)(1); 63 Subpart HHHHH Table 1.1; IP #0057-I004, V.A.1.b; RACT Order #254, 1.15; §129.99]
- c. The permittee shall not operate or allow to be operated any dispensing or filling systems for solvent-borne coatings unless they are of closed design or minimize free-fall of liquids. [§2103.12.a; RACT Order #254, 1.16 & 1.17; §129.99]
- d. The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [§2103.12.a; RACT Order #254, 1.20; §129.99]
- e. The permittee shall not conduct or allow to be conducted any floor cleaning operations unless they employ water-based cleaners. The use of solvents shall be limited to spot cleaning. [§2103.12.a; RACT Order #254, 1.21; §129.99]

2. Testing Requirements:

~~The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing." [§2103.12.h.1]~~

3. Monitoring Requirements:

- a. Leak Detection and Repair [§2103.12.i; §2104.08; §63.8015(a); 63 Subpart HHHHH Table 3.1.a; §63.424(a)-(d); §129.99]

- 1) The permittee shall perform a monthly leak inspection of all equipment in organic HAP service, with the exception of equipment in service less than 300 hours per year, equipment in vacuum service, or equipment contacting non-process fluids, as per 40 CFR 63.8015(b)(4). For this inspection, detection methods incorporating sight, sound, and smell are acceptable. Each piece of equipment must be inspected when it is operating in organic HAP service.
- 2) A log book shall be used and shall be signed by the permittee at the completion of each inspection. A section of the log shall contain a list, summary description, or diagram(s) showing the location of all equipment in organic HAP service at the facility.
- 3) Each detection of a liquid or vapor leak shall be recorded in the log book. When a leak is detected, an initial attempt at repair shall be made as soon as practicable, but no later than 5 calendar days after the leak is detected. Repair or replacement of leaking equipment shall be completed within 15 calendar days after detection of each leak, except as provided below.
- 4) Delay of repair of leaking equipment will be allowed upon a demonstration to the Department that repair within 15 days is not feasible. The permittee shall provide the reason(s) a delay is needed and the date by which each repair is expected to be completed.

4. Record Keeping Requirements:

- a. ~~The permittee shall keep and maintain, at a minimum, the following records: [§2103.12.j]~~
 - 1) ~~The Absolute Material Utilization (AMU) value, or equivalent, and the plant wide solvent use based on that value;~~
 - 2) ~~The monthly amount of non-bulk solvent based paint waste, and records of solvent content in that waste;~~
 - 3) ~~The monthly amount of non-bulk aqueous paint waste, and records of solvent content in that waste;~~
 - 4) ~~The monthly amount of bulk still sludge and bulk paint waste, and records of solvent content in that waste.~~
- b. The permittee shall record the following information in the log book required by condition V.B.3.a.2) for each leak that is detected: [§2103.12.j; §2104.08; §63.8000(a); 63 Subpart HHHHH Table 3.1.a; §63.428(e); §129.100]
 - 1) The equipment type and identification number;
 - 2) The nature of the leak (i.e., vapor or liquid) and the method of detection (i.e., sight, sound, or smell);
 - 3) The date the leak was detected and the date of each attempt to repair the leak;
 - 4) Repair methods applied in each attempt to repair the leak;
 - 5) "Repair delayed" and the reason for the delay if the leak is not repaired within 15 calendar days after discovery of the leak;
 - 6) The expected date of successful repair of the leak if the leak is not repaired within 15 days; and
 - 7) The date of successful repair of the leak.
- c. ~~The log book required by condition V.B.3.a.2) shall be maintained on site and shall be available for Department inspection at all times. [§2103.12.h.2.A-B; 2103.12.j.1-2]~~
- d. ~~All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; RACT Order #254, 1.23]~~

5. Reporting Requirements:

- a. ~~If the annual production exceeds 15 MMgal/12-month period, the permittee shall submit the following information as part of the semiannual report required under General Condition III.15: [§2103.12.k.1]~~
~~1) All information required under condition V.B.4.a above;~~
~~2) A rolling 12-month total estimate of emissions to demonstrate compliance with condition V.B.1.a above.~~
- b. For the LDAR program required under condition V.B.3.a, the permittee shall report to the Department a description of the types, identification numbers, and locations of all equipment in organic HAP service as part of the initial notification. If the facility elects to implement an instrument program, the report shall contain a full description of the program. [§2103.12.k; §2104.08; §63.8000(a); 63 Subpart HHHHH Table 3.1.a; §63.428(f); §129.100]
- c. ~~The permittee shall include in the semiannual report each occurrence of an equipment leak for which no repair attempt was made within 5 days or for which repair was not completed within 15 days after detection: [§2103.12.k; §2104.08; 63 Subpart HHHHH Table 9.3 & Table 3.1; §63.428(h)(4)]~~
~~1) The date on which the leak was detected;~~
~~2) The date of each attempt to repair the leak;~~
~~3) The reasons for the delay of repair; and~~
~~4) The date of successful repair.~~

6. Work Practice Standard:

- a. The permittee shall properly operate and maintain the Paint Plant in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; §129.99]
1) Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;
2) Keep records of any maintenance; and
3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Paint Plant shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; §129.99]
1) Properly calibrate all instrumentation;
2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
4) Cover all open solvent containers when not in use.
- c. ~~The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j]~~

Pages 49 through 51
have been redacted.

D. Process P004: Development Center (Controlled Emissions)

Process Description: K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, and R2000 Reactor Process
Raw Materials: Solvent, Epoxy, Catalyst, Monomers
Control Device: Development Center Regenerative Thermal Oxidizer (RTO)
Capacity: 1.6 MMBtu/hr
Fuel: Natural Gas

1. Restrictions:

- a. ~~The permittee shall not operate the K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, and R2000 Reactor Process at any time while generating VOC emissions unless the Development Center RTO is in service and operating as required. [§2103.12.a; IP #0057-I005e; V.B.1.a; IP #0057-I008, V.A.1.a]~~
- b. ~~The Development Center RTO shall be properly operated and maintained according to good engineering practices (as proscribed in Monitoring Section V.D.3 below, manufacturer's recommendations, and the following conditions at all times while treating process emissions: [§2103.12.a; §2104.08; IP #0057-I001, V.1.b; IP #0057-I005e, V.B.1.b; IP #0057-I008, V.A.1.b; §63.2460(a), 40 CFR Part 63 Subpart FFFF Table 2.1.a & c;]~~
 - 1) ~~The minimum VOC destruction efficiency shall be 98% by weight; or [§129.99]~~
 - 2) ~~A VOC concentration less than 20 ppm by volume dry basis.~~
- e. ~~The RTO shall be operated at a minimum operating temperature of 1,500 °F or the temperature at which the destruction efficiency in condition V.D.1.b.1) above is demonstrated during the most recent stack test, whichever is greater. [§2103.12.a; §2105.30.b; IP #0057-I001, V.1.b; IP #0057-I008, V.A.1.e; IP #0057-I005e, V.B.1.e]~~
- d. ~~The permittee shall not operate, nor allow to be operated, the Development Center RTO using a fuel other than utility grade natural gas. [§2103.12.a.2.B; IP #0057-I005e, V.B.1.e; IP #0057-I008, V.A.1.d]~~
- e. ~~If the Development Center RTO is not in operation for a period of an hour or greater, the permittee shall vent all emissions from the K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, and R2000 Reactor Process to the carbon bins within the second hour in which the RTO is offline. [§2103.12.a.2.B; IP #0057-I008, V.A.1.e]~~
- f. ~~The permittee shall vent emissions from the Large Side Reactor System to the respective scrubbers any time those systems are processing batches with chemistry incompatible with the RTO (such as those containing ammonia). [§2103.12.a.2.B; IP #0057-I008, V.A.1.f]~~
- g. ~~Emissions from the Development Center RTO shall not exceed the values in Table V-D-1 at any time: [§2103.12.a; IP #0057-I005e, V.B.1.e; IP #0057-I008, V.A.1.g]~~

TABLE V-D-1: Development Center RTO Emission Limitations

POLLUTANT	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.013	0.056
Particulate Matter <10µm (PM ₁₀)	0.013	0.056
Particulate Matter <2.5µm (PM _{2.5})	0.013	0.056
Nitrogen Oxides (NO _x)	0.180	0.790
Sulfur Oxides (SO _x)	0.001	0.005
Carbon Monoxide (CO)	0.152	0.664
Volatile Organic Compounds (VOC's)	0.846	3.703
Hazardous Air Pollutants (HAP's)	0.846	3.703

¹ A year is defined as any 12 consecutive months.

- h. ~~The Development Center RTO shall be equipped with instrumentation that continuously monitors the thermal oxidizer combustion chamber temperature to within 0.75% of the temperature measured, and records to the nearest 1°F. The permittee shall at all times properly maintain and calibrate the continuous temperature monitor and recorder in accordance with manufacturer's specifications and good engineering practices. [§2103.12.a; IP #0057-I005c, V.B.1.f; IP #0057-I008, V.A.1.h]~~
- i. ~~The permittee shall not operate or allow to be operated any filling systems unless they are of closed design or minimize free fall of liquids. [§2103.12.a.2.B; IP #0057-I008, V.A.1.i]~~
- j. ~~The Development Center RTO shall meet the requirements of 40 CFR Part 63, Subpart SS, §63.982(e)(2), as specified in 40 CFR Part 63, Subpart FFFF. [IP #0057-I008, V.A.1.j; §2103.12.a; §2104.08; §63.2450(e)(1)]~~
- k. ~~The permittee shall determine the Group 1 or 2 status of storage tanks. To maintain Group 2 storage tank status, the permittee shall not store any materials with a maximum true vapor pressure of total HAP greater than or equal to 1.0 psia in any storage tank with a capacity greater than or equal to 10,000 gallons. If the storage tank changes to Group 1 status, the permittee shall connect the tank to control and complete appropriate permit modification applications. [§2103.12.a; §2104.08; §63.2470(a)]~~
- l. ~~The permittee shall determine the Group 1 or 2 status of transfer racks. To maintain Group 2 transfer rack status, the permittee shall not allow bulk loading of any materials that contain greater than or equal to 0.17 million gallons per year of liquids that contain organic HAP with a rack-weighted partial pressure, as defined in §63.111, greater than or equal to 1.5 psia. If the transfer rack changes to Group 1 status, the permittee shall connect the rack to control and complete appropriate permit modification applications. [§2103.12.a; §2104.08; §63.2475(a)]~~
- m. ~~The permittee shall develop and implement a written startup, shutdown, and malfunction plan (SSMP) that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the conditions of~~

~~this permit. The SSMP shall meet the requirements of 63 Subpart A, §63.6(e)(3). [§2103.12.a; §2104.08; §63.6(e)(3)]~~

- ~~1) During periods of startup, shutdown, and malfunction, the permittee shall operate and maintain such source (including associated air pollution control equipment) in accordance with the procedures specified in the SSMP.~~
 - ~~2) When actions taken by the permittee during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the SSMP, the permittee shall keep records for that event that demonstrate that the procedures specified in the plan were followed. In addition, the permittee shall keep records of these events as specified in condition V.D.4.h below, including records of the occurrence and duration of each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control equipment.~~
 - ~~3) If an action taken by the permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the SSMP, the permittee shall record the actions taken for that event and shall report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event.~~
 - ~~4) The permittee shall keep the written SSMP on record to be made available for inspection, upon request, by the Department for the life of the affected source or until the affected source is no longer subject to the provisions of this part. In addition, if the SSMP is revised, the permittee shall keep previous versions of the SSMP on record, to be made available for inspection, upon request, by the Department, for a period of 5 years after each revision to the plan.~~
- n. ~~Opening of a safety device, as defined in §63.8105, is allowed at any time conditions require it to avoid unsafe conditions. [§2103.12.a; §2104.08; §63.2450(p); IP #0057-I008, V.A.1.k]~~
- o. ~~The permittee shall meet the requirements of Section V.G for all process and maintenance wastewater from the equipment in the Development Center. [§2103.12.a; §2104.08; §63.2485(a)]~~

2. Testing Requirements:

- a. The permittee shall conduct VOC and HAP emissions testing on the inlet and the outlet of the Development Center RTO to demonstrate compliance with the requirements in condition V.D.1.b.1) above and limits in condition V.D.1.g above. Such testing shall be conducted in accordance with US EPA approved test methods and §2108.02 of Article XXI. The testing shall be performed after initial start-up and once every five (5) years thereafter. [§2103.12.h.1; IP #0057-I001, V.2.a; IP #0057-I005c, V.B.2.a; IP #0057-I008, V.A.2.a; §129.100]
- b. The permittee shall determine the minimum operating temperature as required under condition V.D.1.c from the most recent valid stack test that demonstrates compliance with limits in condition V.D.1.g above, as approved by the Department. On and after the date the approved stack test results are available, the permittee shall operate the thermal oxidizer at or above the average temperature as observed during the compliant stack test. [§2103.12.h.1; IP #0057-I005c, V.B.2.b; IP #0057-I008, V.A.2.b; §129.100]
- c. ~~The permittee shall conduct all tests while operating the Development Center at maximum routine operating conditions. Documentation of the Development Center operating conditions shall be included in the stack test report. Such documentation shall include but not be limited to: [§2108.02e.2.A; IP #0057-I005c, V.B.2.c]~~
 - ~~1) A listing of all vessels and equipment in use and connected to the RTO during the stack test.~~

- ~~2) A listing of the material in each vessel in use and connected to the RTO during the stack test.~~
- d. ~~The permittee shall conduct tests to measure emissions using the following methods unless other methods are approved by the Department: [§2103.12.h; §2104.08; §63.2450(g); §63.997(e)(2)(i)-(iv); IP #0057-I008, V.A.2.d]~~
- ~~1) Conduct gas molecular weight analysis using Method 3, 3A, or 3B in appendix A to 40 CFR Part 60.~~
- ~~2) Measure moisture content of the stack gas using Method 4 in appendix A to 40 CFR Part 60.~~
- ~~3) The gas volumetric flow rate shall be determined using Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR Part 60, appendix A, as appropriate.~~
- ~~4) TOC concentration shall be determined using Method 18 or 25/25A of 40 CFR Part 60, appendix A, as applicable.~~
- ~~5) As an alternative to using Method 18, Method 25/25A, or Method 26/26A of 40 CFR Part 60, appendix A, the permittee may use Method 320 of 40 CFR part 60, appendix A. When using Method 320, the permittee shall follow the analyte spiking procedures of section 13 of Method 320, unless the permittee demonstrates that the complete spiking procedure has been conducted at a similar source.~~
- e. ~~If the permittee adds supplemental combustion air and is required to correct the measured concentration at the outlet of the RTO to 3 percent oxygen, the permittee shall use Equation 1 of §63.2460. [§2103.12.h; §2104.08; §63.2450(i); IP #0057-I008, V.A.2.e]~~
- f. ~~Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for at least 1 hour and under the conditions specified in condition V.D.2.e above. For the purpose of determining compliance, the arithmetic means of results of the three runs shall apply. [§2103.12.h; §2104.08; §63.997(e)(1)(v); IP #0057-I008, V.A.2.f]~~
- g. ~~If the permittee elects to demonstrate compliance with the outlet concentration limit in condition V.D.1.b.2) above by using a CEM, the testing methods in §63.2450(j) shall be followed. [§2103.12.h; §2104.08; §63.2450(j); IP #0057-I008, V.A.2.g]~~
- h. ~~The Department reserves the right to require additional emissions testing sufficient to assure compliance with the terms and conditions of this permit. Testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing." [§2103.12.h.1; IP #0057-I008, V.A.2.h]~~

3. Monitoring Requirements:

- a. ~~The permittee shall externally inspect the Development Center RTO and associated ductwork weekly for proper operation as well as for integrity of the thermal oxidizer, process equipment, and gaseous collection systems. [§2103.12.i; IP #0057-I001, V.3.a; IP #0057-I005c, V.B.3.a; IP #0057-I008, V.A.3.a]~~
- b. The permittee shall continuously monitor and record the Development Center RTO combustion chamber to the nearest 1°F of actual conditions at all times while treating process emissions. [§2103.12.i; IP #0057-I005c, V.B.3.b; IP #0057-I008, V.A.3.b; §129.100]
- c. ~~If the permittee chooses to demonstrate compliance with the outlet concentration standard in condition V.D.1.b.2) above, then the permittee shall install and properly operate and maintain a continuous monitoring system (CMS) to measure and record the amount of VOC (in ppm by~~

~~volume, dry basis) exiting the Development Center RTO stack. [§2103.12.i; IP #0057-I005c, V.B.3.e; IP #0057-I008, V.A.3.e]~~

4. Record Keeping Requirements:

- a. The temperature in the combustion chamber of the Development Center RTO shall be continuously recorded, at all times, while processing emissions from the Development Center. [§2103.12.j; §2104.08; §63.2450(e); §63.998(b)(1)-(3); IP #0057-I005c, V.B.4.a; IP #0057-I008, V.A.4.a; §129.100]
- b. ~~The permittee shall maintain the following records for the thermal oxidizer unit: [§2103.12.j; IP #0057-I005c, V.B.4.b; IP #0057-I008, V.A.4.b]~~
 - ~~1) Hours of operation;~~
 - ~~2) All data required to demonstrate compliance with the minimum temperature requirements of condition V.D.1.e above;~~
 - ~~3) All data recorded under condition V.D.4.a above; and~~
 - ~~4) Records of operation, maintenance, inspection, calibration, and/or replacement of combustion equipment.~~
- e. ~~The permittee shall record the raw material usage and the type and amount of resin produced per batch, as well as results of the inspections required by condition V.D.3.a above along with any episodes of non-compliance with conditions V.D.1.a through e above and corrective actions taken. [§2103.12.j; IP #0057-I001, V.B.4.e; IP #0057-I008, V.A.4.e]~~
- d. ~~For the Development Center RTO temperature monitoring system, the permittee shall keep and maintain the calibration records outlined in 40 CFR Part 63, Subpart SS, §63.998(c). [§2103.12.j; §2104.08; §63.2450(e); §63.2450(k); §63.2525(g); IP #0057-I008, V.A.4.d]~~
- e. ~~The permittee shall keep and maintain records of each time a safety device is opened to avoid unsafe conditions in accordance with condition V.D.1.n. [§63.2525(f); IP #0057-I008, V.A.4.e]~~
- f. ~~The permittee shall keep records of the Development Center RTO destruction efficiency tests to demonstrate compliance with the requirements of section V.D.1 above. Such records shall provide sufficient data and calculations to clearly demonstrate that all requirements have been met. [§2103.12.j; IP #0057-I005c, V.B.4.e; IP #0057-I008, V.A.4.f]~~
- g. ~~The permittee shall keep each applicable record required by 40 CFR Part 63, Subpart A and in referenced Subparts F, G, SS, and UU. [§2103.12.j; §2104.08; §63.2525(a); IP #0057-I008, V.A.4.g]~~
- h. ~~The permittee shall maintain the following information for each startup, shutdown, or malfunction: [§2103.12.j; §2104.08; §63.10(b)(2)(i)-(v); IP #0057-I008, V.A.4.h]~~
 - ~~1) The occurrence and duration of each startup, shutdown, or malfunction of operation (i.e., process equipment);~~
 - ~~2) The occurrence and duration of each malfunction of the air pollution control equipment;~~
 - ~~3) All maintenance performed on the air pollution control equipment;~~
 - ~~4) Actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) when such actions are different from the procedures specified in the SSMP required under condition V.D.1.m above; and~~

- 5) ~~All information necessary to demonstrate conformance with the SSMP required under condition V.D.1.m above when all actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan.~~
- i. ~~The permittee shall maintain all manufacturer specifications and recommendations required to demonstrate compliance with condition V.D.1.b on file. These files shall be made available to the Department upon request. [§2103.12.j; IP #0057-I008, V.A.4.i]~~
- j. ~~The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.j; IP #0057-I005e, V.B.4.d; IP #0057-I008, V.A.4.j]~~
- k. ~~All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; IP #0057-I008, V.A.4.k]~~

5. Reporting Requirements:

- a. ~~The permittee shall submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin. The permittee shall also submit the test plan required by §63.7(c) and the emission profile with the notification of the performance test. [§2103.12.k; §2104.08; §63.2515(c); IP #0057-I008, V.A.5.a]~~
- b. ~~The permittee shall submit a compliance report to the Department semiannually in accordance with General Condition III.15. The compliance report must contain the following information: [§2103.12.k; §2104.08; §63.2450(a); §63.2520(a); Subpart FFFF Table 11.3; §63.2520(e); IP #0057-I008, V.A.5.b]~~
- ~~1) Company name and address.~~
 - ~~2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.~~
 - ~~3) Date of report and beginning and ending dates of the reporting period.~~
 - ~~4) For each startup, shutdown, or malfunction (SSM) during which excess emissions occur, the compliance report must include records that the procedures specified in the startup, shutdown, and malfunction plan (SSMP) were followed or documentation of actions taken that are not consistent with the SSMP, and include a brief description of each malfunction.~~
 - ~~5) The compliance report must contain the following information on deviations:~~
 - ~~a) If there are no deviations from any condition in this permit, include a statement that there were no deviations during the reporting period.~~
 - ~~b) For each deviation from an emission limit or operating limit, the permittee shall include the following information. This includes periods of SSM:~~
 - ~~i) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.~~
 - ~~ii) The date, time, and duration that each CEMS was out of control, including start and end dates and hours and descriptions of corrective actions taken.~~
 - ~~iii) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.~~
 - ~~iv) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total operating time of the affected source during that~~

- reporting period.
- ~~v) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.~~
 - ~~vi) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the affected source during that reporting period.~~
 - ~~vii) An identification of each HAP that is known to be in the emission stream.~~
 - ~~viii) A brief description of the process units.~~
 - ~~ix) A brief description of the CMS.~~
 - ~~x) The date of the latest CMS certification or audit.~~
 - ~~xi) Operating logs of processes with batch vents from batch operations for each day(s) during which the deviation occurred.~~
 - ~~xii) The operating day or operating block average values of monitored parameters for each day(s) during which the deviation occurred.~~
- ~~6) Applicable records and information for periodic reports as specified in referenced Subparts F, G, H, SS, and UU.~~
- ~~7) Notification of process change.~~
- ~~a) Except as specified in condition V.D.5.b.7)b) below, whenever the permittee makes a process change, or change any of the information submitted in the notification of compliance status report or a previous compliance report, that is not within the scope of an existing operating scenario, the permittee shall document the change in the compliance report. A process change does not include moving within a range of conditions identified in the standard batch, and a nonstandard batch does not constitute a process change. The notification must include all of the information below:~~
 - ~~i) A description of the process change.~~
 - ~~ii) Revisions to any of the information reported in the original notification of compliance status report.~~
 - ~~iii) Information required by the notification of compliance status report for changes involving the addition of processes or equipment.~~
 - ~~b) The permittee shall submit a report 60 days before the scheduled implementation date of any change to the information contained in the precompliance report.~~
- c. ~~The permittee shall report the following information to the Department semiannually in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report: {§2103.12.k.1; IP #0057-I001, V.5.a; IP #0057-I005c, V.B.5.a; IP #0057-I008, V.A.5.c}~~
- ~~1) Company name and address.~~
 - ~~2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.~~
 - ~~3) Date of report and beginning and ending dates of the reporting period.~~
 - ~~4) Monthly minimum temperatures, minimum temperature for the reporting period, and daily average temperatures for any days when the temperature was below the minimum in condition V.D.1.c.~~
 - ~~5) For each startup, shutdown, or malfunction (SSM) during which excess emissions occur, the compliance report shall include the following information:~~
 - ~~a) Records that the procedures specified in the startup, shutdown, and malfunction plan (SSMP) were followed or documentation of actions taken that are not consistent with the SSMP.~~
 - ~~b) A description of each malfunction.~~

- ~~6) Non-compliance information required to be recorded by conditions V.D.4.c and V.D.4.i above; and~~
- ~~7) A certified statement signed by the responsible official that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.~~
- ~~8) Dates of any cold starts of the Development Center RTO.~~
- d. ~~Reporting instances of non-compliance in accordance with condition V.D.5.c.1) above, does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2103.12.k.1; IP #0057-I005c, V.B.5.b; IP #0057-I008, V.A.5.d]~~

6. Work Practice Standard:

- a. The permittee shall properly operate and maintain the Development Center in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; IP #0057-I008, V.A.6; §129.99]
 - 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;
 - 2) Keep records of any maintenance; and
 - 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Development Center and associated thermal oxidizer shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; IP #0057-I008, V.A.6; §129.99]
 - 1) Properly calibrate all instrumentation;
 - 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
 - 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
 - 4) Cover all open solvent containers when not in use.
- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j; §129.99]

E. Process P005: Development Center (Uncontrolled Emissions)**Process Description:**

Fugitive emissions from the K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, R2000 Reactor Process, and the Small Side Reactor System.

Control Device:

None

1. Restrictions:

- a. The permittee shall comply with the requirements 40 CFR Part 63, Subpart UU – National Emission Standards for Equipment Leaks – Control Level 2 for equipment leaks in all equipment in organic HAP service, except as specified in §63.2480(b). If the permittee elects to use a different compliance option in Table 6.1 of Subpart FFFF, the permittee shall notify the Department no later than 30 days prior to the change. [§2103.12.a; §2104.08; §63.2450(a); §63.2480(a); 63 Subpart FFFF Table 6.1.a; IP #0057-I008, V.B.1.a; §129.99]
- b. ~~The permittee shall vent all emissions from the Small Side Reactors through a condenser at all times the reactor is processing material. [§2103.12.a.2]~~
- c. ~~Emissions from the Small Side Reactor System shall not exceed the limits in Table V-E-1 at any time: [§2103.12.a.2.B; 25 Pa. Code §129.96(e)]~~

Table V-E-1: Small Side Reactor System Emission Limits

Pollutant	Short-term Emissions (lb/hr)	Annual Emissions (tons/year¹)
VOC's	0.16	0.70
HAP's	0.08	0.35

¹ ~~A year is defined as any 12 consecutive months.~~

- d. The permittee shall identify all equipment subject to Leak Detection and Repair (LDAR) in accordance with §63.1022 of Subpart UU. [§2103.12.a; §2104.08; §63.2480(a); §63.1022(a) ; IP #0057-I008, V.B.1.b; §129.99]
- e. ~~The permittee shall meet the requirements of Section V.G for all process and maintenance wastewater from the equipment in the Development Center. [§2103.12.a; §2104.08; §63.2485(a)]~~

2. Testing Requirements:

~~The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing." [§2103.12.h.1]~~

3. Monitoring Requirements:

- a. ~~The permittee shall monitor regulated equipment as specified in condition V-E.1.a above. [§2103.12.i; §2104.08; §63.2480(a); IP #0057-I008, V.A.3.a]~~

- b. *Leaking equipment identification and records.* [§2103.12.i; §2104.08; §63.2480(a); §63.1023(e); IP #0057-I008, V.A.3.b; §129.99]
- 1) When each leak is detected pursuant to the monitoring specified in §63.1023(a) in accordance with condition V.E.3.a above, a weatherproof and readily visible identification, shall be attached to the leaking equipment.
 - 2) When each leak is detected, the permittee shall record the information specified in V.E.4.b below.
- c. The permittee shall repair each leak detected as soon as practical, but not later than 15 calendar days after it is detected, except as provided in §§63.1024(d) and (e). A first attempt at repair as defined in this subpart shall be made no later than 5 calendar days after the leak is detected. [§2103.12.i; §2104.08; §63.2480(a); §63.1024(a); IP #0057-I008, V.A.3.c; §129.99]

4. Record Keeping Requirements:

- a. The permittee shall keep each applicable record required by 40 CFR Part 63, Subpart A and in referenced Subparts F, G, SS, and UU. [§2103.12.j; §2104.08; §63.2525(a); IP #0057-I008, V.A.4.a; §129.100]
- b. For each leak detected, the following information shall be recorded: [§63.2480(a); §63.1024(f); IP #0057-I008, V.A.4.b; §129.100]
- 1) The date of first attempt to repair the leak.
 - 2) The date of successful repair of the leak.
 - 3) Maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A at the time the leak is successfully repaired or determined to be nonreparable.
 - 4) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak as specified in conditions a) and b) below:
 - a) The permittee may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of the startup, shutdown, and malfunction plan, as required by condition V.D.1.m, or may be part of a separate document that is maintained at the plant site. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.
 - b) If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked on-site before depletion and the reason for depletion.
 - 5) Dates of shutdowns that occur while the equipment is unrepaired.
- c. The permittee shall keep records of the number and types of components subject to LDAR, as required under condition V.E.1.d above. [§2103.12.j; §2104.08; §63.2480(a); §63.1022; IP #0057-I008, V.A.4.c; §129.100]
- d. The permittee shall keep specific equipment leak records according to §63.1038 of Subpart UU. [§2103.12.j; §2104.08; §63.2480(a); §63.1038(c); IP #0057-I008, V.A.4.d; §129.100]
- e. ~~For the Small Side Reactor System, the permittee shall record the raw material usage and the type and amount of resin produced per batch.~~ [§2103.12.j; IP #0057-I008, V.A.4.e]
- f. ~~The permittee shall maintain records of each startup, shutdown, or malfunction in accordance with condition V.D.4.h.~~ [§2103.12.j; §2104.08; §63.10(b)(2)(i) (v); IP #0057-I008, V.A.4.f]

- ~~g. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.j; IP #0057-I008; V.A.4.g]~~
- ~~h. All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; IP #0057-I008; V.A.4.h]~~

5. Reporting Requirements:

- ~~a. The permittee shall report the monthly amount of resin produced in the Small Side Reactor System upon request by the Department. [§2103.12.k.1]~~
- b. The permittee shall report the following LDAR information in the semiannual report required under General Condition III.15 above: [§2103.12.k; §2104.08; §63.2480(a); §63.1039(b); IP #0057-I008, V.A.5.a); §129.100]
- 1) For the following equipment, report in a summary format by equipment type, the number of components for which leaks were detected and for valves, pumps and connectors show the percent leakers, and the total number of components monitored. Also include the number of leaking components that were not repaired as required by condition V.E.3.c above, and for valves and connectors, identify the number of components that are determined to be nonrepairable.
 - a) Valves in gas and vapor service and in light liquid service pursuant to §63.1025(b) and (c) of Subpart UU.
 - b) Pumps in light liquid service pursuant to §63.1026(b) and (c) of Subpart UU.
 - c) Connectors in gas and vapor service and in light liquid service pursuant to §63.1027(b) and (c) of Subpart UU.
 - d) Agitators in gas and vapor service and in light liquid service pursuant to §63.1028(c) of Subpart UU.
 - e) Compressors pursuant to §63.1031(d) of Subpart UU.
 - 2) Where any delay of repair is utilized pursuant to condition V.E.3.c above, report that delay of repair has occurred and report the number of instances of delay of repair.
 - 3) If applicable, report the valve subgrouping information specified in §63.1025(b)(4)(iv).
 - 4) For pressure relief devices in gas and vapor service pursuant to §63.1030(b) and for compressors pursuant to §63.1031(f) that are to be operated at a leak detection instrument reading of less than 500 parts per million, report the results of all monitoring to show compliance conducted within the semiannual reporting period.
 - 5) Report, if applicable, the initiation of a monthly monitoring program for valves pursuant to §63.1025(b)(3)(i).
 - 6) Report, if applicable, the initiation of a quality improvement program for pumps pursuant to §63.1035.
 - 7) Where the alternative means of emissions limitation for batch processes is utilized, report the information listed in §63.1036(f).

6. Work Practice Standard:

- a. The permittee shall properly operate and maintain the Development Center in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; §129.99]
- 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance

- procedures;
 - 2) Keep records of any maintenance; and
 - 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Development Center shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; §129.99]
- 1) Properly calibrate all instrumentation;
 - 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
 - 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
 - 4) Cover all open solvent containers when not in use.
- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j; §129.99]
- d. The permittee shall equip each portable process vessel with a cover or lid that must be in place at all times when the vessel contains a HAP, except for material additions and sampling. The covers shall be maintained in good condition, such that when in place, they maintain contact with their respective rims for at least 90% of the circumference of the rim. [§2103.12.a; §2104.08; §63.8005(a)(1); V.A.1.b; §129.99]
- e. The permittee shall not operate or allow to be operated any dispensing or filling systems for solvents unless they are of closed design or minimize free-fall of liquids. [§2103.12.a; §129.99]
- f. The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [§2103.12.a; §129.99]
- g. The permittee shall not conduct or allow to be conducted any floor cleaning operations unless they employ water-based cleaners. The use of solvents shall be limited to spot cleaning. [§2103.12.a; §129.99]

F. Process P006: Automated Paint Spray Booth

Process Description: Automated Paint Spray Booth with two 50,000 Btu/hr curing/drying ovens
Facility ID: P006
Capacity: 5,060 gallons of coatings per year
Raw Materials: coatings (pigment, resin, solvent); 12"×12" aluminum panels (substrates); natural gas (curing/drying ovens)
Control Device(s): none

1. Restrictions:

- a. ~~Coating usage shall be limited to the following: [IP #0057-I009, V.A.1.a; §2103.12.a.2.D]~~
1) ~~For primer, 1.6 gallons per day (as a rolling 7-day average) and 560 gallons per 12-month period; and~~
2) ~~For topecoats, 12.1 gallons per day (as a rolling 7-day average) and 4,500 gallons per 12-month period.~~
- b. ~~The VOC content, as applied, shall not at any time exceed 2.80 pounds per gallon for primer and 2.80 pounds per gallon for topecoats. [IP #0057-I009, V.A.1.b; §2103.12.a.2.D; §2105.83.g]~~
- c. ~~The total HAP content, as applied, shall not at any time exceed 85.91% for primer and 71.56% for topecoat, as a percentage of VOC. [IP #0057-I009, V.A.1.e; §2103.12.a.2.D]~~
- d. The paint booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [IP #0057-I009, V.A.1.d; §2103.12.a.2.D; §2105.03; §129.99]
- e. All spray-applied coatings must be applied with an air-assisted rotary bell spray gun. [IP #0057-I009, V.A.1.e; §2103.12.a.2.D; §129.99]
- f. ~~Emissions from the automated paint spray booth shall not exceed the following at any time [IP #0057-I009, V.A.1.f; §2103.12.a.2.D]:~~

Table V-F-1: Automated Paint Spray Booth Emission Limits

Pollutant	Emissions	
	lb/hr	tpy¹
Volatile Organic Compounds (VOC)	2.12	6.96
Hazardous Air Pollutants (HAP)	1.54	5.09

¹ A year is defined as any 12 consecutive months.

- g. ~~The permittee shall not use any cleaning solvents that contain VOC or HAP. [IP #0057-I009, V.A.1.g; §2103.12.a.2.D]~~

2. Testing Requirements:

~~The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing". [IP #0057-I009, V.A.2; §2103.12.h.1]~~

3. Monitoring Requirements:

~~The permittee shall inspect the spray units and overspray filters weekly for compliance with conditions V.F.1.d and V.F.1.e above. [IP #0057-I009, V.A.3; §2103.12.a.2.D; §2103.12.i]~~

4. Record Keeping Requirements:

- a. ~~The permittee shall maintain daily, monthly, and 12-month records of the following for each primer and topecoat as applied: [IP #0057-I009, V.A.4.a; §2105.83.c]~~
 - 1) ~~The topecoat or primer name and identification number;~~
 - 2) ~~The volume used;~~
 - 3) ~~The density or specific gravity;~~
 - 4) ~~The weight percent of total volatiles, water, solids, and exempt solvents; and~~
 - 5) ~~The HAP content and the VOC content.~~
- b. ~~The permittee shall maintain records of inspection and maintenance of the overspray filters required under condition V.F.3 above. [IP #0057-I009, V.A.4.b; §2103.12.a.2.D; §2103.12.j]~~
- c. ~~The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [IP #0057-I009, V.A.4.c; §2103.12.a.2.D; §2103.12.j]~~
- d. ~~All records shall be maintained by the permittee for a period of at least five (5) years following the date of such record. [IP #0057-I009, V.A.4.d; §2103.12.j.2]~~

5. Reporting Requirements:

- a. ~~The permittee shall report the following information to the Department semiannually in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report: [IP #0057-I009, V.A.5.a; §2103.12.a.2.D; §2103.12.k]~~
 - 1) ~~Company name and address;~~
 - 2) ~~Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report;~~
 - 3) ~~Calendar dates covered in the reporting period;~~
 - 4) ~~Monthly totals of each primer or topecoat as required to be recorded under condition V.F.4.a above;~~
 - 5) ~~The monthly maximum VOC content calculated in condition V.F.4.a.4) above;~~
 - 6) ~~The monthly maximum HAP content calculated in condition V.F.4.a.5) above; and~~
 - 7) ~~A monthly estimate of the emissions of VOCs and HAPs;~~
- b. ~~Reporting instances of non-compliance does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [IP #0057-I009, V.A.5.b; §2103.12.a.2.D; §2103.12.k]~~

6. Work Practice Standard:

- a. The permittee shall store all VOC-containing coatings, thinners, coating-related waste material, cleaning materials and used shot towels in closed containers. [IP #0057-I009, V.A.6.a; §2103.12.a.2.D; §129.99]

- b. The permittee shall ensure that mixing and storage containers used for VOC-containing coatings, thinners, coating-related waste materials, and cleaning materials are kept closed at all times except when depositing or removing these materials. [IP #0057-I009, V.A.6.b; §2103.12.a.2.D; §129.99]
- c. The permittee shall minimize all spills of VOC-containing coatings, thinners, coating-related waste materials and cleaning materials, cleaning up spills immediately. [IP #0057-I009, V.A.6.c; §2103.12.a.2.D; §129.99]
- d. The permittee shall convey VOC-containing coatings, thinners, coating-related waste materials and cleaning materials from one location to another in closed containers or pipes. [IP #0057-I009, V.A.6.d; §2103.12.a.2.D; §129.99]
- e. The permittee shall operate and maintain all process equipment according to manufacturers' specifications and recommendations, and good engineering practices. [IP #0057-I009, V.A.6.e; §2103.12.a.2.D; §2105.03; §129.99]
- f. The permittee shall keep the manufacturer's operating manuals on site and available at all times. [IP #0057-I009, V.A.6.f; §2103.12.a.2.D; §2105.03; §129.99]

Pages 67 through 84
have been redacted.

**ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM**

February 28, 2020

SUBJECT: Reasonable Available Control Technology (RACT II) Determination
PPG Industries, Inc. – Springdale Facility
125 Colfax Street
Springdale, PA 15144-1506
Allegheny County

Title V Operating Permit No. 0057-OP18a

TO: JoAnn Truchan, P.E.
Section Chief, Engineering

FROM: Bernadette Lipari
Air Quality Engineer

I. Executive Summary

The PPG Industries – Springdale facility is defined as a major source of VOC emissions and was subjected to a Reasonable Achievable Control Technology II (RACT II) review by the Allegheny County Health Department (ACHD) required for the 1997 and 2008 Ozone National Ambient Air Quality Standard (NAAQS). The findings of the review established that technically and financially feasible RACT II would result in the following emissions changes, summarized below.

Table 1 Technically and Financially Feasible Control Options Summary for VOC

Unit ID	Emissions Unit	Financially Feasible Control Option	Current VOC PTE	RACT Reduction	Revised VOC PTE	Annualized Control Cost (\$/yr)	Cost Effectiveness (\$/ton VOC removed)
P001	Paint Plant – Controlled	Increase the efficiency from 95% to 98%	26.04	15.62	10.42	\$0	\$0
Total			26.04	15.62	10.42	\$0	\$0

These findings are based on the following documents:

- RACT analysis performed by ERG (PPG Industries_RACT_7-15-15.docx)
- RACT analysis performed by PPG Industries, Inc. – Springdale Facility (0057c2014-01-20ract.pdf)
- BACT analysis performed by PPG Industries, Inc. – Springdale Facility (0057ip005c2006-10-31bact.pdf)
- BACT analysis performed by PPG Industries, Inc. – Springdale Facility (see Application for Permit No. 0057-I004 dated 10/18/2004 and Correspondence dated 02/09/2005)
- BACT analysis performed by PPG Industries, Inc. – Springdale Facility (see Application for Permit No. 0057-I009 dated 10/07/2015 and Correspondence dated 07/12/2016)

II. Regulatory Basis

ACHD requested all major sources of NO_x (potential emissions of 100 tons per year or greater) and all major sources of VOC (potential emissions of 50 tons per year or greater) to reevaluate NO_x and/or VOC RACT II for incorporation into Allegheny County's portion of the PA SIP. This document is the result of ACHD's determination of RACT II for PPG Industries – Springdale based on the materials submitted by the subject source and other relevant information.

III. Facility Description

PPG Industries, Inc. – Springdale Plant is a paint manufacturing plant and research & development facility. The paint plant produces coatings for aluminum extrusions, general industrial, and coil coating. Within the main paint manufacturing buildings is housed a series of technical laboratories providing testing and customer support for PPG Coatings. The paint manufacturing building also houses manufacturing support laboratories, which oversee the quality and other parameters of products, manufactured. The research and development plant provides scale-up support for resin manufacture and tests new resins used in coatings. PPG Industries is a major source of VOC emissions.

Table 2 Facility Sources Subject to Case-by-Case RACT II

Source ID	Description	Rating	VOC PTE (TPY)	VOC Presumptive Limit (RACT II)	VOC Case-by-Case Limit (RACT II)
P001	Paint Plant – Controlled	1.6 MMBtu/hr	10.42	NA	Increase the efficiency from 95% to 98%
P002	Paint Plant – Uncontrolled (incl. fugitives)	17,868,000 lb solvent/yr	238	NA	Overspray Filters; LDAR
P003	Paint Plant Freightliner Spray Booth	39,420 lb coating /yr	2.50	NA	Good Engineering Practice; Electrostatic Spray Gun
P004	Development Center – Controlled	1.6 MMBtu/hr	3.70	NA	Good Engineering Practice
P005	Development Center – Uncontrolled (Connectors-gas)	NA	3.63	NA	Overspray Filters; LDAR
P006	Development Center Automated Spray Booth	5,000 gal/yr	14.92	NA	Good Engineering Practice; Rotary Bell Applicator; CTG §2105.83

Table 3 Facility Sources Exempt from RACT II per PA Code 129.96(c) {< 1 TPY VOC}

Source ID	Description	Rating	VOC PTE (TPY)
B001	Paint Plant Boiler 1a	25.1 MMBtu/hr	0.44
B002	Paint Plant Boiler 2	25.1 MMBtu/hr	0.44
B003	Paint Plant Warehouse Boiler	8.4 MMBtu/hr	0.15
	Paint Plant Storage Tanks	2,645,400 gal/yr	2.14*
	Paint Plant Environ, Trix cleaners, and Large Batch Ctr.	84,400 gallons (0.78 lb/hr)	0.26
	Development Center Storage Tanks	584,000 gal/yr	0.69
P005	Development Center Uncontrolled (Valves)	n/a	0.498
P005	Development Center Uncontrolled (Pump Seals)	n/a	0.109
P005	Development Center Uncontrolled (PRV)	n/a	0.012
P005	Development Center Uncontrolled (Connectors-liq.)	n/a	0.330
P005	Development Center Uncontrolled (Agitator Seals)	n/a	0.396
P005	Development Center Uncontrolled (Small Side Reactor)	n/a	0.690
	Miscellaneous Spray Booths	n/a	Negligible

* Individual units are < 1 TPY

IV. RACT II Determination

Paint Plant RTO (P001)

P001 is currently controlled using a capture and control system with an RTO that is required to meet 95% reduction or better. In the previous permit issuance, the Paint Plant RTO (P001) was considered BACT at 95% destruction efficiency. However, subsequent testing revealed that it is achieving a 98% destruction efficiency at no additional cost shown by the summary of stack tests in the table below.

	Inlet (lb/hr)	Outlet (lb/hr)	Efficiency
9/26/07			
Run #1	3.78	0.04	99.0%
Run #2	5.64	0.05	99.1%
Run #3	3.08	0.02	99.2%
Average	4.17	0.04	99.1%
4/14/10			
Run #1	3.982	0.096	97.6%
Run #2	3.617	0.094	97.4%
Run #3	3.391	0.067	98.0%
Average	3.663	0.086	97.7%
10/8/13			
Run #1	9.729	0.302	96.9%
Run #2	6.517	0.070	98.9%
Run #3	3.251	0.043	98.7%
Average	6.499	0.138	98.2%
10/3/18			
Run #1	2.22	0.0245	99.69%
Run #2	1.30	0.0164	99.68%
Run #3	1.37	0.0168	99.65%
Average	1.63	0.0192	99.67%

ACHD has determined that RACT II for the controlled emissions from the Paint Plant is continued control with the existing RTO meeting a destruction efficiency of 98% instead of 95%. This limits VOC emissions to 10.4 tpy.

Uncontrolled VOC emissions from the Paint Plant (P002)

Uncontrolled VOC emissions from the Paint Plant (P002) occur during material additions from loose-fitting lids and equipment leaks, product sampling, product filling/packaging, and during equipment cleaning. Uncontrolled VOC emissions from the Paint Plant (P002) are limited to 54.3 lbs/hr and 238.0 tons per year. Although the fugitive VOC emissions from P002 are large, these emissions cannot be vented to a common stack because of the number of individual sources, that combined, create large VOC emissions. Ducting each of these sources is not technically feasible. With such venting, the technically feasible means of limiting VOC emissions are described below.

According to information available in EPA's *Control of VOC Emissions from Ink and Paint Manufacturing Processes*¹, and *Control Techniques for Volatile Compound Emissions from Stationary Sources*², VOC emissions from the Paint Plant (P001) can be controlled with:

- (a) Equipment or Process Modifications

¹ US EPA, "Control of VOC Emissions from Ink and Paint Manufacturing Processes", EPA-450/3-92-013, April 1992. Available at: http://www.epa.gov/ttn/catc/dir1/ink_paint.pdf

² US EPA, "EPA's Control Techniques for Volatile Compound Emissions from Stationary Sources", EPA 453/R-92-018, December 1992. Available at: <http://www.epa.gov/ozonepollution/SIPToolkit/ctgs.html>

1. Tank Lids
2. Modified Milling Equipment
3. Storage Tank Conservation Vents
- (b) Equipment Cleaning
 1. Rubber Wipers
 2. High Pressure Spray Heads
 3. Teflon-lined Tanks
 4. Plastic Pigs
 5. Automatic Tub Washers
- (c) Improved Operating Practices
 1. Dedicated Process Lines/Equipment
 2. Use of Covers During Tank Operation
 3. Splash/Spill Prevention
 4. Closed Container Storage of Wastes
 5. Employee Awareness
- (d) Recycling Techniques
 1. Re-use Solvent in Subsequent Batches
 2. Countercurrent Rinsing
- (e) Product Reformulation
 1. Low VOC Coatings
 2. Powder Coatings
 3. Waterborne Paints
 4. Radiation-Curable Paints
 5. High-Solids Paint
- (f) Leak Detection and Repair Program

Product reformulation to produce low-VOC or water-based coatings is technologically feasible, but the mandated production or phase-in of reformulated products is technologically infeasible. The coatings manufactured at PPG are largely dictated by the customers' needs.

All of these technologies except for product reformulation, are technically feasible options for controlling fugitive VOC from the Paint Plant. However, all of these are required by the current Title V operating permit either from the previous RACT Order #254 or as work practice standards of Subpart HHHHH.

The RACT II for control of VOC emissions from the Paint Plant (P002) shall be continued compliance with the current permit requirements contained in RACT I Order 254 and in Subpart HHHHH requirements.

The Freightliner Spray Booth (P003)

The Freightliner Spray Booth (P003) consists of surface coating and clean-up operations. Coatings are applied to metal and plastic panels with electrostatic guns in a spray booth. Solvent is used for clean-up. RACT II VOC emissions are being lowered from 8.27 tons per year in the previous permit issuance to 2.5 tons per year. This is based on the average VOC emissions of 0.069 tons per year over a nine year period of emissions inventory data. VOC emissions are uncontrolled.

According to information available in EPA's *Control Techniques for Volatile Compound Emissions from Stationary Sources*³, VOC emissions from the Paint Plant Freightliner Spray Booth could be controlled by:

- (a) Converting to low-VOC coatings

³ US EPA, EPA 453/R-92-018, op. cit.

- (b) Improving transfer efficiency
- (c) Incineration

Product reformulation to produce low-VOC or water-based coatings is technologically feasible, but the mandated use or phase-in of reformulated products is technologically infeasible. The Freightliner Paint Booth is used with coatings made at PPG; therefore, the formulations used are ones that meet the customers' needs.

Improving transfer efficiency is technically feasible. However, the spray booths are already required to use electrostatic spray guns. This application method represents the best available application technology for the types of coatings that PPG Industries is testing in this spray booth. Therefore, no additional VOC control can be gained by requiring improved transfer efficiency.

Thermal incineration is technically feasible with an estimated control efficiency of 95%.

ACHD has determined that requiring the installation of a thermal incinerator to control VOC emissions from the Freightliner Spray Booth is not cost-effective (See Table 4 below).

The RACT II for control of VOC emissions from the Freightliner Spray Booth shall be to continue to comply with the current permit requirements.

Developmental Center RTO (P004)

The VOC emissions from the Developmental Center RTO are limited in the current Title V operating permit to 0.846 pound per hour and 3.703 tons per year. The Development Center RTO is subject to 40 CFR 63, Subpart FFFF – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing, which requires the RTO to achieve 98% destruction of VOC. The operating permit also requires the RTO to achieve 98% destruction of VOC. A stack test of the Development Center RTO conducted on November 26, 2013 indicates that the VOC destruction efficiency of this control device is 98.8%. ACHD determined that 98% is the greatest reduction achievable and is RACT II for (P004). Therefore, the RACT II for those units that are controlled with the RTO is continued control and compliance with 40 CFR Part 63, Subpart FFFF and permit conditions.

Uncontrolled emissions from the Development Center (P005)

These emissions are subject to the requirements of 40 CFR Part 63, Subpart UU – National Emission Standards for Equipment Leaks – Control Level 2 for equipment leaks in all equipment in organic HAP service. Subpart UU requires that the source use a Leak Detection and Repair (LDAR) program to identify and repair leaks from this equipment. The requirements of this rule are some of the most stringent and ACHD considers the LDAR system to be achieving the greatest reduction and is therefore considered RACT II for (P005). Other good operating practices are required, including operating and maintaining the Development Center in accordance with the manufacturer's specifications, equipping each portable process vessel with a cover or lid that must be in place at all times, not operating or allowing to be operated any dispensing or filling systems for solvents unless they are of closed design or minimize free-fall of liquids, cleaning all process equipment so as to minimize VOC emissions, employing water-based cleaners in any floor cleaning operations, and limiting the use of solvents to spot cleaning. RACT II for these fugitive emissions is continued compliance with Subpart UU and good engineering practices.

Wastewater Handling System (P004 & P005)

VOC emissions from wastewater handling are covered under P004 and P005.

Developmental Center Automated Spray Booth (P006)

As stated in the Correspondence dated 07/12/2016 for the BACT analysis in the application for Permit No. 0057-I009 dated 10/07/2015, the only technically feasible control option for the Automated Spray Booth is thermal oxidation. Ducting to one of the existing thermal oxidizers is also cost-prohibitive. Furthermore, in the case of

the Paint Plant RTO, there is not enough capacity for the additional flow. An analysis of cost for a new thermal oxidizer was estimated using the method outlined in Section 3.2, Chapter 2 of the OAQPS Cost Control Manual. Based on this methodology, installing a new thermal oxidizer is cost-prohibitive. BACT in this case is proper operation and maintenance. RACT II analysis of P006 also resulted in application of Article XXI §2105.83 Table 1 limitations. RACT II VOC emissions are being lowered from 14.92 to 6.96 tons per year of VOC. Emissions inventory of the Automated Spray Booth showed that the highest VOC emissions was 3.84 tons per year since installation, so this limit should not pose restrictions to the operation of the booth.

The Technically Feasible Control Options for PPG are detailed in Table 4 (VOC).

Table 4 **Technically Feasible VOC Control Cost Comparisons**

Control Option		P003
Thermal Oxidation	tpy VOC Removed	7.9
	Cost	\$228,500
	\$/ton	\$28,900

V. RACT II Summary

RACT Order #254 includes conditions for the Resin Plant. The facility is no longer in operation, so those RACT I requirements are no longer needed.

RACT Order #254 also includes conditions for the Paint Plant REECO Thermal Oxidizer. However, this thermal oxidizer was replaced by the Paint Plant RTO (P001), which is addressed in Section IV above.

The conditions listed in the table in Section VI of this document below supersede the relevant conditions of Plan Approval Order and Agreement #254 (RACT I), issued December 19, 1996. The RACT II conditions are at least as stringent as those from RACT I. Other RACT I conditions listed in Table 5 below not affected by RACT II remain in effect.

Based on the findings in this RACT analysis, the PPG Industries – Springdale facility emissions are expected to be reduced by 15.62 tons per year to 280.31 tons per year.

Table 5 **RACT I Summary**

Source	RACT Order 254 Condition No.	RACT I Requirement
Paint Plant	Order #254 1.13, 1.14; (V.A.1.b)	Equip each stationary mixer and stationary process vessel with a tightly fitting vented cover or lid that must be closed at all times when the vessel contains HAP, except for material additions and sampling.
Paint Plant	Order #254 1.16, 1.17; (V.A.1.c)	The permittee shall not operate or allow to be operated any dispensing or filling systems for solvent-borne coatings unless they are of closed design or minimize free-fall of liquids.
Paint Plant	Order #254 1.20; (V.A.1.h)	The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions.
Paint Plant	Order #254 1.18; (V.A.1.i)	The permittee shall not operate or allow to be operated any grinding mills unless they are completely closed at all times.
Paint Plant	Order #254 1.22; (V.A.4.a)	Record the monthly usage of all raw materials necessary to demonstrate compliance with this permit. Such records shall provide sufficient data

Source	RACT Order 254 Condition No.	RACT I Requirement
		and calculations to clearly demonstrate that all requirements of this permit are met.
Paint Plant	Order #254 1.23; (V.A.4.j)	All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying.
Paint Plant	Order #254 1.19; (V.A.6.a)	Properly operate and maintain the Paint Plant in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit.
Paint Plant	Order #254 1.19; (V.A.6.b)	The Paint Plant and associated thermal oxidizer and baghouses shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions.
Paint Plant	Order #254 1.15; (V.B.1.b)	Equip each portable process vessel with a cover or lid that must be in place at all times when the vessel contains a HAP, except for material additions and sampling. The covers shall be maintained in good condition, such that when in place, they maintain contact with their respective rims for at least 90% of the circumference of the rim.
Paint Plant	Order #254 1.16, 1.17; (V.B.1.c)	The permittee shall not operate or allow to be operated any dispensing or filling systems for solvent-borne coatings unless they are of closed design or minimize free-fall of liquids.
Paint Plant	Order #254 1.20; (V.B.1.d)	The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions.
Paint Plant	Order #254 1.21; (V.B.1.e)	The permittee shall not conduct or allow to be conducted any floor cleaning operations unless they employ water-based cleaners. The use of solvents shall be limited to spot cleaning.
Paint Plant	Order #254 1.23; (V.B.4.d)	All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying.
Paint Plant	Order #254 1.19; (V.B.6.a)	The permittee shall properly operate and maintain the Paint Plant in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit.
Paint Plant	Order #254 1.19; (V.B.6.b)	The Paint Plant shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions.
Development Center	Order #254 1.19; (V.D.6.a)	The permittee shall properly operate and maintain the Development Center in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit.
Development Center	Order #254 1.19; (V.D.6.b)	The Development Center and associated thermal oxidizer shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions.
Development Center	Order #254 1.19; (V.E.6.a)	The permittee shall properly operate and maintain the Development Center in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit.
Development Center	Order #254 1.19; (V.E.6.b)	The Development Center shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions.

VI. New and Revised RACT II Permit Conditions

The following conditions were cited for case-by-case RACT (25 Pa. Code, §129.99):

IP #0057-I005c	
V.A.1.b.1, c	V.B.1.b.1, c
V.A.6	V.B.6
TVOP #0057-OP18a	
V.A.1.b-d.1, f, h,	V.D.6.a-c
V.A.6.a-c	V.E.1.a, d
V.B.1.b-e	V.E.3.b-c
V.B.3.a	V.E.6.a-g
V.B.6.a-b	V.F.1.d-e
V.D.1.b.1	V.F.6.a-f

The following conditions were cited for compliance with case-by-case RACT (25 Pa. Code, §129.100):

IP #0057-I005c	
V.A.2.a-b	V.B.2.a-b
V.A.3.b	V.B.3.b
V.A.4.a, c	V.B.4.a, c
TVOP #0057-OP18a	
V.A.2.a, d	V.D.2.a-b
V.A.3.b	V.D.3.b
V.A.4.c	V.D.4.a
V.B.4.b	V.E.4.a-d
V.B.5.b	V.E.5.b

ALLEGHENY COUNTY HEALTH DEPARTMENT
Air Quality Program

SUMMARY OF PUBLIC COMMENTS AND DEPARTMENT RESPONSES
ON THE PROPOSED ISSUANCE OF PPG INDUSTRIES, INC – SPRINGDALE
PLANT
OPERATION PERMIT NO. 0057-OP18a

[Notice of the opportunity for public comment appeared in the legal section of the Pittsburgh Post-Gazette on December 19, 2019. The public comment period ended on January 22, 2020]

1. **Comment:** The proposed amendment to the Title V Permit unilaterally and inappropriately increases the destruction efficiency for Springdale's Paint Plant Regenerative Thermal Oxidizer (Process P002a) ("Paint Plant RTO") from 95 % to 98%. The stated basis for this proposed amendment purportedly is a Reasonably Available Control Technology ("RACT") determination for compliance with the 2008 National Ambient Air Quality Standards ("NAAQS"), otherwise known as RACT II. Bypassing the requirement for an appropriate RACT analysis, the Department appears to have determined that the Paint Plant RTO is capable of consistently achieving a 98% destruction efficiency based solely on interpretation of recent stack test results, and justifies the proposed 98% destruction efficiency requirement exclusively on this basis without regard to the documented design and manufacturing specifications for the control device, or the well-recognized enhancements that would be necessary to consistently achieve a 98% destruction efficiency. The assumption that there would be zero cost associated with achieving a 98% destruction efficiency is incorrect. Such an assumption fails to give the required consideration to technical and economic factors regarding the minimal marginal emission reductions that would result from the costly enhancements necessary to consistently achieve such a destruction efficiency.

Response: The Department used all test results from stack tests conducted in 2007, 2010, 2013, and 2018 as the basis to determine a destruction efficiency of 98%. These stack test results should be indicative of current operations at the facility. Based on current records, the Paint Plant RTO is already operating at 98% destruction efficiency and there is no need for "well-recognized enhancements that would be necessary to consistently achieve a 98% destruction efficiency." The RACT II evaluation does not result in changes to current operations, therefore, there are no additional costs.

2. **Comment:** The singular focus on VOC emissions reductions from the Paint Plant RTO during Stack Testing to determine RACT II Requirements is flawed. Relying on the stack test results from 2007, 2010, 2013, and 2018, the Department calculates what it considers to be the VOC RACT II-based emissions of 10.4 tons per year for the Paint Plant RTO. The Paint Plant RTO is already subject to an applicable Maximum Achievable Control Technology (MACT) requirement of 95% VOC destruction efficiency and Table 1.2.b.i begging the question as to why RACT, a standard intended to be less stringent than MACT, is being relied upon to justify the more stringent proposed 98% VOC destruction efficiency requirement.

Furthermore, any case-by-case RACT analysis requires an analysis of potentially applicable control technology and the associated costs for such technologies. No analysis of the technical feasibility or costs associated with potential changes that would be necessary for the Paint Plant RTO to consistently achieve a 98% VOC destruction efficiency was undertaken, much less the cost and emissions consequences of burning more natural gas to operate the existing or upgraded Paint Plant RTO at a

higher temperature to ensure sustained compliance under all operating conditions. Rather than consider the design differences between control systems specifically designed and warranted to achieve 98% and 95% destruction efficiency, the Department relied on the variable results of relatively short duration stack tests that have no relevance to the question of demonstrated design capability.

Response: MACT applies to HAPs, which do not necessarily comprise all of the VOC, whereas RACT applies to VOC, so the comparison is not accurate. Furthermore, by not certifying that the MACT standards meet RACT II (such as done with the Control Technology Guidelines), the US EPA has implied that RACT II can be more stringent than MACT. By meeting the 98% destruction efficiency, the MACT will also be met. The facility has already consistently demonstrated that it is meeting 98% destruction efficiency (see response to Comment #1 above), therefore, no other control technology evaluation is deemed necessary, any of which would result in a higher cost.

3. **Comment:** Presumptive RACT should have been applied or at least considered for the Paint Plant RTO. The Department erroneously determined that a case-by-case RACT II determination was necessary for the Paint Plant RTO. Pennsylvania's state-wide RACT II requirements give affected facilities and sources an option to comply with pre-determined presumptive RACT requirements or to proceed with a case-by-case RACT determination. See 25 Pa. Code §§129.96, 127.97, and 129.99. Under 25 Pa. Code §129.97(c)(6), state-wide RACT II requirements can be satisfied by requiring the Paint Plant RTO, a thermal oxidizer, to be maintained and operated in accordance with manufacturer's specifications and with good operating practices. The proposed 98% VOC destruction efficiency requirement for the Paint Plant RTO simply is not required to meet the RACT II requirements.

Response: This is an incorrect interpretation of the exemption in §129.97(c)(6). Section §129.97(c)(6) only exempts the combustion emissions from the RTO, not the process emissions.

4. **Comment:** The required cost-effectiveness analysis was not performed and critical information and facts essential to such an analysis were ignored. Despite the fact that PPG shared information about the need to add a "puff capture chamber" if the destruction efficiency for VOCs is changed to 98% at the Paint Plant RTO, the Department failed to consider this information, much less the cost of such an upgrade, in its RACT II determination. In addition, the Department's determination does not consider the costs (and potential increased emissions) associated with burning more natural gas to maintain the Paint Plant RTO temperature at this higher destruction efficiency and the costs associated with performing a stack test outside the normal stack test schedule.

Response: As stated above in Comments #1 and #2 above, the facility is already demonstratively meeting the 98% reduction without a puff chamber. Since no additional changes are required, there is no additional cost.

5. **Comment:** Reliance on PPG's stack test and other emissions data for the Paint Plant RTO is misplaced. As pointed out above, the proposed RACT II determination relies exclusively on the stack test results for the Paint Plant RTO. While exclusive reference and reliance on stack test for these purposes is itself, flawed, even this evaluation fails to consider and glosses over results such as those from the 2010 stack test, where two test runs and the average destruction efficiency were below 98%. In calculating the estimated reduction of VOC emissions that the Department believes would be achieved by changing the destruction efficiency to 98%, the Department misleadingly uses pre-control VOC emissions for this calculation, inflating the VOCs allegedly reduced. An inappropriate pre-judged end does not justify the means; and, for a proper RACT determination, a proper evaluation of the means is at the heart of the determination. Using the inlet VOC concentration of 1.63 pounds per hour from the November 2018 stack test, a revision changing the Paint Plant RTO VOC destruction efficiency from 95% to 98%

provides a mere 0.214 tons of VOC reductions each year. The extremely small emissions reduction simply cannot be justified given the expense of upgrading and/or modifying the Paint Plant RTO.

Response: Although some stack tests results were below 98% over the 2007-2018 period, stack test compliance is based on an average, in this case, 98%. As noted above in Comment #1 above, the facility is currently operating at that level.

It is not clear what the commenter means by pre-control emissions. The Department uses the difference between emissions at 98% vs. 95% and the difference in those emissions is 15.62 tons per year. This does not indicate an inappropriate prejudged end. It is also not clear where the commenter achieves the 0.214 tons per year reductions.

6. **Comment:** In the Title V Permit, the Department proposes to impose a condition in Part C.1.a. that would require each existing spray booth in a surface coating process to use high-volume/low-pressure (HVLP) spray guns or an equivalent for coating applications at all times, and that such HVLP guns be operated according to manufacturer's recommendations and good engineering practices. This is not an applicable requirement for purposes of Title V, and it would unduly disrupt plant operations while producing minimal, if any, emissions reduction benefit. For these reasons, Part C.1.a. should be deleted from the Permit before it is finalized.

Response: The Department concurs that the miscellaneous spray booths in section VI.C are sources of minor significance and do not require the use of HVLP spray guns. The requirement has been removed. Please note that this only applies to the booths in this Condition VI.C.1.a, not the Freightliner Spray Booth in Section V.C. and associated conditions or the Automated Spray Booth in Section V.F and associated conditions.

7. **Comment:** The HVLP condition in VI.C would result in little environmental benefit. When calculating emissions from Springdale's spray booths, PPG assumes that the total quantity (100%) of the material volatilizes. Therefore, any increased transfer efficiency associated with potential use of HVLP spray guns was and is irrelevant. Furthermore, noticeably missing from the Department's draft review memoranda and determination(s) for this permit is any explanation of the estimated emission reductions for this requirement. Each spray booth at Springdale is required to be equipped with a properly installed and maintained overspray filter that must be operated at all times during operation, and PPG is prohibited from using any cleaning material that contains organic HAPs. The installation of HVLP spray guns would actually increase emissions in the short-term.

Response: See response to Comment #6 above.

8. **Comment:** The HVLP requirement in VI.C might have an unwarranted and potentially catastrophic impact on the Springdale operation. The color standards for Springdale's customers are based upon the use of conventional spray guns and the thousands of hours necessary to establish exact matches between what is produced by a spray booth application and the final product's appearance when used by the customer in real world applications. Color matching is an exact science involving literally hundreds of variables, and any changes to spray guns in Springdale's spray booths will require extensive and time-consuming new procedures by Springdale.

Response: See response to Comment #6 above.

9. **Comment:** The Responsible Official should be listed as Mr. Bill Schillinger, Global Director, Manufacturing Technology, with a street address of 151 Colfax Street, and telephone number of (724) 274-3377.

Response: The Department will make the requested change upon receipt of signed certifications from the permit application.

10. **Comment:** The Facility Contact for the Development Center should be listed as Mr. Todd Mikes, with an email address of oftmikes@ppg.com.

Response: The Department made the requested change.

11. **Comment:** The Emission Unit inventory at Part II, Table II-1 should be revised to delete "Booth XX" from the inventory.

Response: The Department made the requested change.

12. **Comment:** Part IV.21. should be revised to include references to 40 CFR Part 63, Subpart JJJJJ - National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers and 40 CFR Part 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines, which apply at Springdale.

Response: 40 CFR Part 63, Subpart JJJJJ does not apply because the boilers are natural gas-fired. 40 CFR Part 63, Subpart ZZZZ does not apply because the emergency generators are of minor significance.

13. **Comment:** The Process Description in Part V.A. should be revised to add Small Order Department and Tank Cleaning.

Response: The Department made the requested change.

14. **Comment:** Part V.A.1.d.1) should be revised to "95% by weight."

Response: The Department disagrees, and the condition remains at 98% by weight. Refer to response to Comment #1 above.

15. **Comment:** Part V.A.1.f. should be revised to reference the 95% destruction efficiency in 40 CFR Part 63, Subpart HHHHH - National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing, specifically §63.8005(a)(1) and 63 Subpart HHHHH Table 1.2.b.i.

Response: The Department disagrees, and the condition remains at 98% destruction efficiency. Refer to response to Comment #1 above.

16. **Comment:** Part V.A.1.g. should be revised as follows "The permittee shall meet the requirements of condition V.A.1.e above for emissions during automatic cleaning operations, *except for emissions from cleaning operations that are conducted manually*," with the additional citation 63 Subpart HHHHH Table 1.2.b.i.

Response: As stated in the condition as currently written, Condition V.A.1.g only applies to "automatic cleaning operations". Exempting manual cleaning is superfluous. Additionally, Table 1.2.b.i is already cited in Condition V.A.1.e.

17. **Comment:** The hourly emissions listed in Table V-A-1.m for VOCs and HAPs should be 5.950 and 3.720 lbs/hr, respectively, as set forth in the previous Title V permit.

Response: The Department disagrees and the emissions for VOCs and HAPs remain at 5.950 and 3.720 lbs/hr, respectively, which are consistent with a 98% destruction efficiency. Refer to response to Comment #1 above.

18. **Comment:** Part V.A.d. should be deleted in its entirety. This condition is without any regulatory basis, and besides, emissions from this source are routed to a thermal oxidizer and dust collector.

Response: It is unclear which condition the commenter is referring to, and therefore no change is being made.

19. **Comment:** The Process Description in Part V.B. should be the same as that listed in Part V.A (Process P001).

Response: The Department made the requested change.

20. **Comment:** Part V.C.3. should be revised as follows: "The surface coating spray units and overspray filters shall be inspected weekly *while in operation* for compliance with conditions V.C.1.b and V.C.1.c. [§2103.12.i; #0057-1004, V.A.2]."

Response: The Department made the requested change.

21. **Comment:** Part V.C.4. should be revised as follows: "The permittee shall maintain daily records *while in operation* of the following: [§2103.12.j; #0057-1004, V.A.4.a]"

Response: The Department made the requested change.

22. **Comment:** Part V.D.5.c.7) should be deleted in its entirety as it is redundant in light of the annual compliance certification requirement.

Response: This condition is a requirement of Part 63 Subpart FFFF and is unrelated to the annual compliance certification requirement.

23. **Comment:** The Process Description in Part V.E. erroneously lists "Small Side Reactor System" twice.

Response: The Department deleted "Small Side Reactor" from the Process Description.

24. **Comment:** The capacity in Part V.F. should be revised to state 5,060 gallons of coatings per year to be consistent with Part V.F.1.a.

Response: The Department made the requested change.

25. **Comment:** Part V.F.1.c. should be deleted as unnecessary; the Title V permit already includes a volume requirement and limits on VOC and HAP emissions. This condition is redundant and merely adds unnecessary recordkeeping.

Response: In order to demonstrate continued compliance with emission limits in Table V-F-1, the volume requirements and the HAP and VOC content are necessary.

26. **Comment:** Part V.F.4.a.5) should be revised as follows: "The HAP content, ~~as a percentage of~~ and VOC content." There is no regulatory requirement to track HAP content as a percentage of VOC.

Response: The Department made the requested change.

27. **Comment:** In Table 2, on page 2 of the Technical Support Document (TSD), the VOC Limit (RACT I) column for the Paint Plant Freightliner Spray Booth (Source ID: P003) should be revised to delete "HVLP Spray Guns" and substitute "Electrostatic Spray Gun." "HVLP Spray Guns" are listed in error.

Response: The Department made the requested change.

28. **Comment:** In Table 2, on page 2 of the TSD, the VOC Limit (RACT I) column for the Development Center Automated Spray Booth (Source ID: P006) should be revised to delete "Air Assisted Spray Guns" and substitute "Rotary Bell Applicator." "Air Assisted Spray Guns" are listed in error.

Response: The Department made the requested change.

29. **Comment:** In Table 3, on page 2 of the TSD, PPG never installed the "Paint Plant Small Order Department," as authorized under Installation Permit IP-010, and this installation permit is now expired. Therefore, this source should be removed from this table.

Response: The Department made the requested change.

30. **Comment:** ACHD must clearly identify RACT I units, cross-index them with the current units at PPG Springdale and indicate which units have shutdown, been modified or remain. As required under the Clean Air Act §110(l), ACHD must provide an evaluation and comparison of the RACT II vs. RACT I requirements to ensure that there is no backsliding. Further, if the RACT I requirements still apply, ACHD should clearly state this in their review memo and ensure that the redacted permit provided for the SIP revision includes those applicable RACT I provisions.

Response: Cross-indexing RACT I units with current units at the facility is not possible because the units no longer exist, and the Department no longer has a list of the equipment (i.e. Resin Plant) that was previously at the facility. Since this equipment no longer exists, there is no possibility for backsliding. For instance, the Resin Plant has been removed and the REECO thermal oxidizer has been replaced with the current RTOs. The Paint Plant RTO destruction efficiency is being updated in the current permit to meet RACT standards and the Development Center RTO already meets BACT standards. RACT I housekeeping standards are already included in the permit and have been cited in the permit. Additionally, Table 5 has been added to the TSD which outlines RACT I requirements. All units currently at the facility have been addressed in RACT II and all new units have been addressed for BACT.

31. **Comment:** There are many specific operating requirements specified in the RACT I approval involving PPG Springdale's Resin and Paint Plants. These and all of the other RACT I requirements, including necessary monitoring, testing, recordkeeping and reporting requirements, need to be evaluated under RACT II, ensuring no backsliding, and a determination made by ACHD as to RACT II at PPG Springdale. If some or all of these units have since shutdown or been replaced, please identify those units and any replacement units. All units subject to RACT II must be clearly identified.

Response: See response to Comment #30 above.

32. **Comment:** ACHD indicates that 98% destruction efficiency is determined to be RACT II for P001. The draft installation permit stipulates this requirement for source ID P002a, the RTO. However, the RTO, but not P002a, is referred to in the draft Title V permit. Furthermore, Condition V.A.1.f. in the

draft Title V permit must cite 25 Pa. Code §129.99, the authority for the case by case RACT II determination of the 98% destruction efficiency.

Response: The regenerative thermal oxidizer in P002a in the underlying installation permit No. 0057-1005c is the same unit as the regenerative thermal oxidizer in P001 in the Title V Operating Permit. All processes were renumbered when the first Title V Permit was issued in 2010. Citation 25 Pa. Code §129.99 was added to Condition V.A.1.f in the operating permit and to Condition V.A.1.c in the installation permit.

33. **Comment:** P003 and P006 are spray paint booths coating miscellaneous metals parts. ACHD has requested a case by case VOC RACT determination for these emission sources but there appears to be an already applicable RACT requirement at 25 Pa Code §129.52d and ACHD Article XXI §2105.83. Alternatively, the VOC emissions from P003 and/or P006 could be an enforceable limited to less than 2.7 tons VOC/year, which would allow this emissions source to meet the presumptive RACT II requirements at 25 Pa Code 129.97(c)(2). In either case, the appropriate monitoring, testing, and recordkeeping requirements need to be included.

Response: The Department revised the VOC limit in the permit from 8.27 to 2.5 tons per year of VOC for P003, the Freightliner Spray Booth, since emissions inventory data showed that the spray booth emitted far less over the past nine-year period.

ACHD also changed the limit in the permit from 14.92 to 6.96 tons per year of VOC for P006, the Automated Spray Booth. The Article XXI, Section §2105.83 Table 1, Emission Limits of VOCs for Miscellaneous Metal and/or Plastic Surface Coatings, limit of 2.80 lb/gal was applied in calculating the new emissions from the spray booth. This limit is still above emissions inventory data for 2017 and 2018.

34. **Comment:** Compliance with Part 63 requirements do not automatically ensure that those requirements are RACT. If the VOC emissions from the Development Center wastewater handling system are not already covered under the P004 and P005 case-by-case RACT evaluation, ACHD must conduct such a review for these subject sources. In that case, ACHD may use the Part 63 requirements as a guide for that review.

Response: All emissions from the Development Center (P004 and P005), including the emissions from the Wastewater Handling System, are accounted for under Sections V.D and V.E. Section V.G includes only the wastewater conditions of 40 CFR Part 63, Subpart G and Subpart FFFF.

35. **Comment:** In the draft Title V operating permit, Section II flow diagrams, it is unclear where all the listed emission units (for example PM213 with S001 and S005) are located. Clarifying these flow diagrams will help ensure that emission units and their appropriate associated stacks are identified for accurate source emissions testing. While it may be impractical to list every emission unit in the flow diagrams, the main Source IDs and their associated stacks (for example, P001 and P002 with stacks, S001 and S002) need to be clearly identified.

Response: Each emission source and its associated stack is clearly identified in Table II-1. Each diagram is labeled “Paint Plant” or “Development Center”, and since the process numbers do not specify individual equipment, their inclusion in the diagrams does not add any additional information. The Department revised the diagrams to label the RTO pertaining to the Paint Plant as “PP RTO” and is associated with Stack S001 and the RTO pertaining to the Development Center as “DC RTO” and is associated with Stack S004 as identified in Table II-1.

36. **Comment:** The Department should amend the annual emissions limit to properly account for RACT II reductions. On Table 5 of the Review Memorandum, the Department subtracts RACT Reductions (15.62 tpy) from the current PTE (280.31 tpy) to arrive at a revised PTE of 280.31 tpy. At least one number must be wrong.

Response: The limits in the current permit and the corresponding RACT reductions are correct. The original Title V Permit issued in 2010 limited the VOC emissions for P001 to 26.04 tons per year. The renewal Title V Permit issued in 2018, limiting the VOC emissions for P001 to 10.42 tons per year, had already incorporated the RACT II conditions prior to the formal RACT II technical support document being drafted.

37. **Comment:** The Department should provide more evidence in support of its conclusion that low-VOC and water-based coatings are technologically infeasible, and it should encourage their development and use. It is not clear why water-based coatings are technologically infeasible. The fact that a product must satisfy a customer's needs does not necessarily mean that an alternate way of making the product cannot be based on less harmful chemicals. A facility will always say it must meet its customer's needs.

Response: According to Page 29 of the RACT analysis done by PPG Industries, referenced on Page 1 of the RACT TSD, the USEPA has recognized that it is difficult to quantify the economic feasibility of product reformulation. The primary cost is the research and development required by each facility to reformulate current products using lower VOC raw materials. PPG intends to continue its research and development of low-VOC and waterborne coatings in response to customer demand.

38. **Comment:** ACHD should determine that 99% VOC destruction efficiency is RACT for the Paint Plant RTO. The Facility's existing Title V Operating Permit, issued on May 10, 2018, already incorporates a requirement that the Paint Plant RTO achieve 98% VOC destruction efficiency, and already limits VOC emissions from the Paint Plant RTO to 10.42 tons per year. Thus, the Facility implemented the 98% destruction efficiency requirement even before ACHD's RACT determination. Notably, however, during a three-run stack test conducted in October 2018, after the issuance of that Title V Operating Permit, the Paint Plant RTO achieved VOC destruction efficiencies of 99.69%, 99.68%, and 99.65%.

Response: The original destruction efficiency for the Paint Plant RTO was 95%. The 2018 Title V Operating Permit renewal incorporated the RACT II determination of 98%, based off of the stack test results. Given the variability of the individual test runs in the 2007, 2010, 2013, and the 2018 stack tests, 98% is a better predictor of consistent overall Paint Plant RTO performance than choosing to rely on one set of the most recent stack test results.

Bernadette Lipari, Air Quality Engineer
February 28, 2020

List of Commenters

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Name	Affiliation
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Joseph O. Minott, Esq. Christopher D. Ahlers, Esq.	Clean Air Council
John K. Baillie, Sr. Attorney	Group Against Smog & Pollution



AIR QUALITY PROGRAM
301 39th Street, Bldg. #7
Pittsburgh, PA 15201-1811

Title V Operating Permit
& Federally Enforceable State Operating Permit

Issued To: PPG Industries, Inc.

ACHD Permit #: 0057-OP18a

Facility: PPG Industries – Springdale Plant
125 Colfax Street
Springdale, PA 15144-1506

Date of Issuance: Month 00, 20XX

Expiration Date: Month 00, 20XX
Renewal Date: expiration date – 6mo.

Issued By: _____
JoAnn Truchan, P.E.
Section Chief, Engineering

Prepared By: _____
Bernadette Lipari
Air Quality Engineer

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AMENDMENTS:

DATE	SECTION(S)
12/19/19	Section V.A – revised Paint Plant thermal oxidizer efficiency; Sections V.A-F – Added citations for Ozone RACT II requirements.

I. CONTACT INFORMATION

Facility Location: **PPG Industries, Inc. – Springdale Plant**
125 Colfax Street
Springdale, PA 15144-1506

Permittee/Owner: **PPG Industries, Inc.**
One PPG Place
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Permittee/Operator: **PPG Industries, Inc.**
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Springdale, PA 15144-1506

Responsible Official: **Mr. David Donnelly**
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Philadelphia, PA 19103-2029

II. FACILITY DESCRIPTION

PPG Industries, Inc. – Springdale Plant is a paint manufacturing plant and research & development facility. The paint plant produces coatings for aluminum extrusions, general industrial, and coil coating. Within the main paint manufacturing buildings is housed a series of technical laboratories providing testing and customer support for PPG Coatings. The paint manufacturing building also houses manufacturing support laboratories, which oversee the quality and other parameters of products, manufactured. The research and development plant provides scale-up support for resin manufacture and tests new resins used in coatings.

The facility is a major source of volatile organic compounds (VOC's) and hazardous air pollutants (HAP's), and a minor source of particulate matter (PM), particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), nitrogen oxides (NO_x), sulfur oxides (SO_x), and carbon monoxide (CO) as defined in Article XXI, §2101.20. The facility is also a minor source of greenhouse gas emissions (CO_{2e}) as defined in the U.S. EPA Greenhouse Gas Tailoring Rule.

The emission units regulated by this permit are summarized in Table II-1:

TABLE II-1: Emission Unit Identification

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
Paint Plant					
P001 P002	CP Cell Work Center				
	Coaxial/Mill – PM-205	Paint Plant RTO / Ohio Blowpipe	2,000 gallons	pigment, resin, solvent	S001 S002
	Coaxial/Mill – PM-206	Paint Plant RTO / Ohio Blowpipe	2,000 gallons	pigment, resin, solvent	S001 S002
	3 Mills – PM-1, 2, & 5		45 liters ea. & portable tanks	pigment, resin, solvent	
	Mill – PM-8		45 liters ea.	pigment, resin, solvent	
	Tanks 1102-1104	Paint Plant RTO / Ohio Blowpipe	1,100 gallons ea.	pigment, resin, solvent	S001 S002
	Tanks 2003-2004	Paint Plant RTO	2,000 gallons ea.	pigment, resin, solvent	S001
	Tanks 2301-2304	Paint Plant RTO	2,300 gallons ea.	pigment, resin, solvent	S001
	Tank 4001	Paint Plant RTO	4,000 gallons	pigment, resin, solvent	S001
	CP Tank 109	Paint Plant RTO / Ohio Blowpipe	17,200 gallons	pigment, resin, solvent	S001 S002
	10 hp Cowles	Paint Plant RTO / PVC Line Baghouse	n/a (portable tanks)	pigment, resin, solvent	S001 S005
P001 P002	Light Cell Work Center				
	Coaxial/Mill – PM-207	Paint Plant RTO / Ohio Blowpipe	2,000 gallons	pigment, resin, solvent	S001 S002
	Tanks 2008-2013	Paint Plant RTO	2,000 gallons ea.	pigment, resin, solvent	S001
	Tanks 4002-4004	Paint Plant RTO	4,000 gallons ea.	pigment, resin, solvent	S001

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	Tanks 4006-4007	Paint Plant RTO / Ohio Blowpipe	4,000 gallons ea.	pigment, resin, solvent	S001 S002
	Tanks 4009-4010	Paint Plant RTO / Ohio Blowpipe	4,000 gallons ea.	pigment, resin, solvent	S001 S002
	Coaxial – T-900	Paint Plant RTO / Ohio Blowpipe	900 gallons	pigment, resin, solvent	S001 S002
	Coaxial – T-1650	Paint Plant RTO / Ohio Blowpipe	1,650 gallons	pigment, resin, solvent	S001 S002
P001 P002	Dark Cell Work Center				
	Coaxial - 208	Paint Plant RTO / Ohio Blowpipe	2,000 gallons	pigment, resin, solvent	S001 S002
	Coaxial/Mill – PM-213	Paint Plant RTO / PVC Line Baghouse	2,000 gallons	pigment, resin, solvent	S001 S005
	Mill – PM-208		200 liter & portable tanks	pigment, resin, solvent	
	3 Mills – PM-4, 7, & 9	Paint Plant RTO / Ohio Blowpipe	45 liters ea. & portable tanks	pigment, resin, solvent	S001 S002
	Mill – PM-214	Paint Plant RTO / Ohio Blowpipe	200 liter & portable tanks	pigment, resin, solvent	S001 S002
	Tank 1101	Paint Plant RTO / Stationary Tank Dust Collector	1,100 gallons	pigment, resin, solvent	S001
	Tanks 1501-1507	Paint Plant RTO / Stationary Tank Dust Collector	1,500 gallons ea.	pigment, resin, solvent	S001
	Tanks 2001-2002	Paint Plant RTO / Stationary Tank Dust Collector	2,000 gallons ea.	pigment, resin, solvent	S001
	Tanks 2005-2007	Paint Plant RTO / Stationary Tank Dust Collector	2,000 gallons ea.	pigment, resin, solvent	S001
	Tank 4005	Paint Plant RTO / Stationary Tank Dust Collector	4,000 gallons	pigment, resin, solvent	S001
	Tank 4008	Paint Plant RTO / Stationary Tank Dust Collector	4,000 gallons	pigment, resin, solvent	S001
	Tanks 4011-4012	Paint Plant RTO / Stationary Tank Dust Collector	4,000 gallons ea.	pigment, resin, solvent	S001
	75 hp Cowles	Ohio Blowpipe	n/a (portable tanks)	pigment, resin, solvent	S002
	60 hp Cowles	Ohio Blowpipe	n/a (portable tanks)	pigment, resin, solvent	S002
	50 hp Cowles	Ohio Blowpipe	n/a (portable tanks)	pigment, resin, solvent	S002
	Automatic Tank Cleaner	Paint Plant RTO	Booth 3 & 4	solvent	S001

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
P001 P002	Large Batch Center				
	Mill – PM-6		45 liters	pigment, resin, solvent	
	Mill – PM-201		200 liters	pigment, resin, solvent	
	Mill – PM-203		200 liters	pigment, resin, solvent	
	Mill – PM-204		200 liters	pigment, resin, solvent	
	Tanks 102-104	Paint Plant RTO / Ohio Blowpipe	1,100 gallons ea.	pigment, resin, solvent	S001 S002
	Tank 105	Paint Plant RTO / Ohio Blowpipe	2,200 gallons	pigment, resin, solvent	S001 S002
	Tanks 106-107	Paint Plant RTO / Ohio Blowpipe	4,200 gallons ea.	pigment, resin, solvent	S001 S002
	Tanks 108-111	Paint Plant RTO / Ohio Blowpipe	4,500 gallons ea.	pigment, resin, solvent	S001 S002
	Tank 112	Paint Plant RTO / Ohio Blowpipe	3,600 gallons	pigment, resin, solvent	S001 S002
	Tank 113	Paint Plant RTO / Ohio Blowpipe	4,000 gallons	pigment, resin, solvent	
	Tanks 200-2024	Paint Plant RTO / Ohio Blowpipe	100 gallons ea.	pigment, resin, solvent	S001 S002
	Tank 203	Paint Plant RTO / Ohio Blowpipe	2,000 gallons	pigment, resin, solvent	S001 S002
	Tank 204	Paint Plant RTO / Ohio Blowpipe	2,500 gallons	pigment, resin, solvent	S001 S002
P001 P002	Environ Work Center				
	Coaxial/Mill – PM-210	Paint Plant RTO / Environ Baghouse	2,500 gallons	pigment, resin, solvent	S001 S003
	Coaxial/Mill – PM-211	Paint Plant RTO / Environ Baghouse	2,500 gallons	pigment, resin, solvent	S001 S003
	Coaxial/Mill – ET-1500	Paint Plant RTO / Environ Baghouse	2,100 gallons	pigment, resin, solvent	S001 S003
	Coaxial/Mill – ET-2000	Paint Plant RTO / Environ Baghouse	2,100 gallons	pigment, resin, solvent	S001 S003
	Mixers #1-3	Paint Plant RTO / Environ Baghouse	1,600 gallons ea.	pigment, resin, solvent	S001 S003
	Mixer #4	Paint Plant RTO / Environ Baghouse	2,000 gallons	pigment, resin, solvent	S001 S003
	Mixer #5	Paint Plant RTO / Environ Baghouse	2,700 gallons	pigment, resin, solvent	S001 S003
	Blenders #1-7	Paint Plant RTO / Environ Baghouse	5,200 gallons ea.	pigment, resin, solvent	S001 S003
	Blender #8	Paint Plant RTO / Environ Baghouse	3,800 gallons	pigment, resin, solvent	S001 S003
	Tanks 9-14	Paint Plant RTO / Environ Baghouse	4,250 gallons ea.	pigment, resin, solvent	S001 S003
	25 hp Cowles	Environ Baghouse	n/a (portable tanks)	pigment, resin, solvent	S003

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	Mill – PM-10		45 liter & portable tanks	pigment, resin, solvent	
P001 P002	Solvent Still				
	Solvent Still Vaporizer – Tank 101	Paint Plant RTO	4,000 gallons	waste solvent	S001
	Solvent Still Decanter – Tank 601	Paint Plant RTO	1,000 gallons	waste solvent	S001
	Solvent Still Receiver – Tank 102	Paint Plant RTO	3,000 gallons	waste solvent	S001
	Solvent Still Separator – Tank 207	Paint Plant RTO	200 gallons	waste solvent	S001
	Solvent Still Condenser	n/a	n/a	waste solvent	S001
P001 P002	PVC Product Line				
	Coaxial Tank	Paint Plant RTO / PVC Line Baghouse	2,500 gallons	pigment, resin, solvent	S001 S005
	3 – Bulk Dispense Tanks, PVC 101-103	Paint Plant RTO	3,900 gallons ea.	pigment, resin, solvent	S001
	4 – Thin Tanks, PVC 104-107	Paint Plant RTO	3,900 gallons ea.	pigment, resin, solvent	S001
P001 P002	Dispersion				
	2 – PM11& PM12 Mill (Light/Dark)	Paint Plant RTO / PVC Line Baghouse	25 liters ea.	pigment, resin, solvent	S001 S005
	1 – PM13 Mill (Small)	Paint Plant RTO / PVC Line Baghouse	10 liters	pigment, resin, solvent	S001 S005
	1 – Basket Mill	Paint Plant RTO / PVC Line Baghouse	80-220 gallons	pigment, resin, solvent	S001 S005
	20 hp Cowles	Paint Plant RTO / PVC Line Baghouse	n/a (portable tanks)	pigment, resin, solvent	S001 S005
	10 hp Cowles	Paint Plant RTO / PVC Line Baghouse	n/a (portable tanks)	pigment, resin, solvent	S001 S005
P001 P002	Small Order Department				
	3 – 15 hp Cowles	Paint Plant RTO / PVC Line Baghouse	n/a (portable tanks)	pigment, resin, solvent	S001 S005
P001 P002	EMG				
	3 – 15 hp Cowles	Ohio Blowpipe	n/a (portable tanks)	pigment, resin, solvent	S002
	3 Roll Mill			pigment, resin, solvent	
	Tank	Paint Plant RTO	200 gallons	pigment, resin, solvent	S001
	Tank	Paint Plant RTO	300 gallons	pigment, resin, solvent	S001
P003	Freightliner Spray Booth	Spray Booth Filters; Electrostatic Spray Guns	Booth XX	Coatings and cleaning solvent	2004B1

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
P006	Automated Paint Spray Booth (HOPE)	none	5,000 gal/yr	pigment, resin, solvent	S006
Development Center					
P004 P005	K13/K15 Resin Process				
	K13 Reactor	Development Center RTO, Carbon Bins (for back-up only)	1,350 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	S004, S-D60-62, S-D70
	K13 Thin Tank (BT-102)	Development Center RTO, Carbon Bins (for back-up only)	4,070 gallons	solvent, water, resin, additives	S004, S-D60-62, S-D70
	K13 Monomer Tank	Development Center RTO, Carbon Bins (for back-up only)	1,060 gallons	solvent, monomers, catalyst	S004, S-D60-62, S-D70
	K13 Catalyst Tank	Development Center RTO, Carbon Bins (for back-up only)	350 gallons	solvent, catalyst	S004, S-D60-62, S-D70
	K15 Reactor	Development Center RTO, Carbon Bins (for back-up only)	1,450 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	S004, S-D60-62, S-D70
	K15 Thin Tank (TR-3800)	Development Center RTO, Carbon Bins (for back-up only)	3,800 gallons	solvent, resin, epoxy, isocyanates, monomers, water	S004, S-D60-62, S-D70
	K15 Feed Tank	Development Center RTO, Carbon Bins (for back-up only)	1,000 gallons	solvent, epoxy, isocyanates, monomers	S004, S-D60-62, S-D70
	K15 Amine Tank	Development Center RTO, Carbon Bins (for back-up only)	250 gallons	solvent, amines, catalyst	S004, S-D60-62, S-D70
P004 P005	Large Side Reactor System				
	K500A Reactor	Development Center RTO, Large Side Scrubber	482 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500A Thin Tank (TR-1200)	Development Center RTO, Large Side Scrubber (for back-up only)	1,190 gallons	solvent, resin, epoxy, isocyanates, monomers	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500A Monomer Tank	Development Center RTO, Large Side Scrubber (for back-up only)	500 gallons	solvent, monomers, catalyst	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500A Catalyst Tank	Development Center RTO, Large Side Scrubber (for back-up only)	120 gallons	solvent, catalyst	S004, S-D05, 08, 26-30, 51, 60-63, 70

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	K500B Reactor	Development Center RTO, Large Side Scrubber (for back-up only)	480 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Thin Tank (HT-1500)	Development Center RTO, Large Side Scrubber (for back-up only)	1,500 gallons	solvent, resin, epoxy, isocyanates, monomers, water	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Monomer Tank	Development Center RTO, Large Side Scrubber (for back-up only)	500 gallons	solvent, monomers, catalyst	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Catalyst Tank	Development Center RTO, Large Side Scrubber (for back-up only)	120 gallons	solvent, catalyst	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Amine Tank 1	Development Center RTO, Large Side Scrubber (for back-up only)	30 gallons	solvent, amines	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Amine Tank 2	Development Center RTO, Large Side Scrubber (for back-up only)	30 gallons	solvent, amines	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Crosslinker Tank	Development Center RTO, Large Side Scrubber (for back-up only)	300 gallons	solvent, resin	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500F Reactor	Development Center RTO, Large Side Scrubber (for back-up only)	500 gallons	solvent, epoxy, catalyst, alcohols, isocyanates, monomers	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500F Thin Tank (TR-750)	Development Center RTO, Carbon Bins (for back-up only)	750 gallons	solvent, resin, additives	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500G Solvent Still	Development Center RTO / Carbon Bins / Large Side Scrubber	500 gallons	solvent, waste solvent	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K300 Reactor	Development Center RTO / Carbon Bins / Large Side Scrubber	300 gallons	solvent, epoxy, catalyst, alcohols, isocyanates, monomers	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K300 Thin Tank (BT-500)	Development Center RTO / Carbon Bins / Large Side Scrubber	500 gallons	solvent, resin	S004, S-D05, 08, 26-30, 51, 60-63, 70

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	Large Side Condensers	Development Center RTO / Carbon Bins / Large Side Scrubber	Sizes range from 20 to 200 square feet surface area (not liquid full)	solvent, monomers, water	S004, S-D05, 08, 26-30, 51, 60-63, 70
	Large Side Decanters	Development Center RTO / Carbon Bins / Large Side Scrubber	Sizes range from 2 to 4 gallons	solvent, water	S004, S-D05, 08, 26-30, 51, 60-63, 70
P004 P005	LUWA Filmtruder				
	LUWA Filmtruder	Development Center RTO / Carbon Bins		powder coating resin, solvent	S004 S-D61-62
	LUWA Drum Flaker	n/a		100% solid resin	
	LUWA Condenser	Development Center RTO / Carbon Bins	68 square feet surface area (not liquid full)	solvent	S004 S-D61-62
	LUWA Distillate Receiver	Development Center RTO / Carbon Bins	100 gallons	solvent	S004 S-D61-62
P004 P005	R2000 Reactor Process				
	R2000 Reactor	Development Center RTO, Carbon Bins (for back-up only)	2,000 gallons	solvent, epoxy, catalyst, alcohols, isocyanates, monomers	S004
	R2000 Pre-Reactor	Development Center RTO, Carbon Bins (for back-up only)	1,600 gallons	solvent, epoxy, catalyst, alcohols, isocyanates, monomers	S004
	R2000 Thin Tank (TR-5000)	Development Center RTO, Carbon Bins (for back-up only)	5,000 gallons	solvent, resin, additives, epoxy, catalyst, monomers, isocyanates, water	S004
	R2000 Monomer Feed Tank	Development Center RTO, Carbon Bins (for back-up only)	1,000 gallons	solvent, monomers catalyst,	S004
	R2000 Catalyst Feed Tank	Development Center RTO, Carbon Bins (for back-up only)	400 gallons	solvent, catalyst	S004
	R2000 Distillate Tank	Development Center RTO, Carbon Bins (for back-up only)	400 gallons	solvent, water	S004
	BS6200 Batch Stripper	Development Center RTO, Carbon Bins (for back-up only)	6,250 gallons	solvent, resin	S004
	BS6200 Condenser	Development Center RTO, Carbon Bins (for back-up only)	1280 square feet surface area (not liquid full)	solvent, water	S004
	BS6200 Decanter	Development Center RTO, Carbon Bins (for back-up only)	72 gallons	solvent, water	S004

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	BS6200 Receiver Tank	Development Center RTO, Carbon Bins (for back-up only)	590 gallons	solvent	S004
P004 P005	BS5000 Resin Stripper				
	BS5000 Batch Stripper	Development Center RTO, Carbon Bins (for back-up only)	5,000 gallons	solvent, resin	S004 S-D61-62
	BS5000 Condenser	Development Center RTO, Carbon Bins (for back-up only)	500 square feet surface area (not liquid full)	solvent, water	S004 S-D61-62
	BS5000 Decanter	Development Center RTO, Carbon Bins (for back-up only)	60 gallons	solvent, water	S004 S-D61-62
	BS5000 Receiver	Development Center RTO, Carbon Bins (for back-up only)	500 gallons	solvent, water	S004 S-D61-62
P005	Small Side Reactor System				
	K100 Reactor	Condenser, RTO (vacuum only)	100 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	--
	K100 Thin Tank (TR-250)	Condenser	250 gallons	solvent, resin, epoxy, isocyanates, monomers	--
	K100 Monomer Tank		80 gallons	solvent, monomers, catalyst, isocyanates	--
	K100 Surfactant Tank		55 gallons	solvent, monomers, catalyst, isocyanates	--
	K100 Catalyst Tank		20 gallons	solvent, catalyst	--
	K65B Reactor	Condenser, RTO (vacuum only)	65 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	--
	K65B Thin Tank (BT-100)	Condenser	100 gallons	solvent, resin	--
	K65C Reactor	Condenser, RTO (vacuum only)	65 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	--
	K65C Thin Tank (TR-170)	Condenser	170 gallons	solvent, resin, epoxy, isocyanates, monomers	--
	K65C Monomer Tank		55 gallons	solvent, monomers, catalyst, isocyanates	--
	K65C Catalyst Tank		20 gallons	solvent, catalyst	--
	K50 Reactor	Condenser, RTO (vacuum only)	50 gallons	solvent, catalyst, monomers, epoxy, isocyanates, amines, alcohols,	--

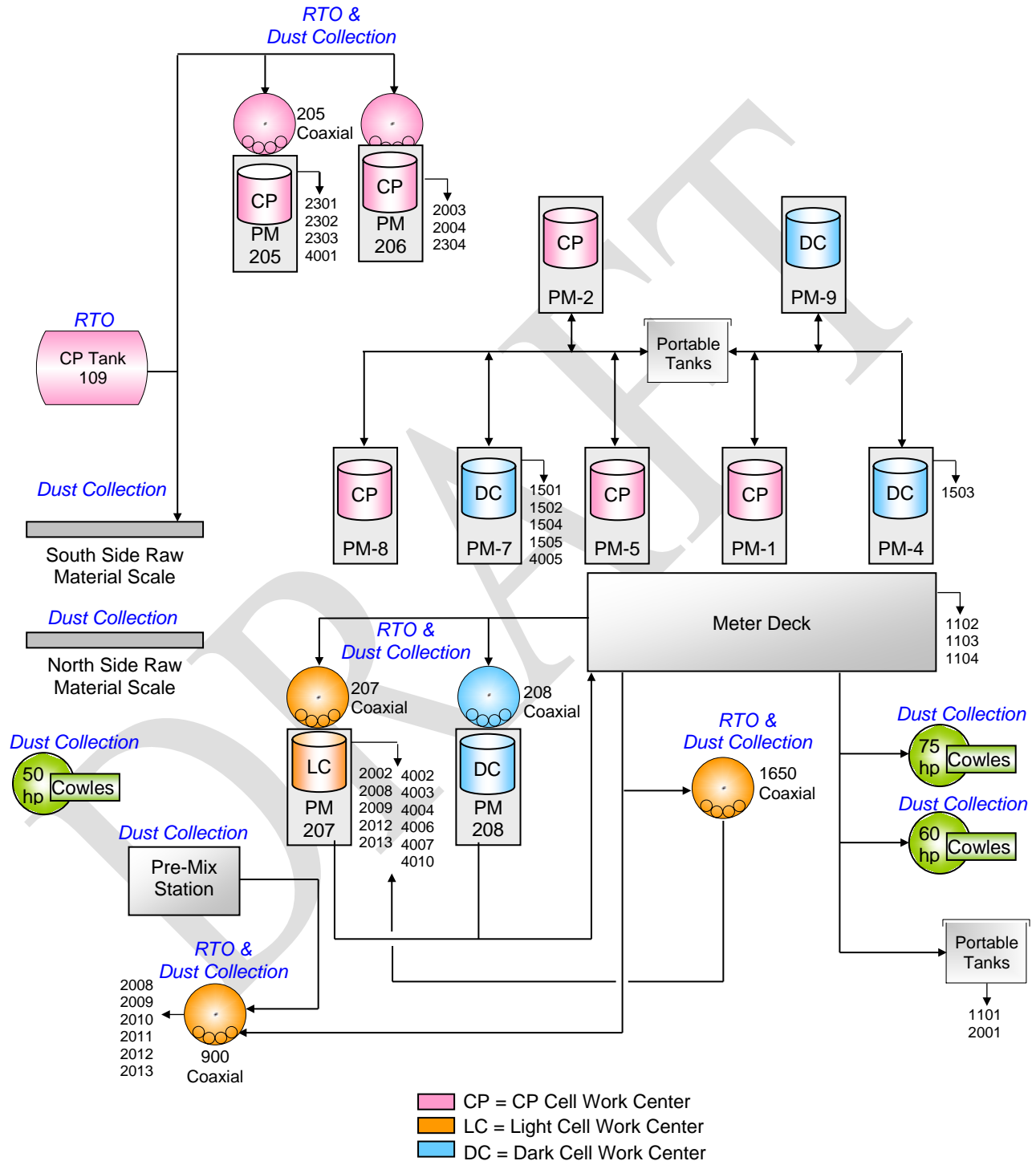
I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	K50 Thin Tank (TR-125)	Condenser, RTO (vacuum only)	125 gallons	solvent, resin	--
	R5 Reactor	Vents through Flash Tank – Carbon Beds/ RTO	5 gallons	solvent, catalyst, monomers	--
	R5 Flash Tank	Condenser, Carbon Beds/ RTO	100 gallons	resin, solvent, catalyst, monomers	--
	R5 Monomer Tank		65 gallons	monomers, solvent	--
	R5 Monomer Feed Tank (K500D)	Development Center RTO, Carbon Bins (for back-up only)	500 gallons	monomers, solvent	--
	R5 Initiator Tank		10 gallons	solvent, catalyst	--
	R5 Post Initiator Tank		5 gallons	solvent, catalyst	--
Boilers					
B001	Boiler #1a	none	25.1 MMBtu/hr	natural gas, no.2 fuel oil	SB01A
B002	Boiler #2	none	25.1 MMBtu/hr	natural gas, no.2 fuel oil	SB02
B003	Warehouse Boiler	none	8.4 MMBtu/hr	natural gas, no.2 fuel oil	SWHB1
Paint Plant Storage Tanks					
	Tanks 103-104	none	30,000 gal. ea.	waste solvent	--
	Tank 224	none	25,000 gal.	resin	--
	Tank 225	none	30,000 gal.	resin	--
	Tanks 301-302	none	25,000 gal. ea.	solvent	--
	Tank 303	none	12,000 gal.	solvent, raw material	--
	Tanks 305-308	none	12,000 gal. ea.	solvent, raw material	--
	Tanks 311-314	none	12,000 gal. ea.	solvent, raw material	--
	Tank 320	none	25,000 gal.	solvent, raw material	--
	Tank 321 & 324	none	10,000 gal. ea.	solvent, raw material	--
	Tank 322	none	20,000 gal.	solvent, raw material	--
	Tank 329	none	30,000 gal. ea.	cleaning solvent	--
	Tank 410A	none	7,500 gal.		
Development Center Storage Tanks					

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	Tanks 1, 3-5	none	5,200 gal. ea.	monomer solution, solvent	--
	Tank 2	none	5,200 gal.	monomer solution, solvent	--
	Tanks 6-8, BT122, BT126	none	5,000 gal. ea.	cleaning solvent	--
	Tanks BT 101, BT 112, BT 120, BT 4000	none	5,000 gal. ea.	waste solvent	

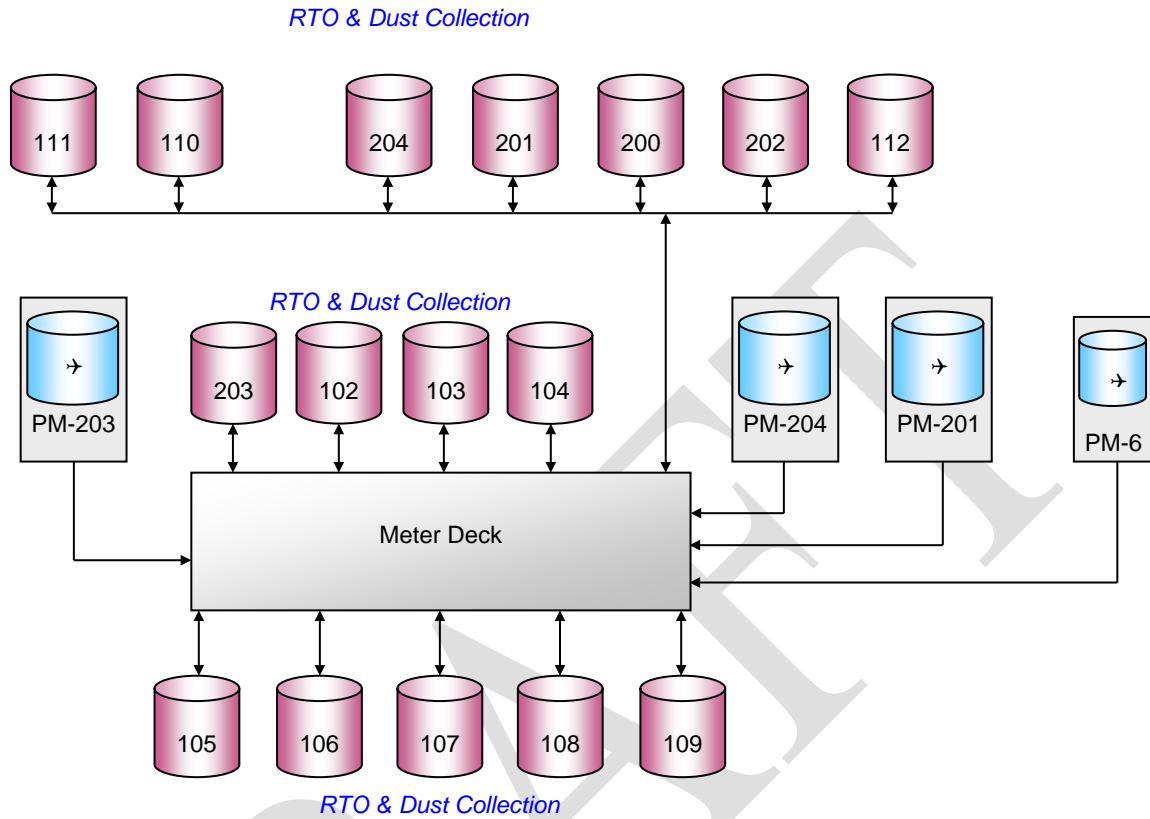
[See flow diagrams below.]

A. Process Flow Diagrams

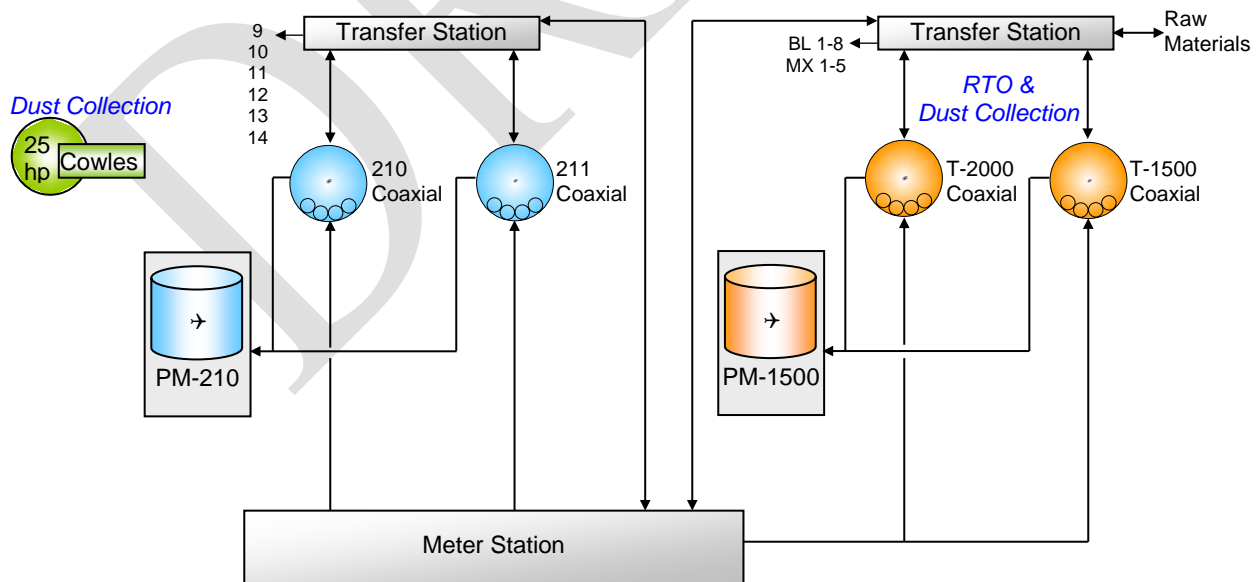
Paint Plant – 2nd Floor (excluding Large Batch Center)



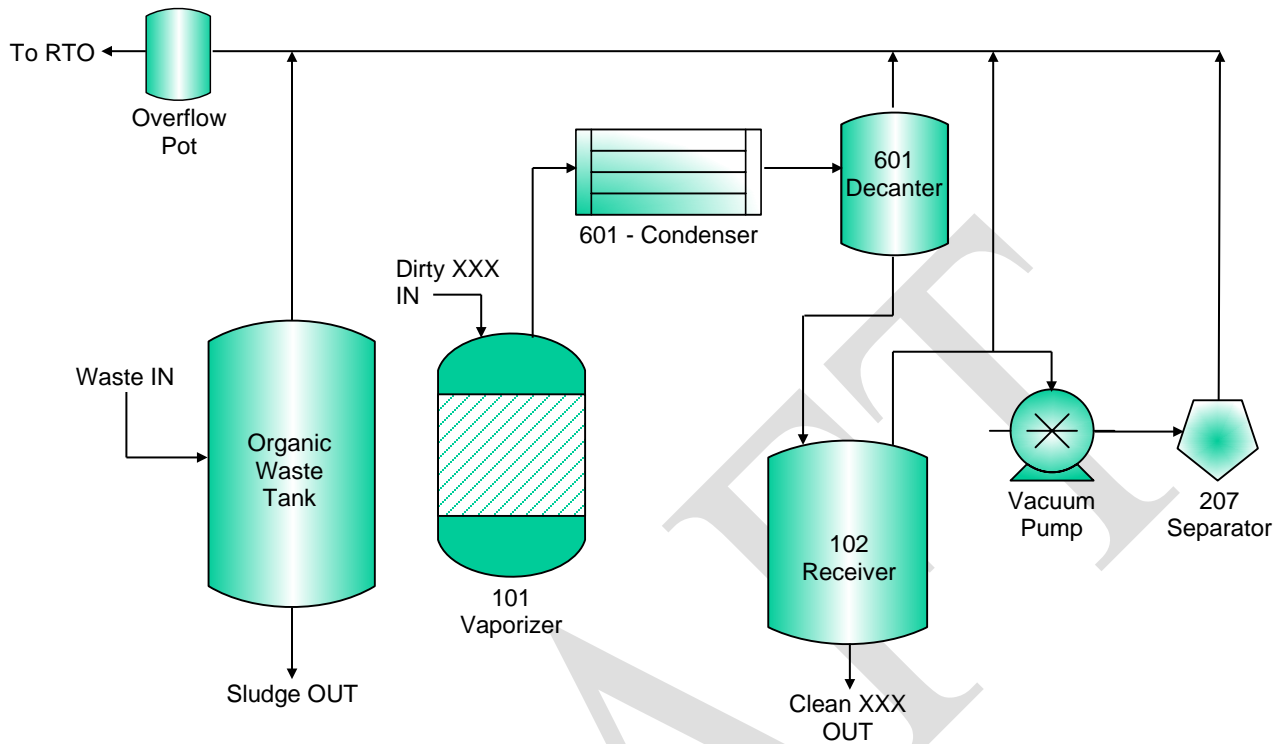
Paint Plant – Large Batch Center



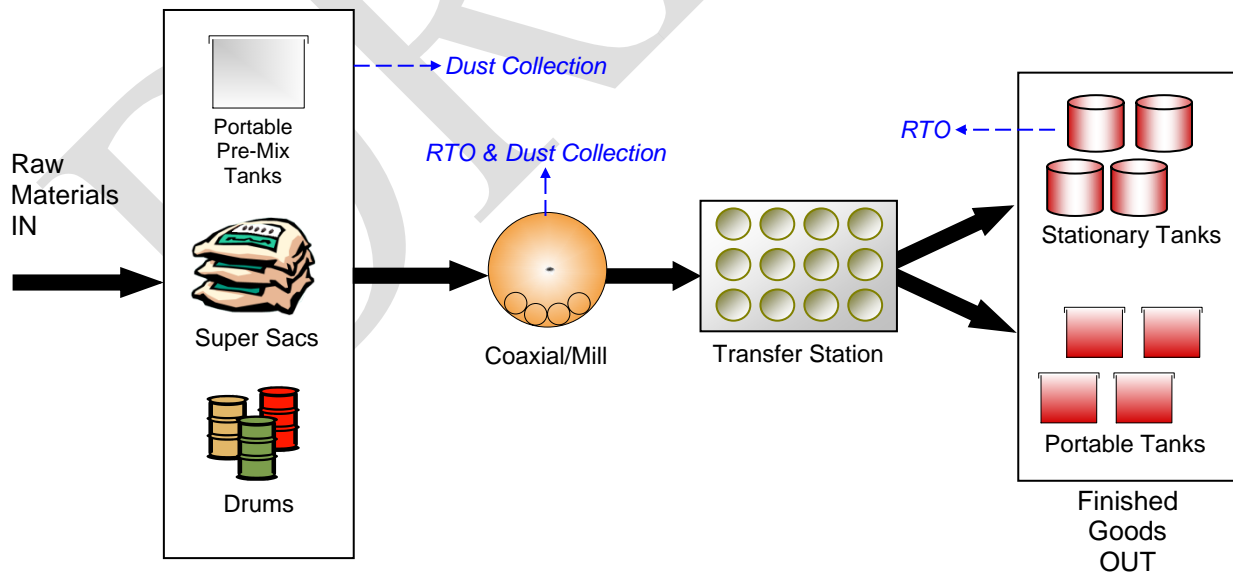
Paint Plant – Environ Work Center



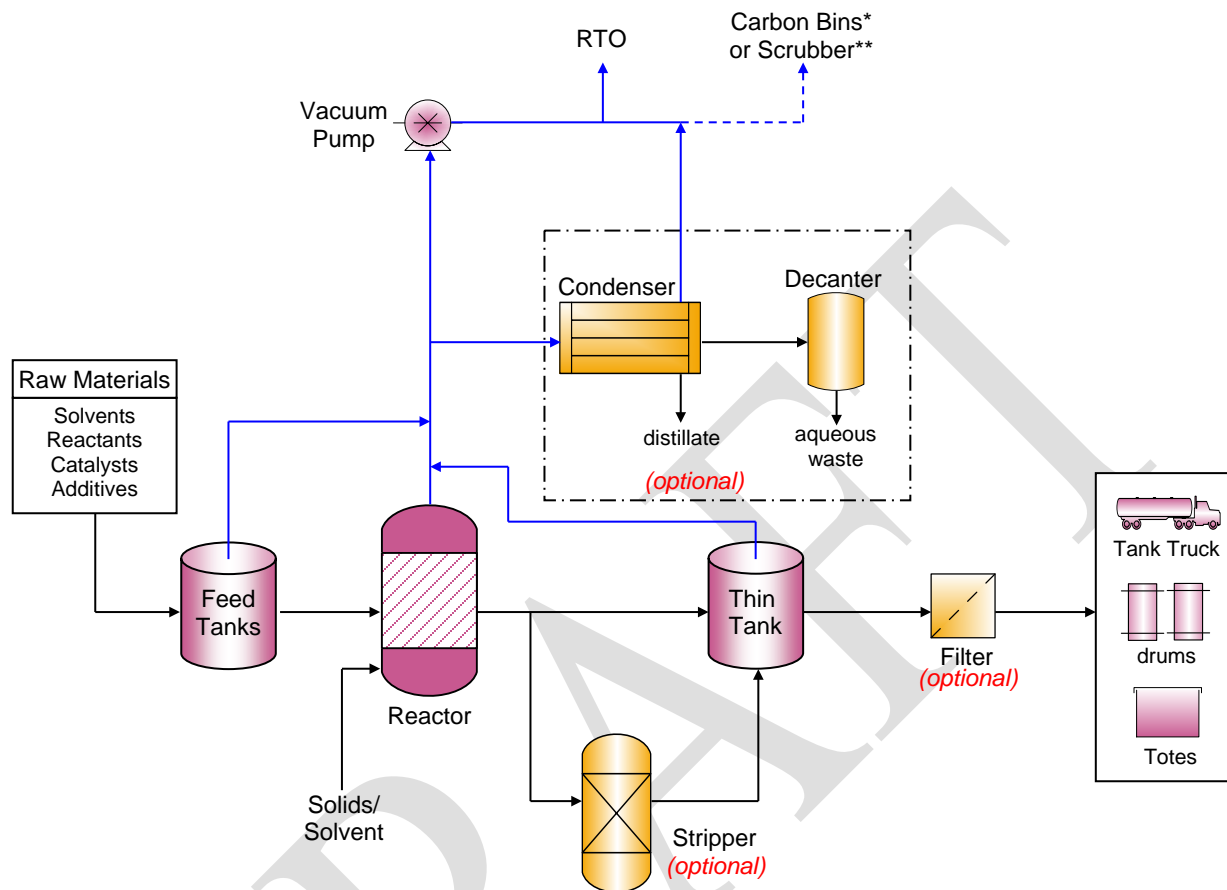
Paint Plant – Solvent Still



Paint Plant – Typical Coaxial Arrangement

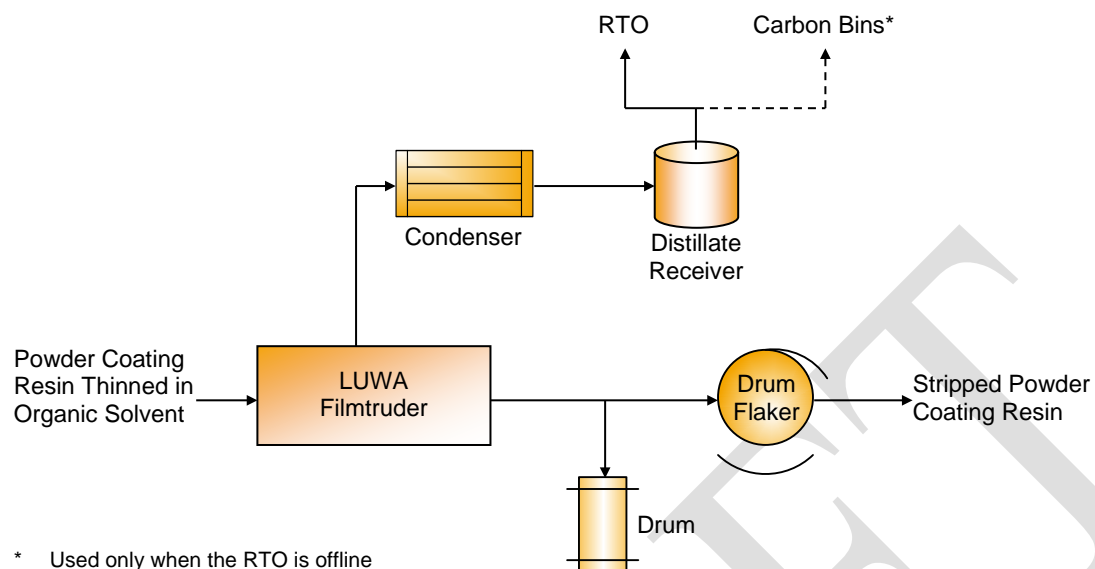


Development Center – Typical Reactor Arrangement

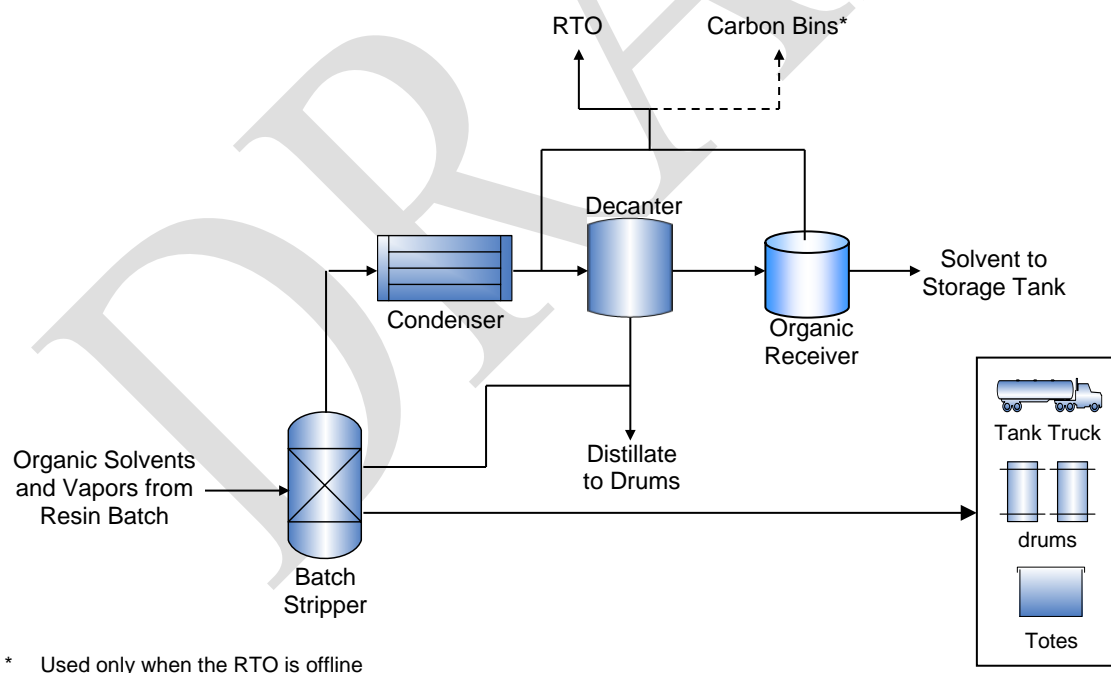


- * Used only if the RTO is offline
** Used only if the RTO is offline or if processing ammonia batches

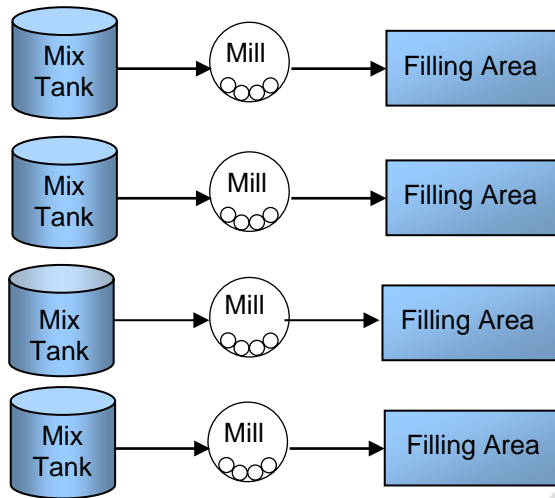
Development Center – LUWA Filmtruder



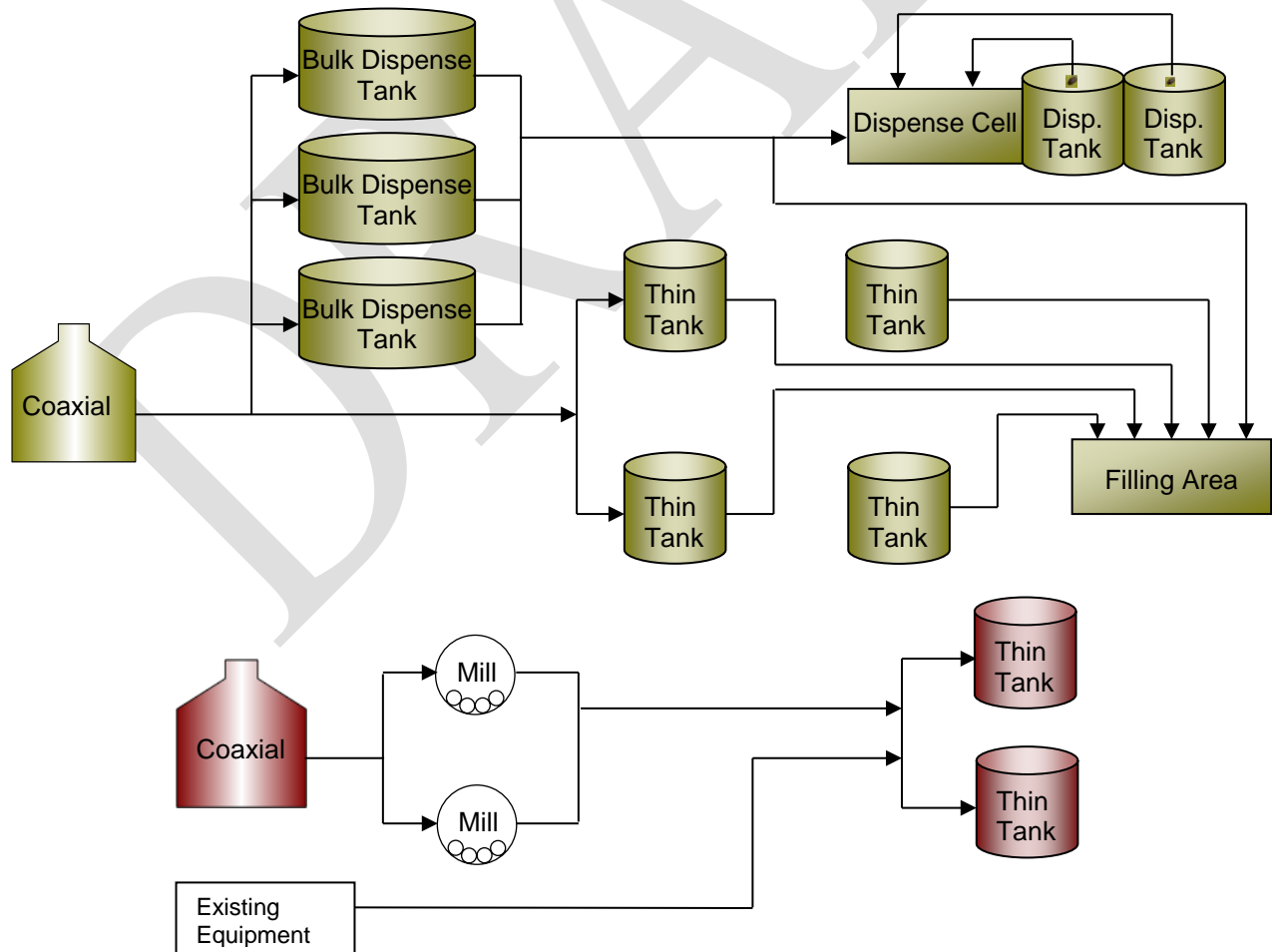
Development Center – Batch Stripper (BS5000)



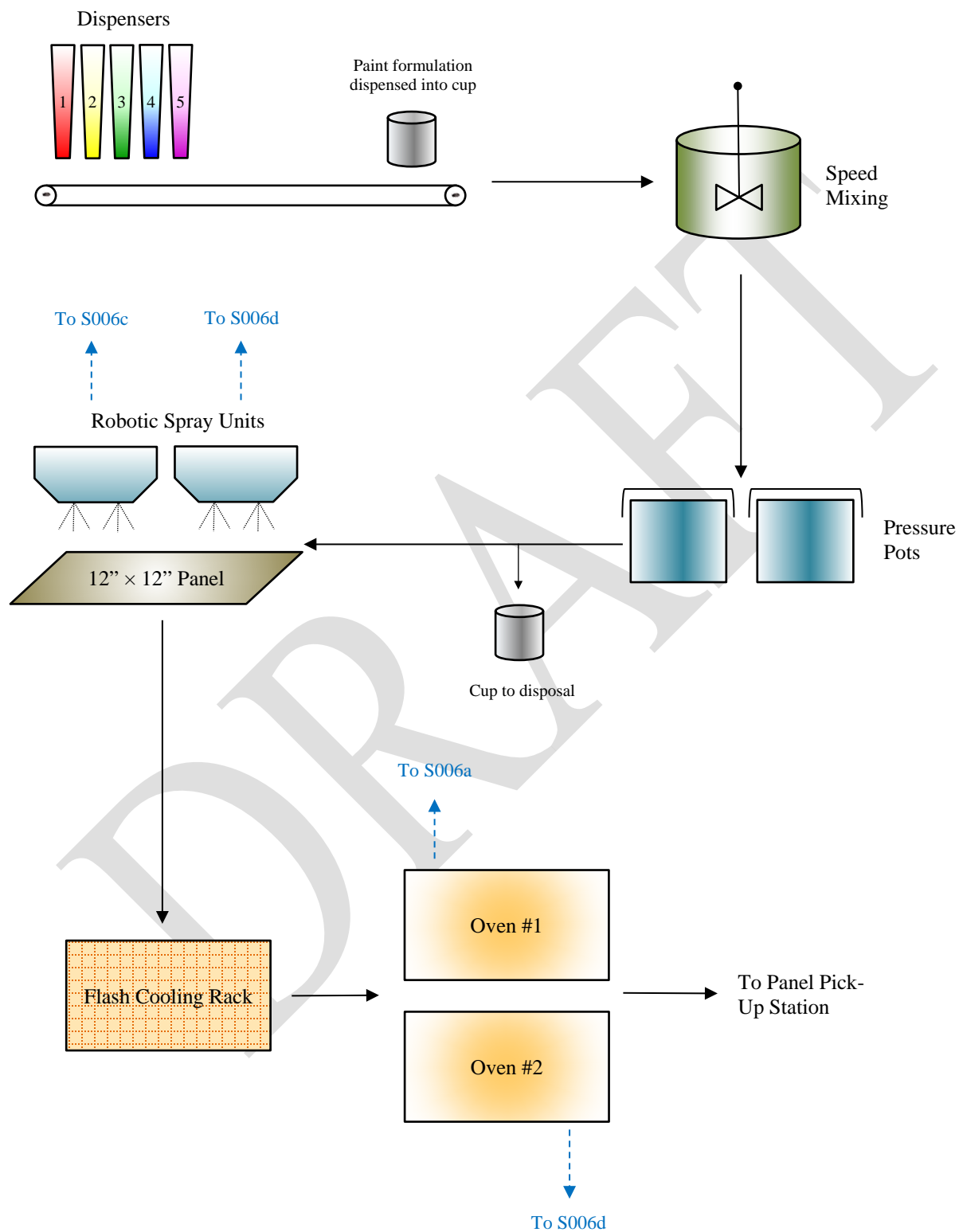
Equipment Dedicated to New Tint Line



Equipment Dedicated to PVC Product Line



Automated Paint Spray Process



DECLARATION OF POLICY

Pollution prevention is recognized as the preferred strategy (over pollution control) for reducing risk to air resources. Accordingly, pollution prevention measures should be integrated into air pollution control programs wherever possible, and the adoption by sources of cost-effective compliance strategies, incorporating pollution prevention, is encouraged. The Department will give expedited consideration to any permit modification request based on pollution prevention principles.

The permittee is subject to the terms and conditions set forth below. These terms and conditions constitute provisions of Allegheny County Health Department Rules and Regulations, Article XXI Air Pollution Control. The subject equipment has been conditionally approved for operation. The equipment shall be operated in conformity with the plans, specifications, conditions, and instructions which are part of your application, and may be periodically inspected for compliance by the Department. In the event that the terms and conditions of this permit or the applicable provisions of Article XXI conflict with the application for this permit, these terms and conditions and the applicable provisions of Article XXI shall prevail. Additionally, nothing in this permit relieves the permittee from the obligation to comply with all applicable Federal, State and Local laws and regulations.

III. GENERAL CONDITIONS – Major Source**1. Prohibition of Air Pollution (§2101.11)**

It shall be a violation of this permit to fail to comply with, or to cause or assist in the violation of, any requirement of this permit, or any order or permit issued pursuant to authority granted by Article XXI. The permittee shall not willfully, negligently, or through the failure to provide and operate necessary control equipment or to take necessary precautions, operate any source of air contaminants in such manner that emissions from such source:

- a. Exceed the amounts permitted by this permit or by any order or permit issued pursuant to Article XXI;
- b. Cause an exceedance of the ambient air quality standards established by Article XXI §2101.10; or
- c. May reasonably be anticipated to endanger the public health, safety, or welfare.

2. Definitions (§2101.20)

- a. Except as specifically provided in this permit, terms used retain the meaning accorded them under the applicable provisions and requirements of Article XXI or the applicable federal or state regulation. Whenever used in this permit, or in any action taken pursuant to this permit, the words and phrases shall have the meanings stated, unless the context clearly indicates otherwise.
- b. Unless specified otherwise in this permit or in the applicable regulation, the term “year” shall mean any twelve (12) consecutive months.

3. Conditions (§2102.03.c)

It shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02, for any person to fail to comply with any terms or conditions set forth in this permit.

4. Certification (§2102.01)

Any report, or compliance certification submitted under this permit shall contain written certification by a responsible official as to truth, accuracy, and completeness. This certification and any other certification required under this permit shall be signed by a responsible official of the source, and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

5. Transfers (§2102.03.e)

This permit shall not be transferable from one person to another, except in accordance with Article XXI §2102.03.e and in cases of change-in-ownership which are documented to the satisfaction of the Department, and shall be valid only for the specific sources and equipment for which this permit was issued. The transfer of permits in the case of change-in-ownership may be made consistent with the administrative permit amendment procedure of Article XXI §2103.14.b. The required documentation and fee must be received by the Department at least 30 days before the intended transfer date.

6. Term (§2103.12.e, §2103.13.a)

- a. This permit shall remain valid for five (5) years from the date of issuance, or such other shorter period if required by the Clean Air Act, unless revoked. The terms and conditions of an expired permit shall automatically continue pending issuance of a new operating permit provided the permittee has submitted a timely and complete application and paid applicable fees required under Article XXI Part C, and the Department through no fault of the permittee is unable to issue or deny a new permit before the expiration of the previous permit.
- b. Expiration. Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted consistent with the requirements of Article XXI Part C.

7. Need to Halt or Reduce Activity Not a Defense (§2103.12.f.2)

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

8. Property Rights (§2103.12.f.4)

This permit does not convey any property rights of any sort, or any exclusive privilege.

9. Duty to Provide Information (§2103.12.f.5)

- a. The permittee shall furnish to the Department in writing within a reasonable time, any information that the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Department copies of any records required to be kept by the permit.
- b. Upon cause shown by the permittee the records, reports, or information, or a particular portion thereof, claimed by the permittee to be confidential shall be submitted to the Department in accordance with the requirements of Article XXI, §2101.07.d.4. Information submitted to the Department under a claim of confidentiality, shall be available to the US EPA and the PADEP upon

request and without restriction. Upon request of the permittee the confidential information may be submitted to the USEPA and PADEP directly. Emission data or any portions of any draft, proposed, or issued permits shall not be considered confidential.

10. Modification of Section 112(b) Pollutants which are VOCs or PM₁₀ (§2103.12.f.7)

Except where precluded under the Clean Air Act or federal regulations promulgated under the Clean Air Act, if this permit limits the emissions of VOCs or PM₁₀ but does not limit the emissions of any hazardous air pollutants, the mixture of hazardous air pollutants which are VOCs or PM₁₀ can be modified so long as no permit emission limitations are violated. A log of all mixtures and changes shall be kept and reported to the Department with the next report required after each change.

11. Right to Access (§2103.12.h.2)

Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized Department and other federal, state, county, and local government representatives to:

- a. Enter upon the permittee's premises where a permitted source is located or an emissions-related activity is conducted, or where records are or should be kept under the conditions of the permit;
- b. Have access to, copy and remove, at reasonable times, any records that must be kept under the conditions of the permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
- d. As authorized by either Article XXI or the Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements.

12. Certification of Compliance (§2103.12.h.5.)

- a. The permittee shall submit on an annual basis, certification of compliance with all terms and conditions contained in this permit, including emission limitations, standards, or work practices. The certification of compliance shall be made consistent with General Condition 4 above and shall include the following information at a minimum:
 - 1) The identification of each term or condition of the permit that is the basis of the certification;
 - 2) The compliance status;
 - 3) Whether any noncompliance was continuous or intermittent;
 - 4) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with the provisions of this permit; and
 - 5) Such other facts as the Department may require to determine the compliance status of the source.
- b. All certifications of compliance must be submitted to the Administrator as well as the Department by May 30 of each year for the time period beginning April 1 of the previous year and ending March 31 of the same year. Compliance certifications may be emailed to the Administrator at R3_APD_Permits@epa.gov in lieu of mailing a hard copy.

13. Record Keeping Requirements (§2103.12.j.1)

- a. The permittee shall maintain records of required monitoring information that include the following:

- 1) The date, place as defined in the permit, and time of sampling or measurements;
 - 2) The date(s) analyses were performed;
 - 3) The company or entity that performed the analyses;
 - 4) The analytical techniques or methods used;
 - 5) The results of such analyses; and
 - 6) The operating parameters existing at the time of sampling or measurement.
- b. The permittee shall maintain and make available to the Department, upon request, records including computerized records that may be necessary to comply with the reporting and emission statements in Article XXI §2108.01.e. Such records may include records of production, fuel usage, maintenance of production or pollution control equipment or other information determined by the Department to be necessary for identification and quantification of potential and actual air contaminant emissions.

14. Retention of Records (§2103.12.j.2)

The permittee shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

15. Reporting Requirements (§2103.12.k)

- a. The permittee shall submit reports of any required monitoring at least every six (6) months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by the Responsible Official.
- b. Prompt reporting of deviations from permit requirements is required, including those attributable to upset conditions as defined in this permit and Article XXI §2108.01.c, the probable cause of such deviations, and any corrective actions or preventive measures taken.
- c. All reports submitted to the Department shall comply with the certification requirements of General Condition III.4 above.
- d. Semiannual reports required by this permit shall be submitted to the Department as follows:
 - 1) One semiannual report is due by October 31 of each year for the time period beginning April 1 and ending September 30.
 - 2) One semiannual report is due by April 30 of each year for the time period beginning October 1 and ending March 31.
- e. Reports may be submitted electronically to AQReports@AlleghenyCounty.us. Certification by the responsible official in accordance with General Condition III.4 above shall be provided separately via hard copy.

16. Severability Requirement (§2103.12.l)

The provisions of this permit are severable, and if any provision of this permit is determined by a court of competent jurisdiction to be invalid or unenforceable, such a determination will not affect the remaining provisions of this permit.

17. Existing Source Reactivations (§2103.13.d)

The permittee shall not reactivate any source that has been out of operation or production for a period of one year or more unless the permittee has submitted a reactivation plan request to, and received a written reactivation plan approval from, the Department. Existing source reactivations shall meet all requirements of Article XXI §2103.13.d.

18. Administrative Permit Amendment Procedures (§2103.14.b)

An administrative permit amendment may be made consistent with the procedures of Article XXI §2103.14.b and §2103.24.b. Administrative permit amendments are not authorized for any amendment precluded by the Clean Air Act or the regulations there under.

19. Revisions and Minor Permit Modification Procedures (§2103.14.c)

Sources may apply for revisions and minor permit modifications on an expedited basis in accordance with Article XXI §2103.14.c and §2103.24.a.

20. Significant Permit Modifications (§2103.14.d)

Significant permit modifications shall meet all requirements of the applicable subparts of Article XXI, Part C, including those for applications, fees, public participation, review by affected States, and review by EPA, as they apply to permit issuance and permit renewal. The approval of a significant permit modification, if the entire permit has been reopened for review, shall commence a new full five (5) year permit term. The Department shall take final action on all such permits within nine (9) months following receipt of a complete application.

21. Duty to Comply (§2103.12.f.1)

The permittee shall comply with all permit conditions and all other applicable requirements at all times. Any permit noncompliance constitutes a violation of the Clean Air Act, the Air Pollution Control Act, and Article XXI and is grounds for any and all enforcement action, including, but not limited to, permit termination, revocation and reissuance, or modification, and denial of a permit renewal application.

22. Renewals (§2103.13.b.)

Renewal of this permit is subject to the same fees and procedural requirements, including those for public participation and affected State and EPA review, that apply to initial permit issuance. The application for renewal shall be submitted at least six (6) months but not more than eighteen (18) months prior to expiration of this permit. The application shall also include submission of a supplemental compliance review as required by Article XXI §2102.01.

23. Reopenings for Cause (§2103.15, §2103.12.f.3)

a. This permit shall be reopened and reissued under any of the following circumstances:

- 1) Additional requirements under the Clean Air Act become applicable to a major source with a remaining permit term of three (3) or more years. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended solely due to the failure of

the Department to act on a permit renewal application in a timely fashion.

- 2) Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into this permit.
- 3) The Department or EPA determines that this permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit.
- 4) The Administrator or the Department determines that this permit must be reissued or revoked to assure compliance with the applicable requirements.

- b. This permit may be modified; revoked, reopened, and reissued; or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes, for changes that are provided for in this permit.

24. Reopenings for Cause by the EPA (§2103.25.b)

This permit may be modified, reopened and reissued, revoked or terminated for cause by the EPA in accordance with procedures specified in Article XXI §2103.25.b.

25. Annual Operating Permit Administration Fee (§2103.40)

In each year during the term of this permit, on or before the last day of the month in which the application for this permit was submitted, the permittee shall submit to the Department, in addition to any other applicable administration fees, an Annual Operating Permit Administration Fee in accordance with §2103.40. by check or money order payable to the "Allegheny County Air Pollution Control Fund" in the amount specified in the fee schedule applicable at that time.

26. Annual Major Source Emissions Fees Requirements (§2103.41)

No later than September 1 of each year, the permittee shall pay an annual emission fee in accordance with Article XXI §2103.41 for each ton of a regulated pollutant (except for carbon monoxide) actually emitted from the source. The permittee shall not be required to pay an emission fee for emissions of more than 4,000 tons of each regulated pollutant. The emission fee shall be increased in each year after 1995 by the percentage, if any, by which the Consumer Price Index for the most recent calendar year exceeds the Consumer Price Index for the previous calendar year.

27. Other Requirements not Affected (§2104.08, §2105.02)

Compliance with the requirements of this permit shall not in any manner relieve any person from the duty to fully comply with any other applicable Federal, State, or County statute, rule, regulation, or the like, including but not limited to the odor emission standards under Article XXI §2104.04, any applicable NSPSs, NESHAPs, MACTs, or Generally Achievable Control Technology (GACT) standards now or hereafter established by the EPA, and any applicable requirements of BACT or LAER as provided by Article XXI, any condition contained in any applicable Installation or Operating Permit and/or any additional or more stringent requirements contained in an order issued to such person pursuant to Article XXI Part I.

28. Termination of Operation (§2108.01.a)

In the event that operation of any source of air contaminants is permanently terminated, the person responsible for such source shall so report, in writing, to the Department within 60 days of such termination.

29. Emissions Inventory Statements (§2108.01.e & g)

- a. Emissions inventory statements in accordance with Article XXI §2108.01.e shall be submitted to the Department by March 15 of each year for the preceding calendar year. The Department may require more frequent submittals if the Department determines that more frequent submissions are required by the EPA or that analysis of the data on a more frequent basis is necessary to implement the requirements of Article XXI or the Clean Air Act.
- b. The failure to submit any report or update within the time specified, the knowing submission of false information, or the willful failure to submit a complete report shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02.

30. Tests by the Department (§2108.02.d)

Notwithstanding any tests conducted pursuant to Article XXI §2108.02, the Department or another entity designated by the Department may conduct emissions testing on any source or air pollution control equipment. At the request of the Department, the person responsible for such source or equipment shall provide adequate sampling ports, safe sampling platforms and adequate utilities for the performance of such tests.

31. Other Rights and Remedies Preserved (§2109.02.b)

Nothing in this permit shall be construed as impairing any right or remedy now existing or hereafter created in equity, common law or statutory law with respect to air pollution, nor shall any court be deprived of such jurisdiction for the reason that such air pollution constitutes a violation of this permit.

32. Enforcement and Emergency Orders (§2109.03, §2109.05)

- a. The person responsible for this source shall be subject to any and all enforcement and emergency orders issued to it by the Department in accordance with Article XXI §2109.03, §2109.04 and §2109.05.
- b. Upon request, any person aggrieved by an Enforcement Order or Emergency Order shall be granted a hearing as provided by Article XXI §2109.03.d; provided however, that an Emergency Order shall continue in full force and effect notwithstanding the pendency of any such appeal.
- c. Failure to comply with an Enforcement Order or immediately comply with an Emergency Order shall be a violation of this permit thus giving rise to the remedies provided by Article XXI §2109.02.

33. Penalties, Fines, and Interest (§2109.07.a)

A source that fails to pay any fee required under this permit when due shall pay a civil penalty of 50% of the fee amount, plus interest on the fee amount computed in accordance with Article XXI §2109.06.a.4 from the date the fee was required to be paid. In addition, the source may have this permit revoked for failure to pay any fee required.

34. Appeals (§2109.10)

In accordance with State Law and County regulations and ordinances, any person aggrieved by an order or other final action of the Department issued pursuant to Article XXI or any unsuccessful petitioner to the Administrator under Article XXI Part C, Subpart 2, shall have the right to appeal the action to the Director in accordance with the applicable County regulations and ordinances.

35. Risk Management (§2104.08, 40 CFR Part 68)

Should this stationary source, as defined in 40 CFR Part 68.3, become subject to Part 68, then the owner or operator shall submit a risk management plan (RMP) by the date specified in Part 68.10 and shall certify compliance with the requirements of Part 68 as part of the annual compliance certification as required by General Condition III.12 above.

36. Permit Shield (§2103.22)

- a. The permittee's compliance with the conditions of this permit shall be deemed compliance with all major source applicable requirements as of the date of permit issuance, provided that:
 - 1) Such major source applicable requirements are included and are specifically identified in the permit; or
 - 2) The Department, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof.
- b. Nothing in Article XXI §2103.22.e or the Title V Permit shall alter or affect the following:
 - 1) The provisions of Section 303 of the Clean Air Act and the provisions of Article XXI regarding emergency orders, including the authority of the Administrator and the Department under such provisions;
 - 2) The liability of any person who owns, operates, or allows to be operated, a source in violation of any major source applicable requirements prior to or at the time of permit issuance;
 - 3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; or
 - 4) The ability of the EPA or the County to obtain information from the permittee pursuant to Section 114 of the Clean Air Act, the provisions of Article XXI and State law.
- c. Unless precluded by the Clean Air Act or regulations therein, final action by the Department on administrative amendments, minor and significant permit modifications, and operational flexibility changes shall be covered by the permit shield provided such amendments, modifications and changes meet the relevant requirements of Article XXI.
- d. The permit shield authorized under Article XXI §2103.22 is in effect for the permit terms and conditions as identified in this permit.

37. Circumvention (§2101.14)

For purposes of determining compliance with the provisions of this permit and Article XXI, no credit shall be given to any person for any device or technique, including but not limited to the operation of any source

with unnecessary amounts of air, the combining of separate sources except as specifically permitted by Article XXI and the Department, the use of stacks exceeding Good Engineering Practice height as defined by regulations promulgated by the US EPA at 40 CFR §§51.100 and 51.110 and Subpart I, and other dispersion techniques, which without reducing the amount of air contaminants emitted, conceals or dilutes an emission of air contaminants which would otherwise violate the provisions of this Article; except that, for purposes of determining compliance with Article §2104.04 concerning odors, credit for such devices or techniques, except for the use of a masking agent, may be given.

38. Duty to Supplement and Correct Relevant Facts (§2103.12.d.2)

- a. The permittee shall provide additional information as necessary to address requirements that become applicable to the source after the date it files a complete application but prior to the Department taking action on the permit application.
- b. The permittee shall provide supplementary fact or corrected information upon becoming aware that incorrect information has been submitted or relevant facts were not submitted.
- c. Except as otherwise required by this permit and Article XXI, the Clean Air Act, or the regulations thereunder, the permittee shall submit additional information as necessary to address changes occurring at the source after the date it files a complete application but prior to the Department taking action on the permit application.
- d. The applicant shall submit information requested by the Department which is reasonably necessary to evaluate the permit application.

39. Effect (§2102.03.g.)

- a. Except as specifically otherwise provided under Article XXI, Part C, issuance of a permit pursuant to Article XXI Part B or Part C shall not in any manner relieve any person of the duty to fully comply with the requirements of this permit, Article XXI or any other provision of law, nor shall it in any manner preclude or affect the right of the Department to initiate any enforcement action whatsoever for violations of this permit or Article XXI, whether occurring before or after the issuance of such permit. Further, except as specifically otherwise provided under Article XXI Part C the issuance of a permit shall not be a defense to any nuisance action, nor shall such permit be construed as a certificate of compliance with the requirements of this permit or Article XXI.

40. Installation Permits (§2102.04.a.1.)

It shall be a violation of this permit giving rise to the remedies set forth in Article XXI Part I for any person to install, modify, replace, reconstruct, or reactivate any source or air pollution control equipment which would require an installation permit or permit modification in accordance with Article XXI Part B or Part C.

IV. SITE LEVEL TERMS AND CONDITIONS

1. Reporting of Upset Conditions (§2103.12.k.2)

The permittee shall promptly report all deviations from permit requirements, including those attributable to upset conditions as defined in Article XXI §2108.01.c, the probable cause of such deviations, and any corrective actions or preventive measures taken.

2. Visible Emissions (§2104.01.a)

Except as provided for by Article XXI §2108.01.d pertaining to a cold start, no person shall operate, or allow to be operated, any source in such manner that the opacity of visible emissions from a flue or process fugitive emissions from such source, excluding uncombined water:

- a. Equal or exceed an opacity of 20% for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period; or,
- b. Equal or exceed an opacity of 60% at any time.

3. Odor Emissions (§2104.04) (County-only enforceable)

No person shall operate, or allow to be operated, any source in such manner that emissions of malodorous matter from such source are perceptible beyond the property line.

4. Materials Handling (§2104.05)

The permittee shall not conduct, or allow to be conducted, any materials handling operation in such manner that emissions from such operation are visible at or beyond the property line.

5. Operation and Maintenance (§2105.03)

All air pollution control equipment required by this permit or any order under Article XXI, and all equivalent compliance techniques approved by the Department, shall be properly installed, maintained, and operated consistently with good air pollution control practice.

6. Open Burning (§2105.50)

No person shall conduct, or allow to be conducted, the open burning of any material, except where the Department has issued an Open Burning Permit to such person in accordance with Article XXI §2105.50 or where the open burning is conducted solely for the purpose of non-commercial preparation of food for human consumption, recreation, light, ornament, or provision of warmth for outside workers, and in a manner which contributes a negligible amount of air contaminants.

7. Shutdown of Control Equipment (§2108.01.b)

- a. In the event any air pollution control equipment is shut down for reasons other than a breakdown, the person responsible for such equipment shall report, in writing, to the Department the intent to shut down such equipment at least 24 hours prior to the planned shutdown. Notwithstanding the submission of such report, the equipment shall not be shut down until the approval of the Department is obtained; provided, however, that no such report shall be required if the source(s)

served by such air pollution control equipment is also shut down at all times that such equipment is shut down.

- b. The Department shall act on all requested shutdowns as promptly as possible. If the Department does not take action on such requests within ten (10) calendar days of receipt of the notice, the request shall be deemed denied, and upon request, the owner or operator of the affected source shall have a right to appeal in accordance with the provisions of Article XI.
- c. The prior report required by Site Level Condition IV.7.a above shall include:
 - 1) Identification of the specific equipment to be shut down, its location and permit number (if permitted), together with an identification of the source(s) affected;
 - 2) The reasons for the shutdown;
 - 3) The expected length of time that the equipment will be out of service;
 - 4) Identification of the nature and quantity of emissions likely to occur during the shutdown;
 - 5) Measures, including extra labor and equipment, which will be taken to minimize the length of the shutdown, the amount of air contaminants emitted, or the ambient effects of the emissions;
 - 6) Measures which will be taken to shut down or curtail the affected source(s) or the reasons why it is impossible or impracticable to shut down or curtail the affected source(s) during the shutdown; and
 - 7) Such other information as may be required by the Department.

8. Breakdowns (§2108.01.c)

- a. In the event that any air pollution control equipment, process equipment, or other source of air contaminants breaks down in such manner as to have a substantial likelihood of causing the emission of air contaminants in violation of this permit, or of causing the emission into the open air of potentially toxic or hazardous materials, the person responsible for such equipment or source shall immediately, but in no event later than sixty (60) minutes after the commencement of the breakdown, notify the Department of such breakdown and shall, as expeditiously as possible but in no event later than seven (7) days after the original notification, provide written notice to the Department.
- b. To the maximum extent possible, all oral and written notices required shall include all pertinent facts, including:
 - 1) Identification of the specific equipment which has broken down, its location and permit number (if permitted), together with an identification of all related devices, equipment, and other sources which will be affected.
 - 2) The nature and probable cause of the breakdown.
 - 3) The expected length of time that the equipment will be inoperable or that the emissions will continue.
 - 4) Identification of the specific material(s) which are being, or are likely to be emitted, together with a statement concerning its toxic qualities, including its qualities as an irritant, and its potential for causing illness, disability, or mortality.
 - 5) The estimated quantity of each material being or likely to be emitted.
 - 6) Measures, including extra labor and equipment, taken or to be taken to minimize the length of the breakdown, the amount of air contaminants emitted, or the ambient effects of the emissions, together with an implementation schedule.
 - 7) Measures being taken to shut down or curtail the affected source(s) or the reasons why it is

impossible or impractical to shut down the source(s), or any part thereof, during the breakdown.

- c. Notices required shall be updated, in writing, as needed to advise the Department of changes in the information contained therein. In addition, any changes concerning potentially toxic or hazardous emissions shall be reported immediately. All additional information requested by the Department shall be submitted as expeditiously as practicable.
- d. Unless otherwise directed by the Department, the Department shall be notified whenever the condition causing the breakdown is corrected or the equipment or other source is placed back in operation by no later than 9:00 AM on the next County business day. Within seven (7) days thereafter, written notice shall be submitted pursuant to Paragraphs a and b above.
- e. Breakdown reporting shall not apply to breakdowns of air pollution control equipment which occur during the initial startup of said equipment, provided that emissions resulting from the breakdown are of the same nature and quantity as the emissions occurring prior to startup of the air pollution control equipment.
- f. In no case shall the reporting of a breakdown prevent prosecution for any violation of this permit or Article XXI.

9. Cold Start (§2108.01.d)

In the event of a cold start on any fuel-burning or combustion equipment, except stationary internal combustion engines and combustion turbines used by utilities to meet peak load demands, the person responsible for such equipment shall report in writing to the Department the intent to perform such cold start at least 24 hours prior to the planned cold start. Such report shall identify the equipment and fuel(s) involved and shall include the expected time and duration of the startup. Upon written application from the person responsible for fuel-burning or combustion equipment which is routinely used to meet peak load demands and which is shown by experience not to be excessively emissive during a cold start, the Department may waive these requirements and may instead require periodic reports listing all cold starts which occurred during the report period. The Department shall make such waiver in writing, specifying such terms and conditions as are appropriate to achieve the purposes of Article XXI. Such waiver may be terminated by the Department at any time by written notice to the applicant.

10. Monitoring of Malodorous Matter Beyond Facility Boundaries (§2104.04)

The permittee shall take all reasonable action as may be necessary to prevent malodorous matter from becoming perceptible beyond facility boundaries. Further, the permittee shall perform such observations as may be deemed necessary along facility boundaries to insure that malodorous matter beyond the facility boundary in accordance with Article XXI §2107.13 is not perceptible and record all findings and corrective action measures taken.

11. Orders (§2108.01.f)

In addition to meeting the requirements of General Condition III.28 and Site Level Conditions IV.7 through IV.10 above, inclusive, the person responsible for any source shall, upon order by the Department, report to the Department such information as the Department may require in order to assess the actual and potential contribution of the source to air quality. The order shall specify a reasonable time in which to make such a report.

12. Violations (§2108.01.g)

The failure to submit any report or update thereof required by General Condition III.28 and Site Level Conditions IV.7 through IV.11 above, inclusive, within the time specified, the knowing submission of false information, or the willful failure to submit a complete report shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02.

13. Emissions Testing (§2108.02)

- a. **Orders.** The person responsible for any source shall, upon order by the Department, conduct, or cause to be conducted, such emissions tests as specified by the Department within such reasonable time as is specified by the Department. Test results shall be submitted in writing to the Department within 20 days after completion of the tests, unless a different period is specified in the Department's order. Emissions testing shall comply with all applicable requirements of Article XXI §2108.02.e.
- b. **Tests by the Department:** Notwithstanding any tests conducted pursuant to this permit, the Department or another entity designated by the Department may conduct emissions testing on any source or air pollution control equipment. At the request of the Department, the permittee shall provide adequate sampling ports, safe sampling platforms and adequate utilities for the performance of such tests.
- c. **Testing Requirements.** No later than 45 days prior to conducting any tests required by this permit, the person responsible for the affected source shall submit for the Department's approval a written test protocol explaining the intended testing plan, including any deviations from standard testing procedures, the proposed operating conditions of the source during the test, calibration data for specific test equipment and a demonstration that the tests will be conducted under the direct supervision of persons qualified by training and experience satisfactory to the Department to conduct such tests. In addition, at least 30 days prior to conducting such tests, the person responsible shall notify the Department in writing of the time(s) and date(s) on which the tests will be conducted and shall allow Department personnel to observe such tests, record data, provide pre-weighed filters, analyze samples in a County laboratory and to take samples for independent analysis. Test results shall be comprehensively and accurately reported in the units of measurement specified by the applicable emission limitations of this permit.
- d. Test methods and procedures shall conform to the applicable reference method set forth in this permit or Article XXI Part G, or where those methods are not applicable, to an alternative sampling and testing procedure approved by the Department consistent with Article XXI §2108.02.e.2.
- e. **Violations:** The failure to perform tests as required by this permit or an order of the Department, the failure to submit test results within the time specified, the knowing submission of false information, the willful failure to submit complete results, or the refusal to allow the Department, upon presentation of a search warrant, to conduct tests, shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02.

14. Abrasive Blasting (§2105.51)

- a. Except where such blasting is a part of a process requiring an operating permit, no person shall conduct or allow to be conducted, abrasive blasting or power tool cleaning of any surface, structure, or part thereof, which has a total area greater than 1,000 square feet unless such abrasive blasting

complies with all applicable requirements of Article XXI §2105.51.

- b. In addition to complying with all applicable provisions of §2105.51, no person shall conduct, or allow to be conducted, abrasive blasting of any surface unless such abrasive blasting also complies with all other applicable requirements of Article XXI unless such requirements are specifically addressed by §2105.51.

15. Asbestos Abatement (§2105.62, §2105.63)

In the event of removal, encasement, or encapsulation of Asbestos-Containing Material (ACM) at a facility or in the event of the demolition of any facility, the permittee shall comply with all applicable provisions of Article XXI §2105.62 and §2105.63.

16. Protection of Stratospheric Ozone (40 CFR Part 82)

- a. Permittee shall comply with the standards for labeling of products using ozone-depleting substances pursuant to 40 CFR Part 82, Subpart E:
 - 1) All containers in which a Class I or Class II substance is stored or transported, all products containing a Class I substance, and all products directly manufactured with a process that uses a Class I substance must bear the required warning statement if it is being introduced into interstate commerce pursuant to §82.106;
 - 2) The placement of the required warning statement must comply with the requirements pursuant to §82.108;
 - 3) The form of the label bearing the required warning statement must comply with the requirements pursuant to §82.110; and
 - 4) No person may modify, remove or interfere with the required warning statement except as described in §82.112.
- b. Permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F:
 - 1) Persons opening appliances for maintenance, service, repair or disposal must comply with the prohibitions and required practices pursuant to §82.154 and §82.156;
 - 2) Equipment used during the maintenance, service, repair or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to §82.158;
 - 3) Persons maintaining, servicing, repairing or disposing of appliances, must be certified by an approved technician certification program pursuant to §82.161;
 - 4) Persons maintaining, servicing, repairing or disposing of appliances must certify to the Administrator of the U.S. Environmental Protection Agency pursuant to §82.162;
 - 5) Persons disposing of small appliances, motor vehicle air conditioners (MVAC) and MVAC-like appliances, must comply with the record keeping requirements pursuant to §82.166;
 - 6) Owners of commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to §82.156; and
 - 7) Owners or operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to §82.166.
- c. If the permittee manufactures, transforms, destroys, imports or exports a Class I or Class II substance, the Permittee is subject to all the requirements as specified in 40 CFR Part 82, Subpart A (Production and Consumption Controls).
- d. If the permittee performs a service on a motor vehicle that involves an ozone-depleting substance,

refrigerant or regulated substitute substance in the MVAC, the Permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B (Servicing of Motor Vehicle Air Conditioners).

- e. The permittee may switch from any ozone-depleting substance to any alternative that is listed as acceptable in the Significant New Alternatives Policy (SNAP) program promulgated pursuant to 40 CFR Part 82, Subpart G.

17. Volatile Organic Compound Storage Tanks (§2105.12.a)

No person shall place or store, or allow to be placed or stored, a volatile organic compound having a vapor pressure of 1.5 psia or greater under actual storage conditions in any aboveground stationary storage tank having a capacity equal to or greater than 2,000 gallons but less than or equal to 40,000 gallons, unless there is in operation on such tank pressure relief valves which are set to release at the higher of 0.7 psig of pressure or 0.3 psig of vacuum or at the highest possible pressure and vacuum in accordance with State or local fire codes, National Fire Prevention Association guidelines, or other national consensus standard approved in writing by the Department. Petroleum liquid storage vessels that are used to store produced crude oil and condensate prior to lease custody transfer are exempt from these requirements.

18. Fugitive Emissions (§2105.49)

The person responsible for a source of fugitive emissions, in addition to complying with all other applicable provisions of this permit shall take all reasonable actions to prevent fugitive air contaminants from becoming airborne. Such actions may include, but are not limited to:

- a. The use of asphalt, oil, water, or suitable chemicals for dust control;
- b. The paving and maintenance of roadways, parking lots and the like;
- c. The prompt removal of earth or other material which has been deposited by leaks from transport, erosion or other means;
- d. The adoption of work or other practices to minimize emissions;
- e. Enclosure of the source; and
- f. The proper hooding, venting, and collection of fugitive emissions.

19. Episode Plans (§2106.02)

The permittee shall upon written request of the Department, submit a source curtailment plan, consistent with good industrial practice and safe operating procedures, designed to reduce emissions of air contaminants during air pollution episodes. Such plans shall meet the requirements of Article XXI §2106.02.

20. New Source Performance Standards (§2105.05)

- a. It shall be a violation of this permit giving rise to the remedies provided by §2109.02 of Article XXI for any person to operate, or allow to be operated, any source in a manner that does not comply with all requirements of any applicable NSPS now or hereafter established by the EPA, except if such person has obtained from EPA a waiver pursuant to Section 111 or Section 129 of the Clean Air Act or is otherwise lawfully temporarily relieved of the duty to comply with such requirements.
- b. Any person who operates, or allows to be operated, any source subject to any NSPS shall conduct, or cause to be conducted, such tests, measurements, monitoring and the like as is required by such

standard. All notices, reports, test results and the like as are required by such standard shall be submitted to the Department in the manner and time specified by such standard. All information, data and the like which is required to be maintained by such standard shall be made available to the Department upon request for inspection and copying.

21. National Emission Standards for Hazardous Air Pollutants (§2104.08)

- a. The permittee shall comply with each applicable emission limitation, work practice standard, and operation and maintenance requirement of 40 CFR Part 63, Subpart HHHHH – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing for all applicable equipment and processes in the Paint Plant.
- b. The permittee shall comply with each applicable emission limitation, work practice standard, and operation and maintenance requirement of 40 CFR Part 63, Subpart FFFF – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing for all applicable equipment and processes in the Development Center.

22. Facility-wide Emission Limitations

- a. Production of coatings at the Paint Plant facility shall be limited to a total of 20,000,000 gallons during any 12 consecutive months.

23. Greenhouse Gas Reporting (40 CFR Part 98)

If the facility emits 25,000 metric tons or more of carbon dioxide equivalent (CO₂e) in any 12-month period, the facility shall submit reports to the US EPA in accordance with 40 CFR Part 98.

V. EMISSION UNIT LEVEL TERMS AND CONDITIONS**A. Process P001: Paint Plant (Controlled Emissions)**

Process Description: CP Cell, Light Cell, Dark Cell, and Environ Work Centers; Large Batch Center; Solvent Still
Raw Materials: Pigment, Resin, Solvent
Control Device(s): Paint Plant Regenerative Thermal Oxidizer (RTO); Ohio Blowpipe Dust Collector; Environ Baghouse
Capacity: 1.6 MMBtu/hr
Fuel: Natural Gas

1. Restrictions:

- a. The permittee shall not operate any equipment from the CP Cell, Light Cell, Dark Cell, and Environ work centers; Large Batch Center, or Solvent Still at any time while generating VOC emissions unless the Paint Plant RTO is in service and operating properly. [§2103.12.a; IP #0057-I003, VI.1.a; IP #0057-I005c, V.A.1.a]
- b. The permittee shall equip each stationary mixer and stationary process vessel with a tightly fitting vented cover or lid that must be closed at all times when the vessel contains HAP, except for material additions and sampling. [§2103.12.a; §2104.08; §63.8005(a)(1); 40 CFR Part 63 Subpart HHHHH Table 1.2.b.i; RACT Order #254, 1.13, 1.14; 25 Pa. Code §129.99]
- c. The permittee shall not operate or allow to be operated any dispensing or filling systems for solvent-borne coatings unless they are of closed design or minimize free-fall of liquids. [§2103.12.a; RACT Order #254, 1.16 & 1.17; 25 Pa. Code §129.99]
- d. The Paint Plant RTO shall be properly operated and maintained according to good engineering practices (as proscribed in Monitoring Section V.A.3 below), manufacturer's recommendations, and the following conditions at all times while treating process emissions: [§2103.05; §2105.30; IP #0057-I003, VI.1.b; IP #0057-I005c, V.A.1.b; 25 Pa. Code §129.99]
 - 1) A minimum VOC destruction efficiency of 98% by weight; or
 - 2) A VOC concentration less than 20 ppm by volume, dry basis.
- e. The permittee shall reduce emissions of total organic HAP from stationary process vessels by the amount specified in condition V.A.1.d.1) above or greater by venting emissions through the existing Paint Plant regenerative thermal oxidizer (RTO) at all times when paint is being produced. [§2103.12.a; §2104.08; §63.8005(a)(1); 63 Subpart HHHHH Table 1.2.b.i; §63.988(a)(2)]
- f. The RTO shall be operated at a minimum operating temperature of 1,500 °F or the temperature at which a destruction efficiency of 98% is demonstrated during the most recent stack test, whichever is greater. [§2103.05; §2105.30.b; IP #0057-I005c, V.A.1.c]
- g. The permittee shall meet the requirements of condition V.A.1.e above for emissions during automatic cleaning operations. [§2103.12.a; §2104.08; §63.8005(a)(1)(ii)]
- h. The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [§2103.12.a; RACT Order #254, 1.20; 25 Pa. Code §129.99]

- i. The permittee shall not operate or allow to be operated any grinding mills unless they are completely closed at all times. [§2103.12.a; RACT Order #254, 1.18]
- j. The permittee shall not operate, nor allow to be operated, the Paint Plant RTO using a fuel other than utility-grade natural gas. [§2103.12.a.2.B; IP #0057-I005c, V.A.1.e]
- k. Emissions from the Paint Plant RTO shall not exceed the limits in Table V-A-1 at any time: [§2103.12.a; IP #0057-I005c, V.A.1.d]

Table V-A-1: Paint Plant RTO Emission Limitations

Pollutant	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.013	0.056
Particulate Matter < 10 µm (PM ₁₀)	0.013	0.056
Particulate Matter < 2.5 µm (PM _{2.5})	0.013	0.056
Nitrogen Oxides (NO _x)	0.180	0.790
Sulfur Oxides (SO _x)	0.001	0.005
Carbon Monoxide (CO)	0.152	0.664
Volatile Organic Compounds (VOCs)	2.37	10.42
Hazardous Air Pollutants (HAPs)	1.49	6.52

¹ A year is defined as any 12 consecutive month period.

- l. The Paint Plant RTO shall be equipped with instrumentation that continuously monitors the thermal oxidizer combustion chamber temperature to within 0.75% of the temperature measured, and records to the nearest 1 °F. The permittee shall at all times properly maintain and calibrate the continuous temperature monitor and recorder in accordance with manufacturer's specifications and good engineering practices. [§2103.12.a.2.B; IP #0057-I003, VI.1.c; IP #0057-I005c, V.A.1.f]
- m. The Paint Plant RTO shall meet the requirements of 40 CFR Part 63, Subpart SS, §63.982(c)(2), as specified in 40 CFR Part 63, Subpart HHHHH. [§2103.12.a; §2104.08; §63.8000(c)(1); §63.8005(a)(2)]
- n. The permittee shall at no time, conduct or allow to be conducted, charging of solid materials into the Environ processes and Large Batch Cells processes unless the Environ Baghouse and Ohio Blowpipe collection and control system are properly maintained and operated at all times, according to the following conditions: [§2103.12.a.2.B; IP #0057-I003, VI.1.d]
 - 1) All particulate emissions from the charging of solid materials into the Environ processes shall be vented through the Environ Baghouse and all particulate emissions from the charging of the Large Batch Cells processes shall be vented through the Ohio Blowpipe dust collection and control system. Each baghouse shall be equipped with automatic cleaning controls and instrumentation that shall continuously measure the differential pressure drop across the baghouse to within 2.0% of the measuring span of the device.
 - 2) The differential pressure drop across the baghouse shall not exceed a maximum of 6.0" w.c. of water column and a minimum of 1.0" w.c. at any time except during cleaning cycles.
- o. Emissions from the Environ Baghouse shall not exceed the limits in Table V-A-2 at any time:

[§2103.12.a.2.B; IP #0057-I003, VI.1.h]

Table V-A-2: Controlled Emission Limits

Pollutant	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.62	2.72
Particulate Matter < 10 µm (PM ₁₀)	0.62	2.72
Hazardous Air Pollutants (particulates)	0.25	1.10

¹ A year is defined as any 12 consecutive month period.

- p. Emissions from the Ohio Blowpipe Baghouse shall not exceed the limits in Table V-A-3 at any time: [§2103.12.a.2.B; IP #0057-I003, VI.1.j]

Table V-A-3: Controlled Emission Limits

Pollutant	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.73	3.20
Particulate Matter < 10 µm (PM ₁₀)	0.73	3.20

¹ A year is defined as any 12 consecutive month period.

- q. The permittee shall determine whether wastewater from the emission unit is Group 1 or Group 2 wastewater according to 40 CFR §63.8020. Group 1 wastewater streams shall be conveyed using hard-piping and shall be treated as a hazardous waste in accordance with 40 CFR part 264, 265, or 266 either onsite or offsite. Alternatively, if the wastewater contains <50 ppmw of partially soluble HAP, the permittee may elect to treat the wastewater in an enhanced biological treatment system that is located either onsite or offsite. [§2103.12.a; §2104.08; §63.8020(a); §63.8105; 40CFR Part 63 Subpart HHHHH Table 4, 2.a-b]
- r. To maintain Group 2 transfer rack status, the permittee shall not allow bulk loading of coating products that contain greater than or equal to 3.0 million gallons per year of HAP with a weighted average HAP partial pressure greater than or equal to 1.5 psia. If the permittee exceeds these requirements, the permittee shall control the transfer rack to the RTO and complete appropriate permit modification applications. [§2103.12.b.; §2104.08.a; §63.8015]
- s. The permittee shall develop and implement a written startup, shutdown, and malfunction plan (SSMP) that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the conditions of this permit. The SSMP shall meet the requirements of 63 Subpart A, §63.6(e)(3). [§2103.12.a; §2104.08; §63.6(e)(3)]
- 1) During periods of startup, shutdown, and malfunction, the permittee shall operate and maintain such source (including associated air pollution control equipment) in accordance with the procedures specified in the SSMP.
 - 2) When actions taken by the permittee during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the SSMP, the permittee shall keep records for that event that demonstrate that the procedures specified in the plan were followed. In addition, the permittee shall keep records of these events as specified in condition V.A.4.f below, including records of the occurrence and duration of

each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control equipment.

- 3) If an action taken by the permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the SSMP, the permittee shall record the actions taken for that event and shall report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event.
 - 4) The permittee shall keep the written SSMP on record to be made available for inspection, upon request, by the Department for the life of the affected source or until the affected source is no longer subject to the provisions of this part. In addition, if the SSMP is revised, the permittee shall keep previous versions of the SSMP on record, to be made available for inspection, upon request, by the Department, for a period of 5 years after each revision to the plan.
- t. Opening of a safety device, as defined in §63.8105, is allowed at any time conditions require it to avoid unsafe conditions. [§2103.12.a; §2104.08; §63.8000(b)(2)]

2. Testing Requirements:

- a. The permittee shall conduct VOC and HAP emissions testing on the inlet and the outlet of the Paint Plant RTO to demonstrate compliance with condition V.A.1.e above. Such testing shall be conducted in accordance with US EPA approved test methods and §2108.02 of Article XXI. The testing shall be performed after initial start-up and once every five (5) years after the most recent stack test. [§2103.12.h.1; §63.982(c)(2); IP #0057-I005c, V.A.2.a; 25 Pa. Code §129.100]
- b. The permittee shall conduct tests to measure emissions using the following methods: [§2103.12.h; §2104.08; §63.8000(d)(1); §63.997(e)(2)(i)-(iv)]
 - 1) Conduct gas molecular weight analysis using Method 3, 3A, or 3B in appendix A to 40 CFR Part 60.
 - 2) Measure moisture content of the stack gas using Method 4 in appendix A to 40 CFR Part 60.
 - 3) The gas volumetric flow rate shall be determined using Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR Part 60, appendix A, as appropriate.
 - 4) TOC concentration shall be determined using Method 18 or 25/25A of 40 CFR Part 60, appendix A, as applicable.
 - 5) As an alternative to using Method 18, Method 25/25A, or Method 26/26A of 40 CFR Part 60, appendix A, the permittee may use Method 320 of 40 CFR part 60, appendix A. When using Method 320, the permittee shall follow the analyte spiking procedures of section 13 of Method 320, unless the permittee demonstrates that the complete spiking procedure has been conducted at a similar source.
- c. Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for at least 1 hour and under the conditions specified in condition V.A.2.e below. For the purpose of determining compliance, the arithmetic means of results of the three runs shall apply. [§2103.12.h; §2104.08; §63.997(e)(1)(v)]
- d. The permittee shall determine the minimum operating temperature as required under condition V.A.1.f from the most recent valid stack test that demonstrates compliance with the requirements in condition V.A.1.e above, as approved by the Department. On and after the date the approved stack test results are available, the permittee shall operate the Paint Plant RTO at or above the average temperature as observed during the compliant stack test. [§2103.12.h.1; §63.8005(e); §63.998(a)(2)(ii)(B)(1); IP#0057-I005c, V.A.2.b; 25 Pa. Code §129.100]

- e. The permittee shall conduct all tests while operating the Paint Plant at maximum routine operating conditions. Documentation of the Paint Plant operating conditions shall be included in the stack test report. Such documentation shall include but not be limited to: [§2108.02.e.2.A; §63.8005(d)(1); IP#0057-I005c, V.A.2.c]
 - 1) A listing of all vessels and equipment in use and connected to the RTO during the stack test.
 - 2) A listing of the production of each vessel in use and connected to the RTO during the stack test.
 - 3) Total material in process during the stack test.
 - 4) Tank cleaning that occurs during the stack test, including type and amount of solvent used.
- f. The Department reserves the right to require additional emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Article XXI §2108.02. [§2103.12.h.1; §63.997(c)(2)]

3. Monitoring Requirements:

- a. The permittee shall externally inspect the Paint Plant RTO and associated ductwork weekly for proper operation as well as for integrity of the thermal oxidizer, process equipment, and gaseous collection systems. [§2103.12.i; §63.8000(c)(1); IP #0057-I005c, V.A.3.a]
- b. The permittee shall continuously monitor and record the Paint Plant RTO combustion chamber to the nearest 1°F of actual temperature at all times while treating process emissions. [§2102.04.b.6; §2103.12.i; §63.996(c); IP #0057-I003, VI.3.b; IP #0057-I005c, V.A.3.b; 25 Pa. Code §129.100]
- c. If the permittee chooses to demonstrate compliance with the outlet concentration standard in condition V.A.1.d.2) above, then the permittee shall install and properly operate and maintain a continuous monitoring system (CMS) to measure and record the amount of VOC (in ppm by volume, dry basis) exiting the Paint Plant RTO stack. [§2103.12.i; IP #0057-I005c, V.A.3.c; §63.998(2)(ii)(B)(4)]
- d. The permittee shall inspect the Environ Baghouse and Ohio Blowpipe collection and control system weekly to ensure compliance with conditions V.A.1.a and V.A.1.n through p. [§2103.12.i; IP #0057-I003, VI.3.a]
- e. The permittee shall perform monthly Leak Detection and Repair (LDAR) in accordance with condition V.B.3.a. [§2103.12.i; §2104.08; §63.8015(a); 63 Subpart HHHHH Table 3.1.a; §63.424(a)-(d)]

4. Record Keeping Requirements:

- a. The permittee shall record the monthly usage of all raw materials necessary to demonstrate compliance with this permit. Such records shall provide sufficient data and calculations to clearly demonstrate that all requirements of this permit are met. Such records shall include, but not be limited to the following: [§2103.12.j; IP #0057-I003, VI.4.a; RACT Order #254, 1.22]
 - 1) Records of specific solvents and quantities used;
 - 2) Records of paint production rates by number of batches and quantity of paint produced in each batch.
- b. The permittee shall record the results of the inspection required by condition V.A.3.d above and

- the differential pressure drop across the Environ Baghouse and Ohio Blowpipe collection and control system weekly. [§2103.12.j; IP #0057-I003, VI.4.b]
- c. The temperature in the combustion chamber of the Paint Plant RTO shall be continuously recorded, at all times, while processing emissions from the Paint Plant. [§2103.12.j; §2104.08; §63.8000(d)(5); §63.998(b)(1)-(3), & (6); IP #0057-I003, VI.4.c; IP #0057-I005c, V.A.4.a; 25 Pa. Code §129.100]
- d. The permittee shall maintain the following records for the thermal oxidizer unit: [§2103.12.j; IP #0057-I005c, V.A.4.b]
- 1) Hours of operation;
 - 2) All data required to demonstrate compliance with the minimum temperature requirements of condition V.A.1.f above;
 - 3) All data recorded under condition V.A.4.c above; and
 - 4) Records of operation, maintenance, inspection, calibration, and/or replacement of combustion equipment.
- e. For the Paint Plant RTO temperature monitoring system, the permittee shall keep and maintain the calibration records outlined in 40 CFR Part 63, Subpart SS, §63.998(c). [§2103.12.j; §2104.08; §63.8000(c); §63.8000(d)(5); §63.8080(a)]
- f. The permittee shall maintain the following information for each startup, shutdown, or malfunction: [§2103.12.j; §2104.08; §63.10(b)(2)(i)-(v)]
- 1) The occurrence and duration of each startup, shutdown, or malfunction of operation (i.e., process equipment);
 - 2) The occurrence and duration of each malfunction of the air pollution control equipment;
 - 3) All maintenance performed on the air pollution control equipment;
 - 4) Actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) when such actions are different from the procedures specified in the SSMP required under condition V.A.1.s above; and
 - 5) All information necessary to demonstrate conformance with the SSMP required under condition V.A.1.s above when all actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan.
- g. The permittee shall keep and maintain records of each time a safety device is opened to avoid unsafe conditions. [§2103.12.j; §2104.08; §63.8000(b)(2); §63.8080(c)]
- h. The permittee shall maintain all manufacturer specification and recommendations required to demonstrate compliance with condition V.A.1.d on file. These files shall be made available to the Department upon request. [§2103.12.j]
- i. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.j; §63.998(d)(5); IP #0057-I003, VI.4.b; IP #0057-I005c, V.A.4.c]

- j. All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; RACT Order #254, 1.23]

5. Reporting Requirements:

- a. The permittee shall submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin. [§2103.12.k; §2104.08; §63.8070(c); §63.999(a)(1)]
- b. The permittee shall report the following information to the Department semiannually in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report, and shall include but not be limited to all of the information required under §63.999(c) and the information below: [§2103.12.k.1; §2104.08; 63 Subpart HHHHH Table 9.3 & Table 3.1; §63.8075(b); §63.8075(e)(1)-(6); §63.999(c); IP #0057-I003, VI.5.a; IP #0057-I005c, V.A.5.a]
- 1) Company name and address.
 - 2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.
 - 3) Date of report and beginning and ending dates of the reporting period.
 - 4) Monthly minimum temperatures, minimum temperature for the reporting period, and daily average temperatures for any days when the temperature was below the minimum in condition V.A.1.f.
 - 5) For each startup, shutdown, or malfunction (SSM) during which excess emissions occur, the compliance report shall include the following information:
 - a) Records that the procedures specified in the startup, shutdown, and malfunction plan (SSMP) were followed or documentation of actions taken that are not consistent with the SSMP.
 - b) A description of each malfunction.
 - 6) Non-compliance information required to be recorded by condition V.A.4.h above; and
 - 7) A certified statement signed by the responsible official that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.
- c. The semiannual compliance report must also contain the following information for any deviations: [§2103.12.i; §2104.08; §63.8075(e)(6); 63 Subpart HHHHH Table 9.3 & Table 3.1]
- 1) If there are no deviations from any emission limit, operating limit, or work practice standard, include a statement that there were no deviations from the emission limits, operating limits, or work practice standards during the reporting period.
 - 2) For each deviation from an emission limit or operating limit, the permittee shall include the following information. This includes periods of startup, shutdown, and malfunction (SSM).
 - a) The date and time that each continuous monitoring system (CMS) was inoperative, except for zero (low-level) and high-level checks.
 - b) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.
 - c) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.
 - d) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.
 - e) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total source operating time during that

- reporting period.
 - f) An identification of each HAP that is known to be in the emission stream or wastewater stream, as applicable.
 - g) A description of the product being produced.
 - h) Identification of the CMS.
 - i) The date of the latest CMS certification or audit.
 - j) The operating day or operating block average values of monitored parameters for each day(s) during which the deviation occurred.
- d. The permittee shall notify the Department at least ten (10) days prior to the use of a new hazardous air pollutant in the Environ Work Center that will exceed 500 pounds consumption during any one month period. [§2103.12.k; IP #0057-I003, VI.5.c]
- e. If the permittee makes any changes to the proposed process, the following notifications must be submitted: [§2103.12.k; §2104.08; §63.8075(e)(8); 63 Subpart HHHHH Table 3.1]
- 1) Except as specified in paragraph condition V.A.5.e.2) below, whenever the permittee changes any of the information submitted in either the notification of compliance status report or any previously reported change to the notification of compliance status report, the permittee shall document the change in the compliance report. The notification shall include revisions to any of the information reported in the original notification of compliance status report.
 - 2) The permittee shall submit a report 60 days before the scheduled implementation date of any of the following changes:
 - a) Any change to the information contained in either the precompliance report or any previously reported change to the precompliance report.
 - b) A change in the status of a control device from small to large.
 - c) A change in compliance status.
- f. Reporting instances of non-compliance and malfunction, does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2102.04.b.4; §2108.01.c]

6. Work Practice Standard:

- a. The permittee shall be properly operate and maintain the Paint Plant in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; 25 Pa. Code §129.99]
 - 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;
 - 2) Keep records of any maintenance; and
 - 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Paint Plant and associated thermal oxidizer and baghouses shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; 25 Pa. Code §129.99]
 - 1) Properly calibrate all instrumentation;
 - 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
 - 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
 - 4) Cover all open solvent containers when not in use.

- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j; 25 Pa. Code §129.99]

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B. Process P002: Paint Plant (Uncontrolled Emissions)

Process Description: Fugitive emissions from the CP Cell, Light Cell, Dark Cell, and Environ Work Centers; Large Batch Center; Solvent Still

Control Device: None

1. Restrictions:

- a. Uncontrolled emissions from the Paint Plant shall not exceed the limits in Table V-B-1 at any time: [§2103.12.a.2.B]

Table V-B-1: Uncontrolled Paint Plant Emission Limits

Pollutant	Short-term Emissions (lb/hr ²)	Annual Emissions (tons/year ¹)
VOC's	54.34	238.0
HAP's	26.92	117.9

¹ A year is defined as any 12 consecutive months.

² Based on a daily average.

- b. The permittee shall equip each portable process vessel with a cover or lid that must be in place at all times when the vessel contains a HAP, except for material additions and sampling. The covers shall be maintained in good condition, such that when in place, they maintain contact with their respective rims for at least 90% of the circumference of the rim. [§2103.12.a; §2104.08; §63.8005(a)(1); 63 Subpart HHHHH Table 1.1; IP #0057-I004, V.A.1.b; RACT Order #254, 1.15; §129.99]
- c. The permittee shall not operate or allow to be operated any dispensing or filling systems for solvent-borne coatings unless they are of closed design or minimize free-fall of liquids. [§2103.12.a; RACT Order #254, 1.16 & 1.17; §129.99]
- d. The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [§2103.12.a; RACT Order #254, 1.20; §129.99]
- e. The permittee shall not conduct or allow to be conducted any floor cleaning operations unless they employ water-based cleaners. The use of solvents shall be limited to spot cleaning. [§2103.12.a; RACT Order #254, 1.21; §129.99]

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing." [§2103.12.h.1]

3. Monitoring Requirements:

- a. Leak Detection and Repair [§2103.12.i; §2104.08; §63.8015(a); 63 Subpart HHHHH Table 3.1.a; §63.424(a)-(d); §129.99]

- 1) The permittee shall perform a monthly leak inspection of all equipment in organic HAP service, with the exception of equipment in service less than 300 hours per year, equipment in vacuum service, or equipment contacting non-process fluids, as per 40 CFR 63.8015(b)(4). For this inspection, detection methods incorporating sight, sound, and smell are acceptable. Each piece of equipment must be inspected when it is operating in organic HAP service.
- 2) A log book shall be used and shall be signed by the permittee at the completion of each inspection. A section of the log shall contain a list, summary description, or diagram(s) showing the location of all equipment in organic HAP service at the facility.
- 3) Each detection of a liquid or vapor leak shall be recorded in the log book. When a leak is detected, an initial attempt at repair shall be made as soon as practicable, but no later than 5 calendar days after the leak is detected. Repair or replacement of leaking equipment shall be completed within 15 calendar days after detection of each leak, except as provided below.
- 4) Delay of repair of leaking equipment will be allowed upon a demonstration to the Department that repair within 15 days is not feasible. The permittee shall provide the reason(s) a delay is needed and the date by which each repair is expected to be completed.

4. Record Keeping Requirements:

- a. The permittee shall keep and maintain, at a minimum, the following records: [§2103.12.j]
 - 1) The Absolute Material Utilization (AMU) value, or equivalent, and the plant-wide solvent use based on that value;
 - 2) The monthly amount of non-bulk solvent-based paint waste, and records of solvent content in that waste;
 - 3) The monthly amount of non-bulk aqueous paint waste, and records of solvent content in that waste;
 - 4) The monthly amount of bulk still sludge and bulk paint waste, and records of solvent content in that waste.
- b. The permittee shall record the following information in the log book required by condition V.B.3.a.2) for each leak that is detected: [§2103.12.j; §2104.08; §63.8000(a); 63 Subpart HHHHH Table 3.1.a; §63.428(e); §129.100]
 - 1) The equipment type and identification number;
 - 2) The nature of the leak (i.e., vapor or liquid) and the method of detection (i.e., sight, sound, or smell);
 - 3) The date the leak was detected and the date of each attempt to repair the leak;
 - 4) Repair methods applied in each attempt to repair the leak;
 - 5) "Repair delayed" and the reason for the delay if the leak is not repaired within 15 calendar days after discovery of the leak;
 - 6) The expected date of successful repair of the leak if the leak is not repaired within 15 days; and
 - 7) The date of successful repair of the leak.
- c. The log book required by condition V.B.3.a.2) shall be maintained on site and shall be available for Department inspection at all times. [§2103.12.h.2.A-B; 2103.12.j.1-2]
- d. All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; RACT Order #254, 1.23]

5. Reporting Requirements:

- a. If the annual production exceeds 15 MMgal/12-month period, the permittee shall submit the following information as part of the semiannual report required under General Condition III.15: [§2103.12.k.1]
 - 1) All information required under condition V.B.4.a above;
 - 2) A rolling 12-month total estimate of emissions to demonstrate compliance with condition V.B.1.a above.
- b. For the LDAR program required under condition V.B.3.a, the permittee shall report to the Department a description of the types, identification numbers, and locations of all equipment in organic HAP service as part of the initial notification. If the facility elects to implement an instrument program, the report shall contain a full description of the program. [§2103.12.k; §2104.08; §63.8000(a); 63 Subpart HHHHH Table 3.1.a; §63.428(f); §129.100]
- c. The permittee shall include in the semiannual report each occurrence of an equipment leak for which no repair attempt was made within 5 days or for which repair was not completed within 15 days after detection: [§2103.12.k; §2104.08; 63 Subpart HHHHH Table 9.3 & Table 3.1; §63.428(h)(4)]
 - 1) The date on which the leak was detected;
 - 2) The date of each attempt to repair the leak;
 - 3) The reasons for the delay of repair; and
 - 4) The date of successful repair.

6. Work Practice Standard:

- a. The permittee shall properly operate and maintain the Paint Plant in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; §129.99]
 - 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;
 - 2) Keep records of any maintenance; and
 - 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Paint Plant shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; §129.99]
 - 1) Properly calibrate all instrumentation;
 - 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
 - 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
 - 4) Cover all open solvent containers when not in use.
- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j]

C. Process P003: Paint Plant – Freightliner Spray Booth

Process Description: Surface Coating and Clean-up Operations.
Facility ID: No. 2004-B1
Number of Units: One (1) spray booth
Raw Materials: Sample metal & plastic panels (uncoated); solid & metallic coatings; hardener; clear coat; cleaning solvent (50% acetone, 50% butyl acetate)
Control Device(s): Filters on the back of the spray booth; electrostatic spray guns (transfer efficiency: 25-45%); 90% collection on cleaning solution.

1. Restrictions:

- a. The permittee shall not use any cleaning material that contains organic HAPs. [§2103.12.a.2.D; Installation Permit #0057-I004, V.A.1.a]
- b. The surface coating process shall use electrostatic spray guns for coating applications at all times. These guns shall be maintained and operated according to manufacturer's recommendations and good engineering practice. [§2105.03; IP #0057-I004, V.A.1.b; §129.99]
- c. The paint spray booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [§2103.12.a.2.D §2105.03; IP #0057-I004, V.A.1.c; §129.99]
- d. Emissions from the surface coating process and clean-up operations shall not exceed the following at any time: [§2103.12.a; IP #0057-I004, V.A.1.d]

Table V-C-1: Uncontrolled Paint Plant Emission Limits

Pollutant	lbs/hr ¹	tpy ²
Volatile Organic Compounds	1.888	8.27
Hazardous Air Pollutants	0.057	0.25

¹ Average per 8-hour shift.² A year is defined as any 12 consecutive months.**2. Testing Requirements:**

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Article XXI §2108.02. [§2103.12.h.1]

3. Monitoring Requirements:

The surface coating spray units and overspray filters shall be inspected weekly for compliance with conditions V.C.1.b and V.C.1.c. [§2103.12.i; #0057-I004, V.A.2]

4. Record Keeping Requirements:

- a. The permittee shall maintain daily records of the following: [§2103.12.j; #0057-I004, V.A.4.a]

- 1) The following parameters for each coating, thinner, and other component as-supplied:
 - a) The coating, thinner, or component name and identification number;
 - b) The volume used;
 - c) The mix ratio;
 - d) The density or specific gravity; and
 - e) The weight percent of total volatiles, water, solids, and exempt solvents.
 - 2) The VOC and HAP content of each coating, thinner, and other components as-supplied; and
 - 3) The VOC and HAP content of each as-applied coating.
- b. The name and volume of each cleaning material and/or solvent used. [§2103.12.j; IP #0057-I004, V.A.4.b]
- c. The permittee shall maintain records of inspection and maintenance of the overspray filters required under condition V.C.3 above. [§2103.12.j; #0057-I004, V.A.4.c]
- d. The permittee shall maintain all manufacturer specifications and recommendations required to demonstrate compliance with condition V.C.1.b on file. These files shall be made available to the Department upon request. [§2103.12.j]
- e. All records shall be maintained by the permittee for a period of at least five (5) years following the date of such record. [§2103.12.j.2]

5. Reporting Requirements:

- a. The permittee shall submit semi-annual reports to the Department in accordance with General Condition III.15. [§2103.12.k]
- b. The semi-annual report shall include the following information: [§2103.12.k; IP #0057-I004, V.A.5.b]
 - 1) Calendar dates covered in the reporting period;
 - 2) The as-applied coating with the maximum VOC content and the as-applied coating with the maximum HAP content for each month of the reporting period;
 - 3) The total volume of as-applied coating material used during each month of the reporting period;
 - 4) All records of solvents and/or cleaning materials obtained under condition V.C.4.b; and
 - 5) Reasons for any noncompliance with the emission standards.

6. Work Practice Standard:

- a. The permittee shall store all VOC-containing coatings, thinners, coating-related waste material, cleaning materials and used shot towels in closed containers. [§2103.12.a.2.D; §129.99]
- b. The permittee shall ensure that mixing and storage containers used for VOC-containing coatings, thinners, coating-related waste materials, and cleaning materials are kept closed at all times except when depositing or removing these materials. [§2103.12.a.2.D; §129.99]
- c. The permittee shall minimize all spills of VOC-containing coatings, thinners, coating-related waste materials and cleaning materials, cleaning up spills immediately. [§2103.12.a.2.D; §129.99]

- d. The permittee shall convey VOC-containing coatings, thinners, coating-related waste materials and cleaning materials from one location to another in closed containers or pipes. [§2103.12.a.2.D; §129.99]
- e. The permittee shall operate and maintain all process equipment according to manufacturers' specifications and recommendations, and good engineering practices. [§2103.12.a.2.D; §2105.03; §129.99]
- f. The permittee shall keep the manufacturer's operating manuals on site and available at all times. [§2103.12.a.2.D; §2105.03; §129.99]

DRAFT

D. Process P004: Development Center (Controlled Emissions)

Process Description: K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, and R2000 Reactor Process
Raw Materials: Solvent, Epoxy, Catalyst, Monomers
Control Device: Development Center Regenerative Thermal Oxidizer (RTO)
Capacity: 1.6 MMBtu/hr
Fuel: Natural Gas

1. Restrictions:

- a. The permittee shall not operate the K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, and R2000 Reactor Process at any time while generating VOC emissions unless the Development Center RTO is in service and operating as required. [§2103.12.a; IP #0057-I005c; V.B.1.a; IP #0057-I008, V.A.1.a]
- b. The Development Center RTO shall be properly operated and maintained according to good engineering practices (as proscribed in Monitoring Section V.D.3 below, manufacturer's recommendations, and the following conditions at all times while treating process emissions: [§2103.12.a; §2104.08; IP #0057-I001, V.1.b; IP #0057-I005c, V.B.1.b; IP #0057-I008, V.A.1.b; §63.2460(a); 40 CFR Part 63 Subpart FFFF Table 2.1.a & c; §129.99]
 - 1) The minimum VOC destruction efficiency shall be 98% by weight; or
 - 2) A VOC concentration less than 20 ppm by volume dry basis.
- c. The RTO shall be operated at a minimum operating temperature of 1,500 °F or the temperature at which the destruction efficiency in condition V.D.1.b.1) above is demonstrated during the most recent stack test, whichever is greater. [§2103.12.a; §2105.30.b; IP #0057-I001, V.1.b; IP #0057-I008, V.A.1.c; IP #0057-I005c, V.B.1.c]
- d. The permittee shall not operate, nor allow to be operated, the Development Center RTO using a fuel other than utility-grade natural gas. [§2103.12.a.2.B; IP #0057-I005c, V.B.1.e; IP #0057-I008, V.A.1.d]
- e. If the Development Center RTO is not in operation for a period of an hour or greater, the permittee shall vent all emissions from the K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, and R2000 Reactor Process to the carbon bins within the second hour in which the RTO is offline. [§2103.12.a.2.B; IP #0057-I008, V.A.1.e]
- f. The permittee shall vent emissions from the Large Side Reactor System to the respective scrubbers any time those systems are processing batches with chemistry incompatible with the RTO (such as those containing ammonia). [§2103.12.a.2.B; IP #0057-I008, V.A.1.f]
- g. Emissions from the Development Center RTO shall not exceed the values in Table V-D-1 at any time: [§2103.12.a; IP #0057-I005c, V.B.1.e; IP #0057-I008, V.A.1.g]

TABLE V-D-1: Development Center RTO Emission Limitations

POLLUTANT	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.013	0.056
Particulate Matter <10µm (PM ₁₀)	0.013	0.056
Particulate Matter <2.5µm (PM _{2.5})	0.013	0.056
Nitrogen Oxides (NO _x)	0.180	0.790
Sulfur Oxides (SO _x)	0.001	0.005
Carbon Monoxide (CO)	0.152	0.664
Volatile Organic Compounds (VOC's)	0.846	3.703
Hazardous Air Pollutants (HAP's)	0.846	3.703

¹ A year is defined as any 12 consecutive months.

- h. The Development Center RTO shall be equipped with instrumentation that continuously monitors the thermal oxidizer combustion chamber temperature to within 0.75% of the temperature measured, and records to the nearest 1°F. The permittee shall at all times properly maintain and calibrate the continuous temperature monitor and recorder in accordance with manufacturer's specifications and good engineering practices. [§2103.12.a; IP #0057-I005c, V.B.1.f; IP #0057-I008, V.A.1.h]
- i. The permittee shall not operate or allow to be operated any filling systems unless they are of closed design or minimize free-fall of liquids. [§2103.12.a.2.B; IP #0057-I008, V.A.1.i]
- j. The Development Center RTO shall meet the requirements of 40 CFR Part 63, Subpart SS, §63.982(c)(2), as specified in 40 CFR Part 63, Subpart FFFF. [IP #0057-I008, V.A.1.j ; §2103.12.a; §2104.08; §63.2450(e)(1)]
- k. The permittee shall determine the Group 1 or 2 status of storage tanks. To maintain Group 2 storage tank status, the permittee shall not store any materials with a maximum true vapor pressure of total HAP greater than or equal to 1.0 psia in any storage tank with a capacity greater than or equal to 10,000 gallons. If the storage tank changes to Group 1 status, the permittee shall connect the tank to control and complete appropriate permit modification applications. [§2103.12.a; §2104.08; §63.2470(a)]
- l. The permittee shall determine the Group 1 or 2 status of transfer racks. To maintain Group 2 transfer rack status, the permittee shall not allow bulk loading of any materials that contain greater than or equal to 0.17 million gallons per year of liquids that contain organic HAP with a rack-weighted partial pressure, as defined in §63.111, greater than or equal to 1.5 psia. If the transfer rack changes to Group 1 status, the permittee shall connect the rack to control and complete appropriate permit modification applications. [§2103.12.a; §2104.08; §63.2475(a)]
- m. The permittee shall develop and implement a written startup, shutdown, and malfunction plan (SSMP) that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the conditions of

this permit. The SSMP shall meet the requirements of 63 Subpart A, §63.6(e)(3). [§2103.12.a; §2104.08; §63.6(e)(3)]

- 1) During periods of startup, shutdown, and malfunction, the permittee shall operate and maintain such source (including associated air pollution control equipment) in accordance with the procedures specified in the SSMP.
 - 2) When actions taken by the permittee during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the SSMP, the permittee shall keep records for that event that demonstrate that the procedures specified in the plan were followed. In addition, the permittee shall keep records of these events as specified in condition V.D.4.h below, including records of the occurrence and duration of each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control equipment.
 - 3) If an action taken by the permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the SSMP, the permittee shall record the actions taken for that event and shall report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event.
 - 4) The permittee shall keep the written SSMP on record to be made available for inspection, upon request, by the Department for the life of the affected source or until the affected source is no longer subject to the provisions of this part. In addition, if the SSMP is revised, the permittee shall keep previous versions of the SSMP on record, to be made available for inspection, upon request, by the Department, for a period of 5 years after each revision to the plan.
- n. Opening of a safety device, as defined in §63.8105, is allowed at any time conditions require it to avoid unsafe conditions. [§2103.12.a; §2104.08; §63.2450(p) ; IP #0057-I008, V.A.1.k]
- o. The permittee shall meet the requirements of Section V.G for all process and maintenance wastewater from the equipment in the Development Center. [§2103.12.a; §2104.08; §63.2485(a)]

2. Testing Requirements:

- a. The permittee shall conduct VOC and HAP emissions testing on the inlet and the outlet of the Development Center RTO to demonstrate compliance with the requirements in condition V.D.1.b.1) above and limits in condition V.D.1.g above. Such testing shall be conducted in accordance with US EPA approved test methods and §2108.02 of Article XXI. The testing shall be performed after initial start-up and once every five (5) years thereafter. [§2103.12.h.1; IP #0057-I001, V.2.a; IP #0057-I005c, V.B.2.a; IP #0057-I008, V.A.2.a; §129.100]
- b. The permittee shall determine the minimum operating temperature as required under condition V.D.1.c from the most recent valid stack test that demonstrates compliance with limits in condition V.D.1.g above, as approved by the Department. On and after the date the approved stack test results are available, the permittee shall operate the thermal oxidizer at or above the average temperature as observed during the compliant stack test. [§2103.12.h.1; IP #0057-I005c, V.B.2.b; IP #0057-I008, V.A.2.b; §129.100]
- c. The permittee shall conduct all tests while operating the Development Center at maximum routine operating conditions. Documentation of the Development Center operating conditions shall be included in the stack test report. Such documentation shall include but not be limited to: [§2108.02e.2.A; IP #0057-I005c, V.B.2.c]
 - 1) A listing of all vessels and equipment in use and connected to the RTO during the stack test.

- 2) A listing of the material in each vessel in use and connected to the RTO during the stack test.
- d. The permittee shall conduct tests to measure emissions using the following methods unless other methods are approved by the Department: [§2103.12.h; §2104.08; §63.2450(g); §63.997(e)(2)(i)-(iv) ; IP #0057-I008, V.A.2.d]
 - 1) Conduct gas molecular weight analysis using Method 3, 3A, or 3B in appendix A to 40 CFR Part 60.
 - 2) Measure moisture content of the stack gas using Method 4 in appendix A to 40 CFR Part 60.
 - 3) The gas volumetric flow rate shall be determined using Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR Part 60, appendix A, as appropriate.
 - 4) TOC concentration shall be determined using Method 18 or 25/25A of 40 CFR Part 60, appendix A, as applicable.
 - 5) As an alternative to using Method 18, Method 25/25A, or Method 26/26A of 40 CFR Part 60, appendix A, the permittee may use Method 320 of 40 CFR part 60, appendix A. When using Method 320, the permittee shall follow the analyte spiking procedures of section 13 of Method 320, unless the permittee demonstrates that the complete spiking procedure has been conducted at a similar source.
- e. If the permittee adds supplemental combustion air and is required to correct the measured concentration at the outlet of the RTO to 3 percent oxygen, the permittee shall use Equation 1 of §63.2460. [§2103.12.h; §2104.08; §63.2450(i) ; IP #0057-I008, V.A.2.e]
- f. Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for at least 1 hour and under the conditions specified in condition V.D.2.c above. For the purpose of determining compliance, the arithmetic means of results of the three runs shall apply. [§2103.12.h; §2104.08; §63.997(e)(1)(v); IP #0057-I008, V.A.2.f]
- g. If the permittee elects to demonstrate compliance with the outlet concentration limit in condition V.D.1.b.2) above by using a CEM, the testing methods in §63.2450(j) shall be followed. [§2103.12.h; §2104.08; §63.2450(j) ; IP #0057-I008, V.A.2.g]
- h. The Department reserves the right to require additional emissions testing sufficient to assure compliance with the terms and conditions of this permit. Testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing." [§2103.12.h.1; IP #0057-I008, V.A.2.h]

3. Monitoring Requirements:

- a. The permittee shall externally inspect the Development Center RTO and associated ductwork weekly for proper operation as well as for integrity of the thermal oxidizer, process equipment, and gaseous collection systems. [§2103.12.i; IP #0057-I001, V.3.a; IP #0057-I005c, V.B.3.a; IP #0057-I008, V.A.3.a]
- b. The permittee shall continuously monitor and record the Development Center RTO combustion chamber to the nearest 1°F of actual conditions at all times while treating process emissions. [§2103.12.i; IP #0057-I005c, V.B.3.b; IP #0057-I008, V.A.3.b; §129.100]
- c. If the permittee chooses to demonstrate compliance with the outlet concentration standard in condition V.D.1.b.2) above, then the permittee shall install and properly operate and maintain a continuous monitoring system (CMS) to measure and record the amount of VOC (in ppm by

volume, dry basis) exiting the Development Center RTO stack. [§2103.12.i; IP #0057-I005c, V.B.3.c; IP #0057-I008, V.A.3.c]

4. Record Keeping Requirements:

- a. The temperature in the combustion chamber of the Development Center RTO shall be continuously recorded, at all times, while processing emissions from the Development Center. [§2103.12.j; §2104.08; §63.2450(e); §63.998(b)(1)-(3); IP #0057-I005c, V.B.4.a; IP #0057-I008, V.A.4.a; §129.100]
- b. The permittee shall maintain the following records for the thermal oxidizer unit: [§2103.12.j; IP #0057-I005c, V.B.4.b; IP #0057-I008, V.A.4.b]
 - 1) Hours of operation;
 - 2) All data required to demonstrate compliance with the minimum temperature requirements of condition V.D.1.c above;
 - 3) All data recorded under condition V.D.4.a above; and
 - 4) Records of operation, maintenance, inspection, calibration, and/or replacement of combustion equipment.
- c. The permittee shall record the raw material usage and the type and amount of resin produced per batch, as well as results of the inspections required by condition V.D.3.a above along with any episodes of non-compliance with conditions V.D.1.a through c above and corrective actions taken. [§2103.12.j; IP #0057-I001, V.B.4.c; IP #0057-I008, V.A.4.c]
- d. For the Development Center RTO temperature monitoring system, the permittee shall keep and maintain the calibration records outlined in 40 CFR Part 63, Subpart SS, §63.998(c). [§2103.12.j; §2104.08; §63.2450(e); §63.2450(k); §63.2525(g); IP #0057-I008, V.A.4.d]
- e. The permittee shall keep and maintain records of each time a safety device is opened to avoid unsafe conditions in accordance with condition V.D.1.n. [§63.2525(f); IP #0057-I008, V.A.4.e]
- f. The permittee shall keep records of the Development Center RTO destruction efficiency tests to demonstrate compliance with the requirements of section V.D.1 above. Such records shall provide sufficient data and calculations to clearly demonstrate that all requirements have been met. [§2103.12.j; IP #0057-I005c, V.B.4.c; IP #0057-I008, V.A.4.f]
- g. The permittee shall keep each applicable record required by 40 CFR Part 63, Subpart A and in referenced Subparts F, G, SS, and UU. [§2103.12.j; §2104.08; §63.2525(a); IP #0057-I008, V.A.4.g]
- h. The permittee shall maintain the following information for each startup, shutdown, or malfunction: [§2103.12.j; §2104.08; §63.10(b)(2)(i)-(v); IP #0057-I008, V.A.4.h]
 - 1) The occurrence and duration of each startup, shutdown, or malfunction of operation (i.e., process equipment);
 - 2) The occurrence and duration of each malfunction of the air pollution control equipment;
 - 3) All maintenance performed on the air pollution control equipment;
 - 4) Actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) when such actions are different from the procedures specified in the SSMP required under condition V.D.1.m above; and

- 5) All information necessary to demonstrate conformance with the SSMP required under condition V.D.1.m above when all actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan.
- i. The permittee shall maintain all manufacturer specifications and recommendations required to demonstrate compliance with condition V.D.1.b on file. These files shall be made available to the Department upon request. [§2103.12.j; IP #0057-I008, V.A.4.i]
- j. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.j; IP #0057-I005c, V.B.4.d; IP #0057-I008, V.A.4.j]
- k. All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; IP #0057-I008, V.A.4.k]

5. Reporting Requirements:

- a. The permittee shall submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin. The permittee shall also submit the test plan required by §63.7(c) and the emission profile with the notification of the performance test. [§2103.12.k; §2104.08; §63.2515(c); IP #0057-I008, V.A.5.a]
- b. The permittee shall submit a compliance report to the Department semiannually in accordance with General Condition III.15. The compliance report must contain the following information: [§2103.12.k; §2104.08; §63.2450(a); §63.2520(a); Subpart FFFF Table 11.3; §63.2520(e); IP #0057-I008, V.A.5.b]
- 1) Company name and address.
 - 2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.
 - 3) Date of report and beginning and ending dates of the reporting period.
 - 4) For each startup, shutdown, or malfunction (SSM) during which excess emissions occur, the compliance report must include records that the procedures specified in the startup, shutdown, and malfunction plan (SSMP) were followed or documentation of actions taken that are not consistent with the SSMP, and include a brief description of each malfunction.
 - 5) The compliance report must contain the following information on deviations:
 - a) If there are no deviations from any condition in this permit, include a statement that there were no deviations during the reporting period.
 - b) For each deviation from an emission limit or operating limit, the permittee shall include the following information. This includes periods of SSM.
 - i) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.
 - ii) The date, time, and duration that each CEMS was out-of-control, including start and end dates and hours and descriptions of corrective actions taken.
 - iii) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.
 - iv) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total operating time of the affected source during that

- reporting period.
- v) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.
 - vi) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the affected source during that reporting period.
 - vii) An identification of each HAP that is known to be in the emission stream.
 - viii) A brief description of the process units.
 - ix) A brief description of the CMS.
 - x) The date of the latest CMS certification or audit.
 - xi) Operating logs of processes with batch vents from batch operations for each day(s) during which the deviation occurred.
 - xii) The operating day or operating block average values of monitored parameters for each day(s) during which the deviation occurred.
- 6) Applicable records and information for periodic reports as specified in referenced Subparts F, G, H, SS, and UU.
- 7) Notification of process change.
- a) Except as specified in condition V.D.5.b.7)b) below, whenever the permittee makes a process change, or change any of the information submitted in the notification of compliance status report or a previous compliance report, that is not within the scope of an existing operating scenario, the permittee shall document the change in the compliance report. A process change does not include moving within a range of conditions identified in the standard batch, and a nonstandard batch does not constitute a process change. The notification must include all of the information below:
 - i) A description of the process change.
 - ii) Revisions to any of the information reported in the original notification of compliance status report.
 - iii) Information required by the notification of compliance status report for changes involving the addition of processes or equipment.
 - b) The permittee shall submit a report 60 days before the scheduled implementation date of any change to the information contained in the precompliance report.
- c. The permittee shall report the following information to the Department semiannually in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report: [§2103.12.k.1; IP #0057-I001, V.5.a; IP #0057-I005c, V.B.5.a; IP #0057-I008, V.A.5.c]
- 1) Company name and address.
 - 2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.
 - 3) Date of report and beginning and ending dates of the reporting period.
 - 4) Monthly minimum temperatures, minimum temperature for the reporting period, and daily average temperatures for any days when the temperature was below the minimum in condition V.D.1.c.
 - 5) For each startup, shutdown, or malfunction (SSM) during which excess emissions occur, the compliance report shall include the following information:
 - a) Records that the procedures specified in the startup, shutdown, and malfunction plan (SSMP) were followed or documentation of actions taken that are not consistent with the SSMP.
 - b) A description of each malfunction.

- 6) Non-compliance information required to be recorded by conditions V.D.4.c and V.D.4.i above; and
 - 7) A certified statement signed by the responsible official that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.
 - 8) Dates of any cold starts of the Development Center RTO.
- d. Reporting instances of non-compliance in accordance with condition V.D.5.c.1) above, does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2103.12.k.1; IP #0057-I005c, V.B.5.b; IP #0057-I008, V.A.5.d]

6. Work Practice Standard:

- a. The permittee shall properly operate and maintain the Development Center in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; IP #0057-I008, V.A.6; §129.100]
 - 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;
 - 2) Keep records of any maintenance; and
 - 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Development Center and associated thermal oxidizer shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; IP #0057-I008, V.A.6; §129.100]
 - 1) Properly calibrate all instrumentation;
 - 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
 - 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
 - 4) Cover all open solvent containers when not in use.
- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j; §129.100]

E. Process P005: Development Center (Uncontrolled Emissions)

Process Description: Small Side Reactor System
Fugitive emissions from the K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, R2000 Reactor Process, and the Small Side Reactor System.

Control Device: None

1. Restrictions:

- a. The permittee shall comply with the requirements 40 CFR Part 63, Subpart UU – National Emission Standards for Equipment Leaks – Control Level 2 for equipment leaks in all equipment in organic HAP service, except as specified in §63.2480(b). If the permittee elects to use a different compliance option in Table 6.1 of Subpart FFFF, the permittee shall notify the Department no later than 30 days prior to the change. [§2103.12.a; §2104.08; §63.2450(a); §63.2480(a); 63 Subpart FFFF Table 6.1.a; IP #0057-I008, V.B.1.a; §129.99]
- b. The permittee shall vent all emissions from the Small Side Reactors through a condenser at all times the reactor is processing material. [§2103.12.a.2]
- c. Emissions from the Small Side Reactor System shall not exceed the limits in Table V-E-1 at any time: [§2103.12.a.2.B]

Table V-E-1: Small Side Reactor System Emission Limits

Pollutant	Short-term Emissions (lb/hr)	Annual Emissions (tons/year ¹)
VOC's	0.16	0.70
HAP's	0.08	0.35

¹ A year is defined as any 12 consecutive months.

- d. The permittee shall identify all equipment subject to Leak Detection and Repair (LDAR) in accordance with §63.1022 of Subpart UU. [§2103.12.a; §2104.08; §63.2480(a); §63.1022(a) ; IP #0057-I008, V.B.1.b; §129.99]
- e. The permittee shall meet the requirements of Section V.G for all process and maintenance wastewater from the equipment in the Development Center. [§2103.12.a; §2104.08; §63.2485(a)]

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing." [§2103.12.h.1]

3. Monitoring Requirements:

- a. The permittee shall monitor regulated equipment as specified in condition V.E.1.a above. [§2103.12.i; §2104.08; §63.2480(a); IP #0057-I008, V.A.3.a]

- b. *Leaking equipment identification and records.* [§2103.12.i; §2104.08; §63.2480(a); §63.1023(e); IP #0057-I008, V.A.3.b; §129.99]
- 1) When each leak is detected pursuant to the monitoring specified in §63.1023(a) in accordance with condition V.E.3.a above, a weatherproof and readily visible identification, shall be attached to the leaking equipment.
 - 2) When each leak is detected, the permittee shall record the information specified in V.E.4.b below.
- c. The permittee shall repair each leak detected as soon as practical, but not later than 15 calendar days after it is detected, except as provided in §§63.1024(d) and (e). A first attempt at repair as defined in this subpart shall be made no later than 5 calendar days after the leak is detected. [§2103.12.i; §2104.08; §63.2480(a); §63.1024(a); IP #0057-I008, V.A.3.c; §129.99]

4. Record Keeping Requirements:

- a. The permittee shall keep each applicable record required by 40 CFR Part 63, Subpart A and in referenced Subparts F, G, SS, and UU. [§2103.12.j; §2104.08; §63.2525(a); IP #0057-I008, V.A.4.a; §129.100]
- b. For each leak detected, the following information shall be recorded: [§63.2480(a); §63.1024(f); IP #0057-I008, V.A.4.b; §129.100]
- 1) The date of first attempt to repair the leak.
 - 2) The date of successful repair of the leak.
 - 3) Maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A at the time the leak is successfully repaired or determined to be nonreparable.
 - 4) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak as specified in conditions a) and b) below:
 - a) The permittee may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of the startup, shutdown, and malfunction plan, as required by condition V.D.1.m, or may be part of a separate document that is maintained at the plant site. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.
 - b) If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked on-site before depletion and the reason for depletion.
 - 5) Dates of shutdowns that occur while the equipment is unrepaired.
- c. The permittee shall keep records of the number and types of components subject to LDAR, as required under condition V.E.1.d above. [§2103.12.j; §2104.08; §63.2480(a); §63.1022; IP #0057-I008, V.A.4.c; §129.100]
- d. The permittee shall keep specific equipment leak records according to §63.1038 of Subpart UU. [§2103.12.j; §2104.08; §63.2480(a); §63.1038(c); IP #0057-I008, V.A.4.d; §129.100]
- e. For the Small Side Reactor System, the permittee shall record the raw material usage and the type and amount of resin produced per batch. [§2103.12.j; IP #0057-I008, V.A.4.e]
- f. The permittee shall maintain records of each startup, shutdown, or malfunction in accordance with condition V.D.4.h. [§2103.12.j; §2104.08; §63.10(b)(2)(i)-(v); IP #0057-I008, V.A.4.f]

- g. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.j; IP #0057-I008, V.A.4.g]
- h. All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; IP #0057-I008, V.A.4.h]

5. Reporting Requirements:

- a. The permittee shall report the monthly amount of resin produced in the Small Side Reactor System upon request by the Department. [§2103.12.k.1]
- b. The permittee shall report the following LDAR information in the semiannual report required under General Condition III.15 above: [§2103.12.k; §2104.08; §63.2480(a); §63.1039(b); IP #0057-I008, V.A.5.a); §129.100]
 - 1) For the following equipment, report in a summary format by equipment type, the number of components for which leaks were detected and for valves, pumps and connectors show the percent leakers, and the total number of components monitored. Also include the number of leaking components that were not repaired as required by condition V.E.3.c above, and for valves and connectors, identify the number of components that are determined to be nonreparable.
 - a) Valves in gas and vapor service and in light liquid service pursuant to §63.1025(b) and (c) of Subpart UU.
 - b) Pumps in light liquid service pursuant to §63.1026(b) and (c) of Subpart UU.
 - c) Connectors in gas and vapor service and in light liquid service pursuant to §63.1027(b) and (c) of Subpart UU.
 - d) Agitators in gas and vapor service and in light liquid service pursuant to §63.1028(c) of Subpart UU.
 - e) Compressors pursuant to §63.1031(d) of Subpart UU.
 - 2) Where any delay of repair is utilized pursuant to condition V.E.3.c above, report that delay of repair has occurred and report the number of instances of delay of repair.
 - 3) If applicable, report the valve subgrouping information specified in §63.1025(b)(4)(iv).
 - 4) For pressure relief devices in gas and vapor service pursuant to §63.1030(b) and for compressors pursuant to §63.1031(f) that are to be operated at a leak detection instrument reading of less than 500 parts per million, report the results of all monitoring to show compliance conducted within the semiannual reporting period.
 - 5) Report, if applicable, the initiation of a monthly monitoring program for valves pursuant to §63.1025(b)(3)(i).
 - 6) Report, if applicable, the initiation of a quality improvement program for pumps pursuant to §63.1035.
 - 7) Where the alternative means of emissions limitation for batch processes is utilized, report the information listed in §63.1036(f).

6. Work Practice Standard:

- a. The permittee shall properly operate and maintain the Development Center in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; §129.99]
 - 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance

- procedures;
- 2) Keep records of any maintenance; and
 - 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Development Center shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; §129.99]
- 1) Properly calibrate all instrumentation;
 - 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
 - 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
 - 4) Cover all open solvent containers when not in use.
- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j; §129.99]
- d. The permittee shall equip each portable process vessel with a cover or lid that must be in place at all times when the vessel contains a HAP, except for material additions and sampling. The covers shall be maintained in good condition, such that when in place, they maintain contact with their respective rims for at least 90% of the circumference of the rim. [§2103.12.a; §2104.08; §63.8005(a)(1); V.A.1.b; §129.99]
- e. The permittee shall not operate or allow to be operated any dispensing or filling systems for solvents unless they are of closed design or minimize free-fall of liquids. [§2103.12.a; §129.99]
- f. The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [§2103.12.a; §129.99]
- g. The permittee shall not conduct or allow to be conducted any floor cleaning operations unless they employ water-based cleaners. The use of solvents shall be limited to spot cleaning. [§2103.12.a; §129.99]

F. Process P006: Automated Paint Spray Booth

Process Description: Automated Paint Spray Booth with two 50,000 Btu/hr curing/drying ovens
Facility ID: P006
Capacity: 5,000 gallons of coatings per year
Raw Materials: coatings (pigment, resin, solvent); 12"×12" aluminum panels (substrates); natural gas (curing/drying ovens)
Control Device(s): none

1. Restrictions:

- a. Coating usage shall be limited to the following: [IP #0057-I009, V.A.1.a; §2103.12.a.2.D]
 - 1) For primer, 1.6 gallons per day (as a rolling 7-day average) and 560 gallons per 12-month period; and
 - 2) For topcoats, 12.1 gallons per day (as a rolling 7-day average) and 4,500 gallons per 12-month period.
- b. The VOC content, as applied, shall not at any time exceed 6.14 pounds per gallon for primer and 6.00 pounds per gallon for topcoats. [IP #0057-I009, V.A.1.b; §2103.12.a.2.D]
- c. The total HAP content, as applied, shall not at any time exceed 85.91% for primer and 71.56% for topcoat, as a percentage of VOC. [IP #0057-I009, V.A.1.c; §2103.12.a.2.D]
- d. The paint booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [IP #0057-I009, V.A.1.d; §2103.12.a.2.D; §2105.03; §129.99]
- e. All spray-applied coatings must be applied with an air-assisted rotary bell spray gun. [IP #0057-I009, V.A.1.e; §2103.12.a.2.D; §129.99]
- f. Emissions from the automated paint spray booth shall not exceed the following at any time [IP #0057-I009, V.A.1.f; §2103.12.a.2.D]:

Table V-F-1: Automated Paint Spray Booth Emission Limits

Pollutant	Emissions	
	lb/hr	tpy ¹
Volatile Organic Compounds (VOC)	4.54	14.92
Hazardous Air Pollutants (HAP)	3.33	10.92

¹ A year is defined as any 12 consecutive months.

- g. The permittee shall not use any cleaning solvents that contain VOC or HAP. [IP #0057-I009, V.A.1.g; §2103.12.a.2.D]

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing". [IP #0057-I009, V.A.2; §2103.12.h.1]

3. Monitoring Requirements:

The permittee shall inspect the spray units and overspray filters weekly for compliance with conditions V.F.1.d and V.F.1.e above. [IP #0057-I009, V.A.3; §2103.12.a.2.D; §2103.12.i]

4. Record Keeping Requirements:

- a. The permittee shall maintain daily, monthly, and 12-month records of the following for each primer and topcoat as applied: [IP #0057-I009, V.A.4.a; §2105.83.c]
 - 1) The topcoat or primer name and identification number;
 - 2) The volume used;
 - 3) The density or specific gravity;
 - 4) The weight percent of total volatiles, water, solids, and exempt solvents; and
 - 5) The HAP content, as a percentage of VOC.
- b. The permittee shall maintain records of inspection and maintenance of the overspray filters required under condition V.F.3 above. [IP #0057-I009, V.A.4.b; §2103.12.a.2.D; §2103.12.j]
- c. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [IP #0057-I009, V.A.4.c; §2103.12.a.2.D; §2103.12.j]
- d. All records shall be maintained by the permittee for a period of at least five (5) years following the date of such record. [IP #0057-I009, V.A.4.d; §2103.12.j.2]

5. Reporting Requirements:

- a. The permittee shall report the following information to the Department semiannually in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report: [IP #0057-I009, V.A.5.a; §2103.12.a.2.D; §2103.12.k]
 - 1) Company name and address;
 - 2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report;
 - 3) Calendar dates covered in the reporting period;
 - 4) Monthly totals of each primer or topcoat as required to be recorded under condition V.F.4.a above;
 - 5) The monthly maximum VOC content calculated in condition V.F.4.a.4) above;
 - 6) The monthly maximum HAP content calculated in condition V.F.4.a.5) above; and
 - 7) A monthly estimate of the emissions of VOCs and HAPs;
- b. Reporting instances of non-compliance does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [IP #0057-I009, V.A.5.b; §2103.12.a.2.D; §2103.12.k]

6. Work Practice Standard:

- a. The permittee shall store all VOC-containing coatings, thinners, coating-related waste material, cleaning materials and used shot towels in closed containers. [IP #0057-I009, V.A.6.a; §2103.12.a.2.D; §129.99]

- b. The permittee shall ensure that mixing and storage containers used for VOC-containing coatings, thinners, coating-related waste materials, and cleaning materials are kept closed at all times except when depositing or removing these materials. [IP #0057-I009, V.A.6.b; §2103.12.a.2.D; §129.99]
- c. The permittee shall minimize all spills of VOC-containing coatings, thinners, coating-related waste materials and cleaning materials, cleaning up spills immediately. [IP #0057-I009, V.A.6.c; §2103.12.a.2.D; §129.99]
- d. The permittee shall convey VOC-containing coatings, thinners, coating-related waste materials and cleaning materials from one location to another in closed containers or pipes. [IP #0057-I009, V.A.6.d; §2103.12.a.2.D; §129.99]
- e. The permittee shall operate and maintain all process equipment according to manufacturers' specifications and recommendations, and good engineering practices. [IP #0057-I009, V.A.6.e; §2103.12.a.2.D; §2105.03; §129.99]
- f. The permittee shall keep the manufacturer's operating manuals on site and available at all times. [IP #0057-I009, V.A.6.f; §2103.12.a.2.D; §2105.03; §129.99]

G. Process P004 & P005: Development Center – Wastewater Handling

The wastewater handling requirements apply to the process and maintenance wastewater generated from all Development Center sources listed in the Facility Description Table in Section II.

1. Restrictions:

- a. The permittee shall identify all process wastewater streams as either Group 1 or Group 2 wastewater according to 40 CFR §63.2485(c) and as designated in 40 CFR Part 63, Subpart G, §63.132(e). [§2103.12.a; §2104.08; §63.2485(c); Subpart FFFF Table 7.1; §63.144(a)(2)]
- b. The permittee shall treat all Group 1 process wastewater onsite in accordance with the requirements of 40 CFR Part 63, Subpart G, §§63.134 through §63.139 and the testing requirements of §63.145, or the permittee may elect to transfer process wastewater offsite for treatment. [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.1]
- c. *Offsite management and treatment option.*
 - 1) If the permittee elects to ship Group 1 process wastewater to an offsite treatment facility that meets the requirements of §63.138(h), the permittee may elect to document in the notification of compliance status report that the wastewater will be treated as hazardous waste at a facility that meets the requirements of §63.138(h) as an alternative to having the offsite facility submit the certification specified in condition V.G.1.d.2) below. [§2103.12.a; §2104.08; §63.2485(i)]
 - 2) (2) As an alternative to the management and treatment options specified in condition V.G.1.d.2) below, any affected process wastewater stream (or residual removed from an affected process wastewater stream) with a total annual average concentration of compounds in Table 8 to Subpart FFFF less than 50 ppmw may be transferred offsite in accordance with the following:
 - a) The permittee or transferee must demonstrate that less than 5 percent of the HAP in Table 9 to Subpart FFFF is emitted from the waste management units up to the activated sludge unit.
 - b) The transferee must treat the wastewater stream or residual in a biological treatment unit in accordance with Subpart G §§63.138 and §63.145 and the requirements referenced therein.
- d. The permittee may elect to transfer a Group 1 wastewater stream or residual removed from a Group 1 wastewater stream to an on-site treatment operation not owned or operated by the permittee, or to an off-site treatment operation. [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.132(g)]
 - 1) The permittee shall:
 - a) Comply with the provisions specified in §§63.133 through §63.137 for each waste management unit that receives or manages a Group 1 wastewater stream or residual removed from a Group 1 wastewater stream prior to shipment or transport.
 - b) Include a notice with the shipment or transport of each Group 1 wastewater stream or residual removed from a Group 1 wastewater stream. The notice shall state that the wastewater stream or residual contains organic hazardous air pollutants that are to be treated in accordance with the provisions of 40 CFR Part 63, Subpart G. When the transport is continuous or ongoing (for example, discharge to a publicly-owned treatment works), the notice shall be submitted to the treatment operator initially and whenever there is a change in the required treatment.
 - 2) The permittee may not transfer the wastewater stream or residual unless the transferee has submitted to the EPA a written certification that the transferee will manage and treat any Group

- 1 wastewater stream or residual removed from a Group 1 wastewater stream received from a source subject to the requirements of 63 Subpart G in accordance with the requirements of either §§63.133 through 63.147, or §63.102(b) of 63 Subpart F. The certifying entity may revoke the written certification by sending a written statement to the EPA and the permittee giving at least 90 days notice that the certifying entity is rescinding acceptance of responsibility for compliance with the regulatory provisions listed in this paragraph. Upon expiration of the notice period, the permittee may not transfer the wastewater stream or residual to the treatment operation.
- 3) By providing this written certification to the EPA, the certifying entity accepts responsibility for compliance with the regulatory provisions listed in condition V.G.1.d.2) above with respect to any shipment of wastewater or residual covered by the written certification. Failure to abide by any of those provisions with respect to such shipments may result in enforcement action by the EPA against the certifying entity in accordance with the enforcement provisions applicable to violations of these provisions by the permittee.
 - 4) Written certifications and revocation statements, to the EPA from the transferees of wastewater or residuals shall be signed by the responsible official of the certifying entity, provide the name and address of the certifying entity, and be sent to the EPA Regional Office at the addresses listed in the Contact Information Section I. Such written certifications are not transferable by the treater.
- e. The permittee shall operate and maintain a fixed roof on Group 1 process wastewater tanks. The fixed roof shall meet the following requirements: [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.133(a); §63.133(b)(1)]
- 1) The fixed roof and all openings (e.g., access hatches, sampling ports, and gauge wells) shall be maintained in accordance with the requirements specified in conditions V.G.3.d through f below.
 - 2) Each opening shall be maintained in a closed position (e.g., covered by a lid) at all times that the wastewater tank contains a Group 1 wastewater stream or residual removed from a Group 1 wastewater stream except when it is necessary to use the opening for wastewater sampling, removal, or for equipment inspection, maintenance, or repair.
- f. If the permittee transfers Group 1 process wastewater to a container greater than 0.1 m³ (26.4 gallons), the permittee shall meet the requirements of §63.135. [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.135(a)]
- g. The permittee shall determine the annual average concentration and annual average flowrate for all process wastewater streams. [§2103.12.a; §2104.08; §63.2485(j)]
- h. The permittee shall prepare a maintenance wastewater plan. The plan shall at a minimum: [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.2; §63.105(b)]
- 1) Specify the process equipment or maintenance tasks that are anticipated to create wastewater during maintenance activities.
 - 2) Specify the procedures that will be followed to properly manage the wastewater and control organic HAP emissions to the atmosphere; and
 - 3) Specify the procedures to be followed when clearing materials from process equipment.
- i. The permittee shall modify and update the information required by V.G.1.h above for maintenance wastewater as needed following each maintenance procedure based on the actions taken and the wastewaters generated in the preceding maintenance procedure. [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.2; §63.105(c)]

2. Testing Requirements:

None, except as provided elsewhere.

3. Monitoring Requirements:

- a. The permittee shall visually inspect Group 1 process wastewater tanks semiannually for leaks in the fixed roof and all openings. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.133(f); §63.143(a)]
- b. Except as provided in the delay of repair provisions of conditions V.G.3.d through h below, if the permittee identifies a leak in the inspection required under condition V.G.3.a above, first efforts at repair shall be made no later than 5 calendar days after identification, and repair shall be completed within 45 calendar days after identification. If a failure cannot be repaired within 45 calendar days and if the vessel cannot be emptied within 45 calendar days, the permittee may utilize up to 2 extensions of up to 30 additional calendar days each. Documentation of a decision to utilize an extension shall include a description of the failure, shall document that alternate storage capacity is unavailable, and shall specify a schedule of actions that will ensure that the control equipment will be repaired or the vessel will be emptied as soon as practical. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.133(h); §63.148(b)]
- c. Leaks, as indicated by an instrument reading greater than 500 parts per million above background or by visual inspections, shall be repaired as soon as practicable, except as provided in conditions V.G.3.d through h below. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(d)]
 - 1) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
 - 2) Repair shall be completed no later than 15 calendar days after the leak is detected.
- d. Delay of repair of a fixed roof on process wastewater tanks for which leaks have been detected is allowed if the repair is technically infeasible without a shutdown, as defined in §63.101 of 63 Subpart F, or if the permittee determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next shutdown. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(e); §63.140(a)]
- e. Delay of repair of process wastewater tanks is allowed if the tank is emptied or is no longer used to treat or manage Group 1 wastewater streams or residuals removed from Group 1 wastewater streams. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.140(b)]
- f. Delay of repair of process wastewater tanks is also allowed if additional time is necessary due to the unavailability of parts beyond the control of the permittee. Repair shall be completed as soon as practical. The permittee shall comply with the requirements of condition V.G.4.b.2) to document the reasons that the delay of repair was necessary. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.140(c)]
- g. If the fixed roof of process wastewater tanks is designated, as described in condition V.G.4.c.1), as unsafe to inspect are exempt from the inspection requirements of condition V.G.3.a if: [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(g)]

- 1) The permittee determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with condition V.G.3.a; and
 - 2) The permittee has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.
- h. If the fixed roof of process wastewater tanks is designated, as described in condition V.G.4.c.2), as difficult to inspect are exempt from the inspection requirements of condition V.G.3.a if: [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(h)]
- 1) The permittee determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface; and
 - 2) The permittee has a written plan that requires inspection of the equipment at least once every 5 years.

4. Record Keeping Requirements:

- a. The permittee shall keep a record of the notice sent to the treatment operator stating that the process wastewater stream or residual contains organic hazardous air pollutants which are required to be managed and treated in accordance with the provisions 40 CFR Part 63 Subpart FFFF and Subpart G. [§2103.12.j; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.147(a)]
- b. The permittee shall keep in a readily accessible location the following records: [§2103.12.j; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.147(b)(1) & (7)]
 - 1) The record that each process wastewater tank inspection required under condition V.G.3.a was performed.
 - 2) Documentation of a decision to use a delay of repair due to unavailability of parts, as specified in V.G.3.f, shall include a description of the failure, the reason additional time was necessary (including a statement of why replacement parts were not kept on site and when the manufacturer promised delivery), and the date when repair was completed.
- c. The permittee shall record the following information for process wastewater tanks: [§2103.12.j; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(i)(1), (2), & (4)]
 - 1) Identification of all parts of the fixed roof that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment.
 - 2) Identification of all parts of the fixed roof that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment.
 - 3) For each inspection during which a leak is detected, a record of the following information:
 - a) The instrument identification numbers; operator name or initials; and identification of the equipment.
 - b) The date the leak was detected and the date of the first attempt to repair the leak.
 - c) Maximum instrument reading measured by the method specified in condition V.G.3.c after the leak is successfully repaired or determined to be nonreparable.
 - d) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - e) The name, initials, or other form of identification of the permittee (or designee) whose decision it was that repair could not be effected without a shutdown.
 - f) The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days.

- g) Dates of shutdowns that occur while the equipment is unrepaired.
- h) The date of successful repair of the leak.
- d. The permittee shall incorporate the procedures described in conditions V.G.1.h and i above for maintenance wastewater as part of the startup, shutdown, and malfunction plan required under condition V.D.1.m. [§2103.12.j; §2104.08; §63.2485(a); Subpart FFFF Table 7.2; §63.105(d)]
- e. The permittee shall maintain a record of the information required by conditions V.G.1.h and i above for maintenance wastewater as part of the start-up, shutdown, and malfunction plan required under condition V.D.1.m. [§2103.12.j; §2104.08; §63.2485(a); Subpart FFFF Table 7.2; §63.105(e)]
- f. Whenever the permittee makes a change to any of the information submitted in the notification of compliance status report or a previous compliance report, the permittee shall document the change in the compliance report. The permittee shall submit a report 60 days before the scheduled implementation date of any change to the information contained in the precompliance report. The report shall contain the following information: [§2103.12.j; §2104.08; §63.2520(e)]
 - 1) A description of the process change.
 - 2) Revisions to any of the information reported in the original notification of compliance status report.
 - a) Information required by the notification of compliance status report for changes involving the addition of processes or equipment. A description of the process change.
 - b) Revisions to any of the information reported in the original notification of compliance status report.
 - c) Information required by the notification of compliance status report for changes involving the addition of processes or equipment.

5. Reporting Requirements:

- a. The permittee shall report the following information to the Department in accordance with General Condition III.15 above. The reports shall contain all required information for the time period of the report: [§2103.12.k.1]
- b. The permittee shall submit in the semiannual report required under General Condition III.15, the information required under condition V.G.4.c.3) above. [§2103.12.k; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(j)(1)]

6. Work Practice Standard:

None, except as provided elsewhere.

VI. MISCELLANEOUS**A. Boiler B001 & B002: Paint Plant – Boilers No. 1a and No. 2**

Facility ID: Boiler #1a and Boiler #2
Max. Design Rate: 25.1 MMBtu/hr, each
Primary Fuel: Natural Gas
Secondary Fuel: #2 Fuel Oil
Control Device(s): none

1. Restrictions:

- a. Only natural gas shall be combusted in the boilers except in the case of emergencies when No.2 fuel oil meeting the specifications defined by ASTM D396-78, “Standard Specifications for Fuel Oils,” may be used. [§2103.12.a.2.B]
- b. Heat input in each boiler shall be limited to 25.1 MMBtu/hr based on the higher heating value of the fuel being combusted. [§2103.12.a.2.B; OP #5048898-000-76200; OP #5048898-000-00900]
- c. Combustion of fuel oil shall be limited to 89,600 gallons in each boiler during any 12 consecutive months. [§2103.12.a.2.B]
- d. Combustion of fuel oil shall be limited to 500 hours per 12-month period. [§2103.12.a.2.B]
- e. The permittee shall not combust or allow to be combusted fuel oil with greater than 0.05% sulfur content at any time. [§2103.12.a.2.B; OP #5048898-000-76200; OP #5048898-000-00900]
- f. Emissions from Boiler #1a and Boiler #2 shall not exceed the values in Table VI-A-1 at any time: [§2103.12.a; OP #5048898-000-76200; OP #5048898-000-00900]

Table VI-A-1: Boiler 1a and 2 Emission Limits

Pollutant	Short-Term¹ lb/hr	Long-Term¹ tpy²	Total tpy²
Particulate Matter	0.025	0.110	0.220
Particulate Matter <10 µm (PM ₁₀)	0.025	0.110	0.220
Particulate Matter <2.5 µm (PM _{2.5})	0.025	0.110	0.220
Nitrogen Oxides (NO _x)	4.518	19.789	39.578
Sulfur Oxides (SO _x)	1.273	0.3182	0.7624
Carbon Monoxide (CO)	0.377	1.649	3.298
Volatile Organic Compounds (VOCs)	0.100	0.440	0.880

1. Per Boiler.
2. A year is defined as any 12 consecutive months.

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing". [IP #0057-I009, V.A.2; §2103.12.h.1]

3. Monitoring Requirements:

Compliance with the fuel oil sulfur limitations of Condition VI.A.1.d above may be determined based on a certification obtained from the fuel supplier meeting the requirements of Condition VI.A.4.b below. [§2103.12.i]

4. Record Keeping Requirements:

- a. The permittee shall record and maintain records of the monthly fuel natural gas consumption and daily fuel oil consumption. [§2103.12.j]
- b. Records of fuel supplier certifications used to demonstrate compliance with the sulfur limitations of this permit shall include the following information: [§2103.12.j]
 - 1) The name of the oil supplier
 - 2) Percent sulfur (by weight), and
 - 3) A statement from the fuel supplier that the oil complies with the specifications for fuel oil under ASTM D396-78.

5. Reporting Requirements:

Until terminated by written notice from the Department, the requirement for the permittee to report cold starts 24 hours in advance in accordance with Site Level Condition IV.9 is waived and the permittee may report all cold starts in the semi-annual compliance report required under General Condition III.15. [§2103.12.k; §2108.01.d]

6. Work Practice Standard:

None except as provided elsewhere.

B. Boiler B003: Paint Plant – Warehouse Boiler

Facility ID: Warehouse Boiler
Max. Design Rate: 8.4 MMBtu/hr
Primary Fuel: Natural Gas
Secondary Fuel: #2 Fuel Oil
Control Device(s): none

1. Restrictions:

- a. Only natural gas shall be combusted except in the case of emergencies when No.2 fuel oil meeting the specifications defined by ASTM D396-78, “Standard Specifications for Fuel Oils,” may be used. [§2103.12.a.2.B]
- b. Heat input in shall be limited to 8.4 MMBtu/hr based on the higher heating value of the fuel being combusted. [§2103.12.a.2.B; OP #5048898-001-00902]
- c. Combustion of fuel oil shall be limited to 30,000 gallons during any 12 consecutive months. [§2103.12.a.2.B]
- d. Combustion of fuel oil shall be limited to 500 hours per 12-month period. [§2103.12.a.2.B]
- e. The permittee shall not combust or allow to be combusted fuel oil with greater than 0.05% sulfur content at any time. [§2103.12.a.2.B; OP #5048898-001-00902]
- f. Emissions from the Warehouse Boiler shall not exceed the values in Table VI-B-1 at any time: [§2103.12.a; OP #5048898-001-00902]

Table VI-B-1: Warehouse Boiler Emission Limits

Pollutant	Short-Term lb/hr	Long-Term tpy ¹
Particulate Matter	0.008	0.037
Particulate Matter <10 µm (PM ₁₀)	0.008	0.037
Particulate Matter <2.5 µm (PM _{2.5})	0.008	0.037
Nitrogen Oxides (NO _x)	1.512	6.623
Sulfur Oxides (SO _x)	0.4260	0.107
Carbon Monoxide (CO)	0.126	0.552
Volatile Organic Compounds (VOCs)	0.034	0.147

1. A year is defined as any 12 consecutive months.

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled “Emissions Testing”. [IP #0057-I009, V.A.2; §2103.12.h.1]

3. Monitoring Requirements:

Compliance with the fuel oil sulfur limitations of Condition VI.B.1.d above may be determined based on a certification obtained from the fuel supplier meeting the requirements of Condition VI.B.4.b below. [§2103.12.i]

4. Record Keeping Requirements:

- a. The permittee shall record and maintain records of the monthly fuel natural gas consumption and daily fuel oil consumption. [§2103.12.j]
- b. Records of fuel supplier certifications used to demonstrate compliance with the sulfur limitations of this permit shall include the following information: [§2103.12.j]
 - 1) The name of the oil supplier
 - 2) Percent sulfur (by weight), and
 - 3) A statement from the fuel supplier that the oil complies with the specifications for fuel oil under ASTM D396-78.

5. Reporting Requirements:

Until terminated by written notice from the Department, the requirement for the permittee to report cold starts 24 hours in advance in accordance with Site Level Condition IV.9 is waived and the permittee may report all cold starts in the semi-annual compliance report required under General Condition III.15. [§2103.12.k; §2108.01.d]

6. Work Practice Standard:

None except as provided elsewhere.

C. Paint Plant – Spray Booths**Table VI-C-1: List of Spray Booths**

Spray Booths Name
COEX Lab Spray Booth #1
COEX Lab Spray Booth #2
1 st Floor General Industrial Lab Spray Booth
TRIX Cell Dispense Cell Lab Spray Booth
SDCC Cell Dispense Cell Lab Spray Booth
Dispersion Cell Spray Booth
1 st Floor Conductive Coatings Spray Booth
ADD Cell Dispense Lab Spray Booth
Ransburg Lab Spray Booth
Quality Assurance Lab Spray Booth
Color Lab Spray Booth
Basement General Industrial Spray Booth
Harley (Clean Room) Spray Booth
Development Lab Spray Booth

1. Restrictions:

- a. The surface coating process in each spray booth shall use high-volume/low-pressure (HVLP) spray guns or equivalent for coating applications at all times. These guns shall be maintained and operated according to manufacturer's recommendations and good engineering practice. [§2103.12.a.2.B; §2105.03]
- b. Each paint spray booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [§2103.12.a.2.B; §2105.03]
- c. The permittee shall not use any cleaning material that contains organic HAPs. [§2103.12.a.2.B]

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing". [IP #0057-I009, V.A.2; §2103.12.h.1]

3. Record Keeping Requirements:

- a. The permittee shall keep and maintain records of the following: [§2103.12.a.2.B; §2103.12.j]
 - 1) Total amount of coatings used in all spray booths;
 - 2) Total amount of solvent used in all spray booths.

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D. Paint Plant – Storage Tanks

Tank ID	Capacity (gallons)	Tank ID	Capacity (gallons)
Tanks 103-104	30,000 ea.	Tank 311	12,000
Tank 224	25,000	Tank 312	12,000
Tank 225	30,000	Tank 313	12,000
Tanks 301-302	25,000 ea.	Tank 314	12,000
Tank 303	12,000	Tank 320	25,000
Tank 305	12,000	Tank 321	10,000
Tank 306	12,000	Tank 322	20,000
Tank 307	12,000	Tank 324	10,000
Tank 308	12,000	Tanks 400-402	30,000 ea.

1. Restrictions:

- a. The permittee shall store all materials in accordance with Site Level Condition IV.17. [§2103.12.a.2.B; §2105.12.a]
- b. Total emissions from the Paint Plant Storage Tanks shall not exceed the values in Table VI-D-1 at any time: [§2103.12.a.2.B]

Table VI-D-1: Paint Plant Storage Tank Emission Limits

Pollutant	Emissions tpy ¹
Volatile Organic Compounds (VOCs)	2.14
Hazardous Air Pollutants (HAPs)	2.14

1. A year is defined as any 12 consecutive months.

2. Record Keeping Requirements:

- a. The permittee shall record and maintain records of the material stored in each tank as well as the maximum true vapor pressure. [§2103.12.j]
- b. The permittee shall record and maintain records of the total yearly throughput of material in each tank. [§2103.12.j]

E. Development Center – Storage Tanks

Tank ID	Capacity (gallons)
Tank 1	5,000
Tank 2	5,200
Tank 3	5,000
Tank 4	5,000
Tank 5	5,000
Tanks 6-8	5,000 ea.
Tank BT122	5,000
Tank BT126	5,000

1. Restrictions:

- a. The permittee shall store all materials in accordance with Site Level Condition IV.17. [§2103.12.a.2.B; §2105.12.a]
- b. Total emissions from the Development Center Storage Tanks shall not exceed the values in Table VI-E-1 at any time: [§2103.12.a.2.B]

Table VI-E-1: Development Center Storage Tank Emission Limits

Pollutant	Emissions tpy¹
Volatile Organic Compounds (VOCs)	0.687
Hazardous Air Pollutants (HAPs)	0.687

1. A year is defined as any 12 consecutive months.

2. Record Keeping Requirements:

- a. The permittee shall record and maintain records of the material stored in each tank as well as the maximum true vapor pressure. [§2103.12.j]
- b. The permittee shall record and maintain records of the total yearly throughput of material in each tank. [§2103.12.j]

F. Make-Up Air Units

I.D	Location	Name	Rating
MAU 1	Paint Plant	Lab Make-Up Air Unit	1.6 MMBtu/hr
MAU 2		Aluminum Extrusion Make-Up Air Unit	1.89 MMBtu/hr
MAU 3		Basement Make-Up Air Unit	3.93 MMBtu/hr
MAU 4		Lab Make-Up Air Unit	2.52 MMBtu/hr
MAU 5		Plant Make-Up Air Unit	0.6 MMBtu/hr
MAU 6		Plant Make-Up Air Unit	0.53 MMBtu/hr
MAU 23		Plant Make-Up Air Unit	0.55 MMBtu/hr
SJPX		Warehouse Cell Make-Up Air Unit	0.4 MMBtu/hr
DC MAU	Development Center	Automated Spray Lab Make-Up Air Unit	0.5 MMBtu/hr
DC		Make-Up Air Heater: DC	3.0 MMBtu/hr
K13/K15		Make-Up Air Heater: K13/K15	1.0 MMBtu/hr
R2000		Make-Up Air Heater: R2000	1.0 MMBtu/hr
Reznor		Make-Up Air Heater: Reznor	0.4 MMBtu/hr

1. Restrictions:

- The permittee shall not operate or allow to be operated any make-up air unit in such manner that emissions of particulate matter exceed 0.008 lb/MMBtu. [§2104.02.a.1.A; IP #0057-I009, V.B.1.a]
- The permittee shall not operate or allow to be operated any make-up air unit using a fuel other than utility-grade natural gas. [§2103.12.a.2.B; IP #0057-I009, V.B.1.b]
- Total emissions from the Paint Plant Make-Up Air Units shall not exceed the values in Table VI-F-1 at any time: [§2103.12.a.2.B; IP #0057-I009, V.B.1.c]

Table VI-F-1: Paint Plant Make-Up Air Unit Emission Limits

Pollutant	Emissions tpy ¹
Particulate Matter	0.42
Particulate Matter <10 µm (PM ₁₀)	0.42
Particulate Matter <2.5 µm (PM _{2.5})	0.42
Nitrogen Oxides (NO _x)	5.11
Sulfur Oxides (SO _x)	0.03
Carbon Monoxide (CO)	4.29
Volatile Organic Compounds (VOC)	0.28

1. A year is defined as any 12 consecutive months.

- d. Total emissions from the Development Center Make-Up Air Units shall not exceed the values in Table VI-F-2 at any time: [§2103.12.a.2.B; IP #0057-I009, V.B.1.c]

Table VI-F-2: Development Center Make-Up Air Unit Emission Limits

Pollutant	Emissions tpy ¹
Particulate Matter	0.21
Particulate Matter <10 µm (PM ₁₀)	0.21
Particulate Matter <2.5 µm (PM _{2.5})	0.21
Nitrogen Oxides (NO _x)	2.51
Sulfur Oxides (SO _x)	0.02
Carbon Monoxide (CO)	2.11
Volatile Organic Compounds (VOC)	0.14

1. A year is defined as any 12 consecutive months.

G. Sources of Minor Significance

The following table summarizes the processes and/or activities conducted at the PPG Industries, Inc. Springdale facility that were determined to be of minor significance:

TABLE VI-G-1 - Sources of Minor Significance

Location	Source Description	Basis for Exemption
Paint Plant	Boiler House Emergency Generator (natural gas-fired) – 27kW	Total PTE is <2.5 tpy of NO _x for all emergency generators
	Computer Room Emergency Generator (natural gas-fired) – 36 kW	
	Warehouse Emergency Generator (natural gas-fired) – 45 kW	
	Process Control Emergency Generator (natural gas-fired – 27 kW	
	Guardhouse Emergency Generator (natural gas-fired) – 27 kW	
	Fire Pump & Engine (diesel-fired) – 256 hp	
	Inert Gas Generator	Unit is electric
	20 – Laboratory Hoods	Laboratory equipment used exclusively for chemical or physical analyses
	26 – Laboratory Ovens (electric)	Units are electric
	1 – Laboratory Oven (natural gas-fired) – 40,000 Btu/hr	Units are <0.5 MMBtu/hr; total PTE is <0.6 tpy of NO _x and <0.5 tpy of CO for all Laboratory Ovens at the facility
	4 – Laboratory Ovens (natural gas-fired) – 50,000 Btu/hr ea.	
	1 – Laboratory Oven (natural gas-fired) – 200,000 Btu/hr	
	Conductive Coatings Operations	Tanks vent to RTO; PTE <0.1 tpy VOC and HAP.
	Coil Lab	Laboratory equipment used exclusively for chemical or physical analyses
	Dispersion Lab	Laboratory equipment used exclusively for chemical or physical analyses
	General Lab Ventilation	Laboratory equipment used exclusively for chemical or physical analyses
Research Building	2 – Automated Paint Spray Booth Ovens	Units are each 50,000 Btu/hr
	Laboratory Hoods	Laboratory equipment used exclusively for chemical or physical analyses
	Electric Ovens	Units are electric

Location	Source Description	Basis for Exemption
	Powder Coat Spray Booth and Dust Collector	Laboratory equipment used exclusively for chemical or physical analyses
	8 – Laboratory Spray Booths	
	Emergency Generator (diesel –fired) – 410 kW	Total PTE is <2.5 tpy of NO _x for all emergency generators
	2 – Laboratory Ovens (natural gas-fired) – 40,000 Btu/hr ea.	Units are <0.5 MMBtu/hr; total PTE is <0.6 tpy of NO _x and <0.5 tpy of CO for all Laboratory Ovens at the facility
	6 – Laboratory Ovens (natural gas-fired) – 50,000 Btu/hr ea.	
	2 – Laboratory Ovens (natural gas-fired) – 55,000 Btu/hr ea.	
	Laboratory Oven (natural gas-fired) – 300,000 Btu/hr	
	Laboratory Oven (natural gas-fired) – 80,000 Btu/hr	
	Laboratory Oven (natural gas-fired) – 65,000 Btu/hr	
	Electric Hot Oil Heater	Unit is electric
	Space Heaters	Units are electric
Facility	Parking Lots and Roadways	PTE is <0.7 tpy of particulate

1. Restrictions:

- a. The permittee shall not operate or allow to be operated the Warehouse Emergency Generator or the Fire Pump & Engine in such manner that emissions of particulate matter exceed 0.015 lb/MMBtu. [§2104.02.a.1.B]
- b. The permittee shall not operate or allow to be operated any emergency generator using a fuel other than No. 2 Fuel Oil meeting the specifications defined by ASTM D396-78, “Standard Specification for Fuel Oils.” [§2103.12.a.2.B]
- c. The permittee shall not operate or allow to be operated the Automated Paint Spray Booth ovens or any laboratory oven using a fuel other than utility-grade natural gas. [§2103.12.a.2.B]
- d. Each emergency generator shall not be operated for more than 500 hours, including operation for maintenance checks and readiness testing, in any 12-month period. [§2103.12.a.2.B]
- e. The permittee shall not operate or allow to be operated the Powder Coat Spray Booth unless the baghouse is in operation and filter cartridges are in use. [§2103.12.a.2.B]
- f. The permittee shall not use any HAP-containing solvents in the cleaning of the spray guns in the Powder Coat Spray Booth. [§2103.12.a.2.B]

VII. ALTERNATIVE OPERATING SCENARIOS

No alternative operating scenarios exist for this facility.

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VIII. EMISSIONS LIMITATIONS SUMMARY

The annual emission limitations for PPG Industries Inc. - Springdale facility are summarized in the following table:

TABLE VIII-1: Emission Limitations Summary

POLLUTANT	ANNUAL EMISSION LIMIT (tons/year)*
Particulate Matter	7.84
Particulate Matter <10 µm (PM ₁₀)	7.14
Particulate Matter <2.5 µm (PM _{2.5})	7.01
Nitrogen Oxides (NO _x)	56.02
Sulfur Oxides (SO _x)	0.80
Carbon Monoxide (CO)	12.08
Volatile Organic Compounds (VOC)	280.31
Hazardous Air Pollutants (HAP)	143.60

* A year is defined as any consecutive 12-month period.

**ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM**

December 19, 2019

SUBJECT: Reasonable Available Control Technology (RACT II) Determination
PPG Industries, Inc. – Springdale Facility
125 Colfax Street
Springdale, PA 15144-1506
Allegheny County

Title V Operating Permit No. 0057-OP18a

TO: JoAnn Truchan, P.E.
Section Chief, Engineering

FROM: Bernadette Lipari
Air Quality Engineer

I. Executive Summary

The PPG Industries – Springdale facility is defined as a major source of VOC emissions and was subjected to a Reasonable Achievable Control Technology II (RACT II) review by the Allegheny County Health Department (ACHD) required for the 1997 and 2008 Ozone National Ambient Air Quality Standard (NAAQS). The findings of the review established that technically and financially feasible RACT would result in the following emissions changes, summarized below.

Table 1 Technically and Financially Feasible Control Options Summary for VOC

Unit ID	Emissions Unit	Financially Feasible Control Option	Current VOC PTE	RACT Reduction	Revised VOC PTE	Annualized Control Cost (\$/yr)	Cost Effectiveness (\$/ton VOC removed)
P001	Paint Plant – Controlled	Increase the efficiency from 95% to 98%	26.04	15.62	10.42	\$0	\$0
Total			26.04	15.62	10.42	\$0	\$0

These findings are based on the following documents:

- RACT analysis performed by ERG (RACT_2018-05-07 with track changes a.docx)
- RACT analysis performed by PPG Industries, Inc. – Springdale Facility (0057c2014-01-20ract.pdf)
- BACT analysis performed by PPG Industries, Inc. – Springdale Facility (0057ip005c2006-10-31bact.pdf)
- BACT analysis performed by PPG Industries, Inc. – Springdale Facility (see Application for Permit No. 0057-I004 dated 10/18/2004 and Correspondence dated 02/09/2005)
- BACT analysis performed by PPG Industries, Inc. – Springdale Facility (see Application for Permit No. 0057-I009 dated 10/07/2015 and Correspondence dated 07/12/2016)

II. Regulatory Basis

ACHD requested all major sources of NO_x (potential emissions of 100 tons per year or greater) and all major sources of VOC (potential emissions of 50 tons per year or greater) to reevaluate NO_x and/or VOC RACT for incorporation into Allegheny County's portion of the PA SIP. This document is the result of ACHD's determination of RACT for PPG Industries – Springdale based on the materials submitted by the subject source and other relevant information.

III. Facility Description

PPG Industries, Inc. – Springdale Plant is a paint manufacturing plant and research & development facility. The paint plant produces coatings for aluminum extrusions, general industrial, and coil coating. Within the main paint manufacturing buildings is housed a series of technical laboratories providing testing and customer support for PPG Coatings. The paint manufacturing building also houses manufacturing support laboratories, which oversee the quality and other parameters of products, manufactured. The research and development plant provides scale-up support for resin manufacture and tests new resins used in coatings. PPG Industries is a major source of VOC emissions.

Table 2 Facility Sources Subject to Case-by-Case RACT II and Their Existing RACT I Limits

Source ID	Description	Rating	VOC PTE (TPY)	VOC Presumptive Limit (RACT II)	VOC Limit (RACT I)
P001	Paint Plant – Controlled	1.6 MMBtu/hr	10.42	NA	Increase the efficiency from 95% to 98%
P002	Paint Plant – Uncontrolled (incl. fugitives)	17,868,000 lb solvent/yr	238	NA	Overspray Filters; LDAR
P003	Paint Plant Freightliner Spray Booth	39,420 lb coating /yr	8.27	NA	Good Engineering Practice; HVLP Spray Guns
P004	Development Center – Controlled	1.6 MMBtu/hr	3.70	NA	Good Engineering Practice
P005	Development Center – Uncontrolled (Connectors-gas)	NA	3.63	NA	Overspray Filters; LDAR
P006	Development Center Automated Spray Booth	5,000 gal/yr	14.92	NA	Good Engineering Practice; Air Assisted Spray Guns

Table 3 Facility Sources Exempt from RACT II per PA Code 129.96(c) {< 1 TPY VOC}

Source ID	Description	Rating	VOC PTE (TPY)
B001	Paint Plant Boiler 1a	25.1 MMBtu/hr	0.44
B002	Paint Plant Boiler 2	25.1 MMBtu/hr	0.44
B003	Paint Plant Warehouse Boiler	8.4 MMBtu/hr	0.15
	Paint Plant Storage Tanks	2,645,400 gal/yr	2.14*
	Paint Plant Environ, Trix cleaners, and Large Batch Ctr.	84,400 gallons (0.78 lb/hr)	0.26
	Paint Plant Small Order Department	N/A (potable tanks)	0.38
	Development Center Storage Tanks	584,000 gal/yr	0.69
	Development Center Uncontrolled (Valves)	n/a	0.498
	Development Center Uncontrolled (Pump Seals)	n/a	0.109
	Development Center Uncontrolled (PRV)	n/a	0.012
	Development Center Uncontrolled (Connectors-liq.)	n/a	0.330
	Development Center Uncontrolled (Agitator Seals)	n/a	0.396
	Development Center Uncontrolled (Small Side Reactor)	n/a	0.690
	Miscellaneous Spray Booths	n/a	Negligible

* Individual units are < 1 TPY

IV. RACT Determination

Paint Plant RTO (P001)

P001 is currently controlled using a capture and control system with an RTO that is required to meet 95% reduction or better. In the previous permit issuance, the Paint Plant RTO (P001) was considered RACT at 95% destruction efficiency. However, subsequent testing revealed that it is achieving a 98% destruction efficiency at no additional cost shown by the summary of stack tests in the table below.

	Inlet (lb/hr)	Outlet (lb/hr)	Efficiency
<u>9/26/07</u>			
Run #1	3.78	0.04	99.0%
Run #2	5.64	0.05	99.1%
Run #3	3.08	0.02	99.2%
Average	4.17	0.04	99.1%
<u>4/14/10</u>			
Run #1	3.982	0.096	97.6%
Run #2	3.617	0.094	97.4%
Run #3	3.391	0.067	98.0%
Average	3.663	0.086	97.7%
<u>10/8/13</u>			
Run #1	9.729	0.302	96.9%
Run #2	6.517	0.070	98.9%
Run #3	3.251	0.043	98.7%
Average	6.499	0.138	98.2%
<u>10/3/18</u>			
Run #1	2.22	0.0245	99.69%
Run #2	1.30	0.0164	99.68%
Run #3	1.37	0.0168	99.65%
Average	1.63	0.0192	99.67%

ACHD has determined that RACT for the controlled emissions from the Paint Plant is continued control with the existing RTO meeting a destruction efficiency of 98% instead of 95%. This limits VOC emissions to 10.4 tpy.

Uncontrolled VOC emissions from the Paint Plant (P002)

Uncontrolled VOC emissions from the Paint Plant (P002) occur during material additions from loose-fitting lids and equipment leaks, product sampling, product filling/packaging, and during equipment cleaning. Uncontrolled VOC emissions from the Paint Plant (P002) are limited to 54.3 lbs/hr and 238.0 tons per year.

According to information available in EPA's *Control of VOC Emissions from Ink and Paint Manufacturing Processes*¹, and *Control Techniques for Volatile Compound Emissions from Stationary Sources*², VOC emissions from the Paint Plant (P001) can be controlled with:

- (a) Equipment or Process Modifications
 1. Tank Lids
 2. Modified Milling Equipment
 3. Storage Tank Conservation Vents
- (b) Equipment Cleaning

¹ US EPA, "Control of VOC Emissions from Ink and Paint Manufacturing Processes", EPA-450/3-92-013, April 1992. Available at: http://www.epa.gov/ttn/catc/dir1/ink_paint.pdf

² US EPA, "EPA's Control Techniques for Volatile Compound Emissions from Stationary Sources", EPA 453/R-92-018, December 1992. Available at: <http://www.epa.gov/ozonepollution/SIPToolkit/ctgs.html>

1. Rubber Wipers
 2. High Pressure Spray Heads
 3. Teflon-lined Tanks
 4. Plastic Pigs
 5. Automatic Tub Washers
- (c) Improved Operating Practices
1. Dedicated Process Lines/Equipment
 2. Use of Covers During Tank Operation
 3. Splash/Spill Prevention
 4. Closed Container Storage of Wastes
 5. Employee Awareness
- (d) Recycling Techniques
1. Re-use Solvent in Subsequent Batches
 2. Countercurrent Rinsing
- (e) Product Reformulation
1. Low VOC Coatings
 2. Powder Coatings
 3. Waterborne Paints
 4. Radiation-Curable Paints
 5. High-Solids Paint
- (f) Leak Detection and Repair Program

Product reformulation to produce low-VOC or water-based coatings is technologically feasible, but the mandated production or phase-in of reformulated products is technologically infeasible. The coatings manufactured at PPG are largely dictated by the customers' needs.

All of these technologies except for product reformulation, are technically feasible options for controlling fugitive VOC from the Paint Plant. However, essentially all of these are required by the current Title V operating permit either from the previous RACT Order #254 or as work practice standards of Subpart HHHHH.

The RACT for control of VOC emissions from the Paint Plant (P002) shall be to continued compliance with the current permit requirements contained in RACT Order 254 and in Subpart HHHHH requirements.

The Freightliner Spray Booth (P003)

The Freightliner Spray Booth (P003) consists of surface coating and clean-up operations. Coatings are applied to metal and plastic panels with electrostatic guns in a spray booth. Solvent is used for clean-up. VOC emissions from the spray booth are limited in the Title V operating permit to 1.89 lb/hr and 8.27 tons per year. VOC emissions are uncontrolled.

According to information available in EPA's *Control Techniques for Volatile Compound Emissions from Stationary Sources*³, VOC emissions from the Paint Plant Freightliner Spray Booth could be controlled by:

- (a) Converting to low-VOC coatings
- (b) Improving transfer efficiency
- (c) Incineration

Product reformulation to produce low-VOC or water-based coatings is technologically feasible, but the mandated use or phase-in of reformulated products is technologically infeasible. The Freightliner Paint Booth is used with coatings made at PPG; therefore, the formulations used are ones that meet the customers' needs.

³ US EPA, EPA 453/R-92-018, op. cit.

Improving transfer efficiency is technically feasible. However, the spray booths are already required to use electrostatic spray guns. This application method represents the best available application technology for the types of coatings that PPG Industries is testing in this spray booth. Therefore, no additional VOC control can be gained by requiring improved transfer efficiency.

Thermal incineration is technically feasible with an estimated control efficiency of 95%.

ACHD has determined that requiring the installation of a thermal incinerator to control VOC emissions from the Freightliner Spray Booth is not cost-effective (See Table 4 below).

The RACT for control of VOC emissions from the Freightliner Spray Booth shall be to continue to comply with the current permit requirements.

Developmental Center RTO (P004)

A VOC RACT evaluation has not been conducted for the equipment being controlled by the Developmental Center RTO. The VOC emissions from the Developmental Center RTO are limited in the current Title V operating permit to 0.846 pound per hour and 3.703 tons per year. The Development Center RTO is subject to 40 CFR 63, Subpart FFFF – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing, which requires the RTO to achieve 98% destruction of VOC. The operating permit also requires the RTO to achieve 98% destruction of VOC. A stack test of the Development Center RTO conducted on November 26, 2013 indicates that the VOC destruction efficiency of this control device is 98.8%. ACHD considers it unlikely that additional controls would be technically and economically feasible that would achieve a better emissions reduction. Therefore, the RACT for those units that are controlled with the RTO is continued control and compliance with 40 CFR Part 63, Subpart FFFF and permit conditions.

Uncontrolled emissions from the Development Center (P005)

A VOC RACT has not been conducted for fugitive emissions from the Development Center (P005). These emissions are subject to the requirements of 40 CFR Part 63, Subpart UU – National Emission Standards for Equipment Leaks – Control Level 2 for equipment leaks in all equipment in organic HAP service. Subpart UU requires that source use a Leak Detection and Repair (LDAR) program to identify and repair leaks from this equipment. The requirements of this rule are some of the most stringent and ACHD considers it unlikely that changes in the LDAR methodology would reduce emissions by a measurable amount. RACT for these fugitive emissions is continued compliance with Subpart UU.

Wastewater Handling System (P004 & P005)

Similarly, a VOC RACT evaluation has not been conducted for emissions from the Wastewater Handling System that processes the process and maintenance wastewater generated from all Development Center units. VOC emissions from the Development Center Wastewater Handling System are controlled via treatment according to the requirements of 40 CFR 63, Subpart G - National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater and 40 CFR 63, Subpart FFFF - National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing. These rules contain stringent requirements for controlling HAP emissions from wastewater and changes to these requirements are not expected to yield significant additional emissions reductions. RACT for the wastewater emissions is continued compliance with Subparts G and FFFF.

Developmental Center Automated Spray Booth (P006)

Please refer to the BACT analysis in the application for Permit No. 0057-I009 dated 10/07/2015 and to the Correspondence dated 07/12/2016.

The Technically Feasible Control Options for PPG are detailed in Table 4 (VOC).

Table 4 **Technically Feasible VOC Control Cost Comparisons**

Control Option		P003
Thermal Oxidation	tpy VOC Removed	7.9
	Cost	\$228,500
	\$/ton	\$28,900

V. RACT Summary

Based on the findings in this RACT analysis, the PPG Industries – Springdale facility emissions can be summarized as follows:

Table 5 **RACT II Emission Reduction Summary**

VOC Potential Emissions (tpy)		
Current PTE	RACT Reduction	Revised PTE
280.31	15.62	280.31

As shown in Table 5, the new RACT II conditions reduce 15.62 tpy of VOC emissions from the PPG Industries – Springdale facility.

VI. New and Revised RACT II Permit Conditions

The following conditions were cited for case-by-case RACT (25 Pa. Code, §129.99):

IP #0057-I005c	
V.A.1.b	V.B.1.b
V.A.6	V.B.6
TVOP #0057-OP18a	
V.A.1.b-d, h, n	V.D.1.c
V.A.6.a-c	V.D.6.a-c
V.B.1.b-e	V.E.1.a-d
V.B.3.a	V.E.3.a-c
V.B.6.a-b	V.E.6.a-g
V.C.1.b-c	V.F.1.d-e
V.C.6.a-f	V.F.6.a-f

The following conditions were cited for compliance with case-by-case RACT (25 Pa. Code, §129.100):

IP #0057-I005c	
V.A.2.a-b	V.B.2.a-b
V.A.3.c	V.B.3.b
V.A.4.a	V.B.4.a, c
TVOP #0057-OP18a	
V.A.2.a-d	V.D.2.a-b
V.A.3.b	V.D.3.b
V.A.4.c	V.D.4.a
V.B.4.b	V.E.4.a-d
V.B.5.b	V.E.5.b

**Allegheny County Health Department
Office of Air Quality**

**Technical Support Document (TSD) -
REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT)
DETERMINATION**

Source Information

Source Name:	PPG Industries, Inc. – Springdale Plant
Source Location:	125 Colfax Street, Springdale, PA 15144
Mailing Address:	125 Colfax Street, Springdale, PA 15144
County:	Allegheny County
SIC Code:	2851 (Paints, Varnishes, Lacquers, Enamels, and Allied Products)
NAICS Code:	325510 (Paint and Coating Manufacturing)
Part 70 Permit No.:	0057
Major Source:	VOC
Permit Reviewer:	ERG/ST

The Allegheny County Health Department (ACHD) has performed the following Reasonably Available Control Technology (RACT) analyses for a major source of VOC relating to a paint manufacturing and resin research and development facility, located in Springdale, Pennsylvania.

Background

Allegheny County was designated marginal nonattainment for the 2008 8-hour ozone on April 30, 2012 (published in 77 FR 30160, May 21, 2012). In order to implement the 2008 NAAQS for ozone, EPA issued a proposed rulemaking in June 2013 to provide steps and standards for states to develop and submit certain materials, dependent on each state's attainment status. Although Allegheny County is designated marginal nonattainment, Pennsylvania is also a part of the Ozone Transport Region (OTR), which must meet more stringent requirements, including submitting a RACT SIP for EPA approval. As such, Allegheny County must reevaluate the NO_x and VOC RACT in the existing RACT SIP for the eight-hour ozone NAAQS.

ACHD requested all major sources of NO_x (potential emissions of 100 tons per year or greater) and all major sources of VOC (potential emissions of 50 tons per year or greater) to reevaluate NO_x and/or VOC RACT for incorporation into Allegheny County's portion of the PA State Implementation Plan (SIP). This document is the result of ACHD's review of the RACT re-evaluations submitted by the subject source and supplemented with additional information as needed by ACHD.

RACT Summary

VOC RACT evaluations were conducted for several equipment and operations at PPG. The RACT determinations are summarized below.

Table S1: RACT Summary

Unit Description	RACT	VOC PTE Before RACT	VOC PTE After RACT
------------------	------	------------------------------	--------------------------

Controlled Emissions from the Paint Plant (P001)	Require 98% reduction from RTO, instead of 95%. Continued compliance with existing permitting and regulatory requirements.	26.1	10.4
Fugitive Emissions from the Paint Plant (P002)	Continued compliance with existing permitting and regulatory requirements.	238	40
Freightliner Spray Booth (P003)	Continued compliance with existing permitting and regulatory requirements.	8.27	8.27
Total:		272.34	58.70
Emission Reductions			213.64
Emission Reductions due to equipment changes:			0

RACT was determined to be continued compliance with regulatory and permit requirements for:

- Boilers #1a, and #2, and the warehouse boiler;
- Paint plant and development center air make-up units;
- Paint plant and development center storage tanks;
- Paint plant spray booth;
- Development center - small side reactor system;
- Developmental center equipment being controlled by the RTO;
- Development center fugitive emissions (P005); and
- Development center wastewater handling system.

There are no provisions of the Proposed Pennsylvania Presumptive RACT that address VOC emissions from paint manufacturers.

Detailed documentation of the RACT evaluation follows.

RACT Evaluations

RACT is “the lowest emission 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 53761, 9/17/1979)

ACHD provided the following guidance to the major sources of NOx and VOC in Allegheny County for performing the RACT analyses:

1. The analysis shall address all reasonably possible controls of VOCs and NOx including changes in operation and work practices.
2. All control technology that is found to be technically infeasible must be accompanied by detailed and documented reason(s) as to why the technology is not feasible. General statements about the non-applicability of control technology to your industry will not be sufficient.
3. All changes in operation and work practices that are found not to be feasible require the same documentation as the controls in step #2 above.
4. All feasible control technology, changes in operation, work practices, etc. that are found to be cost prohibitive require a cost analysis demonstrating the cost per ton of pollutant controlled.

5. The analysis shall be done according to the procedures in EPA's OAQPS Cost Manual, EPA's cost spreadsheets are recommended where applicable. The manual and spreadsheets may be found on the CATC/RBLC web page on EPA's Technology Transfer Network (TTN) at <http://www.epa.gov/ttn/catc/>.
6. All data used in cost estimates, such as exhaust flow rates or the amount of ductwork used need proper documentation. If vendor quotes are used in the analysis for equipment costs, they are required to be supplied. Old analyses increased for inflation will not be acceptable. VATAVUK Air Pollution Control Cost Indexes shall be used with the aforementioned cost spreadsheets.

Each RACT analysis section is organized by the following 4 steps, which incorporate the guidance elements provided by Allegheny:

- Step 1 – Identify Control Options (guidance element 1)
- Step 2 – Eliminate Technically Infeasible Control Options (guidance elements 2 and 3)
- Step 3 – Evaluate Control Options, including costs and emission reductions (guidance elements 4, 5, and 6)
- Step 4 – Select RACT (guidance element 1)

Source/Process Description

PPG Industries, Inc. – Springdale Plant, is a paint manufacturing plant, resin development center, and research & development facility. The paint plant produces coatings for aluminum extrusions, general industrial, and coil coating. Within the main paint manufacturing buildings is housed a series of technical laboratories providing testing and customer support for PPG Coatings. The paint manufacturing building also houses manufacturing support laboratories, which oversee the quality and other parameters of the manufactured products. The resin development center and the research and development facility manufacture resins, provide scale-up support for resin and coating manufacture, and test new materials used in coatings. Detailed descriptions of the relevant emissions units are provided in the following sections. The following table shows the emission units at this source.

Table 1: Listing of Emission Units That Emit VOC

Process I.D.	PROCESS DESCRIPTION	CONTROL DEVICE(S)	FUEL/RAW MATERIAL	STACK I.D.	PTE (tpy VOC) ^a	RACT
P001	Paint Plant - CP Cell Work Center	Paint Plant Regenerative Thermal Oxidizer (RTO)	Pigment, resin, solvent	S001	26.1	Yes
	Paint Plant - Light Cell Work Center					Yes
	Paint Plant - Dark Cell Work Center					Yes
	Paint Plant - Large Batch Center					Yes
	Paint Plant - Environ Work Center					Yes
	Paint Plant - Solvent Still	Solvent Still Condenser and Paint Plant RTO	Waste solvent	S001		Yes
P002	Paint Plant Uncontrolled (Fugitive) Emissions	None	Pigment, resin, solvent	-	238	Yes
P002	Paint Plant Spray Booth	Spray booth filters; HVLP spray guns	Coatings; cleaning solvent	-	0.59 ^b	No
P003	Freightliner Spray Booth	Spray booth filters; Electrostatic spray guns	Coatings; cleaning solvent	2004B1	8.3	Yes
P004	Development Center - K13/K15 Resin Process	Development Center RTO, Carbon Bins, Large Side Scrubber	Solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols, resins, additives, water	S004	3.7	No
	Development Center – Reactor K500B - Large Side Reactor System					No
	Development Center - LUWA Filmtruder					No
	Development Center - R2000 Reactor Process					No
	Development Center - BS5000 Resin Stripper					No
P005	Development Center - Small Side Reactor System	Condenser, Development Center RTO, Carbon Beds		S004	0.7	No
	Development Center - Uncontrolled (Fugitive) Emissions	None		-	5.7	No
P004, P005	Development Center - Wastewater Handling System	None	wastewater	-	-	No
-	Paint Plant Storage Tanks (22)	None	Resin, raw material, solvent	-	2.14	No
-	Development Center Storage Tanks (10)	None	Monomer solution, solvent	-	0.69	No

Process I.D.	PROCESS DESCRIPTION	CONTROL DEVICE(S)	FUEL/RAW MATERIAL	STACK I.D.	PTE (tpy VOC) ^a	RACT
B001	Boiler #1a	None	Natural Gas, No. 2 Fuel Oil	SB01A	0.44	No
B002	Boiler #2	None		SB02	0.44	No
B003	Warehouse Boiler	None		SWHB1	0.15	No
-	Paint Plant and Development Center Air Make-up Units	None	Natural Gas	-	-	No

^a All emissions are from the title V operating permit #0057 or the associated technical support document, unless otherwise noted.

^b PTE is from the technical support document for Installation permit #0057-I006a

RACT Analyses in this Document

This source is a major source of VOC but is not a major source of NO_x; therefore, only VOC RACT analyses have been conducted and are provided in this document. The table in the previous section identifies which emission units are included in the RACT analyses.

A VOC RACT evaluation has not been conducted for several small sources of VOC because ACHD has determined that this equipment has a relatively low potential to emit of VOC and considers it unlikely that additional controls would be technically and economically feasible for these emission units. RACT for these units is continued compliance with the existing regulatory and permit requirements. These units include:

- Boilers #1a, and #2, and the warehouse boiler;
- Paint Plant and Development Center Air Make-up Units;
- Paint Plant and Development Center Storage Tanks;
- Paint Plant Spray Booth; and
- Development Center - Small Side Reactor System

A VOC RACT evaluation has also not been conducted for the equipment being controlled by the Developmental Center RTO. The VOC emissions from the Developmental Center RTO are limited in the current Title V operating permit to 0.846 pounds per hour and 3.70 tons per year. The Development Center RTO is subject to 40 CFR 63, Subpart FFFF – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing, which requires the RTO to achieve 98% destruction of VOC. The operating permit also requires the RTO to achieve 98% destruction of VOC. A stack test of the Development Center RTO conducted on November 26, 2013 indicates that the VOC destruction efficiency of this control device is 98.8%. ACHD considers it unlikely that additional controls would be technically and economically feasible that would achieve a better emissions reduction. Therefore, the RACT for those units that are controlled with the RTO is continued control and compliance with 40 CFR Part 63, Subpart FFFF and permit conditions.

A VOC RACT has not been conducted for fugitive emissions from the Development Center (P005). These emissions are subject to the requirements of 40 CFR Part 63, Subpart UU – National Emission Standards for Equipment Leaks – Control Level 2 for equipment leaks in all equipment in organic HAP service. Subpart UU requires that source use a Leak Detection and Repair (LDAR) program to identify and repair leaks from this equipment. The requirements of this rule are some of the most stringent, and ACHD considers it unlikely that changes in the LDAR methodology would reduce emissions by a measureable amount. RACT for these fugitive emissions is continued compliance with Subpart UU.

Similarly, a VOC RACT evaluation has not been conducted for emissions from the Wastewater Handling System that processes the process and maintenance wastewater generated from all Development Center units. VOC emissions from the Development Center Wastewater Handling

System are controlled via treatment according to the requirements of 40 CFR 63, Subpart G - National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater and 40 CFR 63, Subpart FFFF - National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing. These rules contain stringent requirements for controlling HAP emissions from wastewater and changes to these requirements are not expected to yield significant additional emissions reductions. RACT for the wastewater emissions is continued compliance with Subparts G and FFFF.

VOC RACT evaluations have been conducted for the following:

- A. RACT for VOC – Controlled Emissions from the Paint Plant (P001)
- B. RACT for VOC – Fugitive Emissions from the Paint Plant (P002)
- C. RACT for VOC – Freightliner Spray Booth (P003)

A. RACT for VOC – Controlled Emissions from the Paint Plant (P001)

Section A of the RACT Evaluation examines the controlled emissions from the Paint Plant (P001).

The Paint Plant is made up of two general groupings of equipment from an emissions release perspective. These are referred to as P001 and P002. Some VOC emissions from the Paint Plant are controlled by the Paint Plant RTO and are collectively referred to as P001, while other emissions are considered fugitive emissions and are controlled with different work practice standards and are referred to as P002. This RACT evaluation evaluates the controlled emissions from the Paint Plant (P001). P002 is addressed in RACT Section B.

P001 refers to the VOC emissions from the CP Cell Work Center, Light Cell Work Center, Dark Cell Work Center, Large Batch Work Center, Environ Work Center, and the Solvent Still that are all controlled by the Paint Plant RTO. VOC emissions from the Paint Plant RTO are limited in the current Title V operating permit to 5.95 pounds per hour and 26.07 tons per year. The current Title V operating permit requires the Paint Plant RTO achieve 95% destruction of VOC. A stack test of the Paint Plant RTO conducted on October 8, 2013 indicates that the VOC destruction efficiency of this control device is 98.2%.

The PPG Industries, Inc. – Springdale Plant is a major source of hazardous air pollutants (HAP). The Paint Plant is subject to the requirements of 40 CFR Part 63, Subpart HHHHH – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing. Subpart HHHHH requires that emissions of total organic HAP from stationary process vessels be reduced by 95 percent (by weight) or greater, during paint production and automatic cleaning operations.

Step 1 – Identify Control Options

According to the information available in EPA's *Control of VOC Emissions from Ink and Paint Manufacturing Processes*¹, and *Control Techniques for Volatile Compound Emissions from Stationary Sources*², VOC emissions from the paint manufacturing can be controlled using equipment or process modifications, product reformulation, or capture and control systems. P001 is currently controlled using a capture and control system with an RTO that is required to meet 95% reduction or better. However, the RTO operates at a higher efficiency of 97 - 99% reduction, based on the 2013 performance tests.³ There are no RACT control technologies that can consistently achieve emission reductions greater than what the current RTO achieves.

Step 2 – Eliminate Technically Infeasible Control Options

No control options were identified.

Step 3 - Evaluate Control Options

There were no control options identified to evaluate.

¹ US EPA, "Control of VOC Emissions from Ink and Paint Manufacturing Processes", EPA-450/3-92-013, April 1992. Available at: http://www.epa.gov/ttn/catc/dir1/ink_paint.pdf

² US EPA, "EPA's Control Techniques for Volatile Compound Emissions from Stationary Sources", EPA 453/R-92-018, December 1992. Available at: <http://www.epa.gov/ozonepollution/SIPToolkit/ctgs.html>

³ Note that the November 20, 2013 stack report has an error in Table 1 of the Executive Summary which reports that the destruction efficiency was 96.2%. Review of the test report reveals that the actual average destruction efficiency during the performance tests was 98.2%, see Table 1 at the end of the stack test text report or in Section 5.0 of the stack test report.

Step 4 – Select RACT

ACHD has determined that RACT for the controlled emissions from the Paint Plant is continued control with the existing RTO meeting a destruction efficiency of 98% instead of 95%. This limits VOC emissions to 10.43 tpy.

RACT also includes continued compliance with the requirements of Subpart HHHHH, RACT Order #254, and the conditions in the Title V operating permit.

B. RACT for VOC – Fugitive Emissions from the Paint Plant (P002)

Section B of the RACT Evaluation examines the uncontrolled and fugitive emissions from the Paint Plant (P002).

Uncontrolled VOC emissions from the Paint Plant (P002) occur during material additions from loose-fitting lids and equipment leaks, product sampling, product filling/packaging, and during equipment cleaning. Uncontrolled VOC emissions from the Paint Plant (P002) are limited to 54.34 lbs/hr and 238.0 tons per year.

The PPG Industries, Inc. – Springdale Plant is a major source of hazardous air pollutants (HAP). The Paint Plant is subject to the requirements of 40 CFR Part 63, Subpart HHHHH – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing. Although these emissions from the Paint Plant are considered "uncontrolled", they are actually controlled through work practice standards as required by Subpart HHHHH. These include that each stationary mixer and stationary process vessel be equipped with a tightly fitting vented cover or lid that must be closed at all times when the vessel contains HAP, except for material additions and sampling. The covers shall be maintained in good condition, such that when in place, they maintain contact with their respective rims for at least 90% of the circumference of the rim. Subpart HHHHH requires that the source conduct a leak detection and repair (LDAR) program, performing monthly leak inspections of all equipment in organic HAP service and repairing leaks within 15 days of detection. The operating permit for this source requires: any dispensing or filling systems for solvent-borne coatings be of closed design or minimize free-fall of liquids as well as all process equipment cleaning be conducted so as to minimize VOC emissions.

Step 1 – Identify Control Options

According to information available in EPA's *Control of VOC Emissions from Ink and Paint Manufacturing Processes*⁴, and *Control Techniques for Volatile Compound Emissions from Stationary Sources*⁵, VOC emissions from the Paint Plant (P001) can be controlled with:

- (a) Equipment or Process Modifications
 1. Tank Lids
 2. Modified Milling Equipment
 3. Storage Tank Conservation Vents
- (b) Equipment Cleaning
 1. Rubber Wipers
 2. High Pressure Spray Heads
 3. Teflon-lined Tanks
 4. Plastic Pigs
 5. Automatic Tub Washers
- (c) Improved Operating Practices
 1. Dedicated Process Lines/Equipment
 2. Use of Covers During Tank Operation
 3. Splash/Spill Prevention
 4. Closed Container Storage of Wastes
 5. Employee Awareness

⁴ US EPA, "Control of VOC Emissions from Ink and Paint Manufacturing Processes", EPA-450/3-92-013, April 1992. Available at: http://www.epa.gov/ttn/catc/dir1/ink_paint.pdf

⁵ US EPA, "EPA's Control Techniques for Volatile Compound Emissions from Stationary Sources", EPA 453/R-92-018, December 1992. Available at: <http://www.epa.gov/ozonepollution/SIPToolkit/ctgs.html>

- (d) Recycling Techniques
 - 1. Re-use Solvent in Subsequent Batches
 - 2. Countercurrent Rinsing
- (e) Product Reformulation
 - 1. Low VOC Coatings
 - 2. Powder Coatings
 - 3. Waterborne Paints
 - 4. Radiation-Curable Paints
 - 5. High-Solids Paints
- (f) Leak Detection and Repair Program

A description of each of these technologies follows.

- (a) Equipment or Process Modifications
 - 1. Tank lids are the most common equipment modification for reducing VOC emissions from coatings manufacturing operations. Lids that completely cover a mill, tank, or vat can reduce VOC emissions during preassembly, premix, grinding, milling, and product finishing operations. The cover should remain closed, except when production, sampling, maintenance, or inspection procedures require access. The cover should be maintained in good condition, such that it maintains contact with the rim of the opening for at least 90 percent of the circumference of the rim. Any openings in the lid should be no larger than necessary to provide safe clearance for the mixer shaft.
 - 2. Modified Milling Equipment- In some situations, older milling equipment can be replaced with newer, more efficient closed systems such as horizontal media mills. However, the type of milling equipment used in a process is highly dependent upon adhesives and coatings product characteristics such as viscosity, color, gloss, type of raw materials, and processing time.
 - 3. Fixed-roof storage tanks are commonly equipped with a conservation vent that allows them to operate at a slight internal pressure or vacuum to prevent the release of vapors during very small changes in temperature, pressure, or liquid level. For storage tanks that are not directly vented to the control system, the pressure and vacuum settings could be adjusted to decrease emissions, within the safe operating parameters of the tank design. Alternately, the storage tank can be vented to a control device.
- (b) Equipment Cleaning

Since equipment cleaning requires the use of solvents, it is a source of VOC emissions. VOC emissions may be reduced during equipment cleaning either by eliminating the need for equipment cleaning or by reducing the frequency of cleaning. Equipment cleaning modifications include the following:

 - 1. Rubber wipers, which can be used to scrape the sides of the tank to reduce the amount of clinging adhesives and coatings that must be cleaned out;
 - 2. High-pressure spray heads, which can be used to clean tanks more efficiently;
 - 3. Teflon-lined and stainless steel-lined tanks, which can be used to minimize clinging coatings;
 - 4. Plastic pigs, which can be used to push clinging adhesives and coatings through pipes, increasing product yield and reducing the need for cleaning solvent; and
 - 5. Automatic tub washers, which can be used to clean tanks under vacuum conditions.
- (c) Improved Operating Practices

1. Equipment dedication eliminates cleaning between each product batch. Scheduling compatible batches or batches from light to dark colors also reduces the need for equipment cleaning. Production scheduling and dedicating equipment may be impossible however, in small paint and ink facilities that operate on a batch schedule in order to meet customer demands. In some cases, facilities operate on a same-day shipment schedule.
 2. Covers should be used during tank operation. Tank lids are the most common method for reducing VOC emissions from mills, tanks, and vats used in coatings manufacturing. Proper use of tank lids to minimize VOC emissions requires that the lid remain closed except when production, sampling, maintenance, or inspection procedures require access.
 3. Take steps to reduce and prevent splashes and spills during the transfer of material to different containers. Any spilled liquid or dry material should be cleaned as expeditiously as possible, but not later than the end of the daily work shift. In addition, submerged loading or bottom loading of storage tanks, which results in lower vapor generation than splash loading, should be employed.
 4. Waste coatings and solvent should be collected and stored in closed containers. The closed containers may contain a device that would allow pressure relief but would not allow liquid solvent to drain from the container prior to disposal.
 5. Employee Awareness. Permanent signs for the coatings manufacturing equipment should be installed to describe required work and operating practices. The signs should be placed in a prominent location and be kept visible and legible at all times. In addition, training programs may be held to teach employees the importance of operating practices such as the use of covers and lids, splash/spill prevention, and closed container storage of wastes.
- (d) Recycling Techniques
1. Recycling techniques for coatings manufacturing operations include the use of spent cleaning solvent for production. The wash solvent may be used in a subsequent compatible batch.
 2. In counter-current rinsing sequences, recycled solvent is used in the initial cleaning sequence, and the final equipment cleaning is completed with clean solvent. The wash solvent may be used in a subsequent batch or used as a pre-rinse for a subsequent cleaning sequence.
- (e) Product Reformulation
1. Product reformulation is the manufacture and use of adhesives and coatings products with lower VOC content than conventional coatings. Reformulated adhesives and coatings products include powder coatings, waterborne adhesives and coatings, radiation-curable adhesives and coatings, and high-solids adhesives and coatings.
 2. Powder coatings are essentially 100 percent solids in makeup. They are available in several resin formulations such as: acrylics, polyurethane, epoxy, polyester, nylon, and epoxy/polyester hybrids.
 3. Waterborne adhesives and coatings contain water as the major solvent and contain five to 20 percent organic co-solvent to aid in viscosity control, wetting, and pigment dispersion. They have much lower VOC contents than conventional coatings with the same solids content.

4. Radiation-curable adhesives and coatings are formulated to cure at room temperature with the assistance of a radiation source, either an ultraviolet (UV) light or an accelerated electron beam (EB). Radiation-curable coatings typically have higher solids contents than that of conventional coatings.
 5. High-solids adhesives and coatings contain greater than 60 percent solids by volume, whereas conventional coatings contain less than 30 percent solids by volume. The higher solids content helps to lower VOC emissions.
- (f) Leak Detection and Repair Program (LDAR)
A leak detection and repair program requires periodic examination of equipment in VOC/HAP service and repair as needed.

Step 2 – Eliminate Technically Infeasible Control Options

Product reformulation to produce low-VOC or water-based coatings is technologically feasible, but the mandated production or phase-in of reformulated products is technologically infeasible. The coatings manufactured at PPG are largely dictated by the customers' needs. Although, in the future, PPG may increase its production of low-VOC and water-based coatings to meet customer demands. However, development of these coatings is still highly dependent on customer satisfaction with such products.

All of the technologies listed in Step 1, except for product reformulation, are technically feasible options for controlling fugitive VOC from the Paint Plant. However, essentially all of these are required by the current Title V operating permit either from the previous RACT Order #254 or as work practice standards of Subpart HHHHH. For example:

- Tightly fitting tank lids on all stationary mixers, stationary process vessels, and portable process vessels and use during operations.
- Minimize emissions during process equipment cleaning.
- Grinding mills are to be closed at all times during operation.
- Equipment cleaning practices are required to minimize VOC emissions.
- The operating permit further requires that floor cleaning be conducted with water-based cleaners; use of solvents is limited to spot cleaning.
- Splash and spill prevention practices are already in use at the Paint Plant.
- Any dispensing or filling systems for solvent-borne coatings be of closed design or operated so as to minimize free-fall of liquids.
- Solvent recycling is already in use at the Paint Plant. The Solvent Still is used to clean dirty/waste solvent for re-use. Consistency for the various product formulations requires purity of the solvent(s) used. Therefore, the solvents recovered in the Solvent Still are used for cleaning.
- A leak detection and repair program is required by Subpart HHHHH. The LDAR program requires that the permittee perform monthly leak inspections on all equipment in HAP service.
- PPG is also required to vent all collectable emissions to the RTO (these emissions are addressed in Section A of this TSD)

Because the previous RACT Order #254 and the requirements of Subpart HHHHH already require some form of all of the emission reduction techniques listed in Step 1 (except product reformulation), these techniques are not addressed further and there are no remaining technically feasible control options.

Step 3 - Evaluate Control Options

There are no technically feasible control options to economically analyze other than to lower the permit limit. Review of emissions inventory submittals for this facility show that this source had actual emissions of approximately 38 tpy in 2011, 33 tpy in 2012, 28 tpy in 2013, and 22 tpy in 2014. January 27, 2015 correspondence from Mr. Frank Joseph (PPG EHS Manager). As Mr. Joseph

provided in the January 27, 2015 correspondence, “The potential emissions are based on maximum production levels at 20Mgal. The actual emissions are calculated based on actual production throughputs which currently range from 8-10 Mgals annually.” Therefore, a lower permit limit of 40 tpy (highest emissions inventory for this source at this facility since 2011) appears to be a technically and economically feasible control option.

Step 4 – Select RACT

The RACT for control of VOC emissions from the Paint Plant (P002) is meeting a new permit limit of 40 tpy and shall be to continued compliance with the current permit requirements containing the RACT Order 254 and Subpart HHHHH requirements.

C. RACT for VOC – Freightliner Spray Booth (P003)

The Freightliner Spray Booth (Process P003) consists of surface coating and clean-up operations. Coatings are applied to metal and plastic panels with electrostatic guns in a spray booth. Solvent is used for clean-up. VOC emissions from the spray booth are limited in the Title V operating permit to 1.888 lb/hr and 8.27 tons per year. VOC emissions are uncontrolled.

PPG Industries is required to maintain records of the quantity, density, and weight percent of VOCs per gallon of the coatings, thinners, and cleanup solvents used at P003.

Step 1 – Identify Control Options

According to information available in EPA's *Control Techniques for Volatile Compound Emissions from Stationary Sources*⁶, VOC emissions from the Paint Plant Freightliner Spray Booth (Process P003) could be controlled by:

- (a) Converting to low-VOC coatings
- (b) Improving transfer efficiency
- (c) Incineration

A description of each of these technologies follows.

- (a) Converting to low-VOC coatings is essentially identical to Product Reformulation discussed in Section B of this RACT Evaluation. Product reformulation is the manufacture and use of coatings products with lower VOC content than that of conventional coatings. Reformulated coatings products include powder coatings, waterborne coatings, radiation-curable coatings, and high-solids coatings. Powder coatings can reduce VOC emissions by up to 99%. Waterborne coatings can reduce VOC emissions by up to 92%. High solids coatings can reduce VOC emissions by up to 70%.
- (b) Improving transfer efficiency involves using application technologies that deposit a larger percentage of the coating onto the surface being coated, thereby decreasing the total amount of coating that must be sprayed to cover a specific part. Accomplishing the coating task with less material results in fewer VOC emissions, for a given coating formulation. Transfer efficiency varies with the type of equipment used. Use of HVLP spray guns, electro-deposition, and electrostatic spray guns all offer high transfer efficiency, when properly matched with a coating. EPA estimates the transfer efficiency of manual electrostatic spray guns at 60%.⁷ EPA estimates the transfer efficiency of HVLP spray guns to be 60%.⁸
- (c) Incineration involves using combustion process to reduce VOCs. Thermal oxidizers are refractory lined enclosures with one or more burners in which the waste gas stream is routed through a high temperature combustion zone where it is heated, and the combustible materials are burned. Thermal oxidizers typically operate at 1200 to 2100 degrees Fahrenheit with residence times typically ranging from 0.5 to 2 seconds. An efficient thermal oxidizer design must provide adequate residence time for complete combustion, sufficiently high temperatures for VOC destruction, and adequate velocities to ensure proper mixing without quenching combustion. The types of burners and their arrangements affect combustion rates and residence times; the more thorough the contact between the flame and VOC, the shorter

⁶ US EPA, EPA 453/R-92-018, op. cit.

⁷ 40 CFR 60.313, Standards of Performance for Surface Coating of Metal Furniture, Table 1.

⁸ US EPA, Applicability Determination Index, Control Number 0100024, "HVLP Transfer Efficiency", December 2000. Available online at: <http://www.epa.gov/oecaadix/pdf/adi-nsps-0100024.pdf>

the time required for complete combustion. Natural gas is required to ignite the flue gas mixtures and maintain combustion temperatures. Thermal oxidizers achieve 98% or more VOC reduction. It may be possible to route emissions from the spray booth to an existing RTO, but this would require thorough removal of all airborne particulates from the exhaust stream prior to ducting emissions to the control device. Also, since spray applications typically involve the use of large volumes of air for ventilation of the spray booth, the low VOC concentration needs to be considered.

Step 2 – Eliminate Technically Infeasible Control Options

Product reformulation to produce low-VOC or water-based coatings is technologically feasible, but the mandated use or phase-in of reformulated products is technologically infeasible. The Freightliner Paint Booth is used with coatings made at PPG; therefore, the formulations used are ones that meet the customers' needs. Although, in the future, PPG may increase its production of low-VOC and water-based coatings to meet customer demands. However, development of these coatings is still highly dependent on customer satisfaction with such products.

Improving transfer efficiency is technically feasible. However, the spray booths are already required to use electrostatic spray guns. This application method represents the best available application technology for the types of coatings that PPG Industries is testing in this spray booth. Therefore, no additional VOC control can be gained by requiring improved transfer efficiency.

Incineration is technically feasible.

Step 3 - Evaluate Control Options

Emissions and Emission Reductions

The Paint Plant Freightliner Spray Booth (Process P003) has a potential to emit VOC of 8.27 tpy. This limit is in the current Title V permit. The technically feasible control option with its estimated control efficiency is as shown in the following table.

Table 4. Technically Feasible Control Option

Control Technology	Type	Control Efficiency
Thermal Incineration	Destruction	95%

Economic Analysis

Using the information provided by PPG Industries and collected by ACHD, a thorough economic analysis of the technically feasible control option for the Freightliner Paint Spray Booth was conducted. See Appendix A for more information. The analysis estimates the total costs associated with the VOC control equipment, including the total capital investment of the various components intrinsic to the complete system, the estimated annual operating costs, and the indirect annual costs. All costs, except for the capital cost, were calculated using the methodology described in Section 6, Chapter 1 of the "EPA Air Pollution Control Cost Manual, Sixth Edition" (document # EPA 452-02-001). Direct capital cost is based on a vendor quote. Annualized costs are based on an interest rate of 7% and an equipment life of 15 years. The ductwork costs estimate only the capital cost for straight ductwork and does not include costs for any structural supports, fire propagation prevention measures, exhaust mixing controls, engineering design, and other items.

The basis of cost-effectiveness, used to evaluate the control option, is the ratio of the annualized cost to the amount of VOC (tons) removed per year. A summary of the cost figures determined from the analysis is provided in the table below.

Table 5. Cost Analysis Summary

Control Option	Total Capital Investment (\$)	Total Annualized Cost (\$/yr)	Potential VOC Removal from Add-on Control (ton/yr)	Cost Effectiveness (\$/ton VOC Removed)
Thermal Incineration	773,300	228,500	7.9	28,900

Step 4 – Select RACT

ACHD has determined that requiring the installation of a thermal incinerator to control VOC emissions from the Freightliner Spray Booth is not cost-effective.

The RACT for control of VOC emissions from Freightliner Spray Booth shall be to continue to comply with the current permit and regulatory requirements.



PPG Industries, Inc.
125 Colfax Street Springdale, PA 15144

RECEIVED

January 20, 2014

JAN 22 2014

Allegheny County Health Department
Air Quality
301 39th Street
Pittsburgh PA 15201

ALLEGHENY COUNTY HEALTH DEPT.
AIR QUALITY PROGRAM

**SUBJECT: PPG Industries, Inc. – Springdale Facility
RACT Evaluation**

As requested in your letter dated 12-6-2013, PPG Industries, Inc. (PPG) Springdale, PA facility is submitting the attached RACT re-evaluation report.

If you have any question or need additional information, please feel free to contact me at 724-274-3884 or at josephfrank@ppg.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Joseph M. Frank', written in a cursive style.

Joseph M. Frank
EHS Manager

REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) EVALUATION

PPG INDUSTRIES, INC. – SPRINGDALE, PENNSYLVANIA

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REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) EVALUATION

PPG INDUSTRIES, INC. – SPRINGDALE, PENNSYLVANIA

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REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) EVALUATION

PPG INDUSTRIES, INC. – SPRINGDALE, PENNSYLVANIA

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REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) EVALUATION

PPG INDUSTRIES, INC. – SPRINGDALE, PENNSYLVANIA

1.0 INTRODUCTION

PPG Industries, Inc. (PPG) has prepared and submitted this Reasonably Available Control Technology (RACT) proposal in accordance with a written request by the Allegheny County Health Department (ACHD) Air Quality Program dated December 6, 2013. By this proposal, PPG seeks ACHD approval of its RACT evaluation for emission sources of volatile organic compounds (VOC) at its Springdale Plant – consisting of a paint manufacturing facility and a Resin Research and Development Center (R&D Center) – located in Springdale, Pennsylvania. The RACT evaluation is based on control technology guidance from the United States Environmental Protection Agency (USEPA) Clean Air Technology Center (CATC) and other reference sources.

1.1 BACKGROUND

Sections 182(b)(2) and (f)(1) of the Clean Air Act Amendments of 1990 (CAAA) require states to impose Reasonably Available Control Technology (RACT) requirements for major stationary sources of volatile organic compounds (VOCs) or oxides of nitrogen (NO_x) located in areas where the National Ambient Air Quality Standard (NAAQS) for ozone is exceeded. The CAAA mandated that affected sources were to meet RACT not later than May 31, 1995.

As codified in the County of Allegheny, Pennsylvania, Ordinance Number 16782 and ACHD Rules and Regulations, Article XXI (Air Pollution Control), Part E (Source Emission and Operating Standards), §2105.06 (Major Sources of Nitrogen Oxides and Volatile Organic Compounds), major sources of NO_x and VOCs were required to submit RACT proposals to ACHD by September 1, 1993. ACHD defined RACT as:

any air pollution control equipment, process modifications, operating and maintenance standards, or other apparatus or techniques which may reduce emissions and which the Department determines is available for use by the source affected in consideration of the necessity for obtaining the emission reductions, the social and economic impact of such reductions, and the availability of alternative means of providing for the attainment and maintenance of the NAAQS's.

PPG's Springdale Plant triggered the RACT applicability criteria because actual and maximum potential emissions of VOC exceed 50 tons per year (tpy). PPG's Springdale Plant is not a major source of nitrogen oxides.

PPG's Springdale Plant complied with the RACT requirements and additional requests for information from ACHD. Terms and conditions of the RACT evaluation (designated by ACHD as Enforcement Order 254) were incorporated into Pennsylvania's State Implementation Plan (SIP) in a final action in the Federal Register on August 20, 2001 (*Approval and Promulgation of Air Quality Implementation Plans*;

Pennsylvania; VOC and NO_x RACT Determinations for Five Individual Sources in the Pittsburgh-Beaver Valley Area. Volume 66, Number 161. pp. 43497-43502).

The National Ambient Air Quality Standard (NAAQS) for ozone was revised from a one-hour standard to an eight-hour standard in 1997. After legal challenges to the new NAAQS were resolved, USEPA established nonattainment areas for the new ozone NAAQS which became effective on June 15, 2004. There are six categories of ozone nonattainment areas: basic, marginal, moderate, serious, severe, and extreme. Depending on the level of nonattainment, states may impose additional controls on major VOC sources, including stricter controls on industrial facilities, additional planning requirements, for transportation sources, and vehicle emissions inspection programs. States are required to amend their SIPs – subject to USEPA approval – to outline the actions the state will take to attain the new ozone NAAQS.

Allegheny County was designated non-attainment for the eight-hour ozone standard. All major sources of NO_x and VOCs are required to reevaluate RACT for incorporation into Allegheny County's portion of the Pennsylvania SIP. On June 6, 2013, the USEPA proposed 2008 ozone SIP requirements and is requiring the ACHD's Air Quality Program to reevaluate NO_x and/or VOC RACT for the eight-hour ozone NAAQS.

As a result, ACHD is requiring a RACT reevaluation by February 4, 2014.

1.2 PURPOSE AND SCOPE OF DOCUMENT

This report provides a technological and economic evaluation of reasonably available control options for VOC emissions from the Springdale Plant. The report compares available control options based on several criteria (e.g., exhaust stream characteristics, pretreatment requirements, investment and annualized costs). It presents VOC emissions from the Springdale Plant and the selection of RACT for controlling the VOC emissions.

2.0 RACT EVALUATION PROCEDURES

General procedures for performing a control technology evaluation such as RACT can be found in several USEPA guidance documents, including the NSR Workshop Manual (October 1990). Two key criteria that must be satisfied in a control technology evaluation are (1) technological feasibility and (2) economic feasibility.

2.1 TECHNOLOGY FEASIBILITY

The following procedure may be used for determining technological feasibility of VOC control options for the Springdale Plant:

- Determine the emissions from each emission unit or group of emission units. Acceptable emission estimation methods include published emission factors (e.g., USEPA FIRE/AP-42), engineering calculations, and source test data. The baseline emissions should represent a realistic scenario of upper boundary emissions for the source using realistic upper boundary operating assumptions.
- Identify a range of available emission reduction and control options. The available control measures may include facility redesign and/or add-on air pollution control devices. Information from trade literature, regulatory guidance, and equipment vendors may be used to compile the range of available control measures. In determining the technological feasibility of applying each identified emission reduction method, consideration may be given to specific source process and operating parameters, raw materials, plant layout, and additional environmental impacts that may result from controlling emissions (e.g., secondary air pollution, waste disposal).
- Review performance data for the available control measures. Available performance data may be examined to identify potentially achievable pollutant control efficiencies.
- Eliminate technologically infeasible control measures. Only those control measures that are deemed technologically feasible must be further evaluated for economic feasibility. The technologically feasible control measures are ranked in a top-down fashion (i.e., in order of pollutant control efficiency).

2.2 ECONOMIC FEASIBILITY

The following procedure may be used for determining economic feasibility:

- Develop capital and annualized costs. Capital and annualized costs are estimated for each technologically feasible control measure. Total and net annualized costs are developed; net annualized costs are total annualized costs minus the value of recovered product.
- Compare cost impacts. The economic impact analysis compares the capital and annualized costs and the relative cost effectiveness (i.e., cost per ton of emission reduction) of implementing (i.e., purchasing, installing, and operating) the available and technologically feasible control measures. The emission reduction used in the cost-effectiveness calculation is calculated as the baseline emissions rate minus the controlled emissions rate. The average cost effectiveness is the cost effectiveness of a control measure compared to the baseline level of control. The incremental cost effectiveness is the cost effectiveness of a control measure compared to the next most stringent control measure.

2.3 REGULATORY ISSUES

Regulatory agencies typically impose mandatory control equipment requirements, mass emission rate limits (e.g., lb/hr, tons/yr), concentration limits, percent reduction standards, or work practices (e.g., equipment leak detection and repair) when permitting sources of air emissions.

On May 19, 2010, ACHD issued a Title V Operating Permit and Federally-enforceable State Operating Permit (ACHD Permit Number 0057) to the Springdale Plant. The permit was issued following a year of collaborative discussions between ACHD and PPG. The discussions covered many topics, including regulatory applicability determinations, control technology evaluations, and compliance demonstrations.

ACHD incorporated into the Title V permit the terms and conditions of Enforcement Order 254, now referred to in the Title V permit as RACT Order No. 254. The permit also includes other federally-enforceable requirements that meet or exceed RACT; these requirements are described in the next section.

The Title V permit groups the emission units at the Springdale Plant as follows:

- Process P001 (Paint Plant Controlled Emissions)
- Process P002 (Paint Plant Uncontrolled Emissions)
- Process P003 (Paint Plant Freightliner Spray Booth)
- Process P004 (Development Center Controlled Emissions)
- Process P005 (Development Center Uncontrolled Emissions)
- Process P004 and P005 (Development Center Wastewater Handling)
- Miscellaneous Sources
 - Boiler B001 and B002 – Paint Plant Boilers #1 and #2
 - Boiler B003 – Paint Plant Warehouse Boiler
 - Paint Plant Spray Booths
 - Paint Plant Storage Tanks
 - Development Center Storage Tanks
 - Make-up Air Units
 - Sources of Minor Significance

3.0 RACT OPTIONS FOR SPRINGDALE PLANT

3.1 REVIEW OF REGULATORY GUIDANCE

The requirement to install reasonably available controls for VOC emissions from coating manufacturing plants and resins plants is not new; several existing regulations mandate controls for VOCs and/or volatile hazardous air pollutants (VHAP). The following air regulations, guidance documents, and information resources were reviewed to identify available VOC control devices with the potential to meet RACT:

Federal Air Quality Regulations

- Code of Federal Regulations. Title 40 (Protection of the Environment), Part 63 (National Emission Standards for Hazardous Air Pollutants for Source Categories), Subpart FFFF (Miscellaneous Organic Chemical Manufacturing).
- Code of Federal Regulations. Title 40 (Protection of the Environment), Part 63 (National Emission Standards for Hazardous Air Pollutants for Source Categories), Subpart HHHHH (Miscellaneous Coating Manufacturing).

The intent of the NESHAPs program is to regulate hazardous air pollutant (HAP) emissions from new and existing facilities that emit HAPs. Affected facilities may include both point and area sources. Affected point sources are “major” sources of HAPs within identified source categories (e.g., coating manufacturing, miscellaneous organic chemical manufacturing); major HAP sources are stationary sources with potential HAP emissions (based on maximum design and operating parameters) of 9.08 Mg/yr (10 tpy) or more of a single HAP or 22.7 Mg/yr (25 tpy) or more of two or more HAPs.

The technology-based emission limit that USEPA must establish for stationary point sources is known as Maximum Achievable Control Technology (MACT). **MACT is acknowledged to be a more stringent control level than RACT.** MACT for new and reconstructed point sources corresponds to the level of HAP control achieved in practice by the single best-controlled similar source. MACT for existing point sources corresponds to the level of HAP control achieved in practice by the best performing 12 percent of the existing similar sources for which USEPA has emissions information.

Applicable portions of the MACT standard for miscellaneous organic chemical manufacturing (and related MACT standards for equipment leaks and wastewater treatment operations) were incorporated into the Title V permit for P004 (Development Center Controlled Emissions) and P005 (Development Center Uncontrolled Emissions).

Applicable portions of the MACT standard for miscellaneous coating manufacturing (and related MACT standards for equipment leaks) were incorporated into the Title V permit for P001 (Paint Plant Controlled Emissions) and P002 (Paint Plant Uncontrolled Emissions).

State/Local Air Quality Regulations

- Bay Area Air Quality Management District. Regulation 8 (Organic Compounds). Rule 35 (Coating, Ink, and Adhesive Manufacturing).
- South Coast Air Quality Management District. Regulation XI (Source Specific Standards). Rule 1141.1 (Coatings and Ink Manufacturing).

The Bay Area and the South Coast Air Basin of California have been designated “marginal” and “severe-17” ozone nonattainment areas, respectively, for the new 8-hour NAAQS. (These are both more serious levels of nonattainment than Allegheny County.) Table 1 summarizes important information for the RACT evaluation from these state regulations.

USEPA Resources

- United States Environmental Protection Agency (Control Technology Center). Control of VOC Emissions from Ink and Paint Manufacturing Processes. EPA-450/3-92-013. April 1992.
- United States Environmental Protection Agency (Emission Standards Division). Control of Volatile Organic Compound Emissions from Batch Processes. February 1993.
- United States Environmental Protection Agency. RACT/BACT/LAER Clearinghouse (www.epa.gov/ttn/catc/). The RACT/BACT/LAER Clearinghouse provides case-by-case control technology determinations for a number of source categories (including paint/coating/adhesives manufacturing) throughout the United States. This database is useful for identifying control technologies that have been designated as RACT, BACT (Best Available Control Technology), or LAER (Lowest Achievable Emission Rate) by state and local regulatory agencies throughout the country. Submittal of information from the regulatory agencies to the Clearinghouse is voluntary. Entries into the Clearinghouse contain a description of the source type, company name and location, permit number and date of issue, source size, process description, proposed control technologies, and pollutant-specific emission limits. Table 3 summarizes recent control technology determinations for paint plants that appear in the RACT/BACT/LAER Clearinghouse.
- United States Environmental Protection Agency. Office of Air Quality Planning and Standards. EPA Air Pollution Control Cost Manual. EPA/452/B-02-001. January 2002.
- United States Environmental Protection Agency. Office of Air Quality Planning and Standards. Innovative Strategies and Economics Group. Air Compliance Advisor Version 7.5 (www.epa.gov/ttn/ecas/). The Air Compliance Advisor (ACA) is a software tool that can be used to determine which VOC control devices are applicable to a specific waste stream scenario and to estimate the size and cost (both capital and operating) of the applicable control devices using user-specified cost information. The ACA replaces USEPA’s Excel-based cost spreadsheets, known as the CO\$T-AIR spreadsheets; on its web site, USEPA notes that it no longer supports or updates the CO\$T-AIR spreadsheets.

Table 2 summarizes the control technology determinations in the first two USEPA documents.

Other Information Resources

- Moretti, Edward C. (Baker Environmental). Practical Solutions for Reducing Volatile Organic Compounds and Hazardous Air Pollutants. Published by American Institute of Chemical Engineers Center for Waste Reduction Technologies. 2001.
- Moretti, Edward C. and Nik Mukhopadhyay (Baker Environmental). Current and Potential Future Industrial Practices for Reducing and Controlling Volatile Organic Compounds. Published by American Institute of Chemical Engineers Center for Waste Reduction Technologies. 1993.

3.2 AVAILABLE VOC CONTROL OPTIONS

Based on the documents cited above, the following options were identified as potential VOC control devices for the Springdale Plant:

Paint Plant

- Physical or Operational Improvements
 - Use of Existing Boilers or Process Heaters
 - Use of Existing Thermal Oxidizer
- Add-on Combustion Controls
 - Thermal Oxidation (Thermal Incineration)
 - Catalytic Oxidation (Catalytic Incineration)
 - Volume Concentrators
 - Flares
 - Emerging VOC Abatement Technologies
- Add-on Recovery Controls
 - Adsorption
 - Absorption (Scrubbing)
 - Condensation
 - Biofiltration
 - Membrane Technology
- Equipment or Process Modifications
 - Tank Lids
 - Modified Milling Equipment
 - Equipment Cleaning
 - Storage Tank Conservation Vents
 - Product Reformulation
- Improved Operating Practices
 - Use of Covers During Tank Operation
 - Splash/Spill Prevention
 - Closed Container Storage of Wastes
 - Recycling Techniques
 - Employee Awareness

Development Center

- Physical or Operational Improvements
 - Use of Existing Boilers or Process Heaters
 - Use of Existing Thermal Oxidizer
- Add-on Combustion Controls
 - Thermal Oxidation (Thermal Incineration)
 - Catalytic Oxidation (Catalytic Incineration)
 - Volume Concentrators
 - Flares
 - Emerging VOC Abatement Technologies
- Add-on Recovery Controls
 - Adsorption
 - Absorption (Scrubbing)
 - Condensation
 - Biofiltration
 - Membrane Technology

3.2.1 Physical or Operational Improvements to Existing Equipment

3.2.1.1 Use of Existing Boilers or Process Heaters

Boilers and process heaters can be used as control devices to limit VOC emissions by incorporating the exhaust stream into the inlet fuel, by injecting the exhaust stream through a separate burner, or by feeding the exhaust stream into the boiler or process heater as combustion air. Where applicable, use of existing boilers or process heaters can achieve high destruction efficiencies for VOC emissions at reasonable cost.

The parameters that affect the thermal efficiency of a boiler or process heater are combustion temperature, residence time, inlet organic concentration, compound type, and flow regime (i.e., mixing). Existing boilers or process heaters may be used to destroy VOCs as long as the safety and reliability of the primary process is not adversely affected. Concentrated VOC streams may serve as a primary or secondary fuel source for the boiler/process heater. Dilute VOC streams can be treated if they are combined with more concentrated streams, which contain enough oxidation energy to maintain complete combustion. Incomplete combustion may result if high-flow, low-VOC concentration gas streams are treated.

3.2.1.2 Use of Existing Thermal Oxidizers

Currently, some of the equipment in the Paint Plant (P001) and the Development Center (P004) exhaust to regenerative thermal oxidizers (RTOs). Thermal oxidizers are a proven technology for VOC removal.

3.2.2 Add-on Combustion Controls

The following general descriptions provide an overview of VOC add-on combustion controls.

3.2.2.1 *Thermal Oxidation (Thermal Incineration)*

Thermal oxidation, or thermal incineration, is the process of oxidizing combustible materials by raising their temperature above the auto-ignition point in the presence of oxygen and maintaining it at high temperature for sufficient time to complete combustion to carbon dioxide and water. Time, temperature, turbulence (for mixing), and the amount of oxygen affect the rate and efficiency of the combustion process.

These factors provide the basic design parameters for VOC oxidation systems. For safety considerations, the maximum concentration of the VOC in the waste gas must be substantially below the lower flammable level (lower explosive limit, or LEL) of the specific compound being controlled. As a rule, a safety factor of four (i.e., 25% of the LEL) is used, although some direct-flame oxidizers are able to operate safely above this level. The waste gas may be diluted with ambient air, if necessary, to lower the concentration.

The required level of VOC control of the waste gas that must be achieved in the time that it spends in the thermal combustion chamber dictates the reactor temperature. The shorter the residence time, the higher the reactor temperature must be. Most thermal oxidation units are designed to provide no more than one second of residence time to the waste gas with typical temperatures of 1,200°F to 2,000°F. Once the unit is designed and built, the residence time is not easily changed. The required reaction temperature, therefore, becomes a function of the particular gaseous species and the desired level of control.

There are three types of thermal oxidation systems: direct flame, recuperative, and regenerative. They are differentiated by the equipment used for heat recovery.

A direct-flame thermal oxidizer, also known as an afterburner, is comprised of a combustion chamber and does not include any heat recovery of the exhaust air by a heat exchanger.

A recuperative oxidizer is comprised of the combustion chamber, the waste gas preheater (heat exchanger), and, if low-pressure steam or hot water can be used on site, a secondary energy recovery heat exchanger. Considerable fuel savings may be realized by recovering the heat energy from the exhaust gas and preheating the incoming waste gas. Recuperative thermal oxidizers can recover up to 70% of the waste heat from the exhaust gases.

A regenerative oxidizer uses a high-density media such as a ceramic-packed bed still hot from a previous cycle to preheat an incoming VOC-laden waste gas stream. The preheated, partially oxidized gases then enter the combustion chamber, where they are heated by combustion of auxiliary fuel (natural gas) to a final oxidation temperature typically between 1,400°F to 1,500°F, and they are kept at this temperature to achieve maximum destruction. Temperatures of up to 2,000°F may be achieved, if required, for very high destruction levels of certain VOCs. The purified, hot gases exit the combustion chamber and are directed to one or more different ceramic-packed beds cooled in an earlier cycle. Heat from the purified gases is absorbed by these beds before the gases are exhausted to the atmosphere. The reheated packed bed then begins a new cycle by heating a new incoming waste gas stream.

Regenerative thermal oxidizers offer several advantages over other types of oxidizers. They generally have lower fuel requirements because of higher energy recovery (up to 95%). They can provide better destruction efficiency because of their higher temperature capability, and they are less susceptible to problems with halogenated compounds. On the other hand, they cost more to purchase and operate, have a

larger footprint, and require higher maintenance because they have more moving parts than either recuperative or direct-flame oxidizers.

Thermal oxidation is one of the most proven methods for destroying VOCs, with destruction efficiencies up to 99.9999 percent possible. In general, thermal oxidizers are not well-suited to exhaust streams with highly variable flow rates because of the reduced residence time and poor mixing resulting from high flow rates that decrease the completeness of combustion. This causes the combustion chamber temperature to fall, decreasing the destruction efficiency.

3.2.2.2 Catalytic Oxidation (Catalytic Incineration)

Catalytic oxidizers, or catalytic incinerators, operate very similarly to thermal oxidizers. The primary difference is that the gas, after passing through the flame area, passes through a catalyst bed. The catalyst has the effect of increasing the oxidation reaction rate, enabling conversion at lower reaction temperatures than in thermal oxidizers. Catalysts, therefore, also allow for smaller oxidizer size. Catalysts permit the oxidizing reaction to occur at a lower temperature than is required for thermal ignition. Waste gas typically is heated by auxiliary burners to approximately 600°F to 800°F before entering the catalyst bed. The maximum design temperature of the catalyst exhaust is 1,000°F to 1,250°F.

Catalysts usually used for VOC abatement include metal oxides or precious metals such as platinum and palladium, which generally have a longer service life and are more resistant to poisoning and fouling than less expensive base metal catalysts. The potential for catalyst poisoning exists if the exhaust stream contains sulfur, silicon, phosphorus, arsenic, or heavy metals.

Particulate matter can rapidly coat the catalyst so that the catalytically active sites are prevented from aiding in the oxidation of pollutants. This effect of particulate matter on the catalyst, called blinding, will deactivate the catalyst over time. Because all the active surface of the catalyst is contained essentially in relatively small pores, the amount of particulate matter need not be large to blind the catalyst. There are no general guidelines about the concentration and size of particles that can be tolerated by catalysts, because the pore size and volume of catalysts vary widely. This information is likely to be available from the catalyst manufacturers.

Catalytic oxidizers can be used to reduce emissions from many VOC sources. They offer many advantages for the appropriate application. They operate at lower temperatures and require less fuel than thermal oxidizers. They require a smaller footprint and little or no insulation. However, selection of a catalytic oxidizer should be considered carefully, since the sensitivity of catalytic oxidizers to inlet stream concentrations, flow conditions, and catalyst deactivation limits their applicability for many industrial processes.

3.2.2.3 Volume Concentrators

A recent development in add-on control equipment is a volume concentrator designed specifically for control of low concentration VOC gas streams. The volume concentrator is intended to raise the concentration of VOC vapor to provide more economical treatment of the concentrated compound in the

exhaust gas. The most prominent example of a volume concentrator is a rotary carousel system. In this system, one sector of the carousel is being used for adsorption while another sector is being regenerated (or desorbed) with hot gas. As the carousel turns, each section alternately adsorbs VOC from the waste gas and is then regenerated. The adsorbent is located in relatively shallow beds in the sectors or segments. The adsorbent can be zeolite alone, a mixture of zeolite with activated carbon, a mixture of zeolite with polymer adsorbents, or activated carbon or polymer adsorbent beds followed by zeolite beds downstream.

The typical concentration ratio ($[\text{VOC}]_{\text{out}}/[\text{VOC}]_{\text{in}}$) that can be obtained from a volume concentrator can be well above 1,000:1. (Permissible concentration ratios may be limited by flammability considerations.) Of course, the flow rate of the regeneration gas is correspondingly lowered. This higher concentration/lower flow rate regeneration gas can then be treated in a number of ways, including thermal oxidation, catalytic oxidation, and fixed-bed adsorption. The choice among these depends on the concentration and chemical nature of the VOC. In general, thermal oxidation is best for higher concentration gases consisting of many different VOCs. Catalytic oxidation is best for lower concentration gases consisting of many different VOCs. Adsorption is best when the VOC is valuable and can be recovered and reused, which generally means single-component gases.

Volume concentrators can achieve 90 to 98 percent removal efficiency depending on the number of rotors in series and the inlet VOC concentration. Volume concentrators produce savings in the size and cost of downstream control equipment. They provide a cost-effective way to control high-volume, low-concentration streams. When an existing end-of-pipe treatment system is operating at its volumetric capacity, a volume concentrator can be used to extend the capacity of the system by pre-concentrating the incoming waste gas stream. However, a volume concentrator coupled with another control device results in a more complex system, which may affect utility and maintenance requirements. Also, more economical solutions such as source reduction may exist for reducing the volume of waste gas.

3.2.2.4 *Flares*

Flaring is an open combustion process in which the oxygen required for combustion is provided by the air around the flame. Good combustion in a flare is governed by the flame temperature, the residence time of organic species in the combustion zone, turbulent mixing of the organic species to complete the oxidation reaction, and the amount of oxygen available for free radical formation.

Many flare systems are operated with baseload gas recovery systems to recover VOC from the flare header system for reuse. The recovered VOC may be used as feedstock in other processes or as a fuel in process heaters, boilers, or other combustion devices.

Flares are generally categorized in two ways: (1) by the height of the flare tip (i.e., ground level or elevated) and (2) by the method of enhancing mixing at the flare tip (i.e., steam-assisted, air-assisted, pressure-assisted, or unassisted).

Elevated flares typically have an open flame. Elevating the flare can prevent potentially dangerous conditions at ground level where the open flame (an ignition source) can be near a process unit.

Furthermore, the products of combustion can be dispersed above working areas to reduce the effects of noise, heat radiation, smoke, and objectionable odors.

Ground flares are usually enclosed. Enclosed flares generally have less capacity than open flares and are used to combust continuous, constant flow vent streams, although reliable and efficient operation can be attained over a wide range of design capacity. The burner heads of an enclosed flare are inside a shell that is internally insulated. The shell reduces noise, luminosity, and heat radiation, and it provides wind protection. Enclosed flares are used instead of elevated flares for aesthetic or safety reasons.

Steam-assisted flares account for the majority of the flares installed. To ensure adequate air supply and good gas/air mixing, this type of flare system uses steam injected into the combustion zone to promote turbulence for mixing and to induce airflow into the flame.

Air-assisted flares use forced air to support combustion and ensure the mixing required for smokeless operation. The principal advantage of air-assisted flares is that they can be used where steam is not available. Air assistance is not usually used for large flares, because it generally is not economical when the gas volume is large.

Pressure-assisted flares use the vent stream pressure to promote mixing at the burner tip. If sufficient stream pressure is available, these flares can be used on streams previously requiring steam or air assistance for smokeless operation. Pressure-assisted flares generally have the burners at ground level, so they must be located in a remote area of the plant where there is adequate space.

Unassisted flares consist of a flare tip without any auxiliary provision for enhancing the mixing of air into its flame. Their use is limited to gas streams with a low heat content and a low carbon/hydrogen ratio that burn readily without producing smoke.

Flares can be used to control almost any VOC stream and can typically handle large fluctuations in VOC concentration, flow rate, heating value, and inert species content. Flaring is appropriate for continuous, batch, and variable flow vent stream applications, but the primary use is that of a safety device to control a large volume of pollutant resulting from upset conditions.

Flares have few controls, resulting in lower maintenance costs than other VOC control devices. On the other hand, they can produce undesirable noise, smoke, heat radiation, and light. Furthermore, they cannot be used to treat waste streams containing halogenated compounds.

3.2.2.5 Emerging VOC Abatement Technologies

Researchers and equipment manufacturers currently are evaluating two other VOC abatement technologies: ultraviolet oxidation (UV) technology and plasma technology. These technologies have limited commercial availability at this time.

UV oxidation uses oxygen-based oxidants like ozone (O_3), peroxide, hydroxyl-free radicals (OH), and O-radicals to convert VOC into carbon dioxide and water in the presence of UV light. The UV radiation

excites the oxidants, which destroy the VOC through direct oxidation. In certain applications, a wet scrubber may be used to remove HCl and any Cl_2 generated during the oxidation of chlorinated solvents. Also, a carbon adsorber may be used to remove unreacted VOC from the oxidation process.

When the UV light frequency range is chosen to match the absorption characteristics of the compound, maximal removal can be achieved. This process is highly energy-efficient for very dilute streams, and no pollutant by-products are created. However, the use of a water scrubber could require wastewater treatment. UV oxidation technology has been applied commercially to surface coating operations with waste gas flow rates between 20,000 and 90,000 scfm.

Plasma technology can be divided into corona discharge reactors and electron beam reactors. Plasma is a high-temperature ionized gas that is very reactive. The "hot" plasma can initiate dissociation reactions in VOC molecules. The decomposition reaction is initiated by free-radical mechanisms. Therefore, it is important to establish optimum conditions (e.g., electron density, residence time) to generate enough free radicals for the reactions to reach completion. Plasma reactors can be highly selective for the decomposition of halogenated HAP, since halogen-free radicals are highly reactive.

3.2.3 Add-on Recovery Controls

The following general descriptions provide an overview of VOC add-on recovery controls.

3.2.3.1 Adsorption

Adsorption is mass transfer of a molecule from the gas or liquid phase to a solid surface. The molecule (adsorbate) is held on the solid phase (adsorbent) surface by either physical or chemical bonding. Physical adsorption takes place when intermolecular (Van der Waals) forces attract and hold the gas molecules to the solid surface. Chemisorption occurs when a chemical bond forms between the gas molecule and the solid surface. A physically adsorbed molecule can be removed readily from the adsorbent surface (under suitable temperature and pressure conditions) because of its weaker bond; the removal of a chemisorbed component requires more energy input and, therefore, is more difficult.

The design of an adsorber system depends on the chemical characteristics of the VOC being recovered, the physical properties of the inlet stream (temperature, pressure, and volumetric flow rate), and the physical properties of the adsorbent. Physical adsorption is an exothermic process that is most efficient within a narrow range of temperature and pressure.

Before it enters an adsorber, the inlet waste gas stream may be filtered to prevent bed contamination by soot, resin droplets, and large particles entrained in the vent stream. The gas stream may be cooled to maintain the bed at optimum operating temperature and to prevent fires or polymerization of the hydrocarbons.

When the bed is completely saturated ("breakthrough"), the incoming VOC-laden stream is routed to an alternate bed while the saturated bed is regenerated. The bed is regenerated by heating it or applying vacuum to desorb the adsorbed gases. Low pressure steam frequently is used as a heat source to strip the

adsorbed VOC. After steaming, the bed is cooled and dried, typically by blowing air through it with a fan, and the steam-laden vapors are routed to a condenser and on to a VOC recovery system such as a decanter or distillation tower. The regenerated bed is returned to adsorber service while the saturated bed is purged of VOC. The regeneration process may be repeated numerous times; eventually, however, the adsorbent must be replaced because of a decrease in adsorptive capacity below an economically practical level.

Carbon canisters are used to handle small volumes of VOCs (typically less than 100 scfm). Because it is usually more cost effective to replace the canister than to regenerate the carbon, canisters usually are disposed once the carbon becomes saturated. However, they may be sent to a toll regenerator for reprocessing of the carbon.

The most common industrial adsorption systems use activated carbon as the adsorbent. Carbon is activated by the pyrolysis of coal, wood, bark, or coconut husks to remove all of the volatile material as a gas or vapor and leave a high surface, adsorptively active carbon. Activated carbon effectively captures certain organic vapors by physical adsorption. The vapors can then be released for recovery by regenerating the adsorption bed with steam or nitrogen.

Another adsorbent is the alumino-silicate crystal structure known as zeolite, which has uniformly-sized pores throughout its crystal structure. All naturally-occurring zeolite is hydrophilic and contains aluminum. De-aluminizing natural zeolite makes it hydrophobic, creating an affinity for non-polar substances such as some VOCs. Zeolite is de-aluminized by chemical replacement of the aluminum with silicon without changing the crystal structure. Hydrophobic zeolite also can be synthesized directly.

Polymeric adsorbents have pores built in when they are manufactured. These pores can range from macropores (several hundred Angstroms) down to molecular sizes (5 to 10 Angstroms), but the smallest pores usually are larger than the micro-pores of an activated carbon. Polymers are used in the form of granules or beads and, as the name implies, are plastics. Adsorbed molecules have been observed to desorb faster from polymeric adsorbents than from carbon. Like carbon, they are not considered to be highly selective for the VOC they will adsorb. However, each polymer structure will adsorb some VOCs better than others. Polymers are usually hydrophobic unless specifically synthesized to have hydrophilic character.

Activated carbon, which is neither fully hydrophobic nor hydrophilic, has an affinity for both polar and non-polar molecules. Humidity has a noticeable effect on activated carbon because of this property. Polymers and hydrophobic zeolite are generally much less sensitive to humidity than activated carbon, and they also are much less susceptible to fire, crumbling, or powdering. Therefore, they require much less frequent replacement. However, activated carbon has a lower initial cost.

For adsorption systems that are well-designed and operated, continuous VOC removal efficiencies of greater than 95 percent are achievable for a variety of solvents. Adsorption is applicable to continuous or intermittent streams and is capable of handling a range of concentrations. Adsorbers are useful for recovering high-value solvents.

Adsorption is not recommended for certain situations. First, high VOC concentrations may result in excessive temperature rise in the bed due to the large heat of adsorption. If flammable vapors are present,

insurance company requirements may limit inlet concentrations of VOCs to less than 25 percent of the LEL. However, vent streams with high VOC concentrations can be diluted with air or inert gases. Second, very high molecular weight compounds ($MW \geq 130$) that are characterized by low volatility (boiling point $> 400^\circ\text{F}$) are strongly adsorbed on carbon, making it difficult to remove them during regeneration. Conversely, low molecular weight compounds ($MW < 45$) do not adsorb readily on carbon. Third, properly operated adsorption systems can be very effective when handling homogeneous waste gas streams but are less so with a stream containing a mixture of low- and high-molecular weight hydrocarbons. The lighter organic compounds tend to be displaced on the adsorbent surface by the heavier (higher boiling) components, greatly reducing system efficiency. Finally, gas stream humidity levels above 50 % relative humidity can affect working adsorber capacity at adsorbate concentrations below 1,000 ppmv. Relative humidity may be reduced by adding drier dilution air to the waste gas stream or by heating the gas with a heat exchanger.

3.2.3.2 *Absorption (Scrubbing)*

Absorption (scrubbing) is the selective transfer of one or more components of a gas mixture into a liquid solvent. Physical absorption depends on properties of both the gas stream and liquid solvent, such as density and viscosity, as well as specific characteristics of the pollutants in the gas and the liquid streams (e.g., diffusivity, equilibrium solubility). These properties are temperature dependent, and lower temperatures generally favor absorption of gases by the solvent. Absorption also is enhanced by greater contacting surface, higher liquid-gas ratios, and higher concentrations in the gas stream. Chemical absorption occurs when the gaseous component reacts chemically with the absorbing liquid. This process may be limited by the rate of reaction, although the rate-limiting step is usually the physical absorption rate and not the chemical reaction rate. An example of chemical absorption is the scrubbing of organic amines by an acidic solution such as dilute hydrochloric acid.

Absorption is a commonly used unit operation in chemical processing. It is used as a recovery technique for raw materials and/or products in separation and purification of gaseous streams containing high concentrations of organics, especially water-soluble compounds such as methanol, ethanol, isopropanol, butanol, acetone, and formaldehyde. It is widely used to abate VOC emissions occurring in natural gas purification and coke by-product recovery. However, it is more commonly used for controlling inorganic gases such as HCl than for VOC.

The use of absorption as the primary control technique for organic vapors is subject to several limiting factors. One factor is the availability of a suitable solvent. The VOC must be soluble in the absorbing liquid. Some common solvents that may be useful for VOC include water, mineral oils, or other nonvolatile petroleum oils. Another factor that affects the suitability of absorption for organic emissions control is the availability of vapor/liquid equilibrium data for the specific organic/solvent system in question. Such data are necessary for the design of absorber systems; however, they are not readily available for uncommon organic compounds.

Another consideration in the use of absorption is the treatment or disposal of the material removed from the absorber. In most cases, the scrubbing liquid containing the VOC is regenerated in an operation known as stripping, in which the VOC is desorbed from the absorbent liquid, typically at elevated temperatures

and/or under vacuum. The VOC then is recovered as a liquid by a condenser. The stripping process may create water (or liquid) disposal problems. In many cases, absorption requires a wastewater treatment system to handle the contaminants.

3.2.3.3 Condensation

Condensation is a separation technique in which one or more volatile components of a vapor mixture are separated through saturation from the gas phase followed by a phase change. The phase change from gas to liquid can be achieved in two ways: (1) by increasing the system pressure at a given temperature (compression condensation), or (2) by lowering the temperature at a constant pressure (refrigerated condensation). Most commercial condensers are refrigerated condensers.

In a two-component system where one of the components is non-condensable (e.g., air), condensation occurs at the dew point (saturation) when the partial pressure of the volatile compound is equal to its vapor pressure. For more volatile compounds (i.e., compounds with lower normal boiling points), a larger amount of the compound remains as vapor at a given temperature; hence, to remove or recover the compound, a lower temperature would be required for saturation and condensation. For such cases, refrigeration can be used to obtain the lower temperatures needed to achieve acceptable removal efficiencies.

The basic equipment in a refrigerated condenser system includes a condenser, refrigeration unit(s), and auxiliary equipment (e.g., precooler, recovery/storage tank, pump/blower, and piping).

For many VOC recovery needs, a refrigeration unit generates the low-temperature medium required for heat transfer. In refrigerated condenser systems, two kinds of refrigerants are used – primary and secondary. Primary refrigerants such as ammonia and chlorofluorocarbons are those that undergo a phase change from liquid to gas after absorbing heat. Secondary refrigerants or coolants, such as brine solutions, act only as heat carriers and remain in the liquid phase.

For applications requiring low temperatures (below about -30°F or -34°C), multistage refrigeration systems are frequently used. Alternatively, cryogenic condensation using liquid nitrogen as the refrigerant is emerging as a safe and effective control system.

Condensers are widely used as raw material and/or product recovery devices. They may be used to recover VOC upstream of other control devices, or they may be used alone for controlling vent streams containing high VOC concentrations. They can handle both intermittent and continuous flow rates. They are especially suited for low-flow (less than 100 scfm), high-concentration (greater than 2,500 ppmv) streams.

Condensers can be used to remove non-halogenated and halogenated VOC without the need for expensive auxiliary equipment. If the vent stream contains water vapor or if the VOC has a high freezing point (e.g., benzene), ice or frozen hydrocarbons may form on the condenser tubes or plates. This will reduce the heat transfer efficiency of the condenser and thereby reduce the removal efficiency. Formation of ice also will increase the pressure drop across the condenser. In such cases, a precooler may be used to remove the

moisture before the vent stream enters the condenser. This precooler would cool the vent stream to approximately 35°F to 40°F (1.7°C to 4.4°C), effectively removing the moisture from the vent stream.

Depending on the type of condenser used, disposal of the spent coolant can be a problem. If cross-media impacts are a concern, surface condensers would be preferable to direct contact condensers.

A recovery tank for temporary storage of condensed VOC before its reuse, reprocessing, or transfer to a large storage tank may be necessary in some cases.

3.2.3.4 Biofiltration

Biofiltration is a biological decomposition process in which microorganisms are used to convert VOCs into carbon dioxide, water, and mineral salts. It is analogous to biological wastewater treatment and bioremediation of contaminated soils. Biofilters have been used in odor control applications for 40 years and for VOC abatement for approximately 10 years.

Biofilters consist of a filter bed made of natural materials (e.g., compost, soil, bark) that is kept wet with sprayers that continuously supply sufficient water to maintain high humidity. Influent gases are relatively warm because the degradation processes are exothermic and tend to dry the filter beds. An adequate moisture level is very important to the proper functioning and efficiency of a biofilter. Typically, the organic pollutants in the waste gas dissolve in water droplets and then are converted by the microorganisms in the biolayer. The type of microorganism used depends on the type of VOC. Most microorganisms require neutral pH conditions.

The natural materials used as filter substrate supply the nutrients necessary to support growth and survival of microorganisms. Decomposition of cells also leads to the release of nutrients. The substrate particle size is selected to provide a large absorbing surface and minimum flow resistance. Additives such as bark, polystyrene, or activated carbon may be included to enhance performance and minimize pressure drop.

Biofiltration is one of three basic types of biological processes used for air pollution control. The other two are bioscrubbing and biotrickling filtration. In both of these processes, the liquid phase is mobile. In bioscrubbing, the oxidation process occurs in water. These processes attempt to correct common deficiencies in biofiltration, including drying, compaction, and acidification of the compost beds. Research in biofiltration and other biological processes is focusing on improvements in filter bed media, packing design, and bed loading techniques.

The most suitable type of biofilter for many applications is a closed, fixed-bed design similar to a carbon adsorber with the organic media substituting for the activated carbon. Water spray nozzles are used to supply moisture. Some designs include pre-humidification of the waste gas stream. Temperature and humidity control can be more effectively controlled in this closed design compared to the original open systems. Also, monitoring the effluent in a closed biofilter is easier than in an open one.

Compounds of low molecular weight that are water soluble and contain oxygen atoms are candidates for biofiltration. Aldehydes, ketones, alcohols, ethers, esters, and organic acids degrade rapidly in biofilters,

but halogenated hydrocarbons and polyaromatic hydrocarbons do not. Removal efficiencies greater than 90 percent have been demonstrated for easily degradable compounds.

Degradation of sulfur-, nitrogen-, or halogen-containing compounds leads to formation of acids that lower the pH of the aqueous layer in biofilters. Alkaline compounds such as lime are added to the filter material to control pH; however, after a period of time there is an accumulation of salts that causes clogging of the bed. The lifetime of the bed is limited to two to five years. Occasional washing of the bed can extend it in some cases.

Because of the uncertainties involved in the biological process, pilot testing may be necessary for most potential applications. Pilot testing provides scale-up parameters required to obtain the desired overall removal efficiency and the filter bed volume needed to achieve the desired level of VOC destruction.

3.2.3.5 *Membrane Technology*

Membrane technology refers to the use of a semi-permeable membrane to separate VOCs from a waste gas stream. Membranes have been used for years to treat drinking water; their use as a control device for airborne VOCs has emerged in the past 10 years.

Membrane separations are based on the principle that compounds in gas mixtures permeate, or pass through, membranes at different rates because of their molecular characteristics. The permeation rate of a compound is influenced by several factors, including the pressure drop across the membrane, the pollutant loading, the molecular weight of the pollutant, and the membrane thickness, area, shape, and materials of construction.

In a typical membrane separator, the waste gas stream is fed to an array of membrane modules, where organic solvents preferentially permeate the membrane. The organics in the permeate stream are then condensed and removed as a liquid for recycle or recovery. The purified gas stream is removed as the residue. Transport through the membrane is induced by maintaining the vapor pressure on the permeate (downstream) side of the membrane lower than the vapor pressure on the feed (upstream) side. In some cases, a vacuum pump is required on the permeate side to maintain this driving force.

A compound permeates the membrane at a rate determined by its permeability in the membrane material and partial pressure driving force. In some systems, the feed stream is compressed on the feed side of the membrane to provide the pressure drop for the membrane and/or to allow operation of the solvent condenser at a higher temperature. Generally, the permeate is five to 20 times more concentrated in VOC than the feed stream.

Membrane modules can be of either hollow fiber or spiral-wound construction. Membrane separation systems may be either one-stage or multiple-stage as necessary to achieve desired recovery efficiencies.

Most membranes are made from synthetic polymers; however, some vendors are considering inorganic materials such as ceramics to deal with more rigorous applications. The membranes are thin, multilayer films made by coating a microporous support membrane with a very thin, dense film. The support

membrane provides mechanical strength while the thin film performs the separation. Thinner films promote higher permeation rates. These membranes are then incorporated into modules that can withstand temperatures up to 140°F. Membrane life can be as long as three years.

Membrane technology is finding new applications in industrial gas separations for the purification or separation of mixed gas streams. Membrane separations should be considered for low-flow, high-concentration waste gas streams where condensation or adsorption prove to be either uneconomical or unable to achieve the desired level of recovery efficiency.

3.2.4 Equipment or Process Modifications

The following general descriptions provide an overview of equipment or process modifications that may minimize VOC emission.

3.2.4.1 Tank Lids

Tank lids are the most common equipment modification for reducing VOC emissions from coatings manufacturing operations. Lids that completely cover a mill, tank, or vat can reduce VOC emissions during preassembly and premix, grinding and milling, and product finishing operations. Lids may be constructed of plastic, wood, aluminum, or stainless steel.

3.2.4.2 Modified Milling Equipment

In some situations, older milling equipment can be replaced with newer, more efficient closed systems such as horizontal media mills. However, the type of milling equipment used in a process is highly dependent upon adhesives and coatings product characteristics such as viscosity, color, gloss, type of raw materials, and processing time.

3.2.4.3 Equipment Cleaning

Since equipment cleaning requires the use of solvents, it is a source of VOC emissions. VOC emissions may be reduced during equipment cleaning either by eliminating the need for equipment cleaning or by reducing the frequency of cleaning. Equipment cleaning modifications include the following:

- Rubber wipers, which can be used to scrape the sides of the tank to reduce the amount of clinging adhesives and coatings that must be cleaned out
- High-pressure spray heads, which can be used to clean tanks more efficiently
- Teflon-lined and stainless steel-lined tanks, which can be used to minimize clinging coatings
- Plastic pigs, which can be used to push clinging adhesives and coatings through pipes
- Automatic tub washers, which can be used to clean tanks under vacuum conditions.

3.2.4.4 Storage Tank Conservation Vents

Fixed-roof storage tanks are commonly equipped with a conservation vent that allows them to operate at a slight internal pressure or vacuum to prevent the release of vapors during very small changes in temperature, pressure, or liquid level.

3.2.4.5 Product Reformulation

Product reformulation is the manufacture and use of adhesives and coatings products with lower VOC content than conventional coatings. Reformulated adhesives and coatings products include powder coatings, waterborne adhesives and coatings, radiation-curable adhesives and coatings, and high-solids adhesives and coatings.

Powder coatings are essentially 100 percent solids in makeup. They are available in several resin formulations: acrylics, polyurethane, epoxy, polyester, nylon, and epoxy/polyester hybrids.

Waterborne adhesives and coatings contain water as the major solvent and contain five to 20 percent organic co-solvent to aid in viscosity control, wetting, and pigment dispersion. They have much lower VOC contents than conventional coatings with the same solids content.

Radiation-curable adhesives and coatings are formulated to cure at room temperature with the assistance of a radiation source, either an ultraviolet (UV) light or an accelerated electron beam (EB). Radiation-curable coatings typically have higher solids contents than conventional coatings.

High-solids adhesives and coatings contain greater than 60 percent solids by volume, whereas conventional coatings contain less than 30 percent solids by volume. The higher solids content helps to lower VOC emissions.

3.2.5 Improved Operating Practices

3.2.5.1 Use of Covers During Tank Operation

As mentioned, tank lids are the most common method for reducing VOC emissions from mills, tanks, and vats used in adhesives and coatings manufacturing. Proper use of tank lids to minimize VOC emissions requires that the lid remain closed except when production, sampling, maintenance, or inspection procedures require access.

3.2.5.2 Splash/Spill Prevention

During the transfer of material to different containers, steps should be taken to reduce and prevent splashes and spills. Any spilled liquid or dry material should be cleaned as expeditiously as possible, but not later than the end of the daily work shift. In addition, submerged loading or bottom loading of storage tanks, which results in lower vapor generation than splash loading, should be employed.

3.2.5.3 Closed Container Storage of Wastes

Waste solvent should be collected and stored in closed containers. The closed containers may contain a device that would allow pressure relief but would not allow liquid solvent to drain from the container prior to disposal.

3.2.5.4 Recycling Techniques

Recycling techniques for adhesives and coatings manufacturing operations include the use of spent cleaning solvent for production and counter-rinsing sequences. After a mill or tank has been emptied of product, solvent is added to the vessel to capture remaining product residue. The wash solvent may be used in a subsequent batch or used as a pre-rinse for a subsequent cleaning sequence.

3.2.5.5 Employee Awareness

Permanent signs for the adhesives and coatings manufacturing equipment should be installed to describe required work and operating practices. The signs should be placed in a prominent location and be kept visible and legible at all times. In addition, training programs may be held to teach employees the importance of operating practices such as the use of covers and lids, splash/spill prevention, and closed container storage of wastes.

4.0 OVERVIEW OF SPRINGDALE FACILITY

4.1 SITE DESCRIPTION

PPG Industries, Inc. – Springdale Plant is a paint manufacturing plant and research & development facility. The paint plant produces coatings for aluminum extrusions, general industrial, and coil coating. Housed within the main paint manufacturing buildings are a series of technical laboratories providing testing and customer support for PPG Coatings. The paint manufacturing building also houses manufacturing support laboratories, which oversee the quality and other parameters of products, manufactured. The research and development plant (referred to in the Title V air permit as the “Development Center”) provides scale-up support for resin manufacture and tests new resins used in coatings.

The Springdale Plant once included a resins manufacturing process, but this part of the plant was permanently removed from service in June 1999.

4.1.1 Paint Manufacturing

Paint manufacturing at the Springdale Plant consists of the following operations:

- Preassembly and premix
- Pigment grinding or milling
- Product finishing
- Product filling
- Equipment cleaning

4.1.1.1 Preassembly and Premix

In the preassembly and premix operation, liquid raw materials are mixed with pigments to make a paste of proper grinding consistency. The paste, known as a base or mill base, undergoes further processing in subsequent operations. The preassembly and premix operation is necessary to keep the pigment in suspension in the resin.

The raw materials used in the paint manufacturing process include pigments, resins, oils, and solvents. Pigments provide color, opacity, and durability to coatings. Resins and oils hold the pigment in the dry film and cause it to adhere to the surface to be coated. Solvents add liquidity so coatings can be easily applied.

Potential VOC emission sources during the preassembly and premix operation include raw material storage tanks, portable mixing tanks, and stationary mixers.

Raw material storage tanks are used to supply solvents for the coatings manufacturing and equipment cleaning processes. Storage tank emissions occur from working losses (i.e., filling/emptying) and breathing losses (i.e., diurnal temperature changes).

Portable mixing tanks and stationary mixers are used to mix product and to keep the pigment in suspension. They also may be used to transfer material from one manufacturing stage to another.

4.1.1.2 Pigment Grinding or Milling

The incorporation of the suspended pigment into the resin is accomplished through grinding or milling. This process occurs in three stages: wetting, grinding, and dispersion. Wetting is the process of removing air, moisture, and gases from the surface of the pigment particles. Grinding is the mechanical breakup and separation of the pigment aggregates on a mill. Dispersion is the movement of the wetted particles into the liquid vehicle to produce a permanent particle separation.

Potential VOC emission sources from pigment grinding or milling include grinding mills and dispersers. VOC emissions from these equipment depend upon the design of the equipment, which may include charging chutes, agitator shafts, product outfalls, and filtering screens.

4.1.1.3 Product Finishing

Product finishing consists of thinning and tinting. Thinning is the process of diluting the ground paste with solvent to produce a coating which is designed to provide a durable film that can be easily applied. Tinting is the process of adjusting the color of the paste to a desired color standard.

Potential VOC emission sources from the product finishing operation include mix tanks and blend tanks. Emissions may occur during material loading when the tank is uncovered or when the lid is open. Emissions also may occur during equipment operation.

4.1.1.4 Product Filling

Product filling consists of filtering and packaging. Filtering acts to screen out impurities and enhance the quality and uniformity of the product. Packaging refers to the weighing and transfer of product into pails, drums, or other containers for shipment.

Potential VOC emission sources from the product filling operation include scale systems and product filters. VOC emissions from scale systems occur during transfer and free-fall of material from operating equipment to shipment containers. VOC emissions from product filters occur as the product flows through the filtering device, which may be exposed to the air.

4.1.1.5 Equipment Cleaning

Equipment cleaning is required after each batch or series of batches. Cleaning solutions may be either solvent-based materials or water, depending on the type of coatings production that has occurred. Spent solvent generated by the cleaning operation is processed through an on-site solvent recovery system. The resulting product is then reused as cleaning solvent.

VOC emissions arise from a variety of solvent-based cleaning operations; they occur during solvent addition and removal as well as during the cleaning and solvent recovery processes. The cleaning frequency depends on the number and size of batches processed, the size of the equipment to be cleaned, and the color and type of product manufactured.

4.1.2 Development Center

The Development Center consists of some of the same operations as the paint plant (i.e., product finishing, product filling, and equipment cleaning). Preassembly/premix and pigment grinding/milling operations in the Paint Plant generally are replaced in the Development Center with batch-scale reactor operations. VOC emissions arise mainly from reactor charging, cooking or reflux, and distillation.

4.2 BASELINE LEVEL OF VOC CONTROL

The Paint Plant and Development Center are subject to the federally-enforceable RACT and/or MACT requirements shown in Table 1, which are codified in the Title V air permit. Because these requirements are federally-enforceable, they constitute the baseline level of VOC control.

In addition to the emission limits, operational restrictions, and control device operating parameter limits shown in Table 1, the Title V permit imposes testing, monitoring, recordkeeping, and reporting requirements to demonstrate compliance with the RACT and/or MACT standards.

The Paint Plant and Development Center are currently in compliance with all applicable RACT and/or MACT requirements.

The baseline level of VOC control for other emission units in the Title V air permit are summarized in the table below along with the applicable regulatory citation.

Emission Source Type	Plant Area	Baseline Level of VOC Control
P003 (Paint Plant Freightliner Spray Booth)	Paint Plant	<p>The permittee shall not use any thinner and/or other additive or cleaning material that contains organic HAPs. [§2102.04(b)(6); Installation Permit #0057-I004, V.A.1.a]</p> <p>The surface coating process shall use electrostatic spray guns for coating applications at all times. These guns shall be maintained and operated according to manufacturer's recommendations and good engineering practice. [§2105.03; IP #0057-I004, V.A.1.b]</p> <p>The paint spray booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [§2105.03; IP #0057-I004, V.A.1.c]</p> <p>The surface coating spray units and overspray filters shall be inspected weekly. [§2103.12(i); #0057-I004, V.A.2]</p>

Emission Source Type	Plant Area	Baseline Level of VOC Control
B001, B002, B003 (Boilers)	Paint Plant	Only natural gas shall be combusted in the boilers except in the case of emergencies when No.2 fuel oil meeting the specifications defined by ASTM D396-78, "Standard Specifications for Fuel Oils," may be used. [§2103.12.a.2.B]
Spray Booths	Paint Plant	<p>The surface coating process in each spray booth shall use high-volume/low-pressure (HVLP) spray guns or equivalent for coating applications at all times. These guns shall be maintained and operated according to manufacturer's recommendations and good engineering practice. [§2103.12.a.2.B; §2105.03; IP #0057-I006a, V.B.1.a]</p> <p>Each paint spray booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [§2103.12.a.2.B; §2105.03; IP #0057-I006a, V.B.1.b]</p> <p>The permittee shall not use any cleaning material that contains organic HAPs. [§2103.12.a.2.B; IP #0057-I006a, V.B.1.c]</p>
Storage Tanks	Paint Plant and Development Center	No person shall place or store, or allow to be placed or stored, a volatile organic compound having a vapor pressure of 1.5 psia or greater under actual storage conditions in any aboveground stationary storage tank having a capacity equal to or greater than 2,000 gallons but less than or equal to 40,000 gallons, unless there is in operation on such tank pressure relief valves which are set to release at the higher of 0.7 psig of pressure or 0.3 psig of vacuum or at the highest possible pressure and vacuum in accordance with State or local fire codes,
Make-up Air Units	Sitewide	The permittee shall not operate or allow to be operated any make-up air unit using a fuel other than utility-grade natural gas. [§2103.12.a.2.B]
Sources of Minor Significance	Sitewide	None

The baseline level of VOC control for the Freightliner paint spray booth and the other sitewide spray booths represents Best Available Control Technology (BACT) for these units. In accordance with regulatory requirements of ACHD's Rules and Regulations, Article XXI (Air Pollution Control), Part B (Permits Generally), §2102.04 (Installation Permits), preconstruction approval by the ACHD requires a BACT determination, where BACT is defined as:

"an emission limitation based on the maximum degree of reduction of each air contaminant which the Department determines on a case-by-case basis to be achievable taking into account the energy, environment, and economic impacts and other costs."

BACT is acknowledged to be a more stringent control level than RACT.

4.3 ESTIMATED AIR EMISSIONS

PPG is required to report air releases from the Springdale Plant as part of its annual emission statement to ACHD. For Calendar Year 2012, PPG reported the following VOC emissions from the Springdale Plant:

Emission Point ID Number	Emission Point Description	CY12 VOC Emissions (tpy)
001	Paint Plant Controlled Emissions	0.27
002	Paint Plant Uncontrolled Emissions	29.94
003	Freightliner Spray Booth	0.08
004	Development Center Controlled Emissions	0.152
005	Development Center Uncontrolled Emissions	0.71
NA	Boilers	0.28
NA	Paint Booths	0.8
NA	Storage Tanks	0.69
NA	Make-up Air Units	0
NA	Sources of Minor Significance	0

In estimating the maximum potential VOC emissions from the Springdale Plant, the RTOs are legally and practically enforceable limitations. The maximum potential-to-emit (PTE) VOC emissions, which are codified in the Title V air permit, are shown in the table below:

Emission Unit	Annual PTE (tons/year)
P001 (Paint Plant Controlled Emissions)	26.07
P002 (Paint Plant Uncontrolled Emissions)	238.0
P003 (Freightliner Spray Booth)	8.27
P004 (Development Center Controlled Emissions)	3.703
P005 (Development Center Uncontrolled Emissions)	0.70
B001 (Boiler #1)	0.440
B002 (Boiler #2)	0.440
B003 (Warehouse Boiler)	0.147
Paint Plant Storage Tanks	2.14
Development Center Storage Tanks	0.687
SITEWIDE TOTAL	284.9

4.4 EXHAUST STREAM CHARACTERISTICS

Many of the major categories of VOCs (e.g., alcohols, aromatics, ketones, ethers) are present in the exhaust from paint plants; the VOCs comprising the largest percentage (by weight) of the air releases from the Springdale Plant (based on reported air releases in annual TRI reports) are:

- N-butyl alcohol (31% by weight)
- Xylenes (mixed isomers) (21% by weight)
- Toluene (20% by weight)
- Methyl isobutyl ketone (14% by weight)
- Glycol ethers (5.5% by weight)
- Ethylbenzene (3% by weight)
- 1,2,4-trimethylbenzene (2.5% by weight)

The VOC concentrations of the exhaust streams vary from a few hundred parts per million (ppm) to around 10,000 ppm. These are considered to be low- to medium- concentration exhaust streams.

The exhaust stream flowrates vary from a few cubic feet per minute (cfm) for many “passive” vents to approximately 30,000 cfm for streams that exhaust to the thermal oxidizer.

5.0 TECHNICAL AND ECONOMIC EVALUATION OF CONTROL OPTIONS

The following emission units are excluded from the remainder of the RACT evaluation, because they are insignificant VOC sources:

- Boilers
- Make-up Air Units
- Sources of Minor Significance (identified in the Title V air permit)

As noted in Section 4.2, the following emission units meet or exceed BACT, MACT, and/or RACT:

- Paint Plant emissions that exhaust to the RTO, which has a required VOC destruction efficiency of at least 95% by weight
- Paint Plant fugitive emissions, which are subject to an equipment leak detection and repair (LDAR) program and several work practices to minimize VOC emissions
- Development Center emissions that exhaust to the RTO, which has a required VOC destruction efficiency of at least 98% by weight
- Development Center fugitive emissions, which are subject to an equipment leak detection and repair (LDAR) program and several work practices to minimize VOC emissions
- Freightliner Spray Booth, which is subject to engineering controls to minimize VOC emissions
- Plantwide spray booths, which are subject to engineering controls to minimize VOC emissions
- Plantwide VOC storage tanks, which are subject to engineering controls to minimize VOC emissions

Except for the Paint Plant emissions that exhaust to the RTO (Emission Unit P001 in the Title V air permit), no additional technical or economic evaluations are considered for the RACT evaluation, because all other emission units are subject to engineering controls and/or work practices that already represent the maximum degree of VOC reduction.

For P001, only VOC control options that could meet or exceed the baseline level of VOC control (VOC destruction efficiency of 95%) are considered for this RACT evaluation.

5.1 TECHNICAL EVALUATION

As mentioned, the type of VOCs in an exhaust stream is an important criterion in evaluating the technological feasibility of VOC control devices. Other important criteria are the exhaust stream flowrate; pretreatment considerations; utilities and maintenance requirements; and secondary environmental impacts.

Table 4 presents a general comparison of the important design considerations listed above (including VOC concentration and exhaust stream flowrate) for the combustion and recovery controls described in Section 3.2.

Using the information from Tables 1, 2, and 3 and the other reference sources listed in Section 3.1, Table 5 presents a numerical “score” and summary of the main technical issues associated with the available VOC control options for process vessels. Technical issues are specific to the physical and operating conditions

of the Springdale paint plant. The score reflects how favorably a particular control option meets the technical considerations shown in the table. The main factors that render a particular control device technically questionable for this project are:

- The device cannot reliably meet an efficiency of 95% (or greater) VOC control, the current performance standard for the Paint Plant RTO.
- The device has limited or no demonstrated use under similar stream characteristics (e.g., flow rate, type of VOCs, VOC concentration)
- The Springdale Plant does not have prior experience with the device as a VOC control option
- The regulatory community does not have significant experience with the device as a VOC control option and, therefore, cannot adequately assess a device's ability to meet RACT
- The device creates secondary environmental impacts
- The device poses unique design, operating, or maintenance challenges

The following VOC control options that are already in place at the paint plant are not included in Table 5:

- Use and maintenance of lids during process vessel operations
- Modified (i.e., closed design) milling equipment
- Equipment cleaning
- Splash/spill prevention
- Recycling techniques
- Employee awareness
- Product reformulation

The first four of these VOC control options constitute the baseline level of control that was discussed in Section 4.2. The next two items help to reduce VOC emissions, too, but they are work practices that do not currently appear in Springdale's RACT permit and would be difficult to incorporate into any sort of effective and practicable performance standard or compliance demonstration.

Product reformulation to produce low-VOC or water-based coatings is technologically feasible, but the mandated use or phase-in of reformulated products is technologically infeasible. PPG's interest in and commitment to developing low-VOC and water-based coatings arise from an environmental imperative to protect and preserve the environment and an economic imperative to remain competitive in its industry. In the future, PPG may increase its production of low-VOC and water-based coatings to meet customer demands. However, development of these coatings is still highly dependent on customer satisfaction with such products. The USEPA recognizes that it is impossible to quantify the economic feasibility of product reformulation. The primary cost is the research and development required by each facility to reformulate current products using lower VOC raw materials. PPG intends to continue its research and development of low-VOC and waterborne coatings in response to customer demand.

From the information presented in Table 5, the following control options (with negative or zero favorability scores) are deemed technically infeasible for the paint plant and are eliminated from further consideration:

- Use of Existing Boilers, Process Heaters

- Volume Concentrators
- Flares
- Emerging VOC control devices
- Adsorption
- Absorption (scrubbing)
- Condensation
- Biofiltration
- Membrane separation

The only remaining control option is an RTO with a higher VOC destruction efficiency than the current RTO. For this evaluation, a VOC destruction efficiency of 98% is considered; this is the destruction efficiency of the RTO currently in use at the Development Center (which is subject to a MACT standard that imposes 98% VOC destruction).

Two options for an RTO with 98% VOC destruction efficiency are considered in the economic feasibility evaluation:

- Upgrade the existing RTO to achieve 98% VOC destruction efficiency
- Install a new RTO with 98% VOC destruction efficiency

USEPA's New Source Review Workshop Manual (p. B-23) addresses the issue of control technologies with a range of emissions performance levels. It states that:

“Many control techniques, including both add-on controls and inherently lower-polluting processes, can perform at a wide range of levels. It is not the EPA's intention to require analysis of each possible level of efficiency for a control technique, as such an analysis would result in a large number of options. Rather, the applicant should use the most recent regulatory decisions and performance data for identifying the emissions performance level(s) to be evaluated in all cases.”

The most recent regulatory decisions for identifying emissions performance levels are the RACT/BACT/LAER determinations and the MCM MACT, neither of which mandates a 98% performance standard. However, since an RTO destruction efficiency of 98% is technically feasible, an economic feasibility evaluation follows.

5.2 ECONOMIC EVALUATION

According to USEPA's control cost manual cited in Section 3.1, the following economic measures should be considered in a control technology evaluation:

- Total investment, which includes the equipment costs, installation costs, site preparation and construction costs, and costs for land, working capital, and off-site facilities. Equipment costs include ancillary equipment such as fans and ductwork. Installation costs include costs for foundations and

supports, erecting and handling the equipment, electrical work, piping, insulation, and painting. For this report, costs for land are negligible, since add-on control equipment, if required, would occupy a small area. Also, working capital (i.e., a fund set aside to cover the initial costs of fuel, chemicals, and other materials as well as labor and maintenance) is negligible, since it usually does not apply to control systems. Finally, costs for off-site facilities (e.g., to produce steam, electricity, or treated water to support new control equipment) are negligible.

- Total annual costs, which include direct costs, indirect costs, and credits for recovered chemicals. Direct costs tend to be proportional to the quantity of exhaust gas processed by the control system. They include: raw materials, utilities (e.g., steam, electricity, process and cooling water), waste treatment and disposal, maintenance materials, replacement parts, and operating, supervisory, and maintenance labor. Indirect costs are independent of the exhaust flow rate and, in fact, would be incurred even if the control system were shut down. They include administrative charges, property taxes, insurance, and capital recovery. Direct and indirect costs are offset by any credits for materials or energy recovered by the control device. Recovered materials or energy may be sold, recycled to the process, or reused elsewhere at the site.

Investment and annual costs were calculated using both the USEPA ACA software and figures and tables from the "Practical Solutions" document noted in Section 3.1. However, the ACA software significantly underestimates costs for several reasons:

- It excludes auxiliary equipment (e.g., fans and fan motors, pumps, ductwork, dampers, stack)
- It excludes process control equipment
- If the VOC concentration and exhaust stream flowrates are lower than the ranges for which the ACA cost models were developed, the ACA software extrapolates costs for the VOC control devices

For these reasons, the "Practical Solutions" document more reliably predicts investment and annualized costs. Using the "Practical Solutions" document, an approximate breakdown of the investment costs is:

- Engineered equipment: 22% of total investment
- Ancillary equipment (e.g., fans, motors, ductwork): 2% of total investment
- Equipment installation: 10% of total investment
- Equipment foundations, supports, platforms: 5% of total investment
- Process buildings, control rooms: 6% of total investment
- Dismantlement and rearrangement of existing equipment, buildings: 4% of total investment
- Freight/quality assurance/procurement: 2% of total investment
- Construction contractor: 10% of total investment
- Project management: 13% of total investment
- Contracts administration: 3% of total investment
- Contingencies: 23% of total investment

Neither the investment nor the total annual costs include certain "hidden costs" that are difficult to quantify, such as permitting costs or compliance costs. Preparation of an air permit application is

sometimes required following a control technology evaluation, and the cost and level of compliance monitoring that a regulatory agency may impose is difficult to assess.

Investment and annual operating cost factors were reviewed from the “Practical Solutions” document to reflect the geographical location of the Springdale paint plant. A comparison of hourly labor rates and natural gas costs in the “Practical Solutions” document versus the Springdale plant’s experience with these costs indicate that the “Practical Solutions” document (which presents national average costs) closely approximates the investment and annual operating costs for the Springdale paint plant. This observation is consistent with government statistics such as the U.S. Department of Labor’s Bureau of Labor Statistics (BLS) National Compensation Survey that compare national and regional labor statistics.

The costs developed from the “Practical Solutions” document are not based on detailed engineering designs specifically developed for this project; therefore, they are not intended to be used as “best and final” costs for engineering contractors. They are, however, based on sound engineering judgment and are reliable enough for a RACT economic feasibility evaluation.

In performing the economic evaluation, the following assumptions apply:

- Equipment will be designed and operated to achieve a minimum VOC control efficiency of 98%, the performance standard for the resin plant process vessel emissions
- Costs for new equipment reflect an exhaust stream flowrate of 4,800 cfm, the exhaust flowrate of the current RTO
- Costs reflect July 2013 U.S. dollars.
- Cost escalation factors were obtained from the BLS’ Producer Price Index (PPI) for NAICS Code 325510 (Paint and Coating Manufacturing). The “Practical Solutions” document reports costs in CY2000 U.S. dollars. The PPI for CY2000 is 160.5, and the PPI for July 2013 is 273.9. The ACA program reports costs in February 2003 dollars. The PPI for February 2003 is 167.2.
- Costs for thermal oxidation assume regenerative (not recuperative) thermal oxidation.
- The incremental cost effectiveness (defined in Section 2.2) is undefined for this evaluation, because all of the control devices will be designed to the same performance level (98% VOC control)
- Investment and annual operating costs for modifying the existing thermal oxidizer are assumed to be 75% of the costs of a new thermal oxidizer. Investment costs include additional vent collection systems, appropriate design and operating features (e.g., arrestors, monitors, spark resistant equipment), instrumentation, architectural and civil items, and project management and other personnel costs. Annual operating costs for modifying the thermal oxidizer include additional fuel costs and technical support to maintain many new VOC “pickup” points.

Appendix A presents the portions of the “Practical Solutions” document that were used to prepare investment costs and annualized costs for this RACT evaluation. Appendix B presents the summary report from the ACA cost model.

Table 6 presents a summary of the economics associated with the technically feasible control options. Using the “Practical Solutions” document, the average cost effectiveness ranges from \$22,000 to \$30,000 per ton of VOC removed; using USEPA’s ACA document, the average cost effectiveness ranges from

\$12,000 to \$17,000 per ton of VOC removed. While regulatory agencies are reluctant to reveal the cost effectiveness "ceiling" above which projects are considered economically infeasible as RACT, and while the cost effectiveness ceiling may not even be the same from state to state, the ceiling is generally acknowledged to be less than \$12,000 per ton. Therefore, none of the technologically feasible control options are economically feasible.

6.0 RACT SUMMARY

Based on a thorough review of available information about VOC control options for paint and resins plants, the baseline level of control described in Section 4.2 and summarized in Table 1 meets or exceeds RACT for all VOC emission sources.

RACT for the PPG Springdale Plant is shown below:

Emission Source Type	Plant Area	VOC RACT
P001 (Paint Plant Controlled Emissions)	Paint Plant	See Table 1
P002 (Paint Plant Uncontrolled Emissions)	Paint Plant	See Table 1
P004 (Development Center Controlled Emissions)	Development Center	See Table 1
P005 (Development Center Uncontrolled Emissions)	Development Center	See Table 1
P003 (Paint Plant Freightliner Spray Booth)	Paint Plant	<p>The permittee shall not use any thinner and/or other additive or cleaning material that contains organic HAPs. [§2102.04(b)(6); Installation Permit #0057-I004, V.A.1.a]</p> <p>The surface coating process shall use electrostatic spray guns for coating applications at all times. These guns shall be maintained and operated according to manufacturer's recommendations and good engineering practice. [§2105.03; IP #0057-I004, V.A.1.b]</p> <p>The paint spray booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [§2105.03; IP #0057-I004, V.A.1.c]</p> <p>The surface coating spray units and overspray filters shall be inspected weekly. [§2103.12(i); #0057-I004, V.A.2]</p>

Emission Source Type	Plant Area	VOC RACT
B001, B002, B003 (Boilers)	Paint Plant	Only natural gas shall be combusted in the boilers except in the case of emergencies when No.2 fuel oil meeting the specifications defined by ASTM D396-78, "Standard Specifications for Fuel Oils," may be used. [§2103.12.a.2.B]
Spray Booths	Paint Plant	<p>The surface coating process in each spray booth shall use high-volume/low-pressure (HVLV) spray guns or equivalent for coating applications at all times. These guns shall be maintained and operated according to manufacturer's recommendations and good engineering practice. [§2103.12.a.2.B; §2105.03; IP #0057-I006a, V.B.1.a]</p> <p>Each paint spray booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [§2103.12.a.2.B; §2105.03; IP #0057-I006a, V.B.1.b]</p> <p>The permittee shall not use any cleaning material that contains organic HAPs. [§2103.12.a.2.B; IP #0057-I006a, V.B.1.c]</p>
Storage Tanks	Paint Plant and Development Center	No person shall place or store, or allow to be placed or stored, a volatile organic compound having a vapor pressure of 1.5 psia or greater under actual storage conditions in any aboveground stationary storage tank having a capacity equal to or greater than 2,000 gallons but less than or equal to 40,000 gallons, unless there is in operation on such tank pressure relief valves which are set to release at the higher of 0.7 psig of pressure or 0.3 psig of vacuum or at the highest possible pressure and vacuum in accordance with State or local fire codes,
Make-up Air Units	Sitewide	The permittee shall not operate or allow to be operated any make-up air unit using a fuel other than utility-grade natural gas. [§2103.12.a.2.B]
Sources of Minor Significance	Sitewide	None

TABLE 1. SUMMARY OF TITLE V AIR PERMIT VOC REQUIREMENTS FOR PAINT PLANT AND DEVELOPMENT CENTER

P001 (Paint Plant Controlled Emissions)
<p>The permittee shall equip each stationary mixer and stationary process vessel with a tightly fitting vented cover or lid that must be closed at all times when the vessel contains HAP, except for material additions and sampling. [§63.8005(a)(1); 40 CFR Part 63 Subpart HHHHH Table 1.2.b.i; IP #0057-I006, V.A.1.a; RACT Order #254, 1.13, 1.14]</p> <p>The permittee shall not operate or allow to be operated any dispensing systems unless they are of closed design or minimize free-fall of liquids. [RACT Order #254, 1.16]</p> <p>The permittee shall not allow the filling of solvent-borne coatings unless is in a closed system. [RACT Order #254, 1.17]</p> <p>The Paint Plant RTO shall be properly operated and maintained according to good engineering practices, manufacturer's recommendations, and the following conditions at all times while treating process emissions: [§2103.05; §2105.30; IP #0057-I003, VI.1.b; IP #0057-I005b, V.A.1.b]</p> <ul style="list-style-type: none"> • A minimum VOC destruction efficiency of 95% by weight; or • A VOC concentration less than 20 ppm by volume, dry basis. <p>The RTO shall be operated at a minimum operating temperature of 1,500 °F for the temperature at which a destruction efficiency of 95% is demonstrated during the most recent stack test, whichever is greater. [§2103.05; §2105.30.b; IP #0057-I005b, V.A.1.c]</p> <p>The permittee shall meet the requirements for emissions during automatic cleaning operations. [§63.8005(a)(1)(ii); IP #0057-I006, V.A.1.d]</p> <p>The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [RACT Order #254, 1.20]</p> <p>The permittee shall not operate or allow to be operated any grinding mills unless they are completely closed at all times. [RACT Order #254, 1.18]</p> <p>The permittee shall not operate, nor allow to be operated, the Paint Plant RTO using a fuel other than utility-grade natural gas. [§2103.12.a.2.B; IP #0057-I005b, V.A.1.e]</p> <p>The Paint Plant RTO shall meet the requirements of 40 CFR Part 63, Subpart SS, §63.982(c)(2), as specified in 40 CFR Part 63, Subpart HHHHH. [§63.8000(c)(1); §63.8005(a)(2); IP #0057-I006, V.A.1.e]</p> <p>The permittee shall externally inspect the Paint Plant RTO and associated ductwork weekly for proper operation as well as for integrity of the thermal oxidizer, process equipment, and gaseous collection systems using the procedures outlined in 40 CFR Part 63, Subpart SS, §63.982(c). [§2102.04.b.6; §2103.12.i; §63.8000(c)(1); IP #0057-I005b, V.A.3.a; IP #0057-I006, V.A.3.a]</p> <p>The permittee shall continuously monitor and record the Paint Plant RTO combustion chamber to the nearest 1°F of actual temperature at all times while treating process emissions. [§2102.04.b.6; §2103.12.i; §63.996(c); IP #0057-I003, VI.3.b; IP #0057-I005b, V.A.3.b; IP #0057-I006, V.A.3.b]</p>

TABLE 1. SUMMARY OF TITLE V AIR PERMIT VOC REQUIREMENTS FOR PAINT PLANT AND DEVELOPMENT CENTER

P001 (Paint Plant Controlled Emissions) (continued)
The permittee shall calibrate, maintain, and operate all instrumentation, process equipment, and control equipment according to manufacturer's recommendations and the applicable terms and conditions of this permit. [§2105.03]
All process and control equipment shall be properly operated and maintained according to good engineering and air pollution control practices at all times. [§2105.03; RACT Order #254, 1.19]
The permittee shall treat all wastewater streams as Group 1 wastewater according to 40 CFR §63.8105. All wastewater streams shall be conveyed using hard-piping and shall be treated as a hazardous waste in accordance with 40 CFR part 264, 265, or 266 either onsite or offsite. Alternatively, if the wastewater contains <50 ppmw of partially soluble HAP, the permittee may elect to treat the wastewater in an enhanced biological treatment system that is located either onsite or offsite. [§63.8020(a); 40CFR Part 63 Subpart HHHHH Table 4.2.a; IP #0057-I006, V.A.1.i]
The permittee shall not allow bulk loading of coating products that contain greater than or equal to 3.0 million gallons per year of HAP with a weighted average HAP partial pressure greater than or equal to 1.5 psia. [§2103.12.b.; §2104.08.a; §63.8015]
Opening of a safety device, as defined in §63.8105, is allowed at any time conditions require it to avoid unsafe conditions. [§63.8000(b)(2)]
P002 (Paint Plant Uncontrolled Emissions)
The permittee shall equip each portable process vessel with a cover or lid that must be in place at all times when the vessel contains a HAP, except for material additions and sampling. The covers shall be maintained in good condition, such that when in place, they maintain contact with their respective rims for at least 90% of the circumference of the rim. [§63.8005(a)(1); 63 Subpart HHHHH Table 1.1; IP #0057-I004, V.A.1.b; RACT Order #254, 1.15]
The permittee shall not operate or allow to be operated any dispensing systems unless they are of closed design or minimize free-fall of liquids. [RACT Order #254, 1.16]
The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [RACT Order #254, 1.20]
The permittee shall not conduct or allow to be conducted any floor cleaning operations unless they employ water-based cleaners. The use of solvents shall be limited to spot cleaning. [RACT Order #254, 1.21]
All process equipment shall be properly operated and maintained according to good engineering and air pollution control practices at all times. [§2105.03; RACT Order #254, 1.19]

TABLE 1. SUMMARY OF TTITLE V AIR PERMIT VOC REQUIREMENTS FOR PAINT PLANT AND DEVELOPMENT CENTER

P002 (Paint Plant Uncontrolled Emissions) (continued)
<p>Leak Detection and Repair [§63.8015(a); 63 Subpart HHHHH Table 3.1.a; §63.424(a)-(d); IP #0057-I006, V.A.3.c]</p> <ul style="list-style-type: none"> • The permittee shall perform a monthly leak inspection of all equipment in organic HAP service. For this inspection, detection methods incorporating sight, sound, and smell are acceptable. Each piece of equipment must be inspected when it is operating in organic HAP service. • A log book shall be used and shall be signed by the permittee at the completion of each inspection. A section of the log shall contain a list, summary description, or diagram(s) showing the location of all equipment in organic HAP service at the facility. • Each detection of a liquid or vapor leak shall be recorded in the log book. When a leak is detected, an initial attempt at repair shall be made as soon as practicable, but no later than 5 calendar days after the leak is detected. Repair or replacement of leaking equipment shall be completed within 15 calendar days after detection of each leak, except as provided below. <p>Delay of repair of leaking equipment will be allowed upon a demonstration to the Department that repair within 15 days is not feasible. The permittee shall provide the reason(s) a delay is needed and the date by which each repair is expected to be completed.</p>

TABLE 1. SUMMARY OF TITLE V AIR PERMIT VOC REQUIREMENTS FOR PAINT PLANT AND DEVELOPMENT CENTER

P004 (Development Center Controlled Emissions)
<p>The permittee shall not operate the K13/K15 Reactor System, Large Side Reactor System, LUWA Filtruder, BS5000 Resin Stripper, and R2000 Reactor Process at any time while generating VOC emissions unless the Development Center RTO is in service and operating as required. [§2103.12.a; IP #0057-I005c, V.B.1.a]</p>
<p>The Development Center RTO shall be properly operated and maintained according to good engineering practices (as proscribed in Monitoring Section V.D.3), manufacturer's recommendations, and the following conditions at all times while treating process emissions: [§2103.12.a; §2104.08; IP #0057-I001, V.1.b; IP #0057-I005c, V.B.1.b; §63.2460(a); 40 CFR Part 63 Subpart FFFF Table 2.1.a & c]</p> <ol style="list-style-type: none"> 1) The minimum VOC destruction efficiency shall be 98% by weight; or 2) A VOC concentration less than 20 ppm by volume dry basis.
<p>The RTO shall be operated at a minimum operating temperature of 1,500 °F or the temperature at which a destruction efficiency of 98% is demonstrated during the most recent stack test, whichever is greater. [§2103.12.a; §2105.30.b; IP #0057-I001, V.1.b; IP #0057-I005c, V.B.1.c]</p>
<p>The permittee shall not operate, nor allow to be operated, the DC RTO using a fuel other than utility-grade natural gas. [§2103.12.a.2.B; IP #0057-I005c, V.B.1.e]</p>
<p>If the Development Center RTO is not in operation for a period of an hour or greater, the permittee shall vent all emissions from the K13/K15 Reactor System, Large Side Reactor System, LUWA Filtruder, BS5000 Resin Stripper, and R2000 Reactor Process to the carbon bins within the second hour in which the RTO is offline. [§2103.12.a.2.B]</p>
<p>The permittee shall vent emissions from the Large Side Reactor System to the respective scrubbers any time those systems are processing batches with chemistry incompatible with the RTO (such as those containing ammonia). [§2103.12.a.2.B]</p>
<p>The Development Center RTO shall be equipped with instrumentation that continuously monitors the thermal oxidizer combustion chamber temperature to within 0.75% of the temperature measured, and records to the nearest 1°F. The permittee shall at all times properly maintain and calibrate the continuous temperature monitor and recorder in accordance with manufacturer's specifications and good engineering practices. [§2103.12.a; IP #0057-I005c, V.B.1.f]</p>
<p>The permittee shall not operate or allow to be operated any filling systems unless they are of closed design or minimize free-fall of liquids. [§2103.12.a.2.B]</p>
<p>The DC RTO shall meet the requirements of 40 CFR Part 63, Subpart SS, §63.982(c)(2), as specified in 40 CFR Part 63, Subpart FFFF. [§2103.12.a; §2104.08; §63.2450(e)(1)]</p>
<p>Opening of a safety device, as defined in §63.8105, is allowed at any time conditions require it to avoid unsafe conditions. [§2103.12.a; §2104.08; §63.2450(p)]</p>
<p>The permittee shall meet the requirements of Section V.F for all process and maintenance wastewater from the equipment in the DC [§2103.12.a; §2104.08; §63.2485(a)]</p>
<p>The permittee shall externally inspect the Development Center RTO and associated ductwork weekly for proper operation as well as for integrity of the thermal oxidizer, process equipment, and gaseous collection systems. [§2103.12.i; IP #0057-I001, V.3.a; IP #0057-I005c, V.B.3.a]</p>
<p>The permittee shall calibrate, maintain, and operate all instrumentation, process equipment, and control equipment according to manufacturer's recommendations and the applicable terms and conditions of this permit. [§2105.03]</p>

TABLE 1. SUMMARY OF TTTLE V AIR PERMIT VOC REQUIREMENTS FOR PAINT PLANT AND DEVELOPMENT CENTER

P005 (Development Center Uncontrolled Emissions)
<p>The permittee shall comply with the requirements 40 CFR Part 63, Subpart UU – National Emission Standards for Equipment Leaks – Control Level 2 for equipment leaks in all equipment in organic HAP service, except as specified in §63.2480(b). If the permittee elects to use a different compliance option in Table 6.1 of Subpart FFFF, the permittee shall notify the Department no later than 30 days prior to the change. [§2103.12.a; §2104.08; §63.2450(a); §63.2480(a); 63 Subpart FFFF Table 6.1.a]</p> <p>The permittee shall vent all emissions from the Small Side Reactors through a condenser at all times the reactor is processing material. [§2103.12.a.2]</p> <p>The permittee shall identify all equipment subject to Leak Detection and Repair (LDAR) in accordance with §63.1022 of Subpart UU. [§2103.12.a; §2104.08; §63.2480(a); §63.1022(a)]</p> <p>The permittee shall meet the requirements of Section V.F for all process and maintenance wastewater from the equipment in the Development Center. [§2103.12.a; §2104.08; §63.2485(a)]</p>

TABLE 2. REVIEW OF INFORMATION RESOURCES

Information Source	VOC Performance Standards
BAAQMD Rule for Coating, Ink, and Adhesive Manufacturing	<ul style="list-style-type: none"> • Portable and stationary mixing vats must be kept covered, except to add ingredients or to take samples <ul style="list-style-type: none"> ○ Lids must maintain contact with the rim for at least 90% of the circumference of the vat's rim ○ Lids may have a slit to allow clearance for insertion of a mixer shaft; slit shall be covered after insertion of the mixer except to allow safe clearance for the mixer shaft ○ No holes, tears, or openings in the lid that would allow for emission of organic vapors ○ Difference between the diameter of the mixer shaft and the diameter of the opening in the lid for the mixer shaft shall be no greater than 2 inches ○ Polyethylene or other non-permanent covers may be used if the cover material is nonporous ○ Alternatively, vent emissions to a control system (80% VOC efficiency; 90% for incineration) • Choice of equipment cleaning requirements for portable or stationary mixing vats, high dispersion mills, grinding mills, tote tanks, and roller mills <ul style="list-style-type: none"> ○ VOC content limits on cleaning material ○ Approved, closed cleaning systems ○ Emission control system (80% VOC efficiency; 90% for incineration) • Grinding mills installed after 11/1/1985 shall have fully enclosed screens • Stationary vats emitting >15 lb VOC/day must vent to an emission control system (80% VOC efficiency; 90% for incineration) • Requirements for persons using solvent for wipe cleaning
SCAQMD Rule for Coatings and Ink Manufacturing	<ul style="list-style-type: none"> • Portable mixing vats must be kept covered, except to add ingredients or to take samples <ul style="list-style-type: none"> ○ Lids must extend at least ½ inch beyond the outer rim of the vat or be attached to the rim ○ Lids must maintain contact with the rim for at least 90% of the circumference of the vat's rim ○ Lids may have a slit to allow clearance for insertion of a mixer shaft; slit shall be covered after insertion of the mixer except to allow safe clearance for the mixer shaft • Stationary mixing vats must be covered except to add ingredients or take samples • Equipment cleaning of portable and stationary mixing vats, high-speed dispersion mills, grinding mills, and roller mills must be performed in a way which minimizes VOC emissions • Grinding mills installed after 11/1/1985 shall have fully enclosed screens

TABLE 3. REVIEW OF RACT/BACT/LAER CLEARINGHOUSE

Company Name Location Permit Issue Date	Equipment Description	VOC Emission Limitation	Control Technology	Additional Remarks
Akzo Nobel Coatings Inc. Oakland County, Michigan 8/15/2001	Mixers (pigmented) >550 gal producing solvent-based coatings	0.0212 lb/gal produced	None	Least expensive VOC control option was over \$15,000 per ton and was not required.
	Mixers (nonpigmented) >550 gal producing solvent-based coatings	0.0005 lb/gal produced	None	
	Mixers (pigmented) <550 gal producing solvent-based coatings	0.1312 lb/gal produced	None	
	Mixers (nonpigmented) <550 gal producing solvent-based coatings	0.0018 lb/gal produced	None	
	Floor/equipment cleaning with organic solvents	32.2 tpy	None	
Akzo Nobel Coatings Inc. Oakland County, Michigan 2/27/2001	Mixers (pigmented) >550 gal producing solvent-based coatings	0.0876 lb/gal produced	None	Least expensive VOC control option was over \$14,000 per ton and was not required. All determinations represent BACT for PSD
	Mixers (nonpigmented) >550 gal producing solvent-based coatings	0.036 lb/gal produced	None	
	Mixers (pigmented) <550 gal producing solvent-based coatings	0.014 lb/gal produced	None	
	Mixers (nonpigmented) <550 gal producing solvent-based coatings	0.0049 lb/gal produced	None	
	Mixers (pigmented) >550 gal producing water-based coatings	0.0033 lb/gal produced	None	
	Mixers (pigmented) <550 gal producing water-based coatings	0.0008 lb/gal produced	None	
Red Spot Westland, Inc. Wayne County, Michigan 11/29/2000	Open-top mixers	None	None	None
	Open- and closed-top mixers	25 lb hr	None	

TABLE 4. GENERAL COMPARISON OF VOC CONTROL DEVICES

Design Criteria	Control Option	Applicability Ranges and Other Considerations
VOC Concentration	<i>Listed from most restrictive to least restrictive applicability ranges</i>	
	Volume Concentrators	<100 ppmv
	Thermal Oxidation w/o heat recovery	<1,000 ppmv (or up to 60% of the lower explosive limit, LEL)
	Biofiltration	<1,000 ppmv
	Membrane Technology	>5,000 ppmv
	Thermal Oxidation w/ heat recovery	>1,000 ppmv (or less than 25% of the LEL)
	Condensation	>1,000 ppmv
	Adsorption	>500 ppmv
	Absorption (Scrubbing)	>500 ppmv
	Catalytic Oxidation	No practical limit, but generally <25% of the LEL
	Flares	No practical limit
	Emerging VOC Control Devices	Insufficient information available
Flowrate	<i>Listed from most restrictive to least restrictive applicability ranges</i>	
	Membrane Technology	<500 scfm
	Condensation	<3,000 scfm
	Thermal Oxidation w/o heat recovery	<10,000 scfm
	Volume Concentrators	>10,000 scfm
	Thermal Oxidation w/ heat recovery	No practical limit
	Catalytic Oxidation	No practical limit
	Flares	No practical limit
	Adsorption	No practical limit
	Absorption (Scrubbing)	No practical limit
	Biofiltration	No practical limit
	Emerging VOC Control Devices	Insufficient information available
Type of VOC	Thermal Oxidation w/o heat recovery	No practical limits, but halogenated organics may require higher oxidation temperatures and postoxidation scrubber
	Thermal Oxidation w/ heat recovery	
	Catalytic Oxidation	Catalyst poisoning may occur if the exhaust stream contains sulfur, silicon, phosphorus, arsenic, or heavy metals

TABLE 4. GENERAL COMPARISON OF VOC CONTROL DEVICES

Design Criteria	Control Option	Applicability Ranges and Other Considerations
	Volume Concentrators	See limitations for Thermal Oxidation and Adsorption
	Flares	Not recommended for exhaust streams containing halogenated organics, which form acid gases when oxidized
	Emerging VOC Control Devices	Insufficient information available
	Adsorption	Not recommended for compounds with molecular weights above 130 (difficult to desorb) or below 45 (difficult to adsorb)
	Absorption (Scrubbing)	Recommended for water-soluble compounds such as methanol, ethanol, isopropanol, butanol, acetone, formaldehyde
	Condensation	Not recommended for exhaust streams containing water vapor (unless a precooler is installed) or compounds with a high freezing point (e.g., benzene)
	Biofiltration	Not recommended for sulfur-, nitrogen-, or halogen-containing hydrocarbons and polyaromatic hydrocarbons (pH effects and accumulation of salts)
	Membrane Technology	No practical limits
Pretreatment Considerations	Thermal Oxidation w/o heat recovery	Dilution and/or Preheating may be necessary
	Thermal Oxidation w/ heat recovery	
	Catalytic Oxidation	Dilution, Particulate Removal, or Preheating may be necessary
	Volume Concentrators	Cooling, Dehumidification, Dilution, and/or Particulate Removal may be necessary
	Flares	Liquid Knockout may be necessary
	Emerging VOC Control Devices	Insufficient information available
	Adsorption	Cooling, Dehumidification, Dilution, and/or Particulate Removal may be necessary
	Absorption (Scrubbing)	Cooling and/or Particulate Removal may be necessary
	Condensation	Dehumidification may be necessary
	Biofiltration	Humidification, Cooling, and/or Particulate Removal may be necessary
	Membrane Technology	Particulate Removal may be necessary

TABLE 4. GENERAL COMPARISON OF VOC CONTROL DEVICES

Design Criteria	Control Option	Applicability Ranges and Other Considerations
Utilities and Maintenance Requirements	Thermal Oxidation w/o heat recovery	Fuel, Electricity
	Thermal Oxidation w/ heat recovery	
	Catalytic Oxidation	Fuel, Electricity, Catalyst Replacement
	Volume Concentrators	Fuel, Electricity, Steam, Cooling Water
	Flares	Fuel, Electricity, Steam
	Emerging VOC Control Devices	Insufficient information available
	Adsorption	Steam, Cooling Water, Electricity
	Absorption (Scrubbing)	Electricity, Solvent/Solutions Replacement
	Condensation	Electricity, Refrigerant Replacement
	Biofiltration	Electricity, Water
	Membrane Technology	Electricity, Cooling Water
Secondary Environmental Impacts	Thermal Oxidation w/o heat recovery	Air (combustion products)
	Thermal Oxidation w/ heat recovery	
	Catalytic Oxidation	Air (combustion products); Solid Waste (spent catalyst)
	Volume Concentrators	Air (combustion products); Wastewater (VOC recovery); Solid Waste (spent adsorbent)
	Flares	Air (combustion products)
	Emerging VOC Control Devices	Insufficient information available
	Adsorption	Wastewater (VOC recovery); Solid Waste (VOC recovery, spent adsorbent)
	Absorption (Scrubbing)	Wastewater (spent solvent); Solid Waste (VOC recovery, spent absorbent)
	Condensation	Wastewater (VOC recovery); Solid Waste (VOC recovery)
	Biofiltration	Solid Waste (spent filter material)
	Membrane Technology	Wastewater (VOC recovery); Solid Waste (VOC recovery)

TABLE 4. GENERAL COMPARISON OF VOC CONTROL DEVICES

Design Criteria	Control Option	Applicability Ranges and Other Considerations
Other Considerations	Thermal Oxidation w/o heat recovery	Very reliable for VOC destruction
	Thermal Oxidation w/ heat recovery	Not recommended for highly variable flowrates because of reduced residence time and poor mixing
	Catalytic Oxidation	Selection of proper catalyst should be carefully considered More sensitive to inlet stream concentrations and flow conditions than thermal oxidation
	Volume Concentrators	Recommended for high flow, low VOC concentration exhaust streams
	Flares	Appropriate for continuous, batch, and variable flowrates Can handle large fluctuations in VOC concentration, heating value, and inert species content
	Emerging VOC Control Devices	Insufficient information available
	Adsorption	Appropriate for continuous or intermittent flowrates Useful for recovering high-value solvents
	Absorption (Scrubbing)	More commonly used for controlling inorganic gases such as HCl than for VOC
	Condensation	Appropriate for continuous or intermittent flowrates Recommended for low flow, high VOC concentration exhaust streams
	Biofiltration	Because of the uncertainties involved in the biological process, pilot testing may be necessary for some applications
	Membrane Technology	Recommended for low flow, high VOC concentration exhaust streams Useful for recovering high-value solvents

TABLE 5. SUMMARY OF TECHNICAL ISSUES

Control Option	Favorability Rating (1=high; 0=medium;-1=low)						Total Score (Higher number = Higher technical feasibility)
	Reliably meets 75% control	Applicable to variable flow, low- to medium-concentration	Plant familiarity	Regulated community familiarity	Few secondary environmental impacts	Few design, operating, maintenance challenges	
Use of Existing Boilers, Process Heaters	0	0	0	0	1	-1	0
	<ul style="list-style-type: none"> • In order to meet performance level of 98% VOC control, engineering design improvements will be necessary to accommodate the variable flow rates and heat contents of the VOC emission streams. Must ensure that safety and reliability are not compromised • PPG does not operate boilers/process heaters in the vicinity of its VOC emissions sources • Must ensure that modifications do not impede operator performance or production • Since existing equipment was not originally designed for this project, this option could require extraordinary testing, monitoring, and/or recordkeeping requirements to assure compliance with RACT • USEPA notes that boilers/process heaters are most applicable where high heat recovery potential exists; the gas streams at the paint plant contain low-VOC concentrations, so little heat recovery is expected. 						
Use of Existing Thermal Oxidizer	1	1	1	1	1	0	5
	<ul style="list-style-type: none"> • In order to meet performance level of 98% VOC control, engineering design improvements will be necessary to accommodate the additional load. Must ensure that safety and reliability are not compromised • Must ensure that modifications do not impede operator performance or production • Familiarity with this technology could simplify RACT permitting 						
Thermal Oxidation	1	0	0	1	1	0	3
	<ul style="list-style-type: none"> • Perform best at VOC concentrations above 100 ppmv and flowrates above several hundred scfm 						
Catalytic Oxidation	1	1	0	1	0	0	3
	<ul style="list-style-type: none"> • Catalytic oxidation is similar to thermal oxidation with heat recovery but with the additional complexity of maintaining the catalyst in proper working order. • Thermal oxidation is preferred for low-flow applications. • Exhaust streams contain a long list of chemicals, all of which will have to be evaluated for their potential to deactivate the catalyst • Generates solid waste from the removal and disposal of spent catalyst • Often requires expensive pretreatment initiatives, including dilution, particulate removal, and preheating 						

TABLE 5. SUMMARY OF TECHNICAL ISSUES

Control Option	Favorability Rating (1=high; 0=medium;-1=low)						Total Score (Higher number = Higher technical feasibility)
	Reliably meets 75% control	Applicable to variable flow, low- to medium-concentration	Plant familiarity	Regulated community familiarity	Few secondary environmental impacts	Few design, operating, maintenance challenges	
Volume Concentrators	1	0	-1	1	0	-1	0
	<ul style="list-style-type: none"> Recommended for very high flowrates (>10,000 scfm) Unnecessarily complex to design, operate, and maintain for the exhaust stream conditions in the paint plant 						
Flares	1	1	-1	1	-1	-1	0
	<ul style="list-style-type: none"> Can produce undesirable noise, smoke, heat radiation, and light 						
Emerging VOC Abatement Technologies	-1	0	-1	-1	0	-1	-4
	<ul style="list-style-type: none"> Unproven and unreliable for large-scale commercial applications 						
Adsorption	1	-1	1	1	-1	-1	0
	<ul style="list-style-type: none"> Exhaust gas has negligible economic value; therefore, recovery is unimportant in equipment selection Spent adsorbent must be managed as solid/hazardous waste Regenerable adsorption systems would be unnecessarily complex to design, operate, and maintain for low flow conditions Disposable canisters are preferred for low flow conditions, but they may require more maintenance than competing technologies in order to maintain the performance level of 98% VOC control Exhaust gas contains ketones, which have high heats of adsorption that would tend to increase the bed temperature Complex and varying mixture of organic species that are a result of the many different coatings manufactured could reduce carbon retentivity and lower overall system efficiency 						
Absorption (Scrubbing)	0	0	0	1	-1	0	0
	<ul style="list-style-type: none"> Exhaust gas has negligible economic value; therefore, recovery is unimportant in equipment selection Proper design depends on availability of vapor/liquid equilibrium data for the specific organic/solvent system that may not be readily available for the mix of VOCs in the exhaust stream May create liquid disposal issues 						

TABLE 5. SUMMARY OF TECHNICAL ISSUES

Control Option	Favorability Rating (1=high; 0=medium;-1=low)						Total Score (Higher number = Higher technical feasibility)
	Reliably meets 75% control	Applicable to variable flow, low- to medium-concentration	Plant familiarity	Regulated community familiarity	Few secondary environmental impacts	Few design, operating, maintenance challenges	
Condensation	0	-1	0	1	-1	0	-1
	<ul style="list-style-type: none"> Exhaust gas has negligible economic value; therefore, recovery is unimportant in equipment selection Not recommended for exhaust streams with a wide range of VOC concentrations and components Spent coolant may create liquid disposal issues 						
Biofiltration	0	0	-1	0	1	0	0
	<ul style="list-style-type: none"> May not reliably achieve adequate VOC destruction for exhaust gases containing polyaromatic compounds Limited commercial use and regulatory experience with this technology as a VOC control; therefore, could require extraordinary testing, monitoring, and/or recordkeeping requirements to assure compliance with any performance standard 						
Membrane Technology	0	0	-1	0	0	0	-1
	<ul style="list-style-type: none"> Exhaust gas has negligible economic value; therefore, recovery is unimportant in equipment selection May not reliably achieve adequate VOC destruction for exhaust gases containing wide range of VOC concentrations and components Limited commercial use and regulatory experience with this technology as a VOC control; therefore, could require extraordinary testing, monitoring, and/or recordkeeping requirements to assure compliance with any performance standard 						

TABLE 6. ECONOMIC EVALUATION

Baseline VOC Emissions (tpy)	Control Option	Post-control Emissions (tpy)	Emissions Reductions (tpy)	Investment (\$)	Annualized Costs (\$/yr)	Average Cost Effectiveness (\$/ton VOC removed)
USEPA’s ACA Software Tool						
26	Upgrade of Existing RTO	3.1	22.9	765,750	286,050	12,491
	New RTO			1,021,000	381,400	16,655
“Practical Solutions” Document						
26	Upgrade of Existing RTO	3.1	22.9	1,280,000	512,000	22,358
	New RTO			1,707,000	683,000	29,825

Post-control emissions assume that the thermal oxidizer – with a VOC control efficiency of 98% - will be down approximately 10% of the operating hours per year. This estimate is consistent with the recent operating experience of the existing thermal oxidizer at the Springdale paint plant.

$$\text{Post-control emissions} = (26 \text{ tpy})(0.1) + (26 \text{ tpy})(0.9)(0.02) = 3.1 \text{ tpy}$$

APPENDIX A

Background Information for RACT Economic Evaluation

Practical Solutions for Reducing Volatile Organic Compounds and Hazardous Air Pollutants

Edward C. Moretti
Baker Environmental

CWRT
An AIChE Industry
Technology Alliance
Center for Waste Reduction Technologies
of the
American Institute of Chemical Engineers
3 Park Avenue
New York, New York 10016-5991

60 Chapter 4. Comparison of VOC and HAP Abatement Technologies

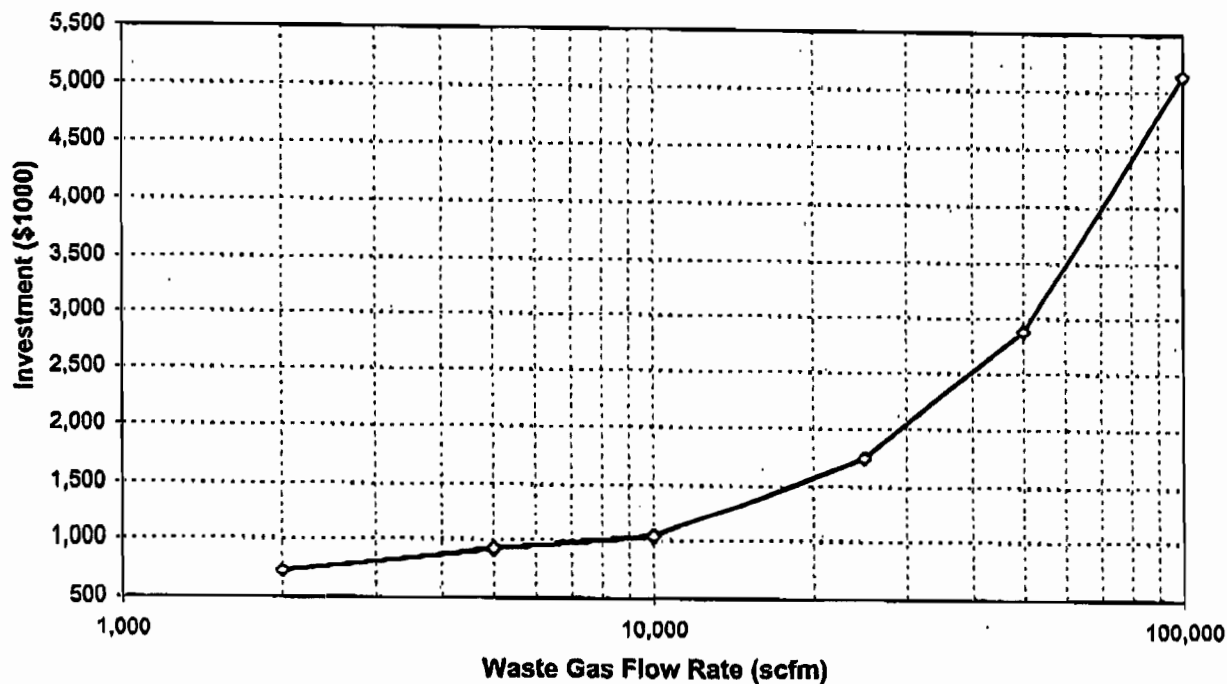


Figure 4-9. Investment—regenerative thermal oxidizer (year 2000 dollars).

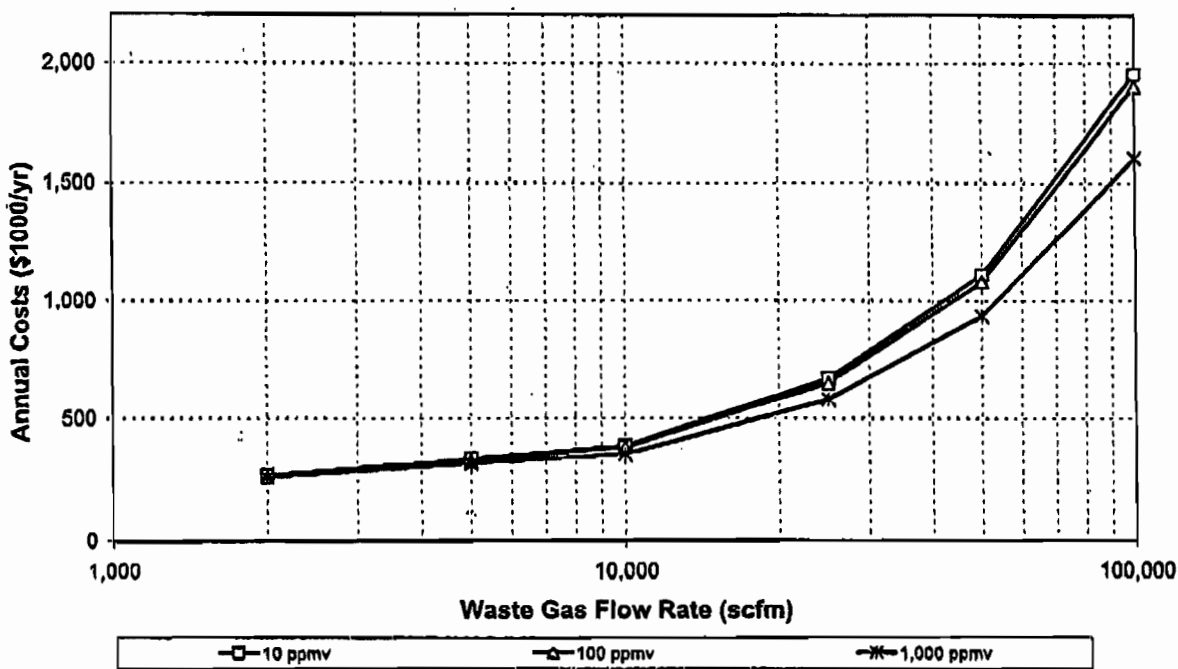


Figure 4-10. Annual costs—regenerative thermal oxidizer (10-year period; year 2000 dollars).

APPENDIX B

USEPA ACA Sample Report

Control Technology Analysis for Scenario: New Paint Plant RTO (4,800 cfm)

AIR POLLUTION CONTROL TECHNOLOGY ANALYSIS REPORT FOR CONTROL SCENARIO: [New Paint Plant RTO (4,800 cfm)]

TABLE OF CONTENTS

Section 1: Scenario Description & Assumptions

Section 2: Control Device Applicability Summary Report

Section 3: Cost Summary Report



Important:

- All sections of the report **MUST** be considered for any analysis.
- The results presented in this report only applies to the Scenario Description & Assumptions presented in Section 1. Please review all of the data and assumptions presented in Section 1 to insure applicabilty to your situation.

SECTION 1: Scenario Description & Assumptions

SECTION 1.1: Cost Data

Parameter	Cost
Interest Rate	7%
Operating Labor Pay Rate	40.00 "dollar/hr"
Maintenance Labor Pay Rate	40.00 "dollar/hr"
Electricity Cost	1.172E-5 "dollar/btu"
Natural Gas Cost	0.0033 "dollar/ft ³ "
Cooling Water Cost	0.001496 "dollar/ft ³ "
Water Disposal Cost	0.02843 "dollar/ft ³ "
Steam Cost	9.3 "dollar/ton"
Dust Disposal Cost	4.75 "dollar/ton"

SECTION 1.2: Stream Data

Stream Parameter	Value
Stream Temperature	559.7 "R" (100.0 "F")
Stream Pressure	14.696 "psi"
Volumetric Flow Rate - Actual	5,303 "cfm"
Volumetric Flow Rate - At STP	5,000 "cfm"
Chemical Name	Toluene
» Volumetric Concentration	400 ppm
» Mass Concentration at STP	9.565E-5 "lb/ft ³ "
» Mass Concentration at Actual	9.018E-5 "lb/ft ³ "
» Mass Flow Rate	28.7 "lb/hr"
Chemical Name	N-Butanol
» Volumetric Concentration	620 ppm
» Mass Concentration at STP	1.193E-4 "lb/ft ³ "

» Mass Concentration at Actual	1.125E-4 "lb/ft ³ "
» Mass Flow Rate	35.78 "lb/hr"
Chemical Name	Xylenes (isomers and mixture)
» Volumetric Concentration	420 ppm
» Mass Concentration at STP	1.157E-4 "lb/ft ³ "
» Mass Concentration at Actual	1.091E-4 "lb/ft ³ "
» Mass Flow Rate	34.72 "lb/hr"
Chemical Name	Methyl Isobutyl Ketone
» Volumetric Concentration	280 ppm
» Mass Concentration at STP	7.279E-5 "lb/ft ³ "
» Mass Concentration at Actual	6.862E-5 "lb/ft ³ "
» Mass Flow Rate	21.84 "lb/hr"
Chemical Name	Ethylbenzene
» Volumetric Concentration	60 ppm
» Mass Concentration at STP	1.653E-5 "lb/ft ³ "
» Mass Concentration at Actual	1.559E-5 "lb/ft ³ "
» Mass Flow Rate	4.96 "lb/hr"

SECTION 1.3: Operational Data

Operational Parameter	Value
Yearly Operating Hours	8,000 hr
Duty Cycle	continuous

SECTION 1.4: Control Requirements

Pollutant-type	Reduction Efficiency Considered
VOC	98%
PM	0%

SECTION 1.5: Other Assumptions & Notes

1. Cost estimates are valid to within $\pm 30\%$
2. Both the "Applicability Summary Report" and the "Basic-Level Detail Report" will be presented.
3. To change the reporting level, select a new report level from ACA's Options | Report Level menu bar.
4. Notes on VOC/HAP Applicability Analysis: The "VOC/HAP Applicability Grade Scheme" in the ACA provides a relative applicability grade of VOC control technologies. This grading scheme is similar to the grading scheme outlined in "Selecting the Most Appropriate HAP Emissions Control Technology," The Air Pollution Consultant, Volume 3, Issue 2, March/April 1993. A few modifications have been made to adapt the grading scheme to the ACA. Keep in mind that the the grading scheme does not include:
 1. Flow rate
 2. HAP concentration
 3. Removal efficiency
 4. Pressure drop

These four parameters are all accounted for in the cost of the control technology.

The highest applicability grade is 40, and is comprised of 4 factors with different weighting, namely:

1. The relative applicability due to the state (i.e., phase) of the pollutant to control with a weighting factor of 2X
2. The relative applicability of the control device for the operating schedule/duty cycle of the pollutant stream with a weighting factor of 2X
3. The relative reliability of the control device for the pollutant stream of interest with a weighing factor of 1X
4. The relative applicability of the control device to the pollutant properties in the stream to control (e.g., organic, aminated, etc.) with a weighting factor of 3X.

SECTION 2: CONTROL DEVICE APPLICABILITY SUMMARY REPORT

This section contains information on the applicability of VOC control devices that can meet the target VOC reduction efficiency of: 98.0 percent.

SECTION 2.1: Control Device Applicability Summary Report for: Water Absorption

SECTION 2.1.1: Bottomline of Applicability for: Water Absorption

"Water Absorption" are potentially applicable.

SECTION 2.1.2: Detailed Applicability information for: Water Absorption



Important:

Applicability Limitations, Warnings, and other Important Notes:

- The ACA offers two ways to model gas absorbers: 1) a graphical approach; and 2) an approach that uses the Henry's Law coefficient. The default approach is using the Henry's Law coefficient since this can be done using chemical properties that are readily available in the ACA database and are not dependent on the specifics of the pollutant stream concentration and removal efficiency desired. The Graphical Method is more accurate, but requires a graph of the equilibrium curve and operating line. Obtaining the data required for the Graphical Method will be more difficult than the more simplistic approach of using the Henry's Law Approach. The Graphical Approach requires that the following two additional parameters: 1) the Outlet equilibrium pollution concentration in solvent, X_o^* (on the op. line); and 2) the Gas pollution concentration in equilibrium with X_o (Y_o^*). The Henry's Law Approach requires the Henry's Law Coefficient to be entered. To select a different gas absorber model, use the slot "Absorber Model Approach".
- Currently the ACA absorber model is designed for 1-pollutant emission streams. With the pollutant stream under consideration there are 5 pollutants. As a rough cut approximation the ACA selects the pollutant that has the highest emissions (i.e., volumetric concentration). This is not an optimum selection criteria and therefore it is advisable to test out the other chemicals in the pollutant stream as the "Limiting Chemical" to make sure that absorbers are applicable as well as the estimated capital and operating costs are reasonable.

- When using the Henry's Law Approach, the ACA estimates the slope of the equilibrium line using the Henry's Law constant. In the case of the ACA this constant is typically valid only at or near standard temperature and only valid at low concentrations.
- **SERIOUS WARNING:** The inlet pollution stream temperature is outside of the acceptable temperature range for which the Henry's Law constant is valid. The results presented here should be considered suspect and either the Graphical Approach should be used or more accurate Henry's Law data should be used.
- The desired reduction efficiency exceeds the normal efficiency achievable by an ABsorber
- The estimates provided assume NO re-circulation of the solvent in the system. If there is there will be some re-circulation of the solvent then the amount of re-circulation needs to be entered in to the ACA in the slot "Fraction of Absorber-liquid Recycled". One example of where re-circulation would take place is if additives were used to react with the pollutant and could be removed from the solvent - leaving the solvent in a state where it could once again absorb pollutants from the gas stream
- The cost for Additives is NOT included here. If your system requires the use of Additives you will need to calculate the annual cost and enter it into the ACA in the slot "Annual Cost of Additives".
- The default Auxiliary Equipment cost estimate includes the cost for the fan, fan motor, and pump. Additional auxiliary equipment costs may be required, including (for example) instruments and controls, piping/ductwork, and stack.
- An attempt to escalate costs to a month/year beyond what the ACA has cost indices for was made. Therefore, the most current ACA cost indices were to escalate costs, namely: february, 2003. Contact the ACA developers if you would like to have the cost indices updated.
- Recovery Credit/Disposal Cost can't be determined. Go to the Chemical Library and set the "current value of the chemical" parameter for the pollutant of interest.

SECTION 2.1.3: Relative VOC/HAP Applicability Grade for: Water Absorption



Important:

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.2: Control Device Applicability Summary Report for: fixed bed Catalytic Incinerator

SECTION 2.2.1: Bottomline of Applicability for: fixed bed Catalytic Incinerator

"fixed bed Catalytic Incinerator" are potentially applicable.

SECTION 2.2.2: Detailed Applicability information for:fixed bed Catalytic Incinerator



Important:

Applicability Limitations, Warnings, and other Important Notes:

- The desired destruction efficiency is above the 'normally achievable' but below the 'maximum achievable' efficiencies, so actual costs may be higher than are predicted here.
- When evaluating the applicability of the cost estimates for incinerators there are a few device specific variables with associated values that you should consider for your situation. These include, but are not limited to, the fuel heat of combustion, the heat exchanger efficiency, and the operating temperature. For example, the ACA tends to be more conservative than the EPA Air Pollution Cost Manual in its calculation of the operating temperatures for regenerative and recuperative incinerators; with increased operating temperatures for halogenated streams as well as for removal efficiencies above 98%.
- Auxiliary Equipment costs are NOT included in the cost estimates - an estimate should be obtained before comparing costs with other control devices. The following is an example of the items that should be considered in estimating the auxiliary equipment cost: hoods, ductwork, precoolers, cyclones, fans, motors, and stacks.
- An attempt to escalate costs to a month/year beyond what the ACA has cost indices for was made. Therefore, the most current ACA cost indices were to escalate costs, namely: february, 2003. Contact the ACA developers if you would like to have the cost indices updated.
- Auxiliary equipment costs to connect the control device to the pollutant source, utilities, and a stack (as needed) are not included.

SECTION 2.2.3: Relative VOC/HAP Applicability Grade for: fixed bed Catalytic Incinerator**Important:**

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.3: Control Device Applicability Summary Report for: fluidized bed Catalytic Incinerator**SECTION 2.3.1: Bottomline of Applicability for: fluidized bed Catalytic Incinerator**

"fluidized bed Catalytic Incinerator" are potentially applicable.

SECTION 2.3.2: Detailed Applicability information for: fluidized bed Catalytic Incinerator**Important:**

Applicability Limitations, Warnings, and other Important Notes:

- The desired destruction efficiency is above the 'normally achievable' but below the 'maximum achievable' efficiencies, so actual costs may be higher than are predicted here.
- When evaluating the applicability of the cost estimates for incinerators there are a few device specific variables with associated values that you should consider for your situation. These include, but are not limited to, the fuel heat of combustion, the heat exchanger efficiency, and the operating temperature. For example, the ACA tends to be more conservative than the EPA Air Pollution Cost Manual in its calculation of the operating temperatures for regenerative and recuperative incinerators; with increased operating temperatures for halogenated streams as well as for removal efficiencies above 98%.
- Auxiliary Equipment costs are NOT included in the cost estimates - an estimate should be obtained before comparing costs with other control devices. The following is an example of the items that should be considered in estimating the auxiliary equipment cost: hoods, ductwork, precoolers, cyclones, fans, motors, and stacks.

- An attempt to escalate costs to a month/year beyond what the ACA has cost indices for was made. Therefore, the most current ACA cost indices were to escalate costs, namely: february, 2003. Contact the ACA developers if you would like to have the cost indices updated.
- Auxiliary equipment costs to connect the control device to the pollutant source, utilities, and a stack (as needed) are not included.

SECTION 2.3.3: Relative VOC/HAP Applicability Grade for: fluidized bed Catalytic Incinerator



Important:

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.4: Control Device Applicability Summary Report for: Recuperative Thermal Incinerator

SECTION 2.4.1: Bottomline of Applicability for: Recuperative Thermal Incinerator

"Recuperative Thermal Incinerator" are potentially applicable.

SECTION 2.4.2: Detailed Applicability information for:Recuperative Thermal Incinerator



Important:

Applicability Limitations, Warnings, and other Important Notes:

- When evaluating the applicability of the cost estimates for incinerators there are a few device specific variables with associated values that you should consider for your situation. These include, but are not limited to, the fuel heat of combustion, the heat exchanger efficiency, and the operating temperature. For example, the ACA tends to be more conservative than the EPA Air Pollution Cost Manual in its calculation of the operating temperatures for regenerative and recuperative incinerators; with increased operating temperatures for halogenated streams as well as for removal efficiencies above 98%.

- Auxiliary Equipment costs are NOT included in the cost estimates - an estimate should be obtained before comparing costs with other control devices. The following is an example of the items that should be considered in estimating the auxiliary equipment cost: hoods, ductwork, precoolers, cyclones, fans, motors, and stacks.
- An attempt to escalate costs to a month/year beyond what the ACA has cost indices for was made. Therefore, the most current ACA cost indices were to escalate costs, namely: february, 2003. Contact the ACA developers if you would like to have the cost indices updated.
- Auxiliary equipment costs to connect the control device to the pollutant source, utilities, and a stack (as needed) are not included.

SECTION 2.4.3: Relative VOC/HAP Applicability Grade for: Recuperative Thermal Incinerator



Important:

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.5: Control Device Applicability Summary Report for: Regenerative Thermal Incinerator (RTO)

SECTION 2.5.1: Bottomline of Applicability for: Regenerative Thermal Incinerator (RTO)

"Regenerative Thermal Incinerator (RTO)" are potentially applicable.

SECTION 2.5.2: Detailed Applicability information for:Regenerative Thermal Incinerator (RTO)



Important:

Applicability Limitations, Warnings, and other Important Notes:

- When evaluating the applicability of the cost estimates for incinerators there are a few device specific variables with associated values that you should consider for your

situation. These include, but are not limited to, the fuel heat of combustion, the heat exchanger efficiency, and the operating temperature. For example, the ACA tends to be more conservative than the EPA Air Pollution Cost Manual in its calculation of the operating temperatures for regenerative and recuperative incinerators; with increased operating temperatures for halogenated streams as well as for removal efficiencies above 98%.

- Auxiliary Equipment costs are NOT included in the cost estimates - an estimate should be obtained before comparing costs with other control devices. The following is an example of the items that should be considered in estimating the auxiliary equipment cost: hoods, ductwork, precoolers, cyclones, fans, motors, and stacks.
- An attempt to escalate costs to a month/year beyond what the ACA has cost indices for was made. Therefore, the most current ACA cost indices were to escalate costs, namely: february, 2003. Contact the ACA developers if you would like to have the cost indices updated.
- Auxiliary equipment costs to connect the control device to the pollutant source, utilities, and a stack (as needed) are not included.

SECTION 2.5.3: Relative VOC/HAP Applicability Grade for: Regenerative Thermal Incinerator (RTO)



Important:

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.6: Control Device Applicability Summary Report for: Self Support Flare

SECTION 2.6.1: Bottomline of Applicability for: Self Support Flare

"Self Support Flare" are potentially applicable.

SECTION 2.6.2: Detailed Applicability information for: Self Support Flare**Important:**

Applicability Limitations, Warnings, and other Important Notes:

- An attempt to escalate costs to a month/year beyond what the ACA has cost indices for was made. Therefore, the most current ACA cost indices were to escalate costs, namely: february, 2003. Contact the ACA developers if you would like to have the cost indices updated.
- Auxiliary equipment costs to connect the control device to the pollutant source, utilities, and a stack (as needed) are not included.

SECTION 2.6.3: Relative VOC/HAP Applicability Grade for: Self Support Flare**Important:**

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.7: Control Device Applicability Summary Report for: Derrick Support Flare**SECTION 2.7.1: Bottomline of Applicability for: Derrick Support Flare**

"Derrick Support Flare" are NOT applicable.

SECTION 2.7.2: Detailed Applicability information for: Derrick Support Flare**Caution:**

Non-Applicability Warnings:

- Derrick Supported Flares are only available in heights great than 300 feet. The calculated flare height is: 72.32 "ft".

SECTION 2.7.3: Relative VOC/HAP Applicability Grade for: Derrick Support Flare**Important:**

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.8: Control Device Applicability Summary Report for: Guy Support Flare**SECTION 2.8.1: Bottomline of Applicability for: Guy Support Flare**

"Guy Support Flare" are NOT applicable.

SECTION 2.8.2: Detailed Applicability information for: Guy Support Flare**Caution:**

Non-Applicability Warnings:

- Guy Supported Flares are only available in the heights of 200 - 300 feet. The calculated flare height is: 72.32 "ft".

SECTION 2.8.3: Relative VOC/HAP Applicability Grade for: Guy Support Flare**Important:**

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.9: Control Device Applicability Summary Report for: Small Single Stage Condenser

SECTION 2.9.1: Bottomline of Applicability for: Small Single Stage Condenser

"Small Single Stage Condenser" are NOT applicable.

SECTION 2.9.2: Detailed Applicability information for: Small Single Stage Condenser



Caution:

Non-Applicability Warnings:

- Refrigeration capacity is greater than 10 tons
- Weighted condensation temperature is ≤ 435.0 "R" (-24.7 "F")

SECTION 2.9.3: Relative VOC/HAP Applicability Grade for: Small Single Stage Condenser



Important:

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.10: Control Device Applicability Summary Report for: Large Single Stage Condenser

SECTION 2.10.1: Bottomline of Applicability for: Large Single Stage Condenser

"Large Single Stage Condenser" are potentially applicable.

SECTION 2.10.2: Detailed Applicability information for: Large Single Stage Condenser



Important:

Applicability Limitations, Warnings, and other Important Notes:

- Auxiliary Equipment costs are NOT included in the cost estimates - an estimate should be obtained before comparing costs with other control devices. The following is an example of the items that should be considered in estimating the auxiliary equipment cost: precooler, recovered VOC storage tank, pumps/blowers, and piping/ductwork.
- An attempt to escalate costs to a month/year beyond what the ACA has cost indices for was made. Therefore, the most current ACA cost indices were to escalate costs, namely: february, 2003. Contact the ACA developers if you would like to have the cost indices updated.
- Auxiliary equipment costs to connect the control device to the pollutant source, utilities, and a stack (as needed) are not included.
- Recovery Credit/Disposal Cost can't be determined. Go to the Chemical Library and set the "current value of the chemical" parameter for the pollutant of interest.

SECTION 2.10.3: Relative VOC/HAP Applicability Grade for: Large Single Stage Condenser



Important:

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.11: Control Device Applicability Summary Report for: Multi-Stage Condenser

SECTION 2.11.1: Bottomline of Applicability for: Multi-Stage Condenser

"Multi-Stage Condenser" are potentially applicable.

SECTION 2.11.2: Detailed Applicability information for: Multi-Stage Condenser**Important:**

Applicability Limitations, Warnings, and other Important Notes:

- Auxiliary Equipment costs are NOT included in the cost estimates - an estimate should be obtained before comparing costs with other control devices. The following is an example of the items that should be considered in estimating the auxiliary equipment cost: precooler, recovered VOC storage tank, pumps/blowers, and piping/ductwork.
- An attempt to escalate costs to a month/year beyond what the ACA has cost indices for was made. Therefore, the most current ACA cost indices were to escalate costs, namely: february, 2003. Contact the ACA developers if you would like to have the cost indices updated.
- Auxiliary equipment costs to connect the control device to the pollutant source, utilities, and a stack (as needed) are not included.
- Recovery Credit/Disposal Cost can't be determined. Go to the Chemical Library and set the "current value of the chemical" parameter for the pollutant of interest.

SECTION 2.11.3: Relative VOC/HAP Applicability Grade for: Multi-Stage Condenser**Important:**

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.12: Control Device Applicability Summary Report for: Small Single Stage Custom Condenser**SECTION 2.12.1: Bottomline of Applicability for: Small Single Stage Custom Condenser**

"Small Single Stage Custom Condenser" are NOT applicable.

SECTION 2.12.2: Detailed Applicability information for: Small Single Stage Custom Condenser**Caution:****Non-Applicability Warnings:**

- Refrigeration capacity is greater than 10 tons
- Weighted condensation temperature is ≤ 435.0 "R" (-24.7 "F")

SECTION 2.12.3: Relative VOC/HAP Applicability Grade for: Small Single Stage Custom Condenser**Important:**

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.13: Control Device Applicability Summary Report for: Large Single Stage Custom Condenser**SECTION 2.13.1: Bottomline of Applicability for: Large Single Stage Custom Condenser**

"Large Single Stage Custom Condenser" are potentially applicable.

SECTION 2.13.2: Detailed Applicability information for: Large Single Stage Custom Condenser**Important:****Applicability Limitations, Warnings, and other Important Notes:**

- Error writing out Warnings and Notes - contact the developers of the ACA.

SECTION 2.13.3: Relative VOC/HAP Applicability Grade for: Large Single Stage Custom Condenser**Important:**

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.14: Control Device Applicability Summary Report for: 1 Bed Carbon Adsorption System**SECTION 2.14.1: Bottomline of Applicability for: 1 Bed Carbon Adsorption System**

"1 Bed Carbon Adsorption System" are NOT applicable.

SECTION 2.14.2: Detailed Applicability information for: 1 Bed Carbon Adsorption System**Caution:**

Non-Applicability Warnings:

- A single-bed Adsorber cannot handle a continuous duty cycle.

SECTION 2.14.3: Relative VOC/HAP Applicability Grade for: 1 Bed Carbon Adsorption System**Important:**

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.15: Control Device Applicability Summary Report for: 2 Bed Carbon Adsorption System

SECTION 2.15.1: Bottomline of Applicability for: 2 Bed Carbon Adsorption System

"2 Bed Carbon Adsorption System" are potentially applicable.

SECTION 2.15.2: Detailed Applicability information for: 2 Bed Carbon Adsorption System



Important:

Applicability Limitations, Warnings, and other Important Notes:

- Verify that the "Adsorption time" considered meets the needs of your application. As a rule-of-thumb, the optimum regeneration frequency for a fixed-bed carbon adsorber treating streams with moderate to high VOC inlet loadings is once every 8 to 12 hours (a default of 10 hours is used in the ACA). Reducing the "Adsorption time" can significantly reduce the cost, but may tend to shorten the carbon life. Adjust the "Adsorption time" as needed.
- Carbon requirement model is designed for 1-pollutant streams. The stream of interest has more than one pollutant. A conservative estimate will be made & should be considered as less reliable.
- The Yaws Method was used to calculate the carbon requirements.
- Auxiliary Equipment costs are NOT included in the cost estimates - an estimate should be obtained before comparing costs with other control devices. The following is an example of the items that should be considered in estimating the auxiliary equipment cost: ductwork, dampers, and stack.
- An attempt to escalate costs to a month/year beyond what the ACA has cost indices for was made. Therefore, the most current ACA cost indices were to escalate costs, namely: february, 2003. Contact the ACA developers if you would like to have the cost indices updated.
- Auxiliary equipment costs to connect the control device to the pollutant source, utilities, and a stack (as needed) are not included.
- Recovery Credit/Disposal Cost can't be determined. Go to the Chemical Library and set the "current value of the chemical" parameter for the pollutant of interest.

SECTION 2.15.3: Relative VOC/HAP Applicability Grade for: 2 Bed Carbon Adsorption System



Important:

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.

SECTION 2.16: Control Device Applicability Summary Report for: 3 Bed Carbon Adsorption System

SECTION 2.16.1: Bottomline of Applicability for: 3 Bed Carbon Adsorption System

"3 Bed Carbon Adsorption System" are potentially applicable.

SECTION 2.16.2: Detailed Applicability information for: 3 Bed Carbon Adsorption System



Important:

Applicability Limitations, Warnings, and other Important Notes:

- Verify that the "Adsorption time" considered meets the needs of your application. As a rule-of-thumb, the optimum regeneration frequency for a fixed-bed carbon adsorber treating streams with moderate to high VOC inlet loadings is once every 8 to 12 hours (a default of 10 hours is used in the ACA). Reducing the "Adsorption time" can significantly reduce the cost, but may tend to shorten the carbon life. Adjust the "Adsorption time" as needed.
- Carbon requirement model is designed for 1-pollutant streams. The stream of interest has more than one pollutant. A conservative estimate will be made & should be considered as less reliable.
- The Yaws Method was used to calculate the carbon requirements.
- Auxiliary Equipment costs are NOT included in the cost estimates - an estimate should be obtained before comparing costs with other control devices. The following is an example of the items that should be considered in estimating the auxiliary equipment cost: ductwork, dampers, and stack.

- An attempt to escalate costs to a month/year beyond what the ACA has cost indices for was made. Therefore, the most current ACA cost indices were to escalate costs, namely: february, 2003. Contact the ACA developers if you would like to have the cost indices updated.
- Auxiliary equipment costs to connect the control device to the pollutant source, utilities, and a stack (as needed) are not included.
- Recovery Credit/Disposal Cost can't be determined. Go to the Chemical Library and set the "current value of the chemical" parameter for the pollutant of interest.

SECTION 2.16.3: Relative VOC/HAP Applicability Grade for: 3 Bed Carbon Adsorption System



Important:

There is not enough information known to determine the VOC/HAP Applicability Grade. For more details see note #3 in Section 1 of this report as well as Section 4 below on what data is missing. Section 4 is only presented when the report level is set at "Medium" or higher.



Note:

- The estimate for "Tank Volume" for Large Single Stage Custom Condenser assumes 8 hours of operation before the tank is emptied.

END SECTION 2

SECTION 3: COST SUMMARY REPORT

SECTION 3.1: Cost Summary Report for Water Absorption

Cost Parameter	Cost
Purchased Equipment Cost	\$3,350,894
Total Capital Investment	\$7,371,968
Utilities	\$15,169,362
Total Annualized Cost	\$16,577,798



Note:

1. Dollars are in february, 2003 dollars.
2. Cost Index used to escalate equipment costs from baseline data: 'cei'.

SECTION 3.2: Cost Summary Report for fixed bed Catalytic Incinerator

Cost Parameter	Cost
Purchased Equipment Cost	\$174,962
Total Capital Investment	\$281,689
Utilities	\$234,023
Total Annualized Cost	\$389,661



Note:

1. Dollars are in february, 2003 dollars.
2. Cost Index used to escalate equipment costs from baseline data: 'cei'.

SECTION 3.3: Cost Summary Report for fluidized bed Catalytic Incinerator

Cost Parameter	Cost
Purchased Equipment Cost	\$196,920
Total Capital Investment	\$317,040
Utilities	\$234,687
Total Annualized Cost	\$396,772



Note:

1. Dollars are in february, 2003 dollars.
2. Cost Index used to escalate equipment costs from baseline data: 'cei'.

SECTION 3.4: Cost Summary Report for Recuperative Thermal Incinerator

Cost Parameter	Cost
Purchased Equipment Cost	\$196,442
Total Capital Investment	\$316,272
Utilities	\$18,155
Total Annualized Cost	\$176,565



Note:

1. Dollars are in february, 2003 dollars.
2. Cost Index used to escalate equipment costs from baseline data: 'cei'.

SECTION 3.5: Cost Summary Report for Regenerative Thermal Incinerator (RTO)

Cost Parameter	Cost
Purchased Equipment Cost	\$387,003
Total Capital Investment	\$623,074
Utilities	\$18,487
Total Annualized Cost	\$232,851



Note:

1. Dollars are in february, 2003 dollars.
2. Cost Index used to escalate equipment costs from baseline data: 'cei'.

SECTION 3.6: Cost Summary Report for Self Support Flare

Cost Parameter	Cost
Purchased Equipment Cost	\$91,671
Total Capital Investment	\$176,008
Utilities	\$342,671
Total Annualized Cost	\$479,359



Note:

1. Dollars are in february, 2003 dollars.
2. Cost Index used to escalate equipment costs from baseline data: 'cei'.

SECTION 3.7: Cost Summary Report for Large Single Stage Condenser

Cost Parameter	Cost
Purchased Equipment Cost	\$413,664
Total Capital Investment	\$475,714
Utilities	\$1,228,352
Total Annualized Cost	\$1,400,341



Note:

1. Dollars are in february, 2003 dollars.
2. Cost Index used to escalate equipment costs from baseline data: 'cei'.

SECTION 3.8: Cost Summary Report for Multi-Stage Condenser

Cost Parameter	Cost
Purchased Equipment Cost	\$802,454
Total Capital Investment	\$922,822
Utilities	\$1,228,352
Total Annualized Cost	\$1,467,315



Note:

1. Dollars are in february, 2003 dollars.
2. Cost Index used to escalate equipment costs from baseline data: 'cei'.

SECTION 3.9: Cost Summary Report for Large Single Stage Custom Condenser

Cost Parameter	Cost
Purchased Equipment Cost	

**Warning:**

Calculation could not be performed due to the parameter 'Liquid Density @ STP' not being defined for the chemical/pollutant *N-Butanol*

**Note:**

1. Dollars are in february, 2003 dollars.

**Warning:**

Calculation could not be performed due to the parameter 'Liquid Density @ STP' not being defined for the chemical/pollutant *N-Butanol*

SECTION 3.10: Cost Summary Report for 2 Bed Carbon Adsorption System

Cost Parameter	Cost
Purchased Equipment Cost	

**Warning:**

Calculation could not be performed due to an undefined value (e.g. a parameter set to: ?). slot *adsorber.volumeper100lbcarbon* of object *2 Bed Carbon Adsorption System* is undefined. Give this parameter a value and try again.

**Note:**

1. Dollars are in february, 2003 dollars.

**Warning:**

Calculation could not be performed due to an undefined value (e.g. a parameter set to: ?). slot *adsorber.volumeper100lbcarbon* of object *2 Bed Carbon Adsorption System* is undefined. Give this parameter a value and try again.

SECTION 3.11: Cost Summary Report for 3 Bed Carbon Adsorption System

Cost Parameter	Cost
Purchased Equipment Cost	

**Warning:**

Calculation could not be performed due to an undefined value (e.g. a parameter set to: ?).
slot *adsorber.volumeper100lbcarbon* of object *3 Bed Carbon Adsorption System* is
undefined. Give this parameter a value and try again.

**Note:**

1. Dollars are in february, 2003 dollars.

**Warning:**

Calculation could not be performed due to an undefined value (e.g. a parameter set to: ?).
slot *adsorber.volumeper100lbcarbon* of object *3 Bed Carbon Adsorption System* is
undefined. Give this parameter a value and try again.

END SECTION 3

ALLEGHENY COUNTY HEALTH DEPARTMENT

IN RE:

PPG Industries, Inc.) PLAN APPROVAL ORDER
125 Colfax Street) AND AGREEMENT No. 254
Springdale, PA 15144) UPON CONSENT
Allegheny County

AND NOW, this 19th day of December, 1996,

WHEREAS, the Allegheny County Health Department, (hereafter referred to as "Department"), has determined that the PPG Industries, Inc., (hereafter referred to as "PPG"), 125 Colfax Street, Allegheny County, Springdale, PA 15144, as the operator and the owner of a resin and paint manufacturing facility at 125 Colfax Street, Allegheny County, Springdale, PA 15144 (hereafter referred to as "the facility"), is a major stationary source of volatile organic compounds (hereafter referred to as "VOCs") emissions as defined in Section 2101.20 of Article XXI, Rules and Regulations of the Allegheny County Health Department, Air Pollution Control (hereafter referred to as "Article XXI"); and

WHEREAS, the Department has determined that Section 2105.06 of Article XXI, entitled "Major Sources of Nitrogen Oxides & VOCs" is applicable to PPG's operations; and

WHEREAS, PPG has been in full compliance at all relevant times with all relevant requirements of Section 2105.06 of Article XXI; and

WHEREAS, PPG has timely submitted to the Department all of the documents required by Section 2105.06.b of Article XXI (hereafter collectively referred to as "the Proposal"); and

WHEREAS, the Department has determined, after review, that the Proposal is complete; and

WHEREAS, the Department has further determined, after review, that the Proposal, constitutes Reasonably Available Control Technology (hereafter referred to as "RACT") for control of VOC emissions from the facility; and

WHEREAS, the Department and PPG desire to memorialize the details of the Proposal by entry of this RACT Plan Approval Order and Agreement Upon Consent; and

WHEREAS, pursuant to Section 2109.03 of Article XXI, the Director of the Allegheny County Health Department or his designated representative may issue such orders as are necessary to aid in the enforcement of the provisions of Article XXI, notwithstanding the absence of any violation of any provision of Article XXI and of any condition causing, contributing to, or creating danger of air pollution;

NOW, THEREFORE, this day first written above, the Department, pursuant to Section 2109.03 of Article XXI, and upon agreement of the parties as hereinafter set forth, hereby issues the following RACT Plan Approval Order and Agreement upon Consent.

I. ORDER

RESIN PLANT

Gone

- 1.1. PPG shall not operate the Resin Plant at any time while generating VOC emissions unless the facility's REECO Thermal Oxidizer is in service and all associated emission control systems are operating as required below, with the exception of required maintenance and or repairs of the subject thermal oxidizer.**
- 1.2. The thermal oxidizer shall be properly maintained and operated at all times, with instrumentation to continuously monitor and record the incinerator temperature, with one of the three alternative requirements being met and maintained:**

 - a. Minimum VOC destruction efficiency of 95% by weight; or**
 - b. Maximum outlet concentration of 20 ppm VOC by volume(dry basis);**

or

c. Minimum incineration temperature of 1500°F

1.3. The thermal oxidizer destruction efficiency shall be determined every five years according to EPA approved test methods and Section §2108.02 of Article XXI.

1.4. All reactor vessels shall be equipped with condenser units at all times.

1.5. The following Resin process systems shall be vented to the thermal oxidizer unit at all times when generating VOC emissions;

a. Four reactor condenser vents(K-6,K-7,K-8 & K-9)

b. Five raw material weigh tanks

c. Four manual ejectors

d. Five mixers-resin thindown tanks

e. Seven blenders

1.6. Revent systems shall be provided for the following processes.

a. Molten raw material storage tanks

b. Molten raw material weigh tanks

c. Mixer unit during product dropping

d. Finished product tankwagon loading

- 1.7. Dispensing systems shall not be used unless they are of closed design or minimize free-fall of liquids.**
- 1.8. All process and control equipment shall be properly operated and maintained according to good engineering and air pollution control practices at all times.**
- 1.9. Process equipment cleaning shall be conducted to minimize VOC emissions.**
- 1.10. Floor cleaning operations shall employ waterbased cleaners. The use of solvents will be limited to spot cleaning.**
- 1.11. Records shall be kept by the facility to demonstrate compliance with the requirements of Section §2105.06 of Article XXI and Order No. 254. Such records shall provide sufficient data and calculations to clearly demonstrate that all requirements of this Section are met. All data and information required to determine compliance shall be recorded and maintained by the facility as required by Section 2105.06 of Article XXI and Order No. 254. Such records shall include, but not be limited to the following;**
- a. REECO Thermal Oxidizer destruction efficiency tests.**

b. Daily records of REECO Thermal Oxidizer operating temperatures.

- 1.12. All records shall be retained by the facility for at least five years and shall be made available to the Department upon request as required by §Section 2105.06.g.3 of Article XXI.

PAINT PLANT

REECO IS BACK FROM IP

- 1.13 PPG shall not allow process operations involving VOC's at the facility to operate unless all stationary mixers are equipped with covers which completely enclose the mixer openings, except for an opening no larger than necessary to allow for safe clearance for a mixer shaft. Such covers shall either extend at least one-half inch (1/2") beyond the outer rim of the vessel or be attached to the rim.
- 1.14. At no time shall PPG allow any stationary mixer operations at the facility unless all covers are closed at all times except when production, sampling, maintenance or inspection procedures otherwise requires access.
- 1.15. Portable and stationary vessels shall not be used at the facility to process products containing VOC's unless the covers are maintained in.

good condition, such that when in place, they maintain contact with their respective rims for at least ninety percent (90 %) of the circumference of the rim.

1.16. Dispensing systems shall not be used unless they are of closed design or minimize free-fall of liquids.

1.17. Filling of solvent borne coatings shall be not be ^{er} performed unless they are in a closed system.

1.18. All grinding mills shall be of completely closed design at all times.

1.19. All process and control equipment shall be properly operated and maintained according to good engineering and air pollution control practices at all times.

1.20. Process equipment cleaning shall be conducted to minimize VOC emissions.

1.21. Floor cleaning operations shall employ waterbase cleaners. The use of solvents will be limited to spot cleaning.

1.22. Records shall be kept by the facility to demonstrate compliance with the requirements of Section §2105.06 of Article XXI and Order No. 254.

Such records shall provide sufficient data and calculations to clearly demonstrate that all requirements of this Section are met. All data and information required to determine compliance shall be recorded and maintained by the facility as required by Section 2105.06 of Article XXI and Order No. 254. Such records shall include, but not be limited to the following;

- a. Records of specific solvents and quantities used.
- b. Records of paint production rates by number of batches and quantity of paint produced in each batch.

1.23. All records shall be retained by the facility for at least five years and shall be made available to the Department upon request as required by §Section 2105.06.g.3 of Article XXI.

II. AGREEMENT

The foregoing Plan Approval Order shall be enforced in accordance with and is subject to the following agreement of the parties, to wit:

- 2.1. The contents of this Order shall be submitted to the U.S. EPA as a revision to Allegheny County's portion of the Commonwealth of Pennsylvania's State Implementation Plan, (hereafter referred to as "SIP").
- 2.2. Failure to comply with any portion of this Order or Agreement is a violation of Article XXI that may subject PPG to civil proceedings, including injunctive relief, by the Department.
- 2.3. This Order does not, in any way, preclude, limit or otherwise affect any other remedies available to the

Bureau for violations of this Order or of Article XXI, including, but not limited to, actions to require the installation of additional pollution control equipment and the implementation of additional corrective operating practices.

2.4. PPG hereby consents to the foregoing Order and hereby knowingly waives all rights to appeal said Order, and the undersigned represents that he is authorized to consent to the Order and to enter into the RACT Plan Approval Order and Agreement Upon Consent on behalf of PPG.

2.5.

PPG acknowledges and understands that the purpose of this Agreement is to establish RACT for the control of emissions of VOCs from this facility. PPG further acknowledges and understands the possibility that the U.S. EPA may decide to not accept the Agreement portion of this RACT Plan Approval Order

NO
SIP

and Agreement by Consent as a revision to the Commonwealth of Pennsylvania's SIP. In the event that the said Agreement portion is not approved and accepted by the U.S. EPA, the Agreement shall be amended as necessary to conform with the Agreement reached by the U.S. EPA, the Department and PPG.

IN WITNESS WHEREOF, and intending to be legally bound,
the parties hereby consent to all of the terms and conditions of the
foregoing Plan Order and Agreement as of the date of the above
written.

PPG INDUSTRIES, INC

By: C F Wallace

(signature)

Print or type Name: Charles F. Wallace

Title: Plant Manager

Date: 12-11-96

ALLEGHENY COUNTY HEALTH DEPARTMENT

By: Bruce W. Dixon 12/19/96

Bruce W. Dixon, M.D., Director
Allegheny County Health Department

and By: Thomas J. Puzniak

Thomas J. Puzniak, Engineering Manager
Air Quality Program



AIR QUALITY PROGRAM
301 39th Street, Bldg. #7
Pittsburgh, PA 15201-1811

Title V Operating Permit
& Federally Enforceable State Operating Permit

Issued To: PPG Industries, Inc.

ACHD Permit #: 0057-OP18a

Facility: PPG Industries – Springdale Plant
125 Colfax Street
Springdale, PA 15144-1506


Date of Issuance: May 10, 2018

Amendment Date: February 28, 2020

Expiration Date: May 9, 2023

Renewal Date: December 9, 2022

Issued By:


JoAnn Truchan, P.E.
Section Chief, Engineering

Prepared By:



Bernadette Lipari
Air Quality Engineer

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AMENDMENTS:

DATE	SECTION(S)
02/28/20	Section V.A – revised Paint Plant thermal oxidizer efficiency; Sections V.A-F – Added citations for Ozone RACT II requirements.

I. CONTACT INFORMATION

Facility Location:	PPG Industries, Inc. – Springdale Plant 125 Colfax Street Springdale, PA 15144-1506	
Permittee/Owner:	PPG Industries, Inc. One PPG Place Pittsburgh, PA 15272-0000	
Permittee/Operator: (if not Owner)	PPG Industries, Inc. 125 Colfax Street Springdale, PA 15144-1506	
Responsible Official:	Mr. Perry Johnson	
Title:	Plant Manager – Industrial Coatings	
Company:	PPG Industries, Inc. – Springdale Plant	
Address:	125 Colfax Street Springdale, PA 15144-1506	
Telephone Number:	(412) 995-0662	
Fax Number:	(724) 274-3871	
Facility Contact:	Mr. Michael Webb	Mr. Todd Mikes
Title:	Paint Plant EHS Manager	Development Center EHS Manager
Telephone Number:	(724) 274-3889	(724) 274-3495
Fax Number:	(724) 274-3871	(724) 274-3871
E-mail Address:	mwebb@ppg.com	oftmikes@ppg.com

AGENCY ADDRESSES:

ACHD Engineer:	Bernadette Lipari
Title:	Air Quality Engineer
Telephone Number:	(412) 578-8142
Fax Number:	(412) 578-8144
E-mail Address:	bernadette.lipari@alleghenycounty.us
ACHD Contact:	Chief Engineer Allegheny County Health Department Air Quality Program 301 39th Street, Building #7 Pittsburgh, PA 15201-1811
EPA Contact:	Enforcement Programs Section (3AP12) USEPA Region III 1650 Arch Street Philadelphia, PA 19103-2029

II. FACILITY DESCRIPTION

PPG Industries, Inc. – Springdale Plant is a paint manufacturing plant and research & development facility. The paint plant produces coatings for aluminum extrusions, general industrial, and coil coating. Within the main paint manufacturing buildings is housed a series of technical laboratories providing testing and customer support for PPG Coatings. The paint manufacturing building also houses manufacturing support laboratories, which oversee the quality and other parameters of products, manufactured. The research and development plant provides scale-up support for resin manufacture and tests new resins used in coatings.

The facility is a major source of volatile organic compounds (VOC's) and hazardous air pollutants (HAP's), and a minor source of particulate matter (PM), particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), nitrogen oxides (NO_x), sulfur oxides (SO_x), and carbon monoxide (CO) as defined in Article XXI, §2101.20. The facility is also a minor source of greenhouse gas emissions (CO_{2e}) as defined in the U.S. EPA Greenhouse Gas Tailoring Rule.

The emission units regulated by this permit are summarized in Table II-1:

TABLE II-1: Emission Unit Identification

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
Paint Plant					
P001 P002	CP Cell Work Center				
	Coaxial/Mill – PM-205	Paint Plant RTO / Ohio Blowpipe	2,000 gallons	pigment, resin, solvent	S001 S002
	Coaxial/Mill – PM-206	Paint Plant RTO / Ohio Blowpipe	2,000 gallons	pigment, resin, solvent	S001 S002
	3 Mills – PM-1, 2, & 5		45 liters ea. & portable tanks	pigment, resin, solvent	
	Mill – PM-8		45 liters ea.	pigment, resin, solvent	
	Tanks 1102-1104	Paint Plant RTO / Ohio Blowpipe	1,100 gallons ea.	pigment, resin, solvent	S001 S002
	Tanks 2003-2004	Paint Plant RTO	2,000 gallons ea.	pigment, resin, solvent	S001
	Tanks 2301-2304	Paint Plant RTO	2,300 gallons ea.	pigment, resin, solvent	S001
	Tank 4001	Paint Plant RTO	4,000 gallons	pigment, resin, solvent	S001
	CP Tank 109	Paint Plant RTO / Ohio Blowpipe	17,200 gallons	pigment, resin, solvent	S001 S002
	10 hp Cowles	Paint Plant RTO / PVC Line Baghouse	n/a (portable tanks)	pigment, resin, solvent	S001 S005
P001 P002	Light Cell Work Center				
	Coaxial/Mill – PM-207	Paint Plant RTO / Ohio Blowpipe	2,000 gallons	pigment, resin, solvent	S001 S002
	Tanks 2008-2013	Paint Plant RTO	2,000 gallons ea.	pigment, resin, solvent	S001
	Tanks 4002-4004	Paint Plant RTO	4,000 gallons ea.	pigment, resin, solvent	S001

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	Tanks 4006-4007	Paint Plant RTO / Ohio Blowpipe	4,000 gallons ea.	pigment, resin, solvent	S001 S002
	Tanks 4009-4010	Paint Plant RTO / Ohio Blowpipe	4,000 gallons ea.	pigment, resin, solvent	S001 S002
	Coaxial – T-900	Paint Plant RTO / Ohio Blowpipe	900 gallons	pigment, resin, solvent	S001 S002
	Coaxial – T-1650	Paint Plant RTO / Ohio Blowpipe	1,650 gallons	pigment, resin, solvent	S001 S002
P001 P002	Dark Cell Work Center				
	Coaxial - 208	Paint Plant RTO / Ohio Blowpipe	2,000 gallons	pigment, resin, solvent	S001 S002
	Coaxial/Mill – PM-213	Paint Plant RTO / PVC Line Baghouse	2,000 gallons	pigment, resin, solvent	S001 S005
	Mill – PM-208		200 liter & portable tanks	pigment, resin, solvent	
	3 Mills – PM-4, 7, & 9	Paint Plant RTO / Ohio Blowpipe	45 liters ea. & portable tanks	pigment, resin, solvent	S001 S002
	Mill – PM-214	Paint Plant RTO / Ohio Blowpipe	200 liter & portable tanks	pigment, resin, solvent	S001 S002
	Tank 1101	Paint Plant RTO / Stationary Tank Dust Collector	1,100 gallons	pigment, resin, solvent	S001
	Tanks 1501-1507	Paint Plant RTO / Stationary Tank Dust Collector	1,500 gallons ea.	pigment, resin, solvent	S001
	Tanks 2001-2002	Paint Plant RTO / Stationary Tank Dust Collector	2,000 gallons ea.	pigment, resin, solvent	S001
	Tanks 2005-2007	Paint Plant RTO / Stationary Tank Dust Collector	2,000 gallons ea.	pigment, resin, solvent	S001
	Tank 4005	Paint Plant RTO / Stationary Tank Dust Collector	4,000 gallons	pigment, resin, solvent	S001
	Tank 4008	Paint Plant RTO / Stationary Tank Dust Collector	4,000 gallons	pigment, resin, solvent	S001
	Tanks 4011-4012	Paint Plant RTO / Stationary Tank Dust Collector	4,000 gallons ea.	pigment, resin, solvent	S001
	75 hp Cowles	Ohio Blowpipe	n/a (portable tanks)	pigment, resin, solvent	S002
	60 hp Cowles	Ohio Blowpipe	n/a (portable tanks)	pigment, resin, solvent	S002
	50 hp Cowles	Ohio Blowpipe	n/a (portable tanks)	pigment, resin, solvent	S002
	Automatic Tank Cleaner	Paint Plant RTO	Booth 3 & 4	solvent	S001

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
P001 P002	Large Batch Center				
	Mill – PM-6		45 liters	pigment, resin, solvent	
	Mill – PM-201		200 liters	pigment, resin, solvent	
	Mill – PM-203		200 liters	pigment, resin, solvent	
	Mill – PM-204		200 liters	pigment, resin, solvent	
	Tanks 102-104	Paint Plant RTO / Ohio Blowpipe	1,100 gallons ea.	pigment, resin, solvent	S001 S002
	Tank 105	Paint Plant RTO / Ohio Blowpipe	2,200 gallons	pigment, resin, solvent	S001 S002
	Tanks 106-107	Paint Plant RTO / Ohio Blowpipe	4,200 gallons ea.	pigment, resin, solvent	S001 S002
	Tanks 108-111	Paint Plant RTO / Ohio Blowpipe	4,500 gallons ea.	pigment, resin, solvent	S001 S002
	Tank 112	Paint Plant RTO / Ohio Blowpipe	3,600 gallons	pigment, resin, solvent	S001 S002
	Tank 113	Paint Plant RTO / Ohio Blowpipe	4,000 gallons	pigment, resin, solvent	
	Tanks 200-2024	Paint Plant RTO / Ohio Blowpipe	100 gallons ea.	pigment, resin, solvent	S001 S002
	Tank 203	Paint Plant RTO / Ohio Blowpipe	2,000 gallons	pigment, resin, solvent	S001 S002
	Tank 204	Paint Plant RTO / Ohio Blowpipe	2,500 gallons	pigment, resin, solvent	S001 S002
P001 P002	Environ Work Center				
	Coaxial/Mill – PM-210	Paint Plant RTO / Environ Baghouse	2,500 gallons	pigment, resin, solvent	S001 S003
	Coaxial/Mill – PM-211	Paint Plant RTO / Environ Baghouse	2,500 gallons	pigment, resin, solvent	S001 S003
	Coaxial/Mill – ET-1500	Paint Plant RTO / Environ Baghouse	2,100 gallons	pigment, resin, solvent	S001 S003
	Coaxial/Mill – ET-2000	Paint Plant RTO / Environ Baghouse	2,100 gallons	pigment, resin, solvent	S001 S003
	Mixers #1-3	Paint Plant RTO / Environ Baghouse	1,600 gallons ea.	pigment, resin, solvent	S001 S003
	Mixer #4	Paint Plant RTO / Environ Baghouse	2,000 gallons	pigment, resin, solvent	S001 S003
	Mixer #5	Paint Plant RTO / Environ Baghouse	2,700 gallons	pigment, resin, solvent	S001 S003
	Blenders #1-7	Paint Plant RTO / Environ Baghouse	5,200 gallons ea.	pigment, resin, solvent	S001 S003
	Blender #8	Paint Plant RTO / Environ Baghouse	3,800 gallons	pigment, resin, solvent	S001 S003
	Tanks 9-14	Paint Plant RTO / Environ Baghouse	4,250 gallons ea.	pigment, resin, solvent	S001 S003
	25 hp Cowles	Environ Baghouse	n/a (portable tanks)	pigment, resin, solvent	S003

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	Mill – PM-10		45 liter & portable tanks	pigment, resin, solvent	
P001 P002	Solvent Still				
	Solvent Still Vaporizer – Tank 101	Paint Plant RTO	4,000 gallons	waste solvent	S001
	Solvent Still Decanter – Tank 601	Paint Plant RTO	1,000 gallons	waste solvent	S001
	Solvent Still Receiver – Tank 102	Paint Plant RTO	3,000 gallons	waste solvent	S001
	Solvent Still Separator – Tank 207	Paint Plant RTO	200 gallons	waste solvent	S001
	Solvent Still Condenser	n/a	n/a	waste solvent	S001
P001 P002	PVC Product Line				
	Coaxial Tank	Paint Plant RTO / PVC Line Baghouse	2,500 gallons	pigment, resin, solvent	S001 S005
	3 – Bulk Dispense Tanks, PVC 101-103	Paint Plant RTO	3,900 gallons ea.	pigment, resin, solvent	S001
	4 – Thin Tanks, PVC 104-107	Paint Plant RTO	3,900 gallons ea.	pigment, resin, solvent	S001
P001 P002	Dispersion				
	2 – PM11& PM12 Mill (Light/Dark)	Paint Plant RTO / PVC Line Baghouse	25 liters ea.	pigment, resin, solvent	S001 S005
	1 – PM13 Mill (Small)	Paint Plant RTO / PVC Line Baghouse	10 liters	pigment, resin, solvent	S001 S005
	1 – Basket Mill	Paint Plant RTO / PVC Line Baghouse	80-220 gallons	pigment, resin, solvent	S001 S005
	20 hp Cowles	Paint Plant RTO / PVC Line Baghouse	n/a (portable tanks)	pigment, resin, solvent	S001 S005
	10 hp Cowles	Paint Plant RTO / PVC Line Baghouse	n/a (portable tanks)	pigment, resin, solvent	S001 S005
P001 P002	Small Order Department				
	3 – 15 hp Cowles	Paint Plant RTO / PVC Line Baghouse	n/a (portable tanks)	pigment, resin, solvent	S001 S005
P001 P002	EMG				
	3 – 15 hp Cowles	Ohio Blowpipe	n/a (portable tanks)	pigment, resin, solvent	S002
	3 Roll Mill			pigment, resin, solvent	
	Tank	Paint Plant RTO	200 gallons	pigment, resin, solvent	S001
	Tank	Paint Plant RTO	300 gallons	pigment, resin, solvent	S001
P003	Freightliner Spray Booth	Spray Booth Filters; Electrostatic Spray Guns	n/a	Coatings and cleaning solvent	2004B1

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
P006	Automated Paint Spray Booth (HOPE)	none	5,000 gal/yr	pigment, resin, solvent	S006
Development Center					
P004 P005	K13/K15 Resin Process				
	K13 Reactor	Development Center RTO, Carbon Bins (for back-up only)	1,350 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	S004, S-D60-62, S-D70
	K13 Thin Tank (BT-102)	Development Center RTO, Carbon Bins (for back-up only)	4,070 gallons	solvent, water, resin, additives	S004, S-D60-62, S-D70
	K13 Monomer Tank	Development Center RTO, Carbon Bins (for back-up only)	1,060 gallons	solvent, monomers, catalyst	S004, S-D60-62, S-D70
	K13 Catalyst Tank	Development Center RTO, Carbon Bins (for back-up only)	350 gallons	solvent, catalyst	S004, S-D60-62, S-D70
	K15 Reactor	Development Center RTO, Carbon Bins (for back-up only)	1,450 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	S004, S-D60-62, S-D70
	K15 Thin Tank (TR-3800)	Development Center RTO, Carbon Bins (for back-up only)	3,800 gallons	solvent, resin, epoxy, isocyanates, monomers, water	S004, S-D60-62, S-D70
	K15 Feed Tank	Development Center RTO, Carbon Bins (for back-up only)	1,000 gallons	solvent, epoxy, isocyanates, monomers	S004, S-D60-62, S-D70
	K15 Amine Tank	Development Center RTO, Carbon Bins (for back-up only)	250 gallons	solvent, amines, catalyst	S004, S-D60-62, S-D70
P004 P005	Large Side Reactor System				
	K500A Reactor	Development Center RTO, Large Side Scrubber	482 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500A Thin Tank (TR-1200)	Development Center RTO, Large Side Scrubber (for back-up only)	1,190 gallons	solvent, resin, epoxy, isocyanates, monomers	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500A Monomer Tank	Development Center RTO, Large Side Scrubber (for back-up only)	500 gallons	solvent, monomers, catalyst	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500A Catalyst Tank	Development Center RTO, Large Side Scrubber (for back-up only)	120 gallons	solvent, catalyst	S004, S-D05, 08, 26-30, 51, 60-63, 70

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	K500B Reactor	Development Center RTO, Large Side Scrubber (for back-up only)	480 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Thin Tank (HT-1500)	Development Center RTO, Large Side Scrubber (for back-up only)	1,500 gallons	solvent, resin, epoxy, isocyanates, monomers, water	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Monomer Tank	Development Center RTO, Large Side Scrubber (for back-up only)	500 gallons	solvent, monomers, catalyst	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Catalyst Tank	Development Center RTO, Large Side Scrubber (for back-up only)	120 gallons	solvent, catalyst	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Amine Tank 1	Development Center RTO, Large Side Scrubber (for back-up only)	30 gallons	solvent, amines	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Amine Tank 2	Development Center RTO, Large Side Scrubber (for back-up only)	30 gallons	solvent, amines	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500B Crosslinker Tank	Development Center RTO, Large Side Scrubber (for back-up only)	300 gallons	solvent, resin	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500F Reactor	Development Center RTO, Large Side Scrubber (for back-up only)	500 gallons	solvent, epoxy, catalyst, alcohols, isocyanates, monomers	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500F Thin Tank (TR-750)	Development Center RTO, Carbon Bins (for back-up only)	750 gallons	solvent, resin, additives	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K500G Solvent Still	Development Center RTO / Carbon Bins / Large Side Scrubber	500 gallons	solvent, waste solvent	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K300 Reactor	Development Center RTO / Carbon Bins / Large Side Scrubber	300 gallons	solvent, epoxy, catalyst, alcohols, isocyanates, monomers	S004, S-D05, 08, 26-30, 51, 60-63, 70
	K300 Thin Tank (BT-500)	Development Center RTO / Carbon Bins / Large Side Scrubber	500 gallons	solvent, resin	S004, S-D05, 08, 26-30, 51, 60-63, 70

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	Large Side Condensers	Development Center RTO / Carbon Bins / Large Side Scrubber	Sizes range from 20 to 200 square feet surface area (not liquid full)	solvent, monomers, water	S004, S-D05, 08, 26-30, 51, 60-63, 70
	Large Side Decanters	Development Center RTO / Carbon Bins / Large Side Scrubber	Sizes range from 2 to 4 gallons	solvent, water	S004, S-D05, 08, 26-30, 51, 60-63, 70
P004 P005	LUWA Filmtruder				
	LUWA Filmtruder	Development Center RTO / Carbon Bins		powder coating resin, solvent	S004 S-D61-62
	LUWA Drum Flaker	n/a		100% solid resin	
	LUWA Condenser	Development Center RTO / Carbon Bins	68 square feet surface area (not liquid full)	solvent	S004 S-D61-62
	LUWA Distillate Receiver	Development Center RTO / Carbon Bins	100 gallons	solvent	S004 S-D61-62
P004 P005	R2000 Reactor Process				
	R2000 Reactor	Development Center RTO, Carbon Bins (for back-up only)	2,000 gallons	solvent, epoxy, catalyst, alcohols, isocyanates, monomers	S004
	R2000 Pre-Reactor	Development Center RTO, Carbon Bins (for back-up only)	1,600 gallons	solvent, epoxy, catalyst, alcohols, isocyanates, monomers	S004
	R2000 Thin Tank (TR-5000)	Development Center RTO, Carbon Bins (for back-up only)	5,000 gallons	solvent, resin, additives, epoxy, catalyst, monomers, isocyanates, water	S004
	R2000 Monomer Feed Tank	Development Center RTO, Carbon Bins (for back-up only)	1,000 gallons	solvent, monomers catalyst,	S004
	R2000 Catalyst Feed Tank	Development Center RTO, Carbon Bins (for back-up only)	400 gallons	solvent, catalyst	S004
	R2000 Distillate Tank	Development Center RTO, Carbon Bins (for back-up only)	400 gallons	solvent, water	S004
	BS6200 Batch Stripper	Development Center RTO, Carbon Bins (for back-up only)	6,250 gallons	solvent, resin	S004
	BS6200 Condenser	Development Center RTO, Carbon Bins (for back-up only)	1280 square feet surface area (not liquid full)	solvent, water	S004
	BS6200 Decanter	Development Center RTO, Carbon Bins (for back-up only)	72 gallons	solvent, water	S004

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	BS6200 Receiver Tank	Development Center RTO, Carbon Bins (for back-up only)	590 gallons	solvent	S004
P004 P005	BS5000 Resin Stripper				
	BS5000 Batch Stripper	Development Center RTO, Carbon Bins (for back-up only)	5,000 gallons	solvent, resin	S004 S-D61-62
	BS5000 Condenser	Development Center RTO, Carbon Bins (for back-up only)	500 square feet surface area (not liquid full)	solvent, water	S004 S-D61-62
	BS5000 Decanter	Development Center RTO, Carbon Bins (for back-up only)	60 gallons	solvent, water	S004 S-D61-62
	BS5000 Receiver	Development Center RTO, Carbon Bins (for back-up only)	500 gallons	solvent, water	S004 S-D61-62
P005	Small Side Reactor System				
	K100 Reactor	Condenser, RTO (vacuum only)	100 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	--
	K100 Thin Tank (TR-250)	Condenser	250 gallons	solvent, resin, epoxy, isocyanates, monomers	--
	K100 Monomer Tank		80 gallons	solvent, monomers, catalyst, isocyanates	--
	K100 Surfactant Tank		55 gallons	solvent, monomers, catalyst, isocyanates	--
	K100 Catalyst Tank		20 gallons	solvent, catalyst	--
	K65B Reactor	Condenser, RTO (vacuum only)	65 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	--
	K65B Thin Tank (BT-100)	Condenser	100 gallons	solvent, resin	--
	K65C Reactor	Condenser, RTO (vacuum only)	65 gallons	solvent, catalyst, monomers epoxy, isocyanates, amines, alcohols,	--
	K65C Thin Tank (TR-170)	Condenser	170 gallons	solvent, resin, epoxy, isocyanates, monomers	--
	K65C Monomer Tank		55 gallons	solvent, monomers, catalyst, isocyanates	--
	K65C Catalyst Tank		20 gallons	solvent, catalyst	--
	K50 Reactor	Condenser, RTO (vacuum only)	50 gallons	solvent, catalyst, monomers, epoxy, isocyanates, amines, alcohols,	--

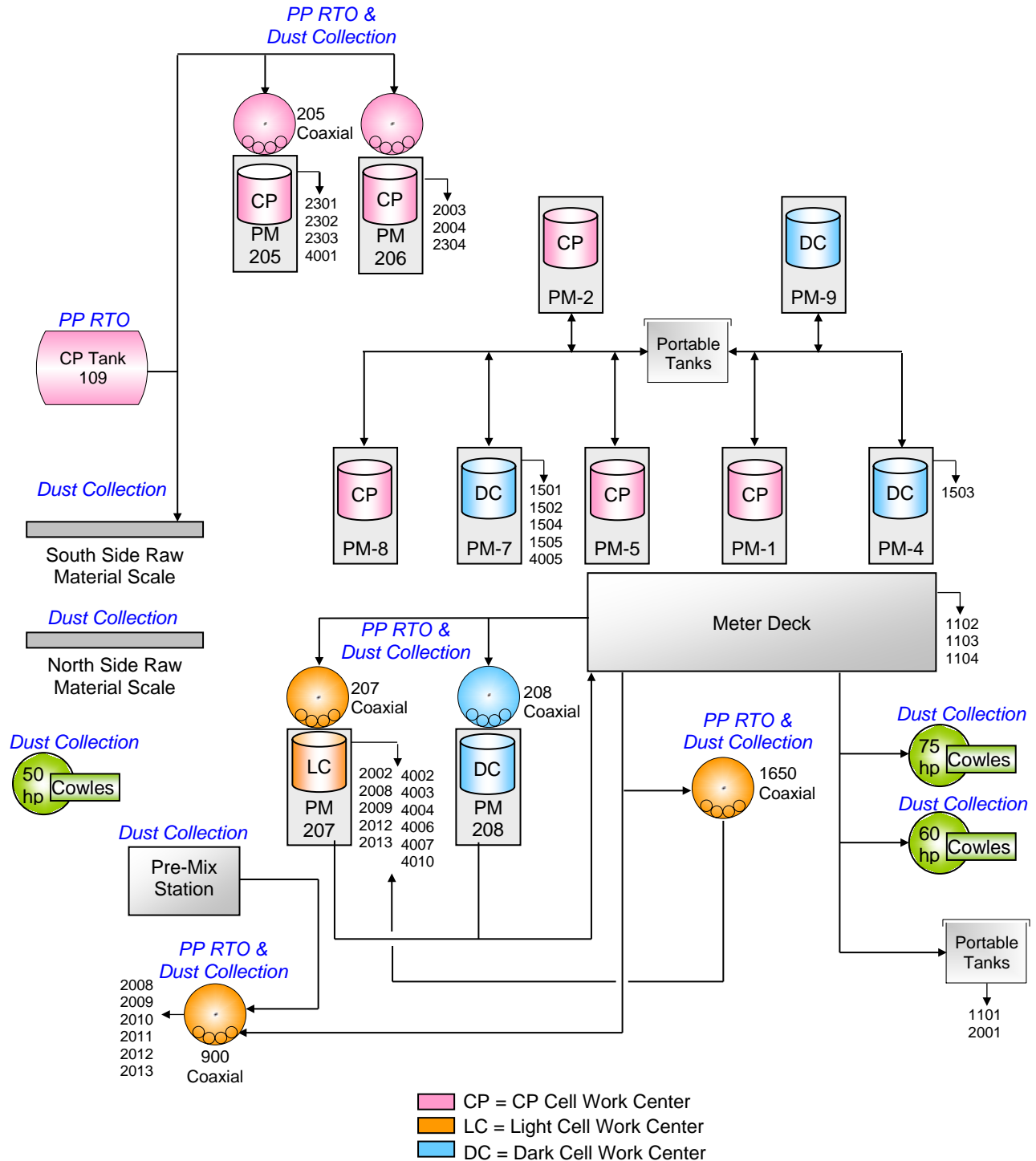
I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
	K50 Thin Tank (TR-125)	Condenser, RTO (vacuum only)	125 gallons	solvent, resin	--
	R5 Reactor	Vents through Flash Tank – Carbon Beds/ RTO	5 gallons	solvent, catalyst, monomers	--
	R5 Flash Tank	Condenser, Carbon Beds/ RTO	100 gallons	resin, solvent, catalyst, monomers	--
	R5 Monomer Tank		65 gallons	monomers, solvent	--
	R5 Monomer Feed Tank (K500D)	Development Center RTO, Carbon Bins (for back-up only)	500 gallons	monomers, solvent	--
	R5 Initiator Tank		10 gallons	solvent, catalyst	--
	R5 Post Initiator Tank		5 gallons	solvent, catalyst	--
Boilers					
B001	Boiler #1a	none	25.1 MMBtu/hr	natural gas, no.2 fuel oil	SB01A
B002	Boiler #2	none	25.1 MMBtu/hr	natural gas, no.2 fuel oil	SB02
B003	Warehouse Boiler	none	8.4 MMBtu/hr	natural gas, no.2 fuel oil	SWHB1
Paint Plant Storage Tanks					
	Tanks 103-104	none	30,000 gal. ea.	waste solvent	--
	Tank 224	none	25,000 gal.	resin	--
	Tank 225	none	30,000 gal.	resin	--
	Tanks 301-302	none	25,000 gal. ea.	solvent	--
	Tank 303	none	12,000 gal.	solvent, raw material	--
	Tanks 305-308	none	12,000 gal. ea.	solvent, raw material	--
	Tanks 311-314	none	12,000 gal. ea.	solvent, raw material	--
	Tank 320	none	25,000 gal.	solvent, raw material	--
	Tank 321 & 324	none	10,000 gal. ea.	solvent, raw material	--
	Tank 322	none	20,000 gal.	solvent, raw material	--
	Tank 329	none	30,000 gal. ea.	cleaning solvent	--
	Tank 410A	none	7,500 gal.		

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
Development Center Storage Tanks					
	Tanks 1, 3-5	none	5,200 gal. ea.	monomer solution, solvent	--
	Tank 2	none	5,200 gal.	monomer solution, solvent	--
	Tanks 6-8, BT122, BT126	none	5,000 gal. ea.	cleaning solvent	--
	Tanks BT 101, BT 112, BT 120, BT 4000	none	5,000 gal. ea.	waste solvent	

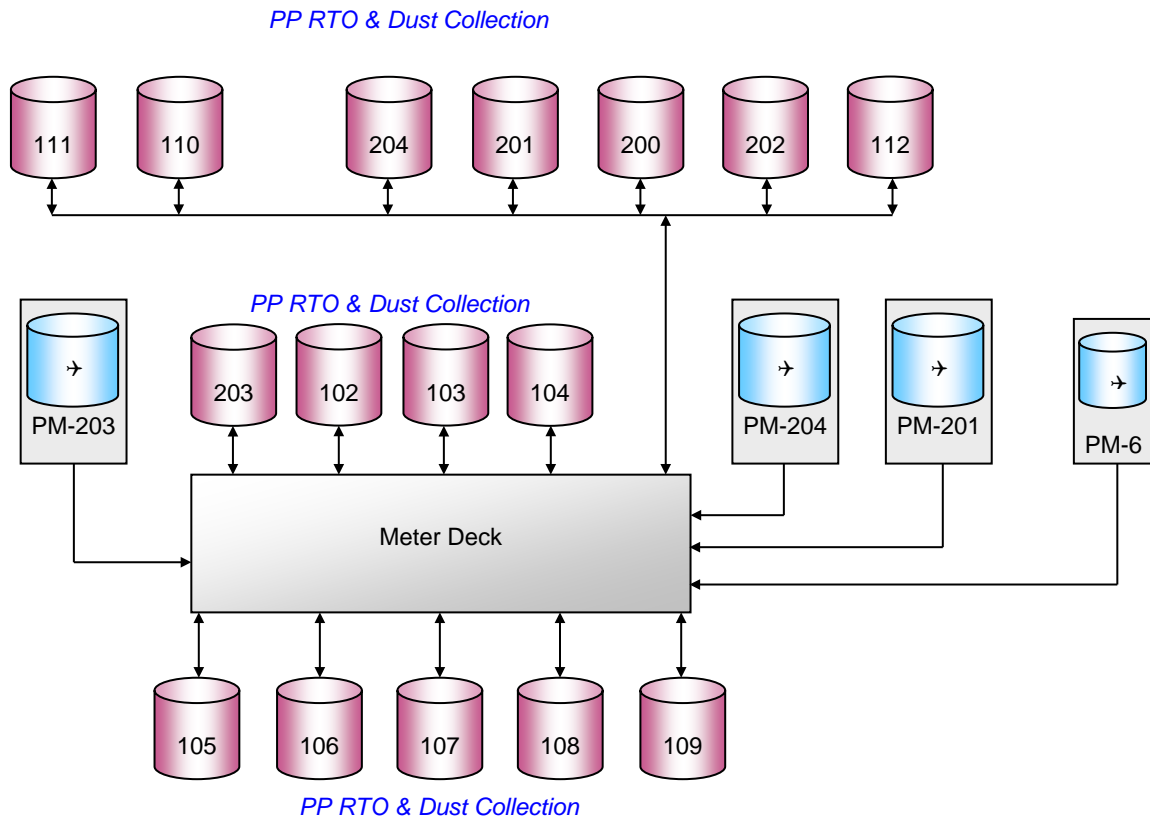
[See flow diagrams below.]

A. Process Flow Diagrams

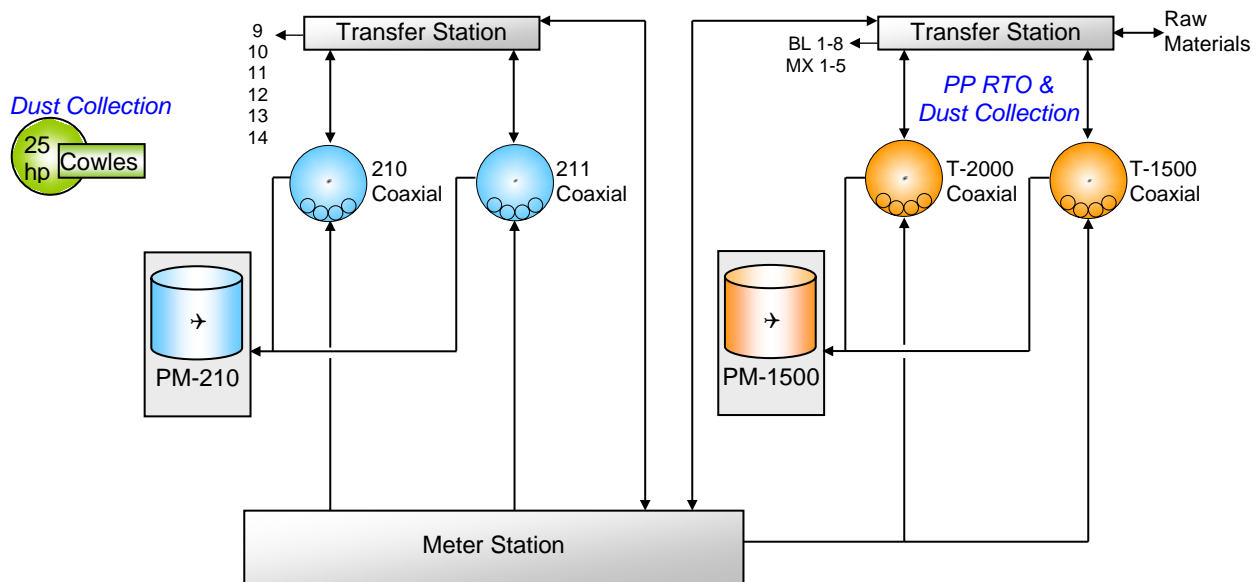
Paint Plant – 2nd Floor (excluding Large Batch Center)



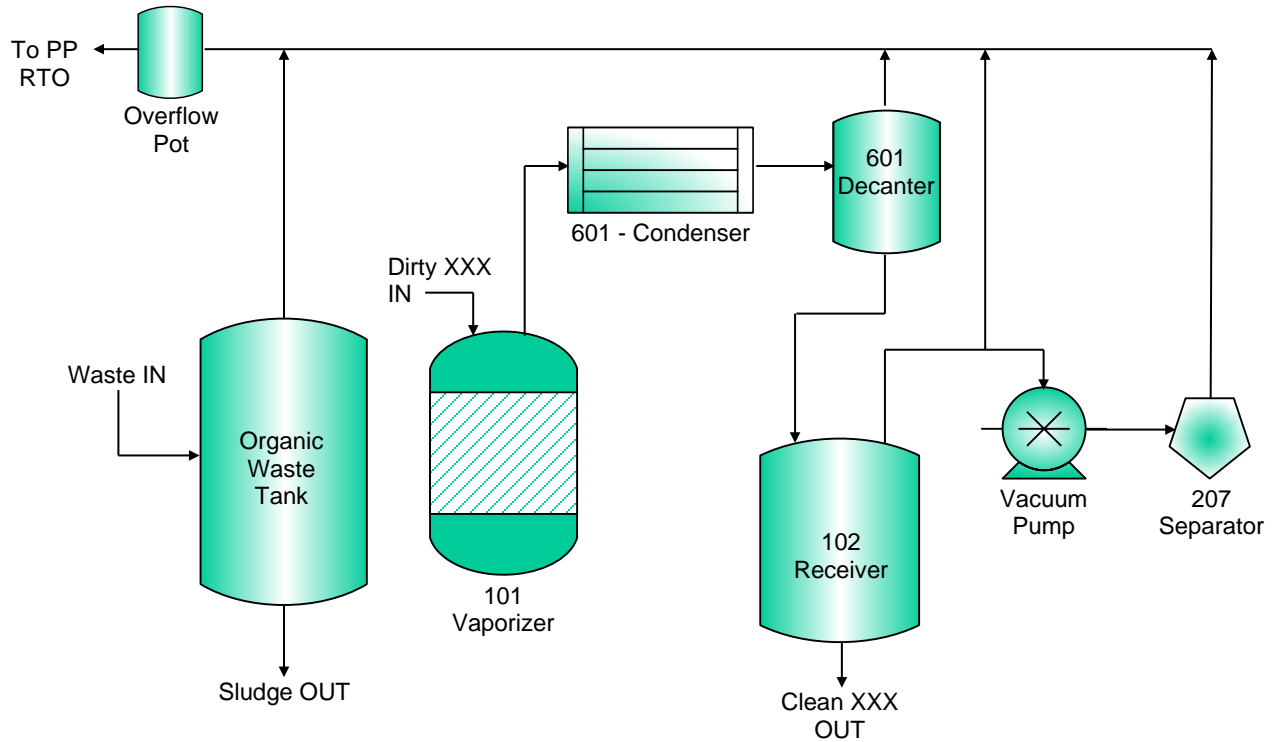
Paint Plant – Large Batch Center



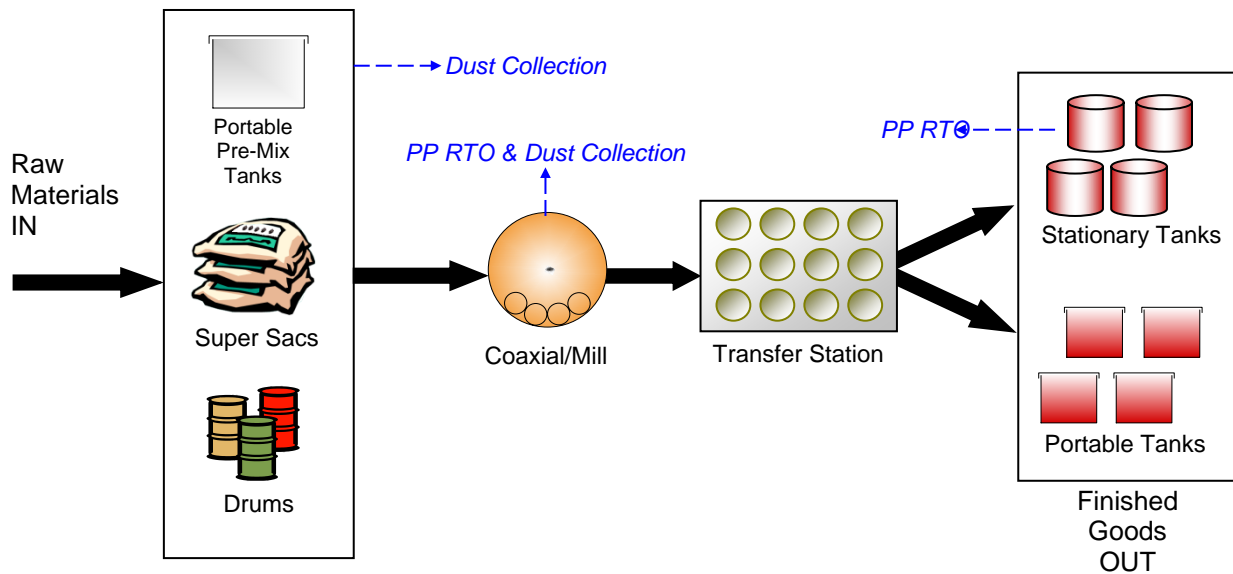
Paint Plant – Environ Work Center



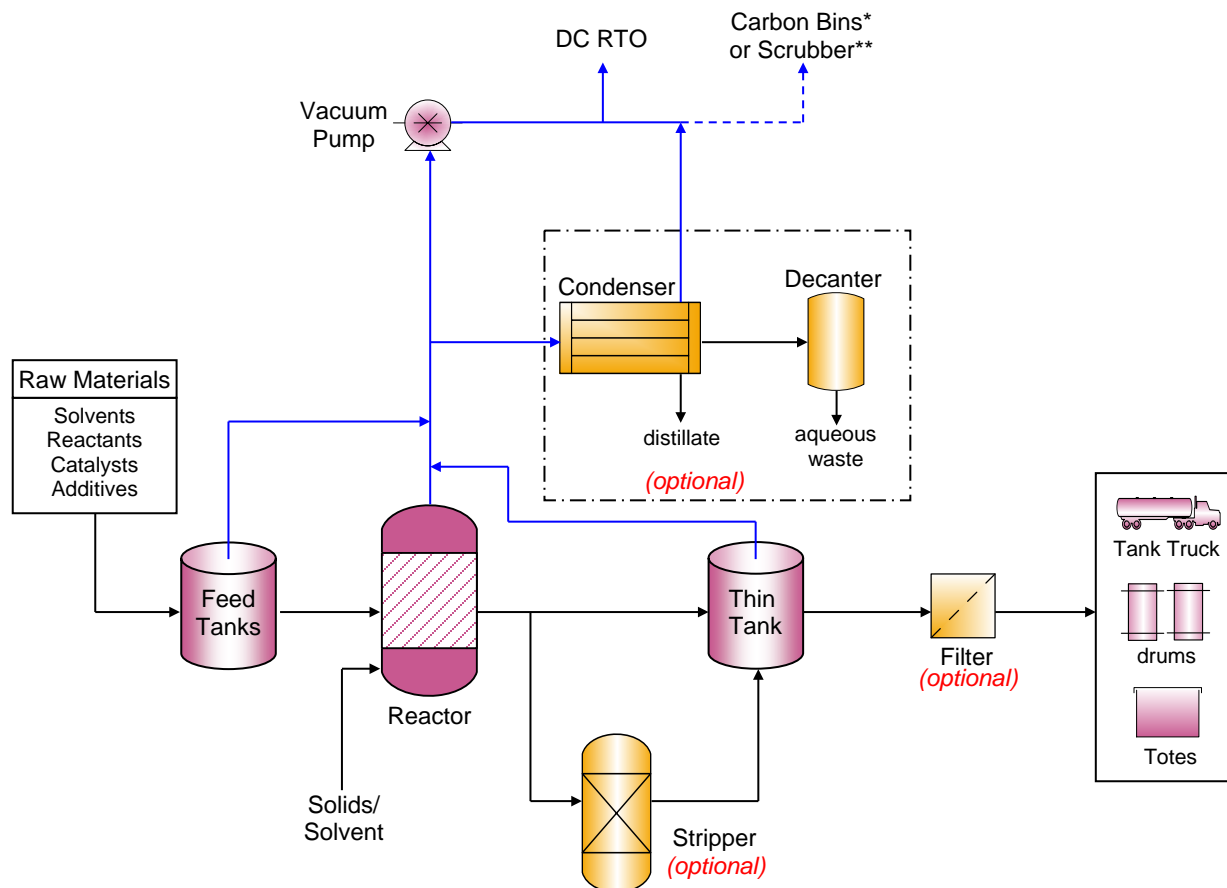
Paint Plant – Solvent Still



Paint Plant – Typical Coaxial Arrangement

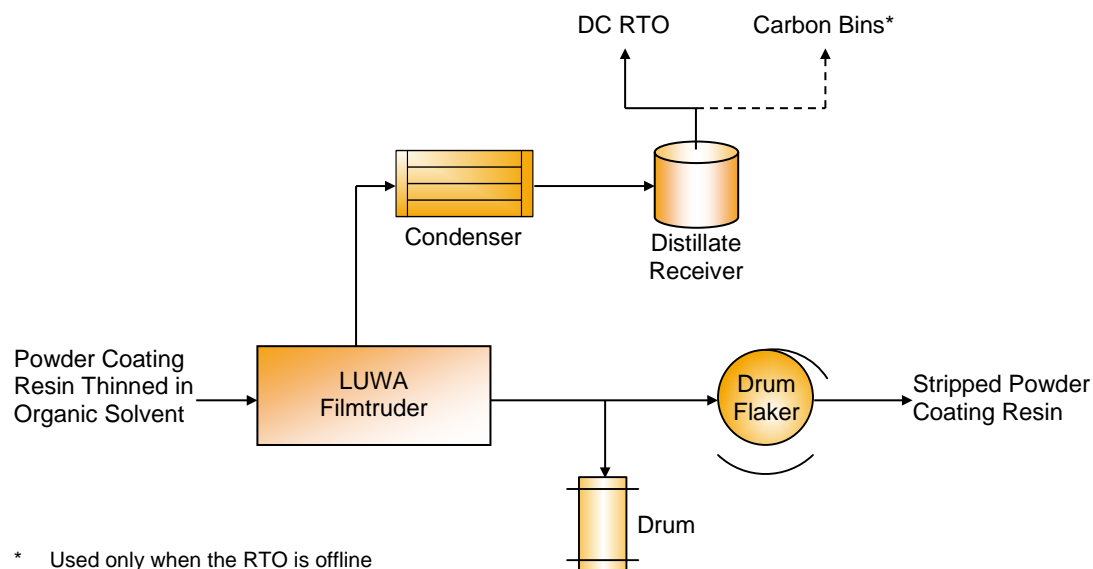


Development Center – Typical Reactor Arrangement

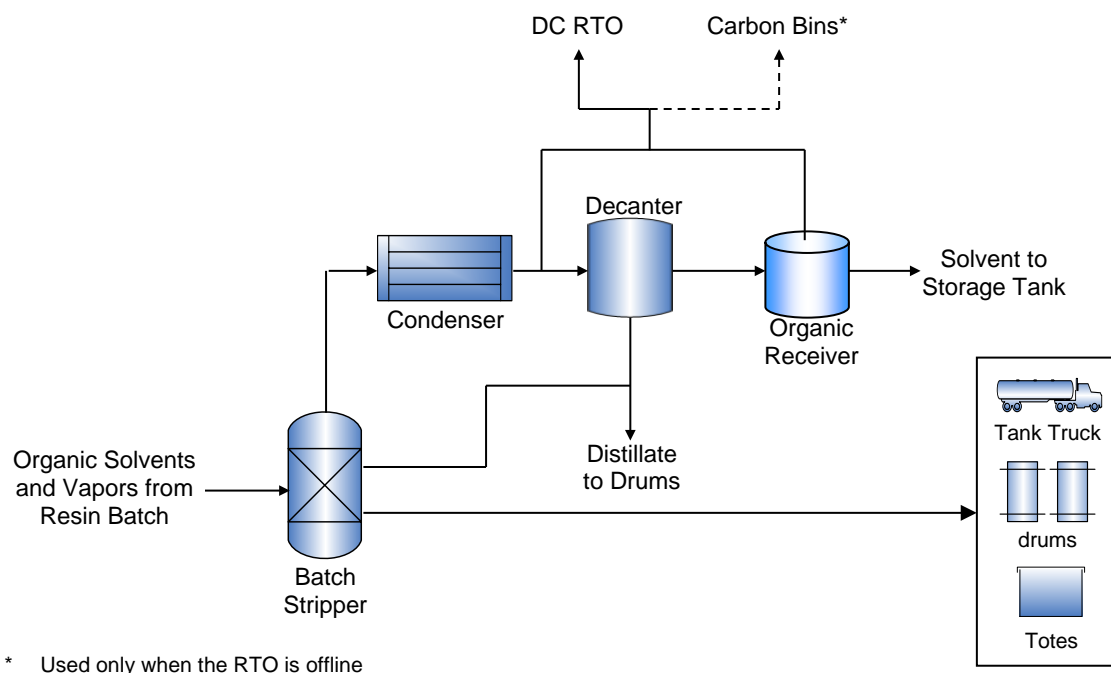


- * Used only if the RTO is offline
- ** Used only if the RTO is offline or if processing ammonia batches

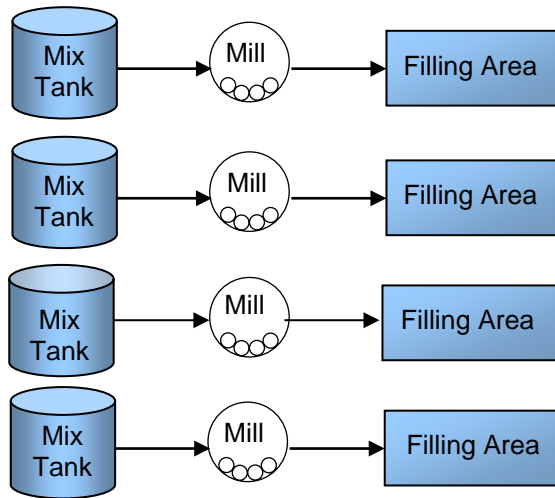
Development Center – LUWA Filmtruder



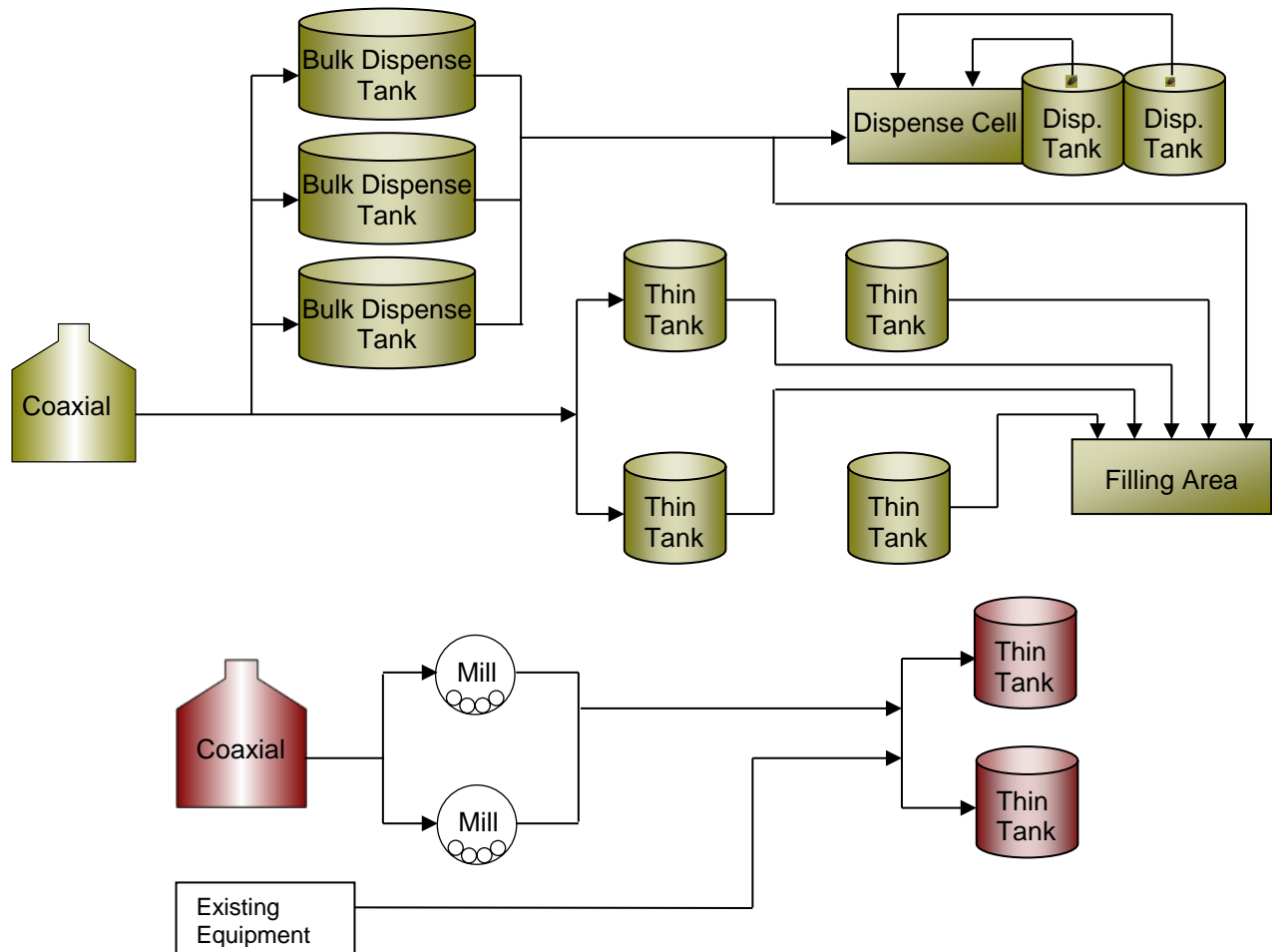
Development Center – Batch Stripper (BS5000)



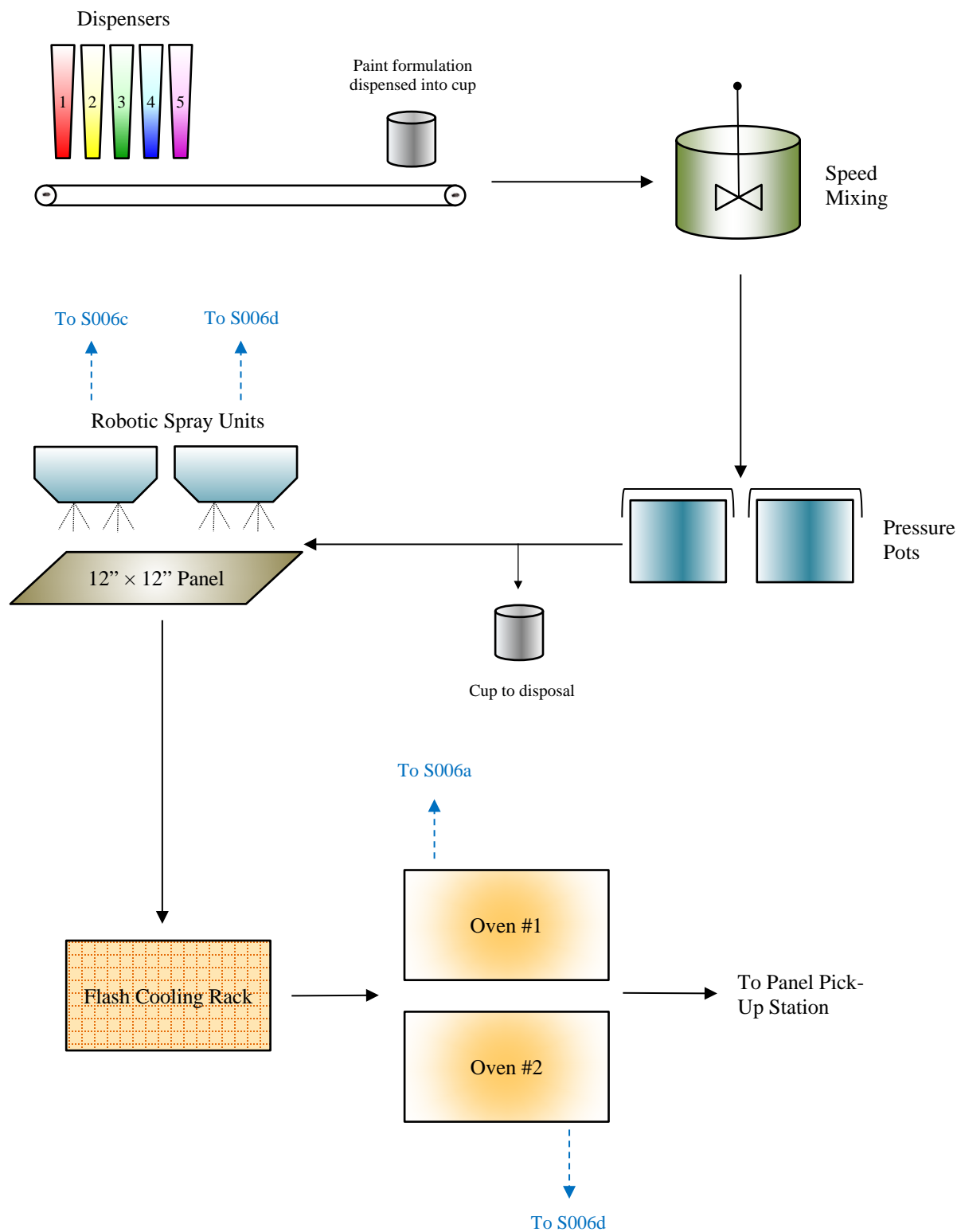
Equipment Dedicated to New Tint Line



Equipment Dedicated to PVC Product Line



Automated Paint Spray Process



DECLARATION OF POLICY

Pollution prevention is recognized as the preferred strategy (over pollution control) for reducing risk to air resources. Accordingly, pollution prevention measures should be integrated into air pollution control programs wherever possible, and the adoption by sources of cost-effective compliance strategies, incorporating pollution prevention, is encouraged. The Department will give expedited consideration to any permit modification request based on pollution prevention principles.

The permittee is subject to the terms and conditions set forth below. These terms and conditions constitute provisions of Allegheny County Health Department Rules and Regulations, Article XXI Air Pollution Control. The subject equipment has been conditionally approved for operation. The equipment shall be operated in conformity with the plans, specifications, conditions, and instructions which are part of your application, and may be periodically inspected for compliance by the Department. In the event that the terms and conditions of this permit or the applicable provisions of Article XXI conflict with the application for this permit, these terms and conditions and the applicable provisions of Article XXI shall prevail. Additionally, nothing in this permit relieves the permittee from the obligation to comply with all applicable Federal, State and Local laws and regulations.

III. GENERAL CONDITIONS – Major Source**1. Prohibition of Air Pollution (§2101.11)**

It shall be a violation of this permit to fail to comply with, or to cause or assist in the violation of, any requirement of this permit, or any order or permit issued pursuant to authority granted by Article XXI. The permittee shall not willfully, negligently, or through the failure to provide and operate necessary control equipment or to take necessary precautions, operate any source of air contaminants in such manner that emissions from such source:

- a. Exceed the amounts permitted by this permit or by any order or permit issued pursuant to Article XXI;
- b. Cause an exceedance of the ambient air quality standards established by Article XXI §2101.10; or
- c. May reasonably be anticipated to endanger the public health, safety, or welfare.

2. Definitions (§2101.20)

- a. Except as specifically provided in this permit, terms used retain the meaning accorded them under the applicable provisions and requirements of Article XXI or the applicable federal or state regulation. Whenever used in this permit, or in any action taken pursuant to this permit, the words and phrases shall have the meanings stated, unless the context clearly indicates otherwise.
- b. Unless specified otherwise in this permit or in the applicable regulation, the term “year” shall mean any twelve (12) consecutive months.

3. Conditions (§2102.03.c)

It shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02, for any person to fail to comply with any terms or conditions set forth in this permit.

4. Certification (§2102.01)

Any report, or compliance certification submitted under this permit shall contain written certification by a responsible official as to truth, accuracy, and completeness. This certification and any other certification required under this permit shall be signed by a responsible official of the source, and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

5. Transfers (§2102.03.e)

This permit shall not be transferable from one person to another, except in accordance with Article XXI §2102.03.e and in cases of change-in-ownership which are documented to the satisfaction of the Department, and shall be valid only for the specific sources and equipment for which this permit was issued. The transfer of permits in the case of change-in-ownership may be made consistent with the administrative permit amendment procedure of Article XXI §2103.14.b. The required documentation and fee must be received by the Department at least 30 days before the intended transfer date.

6. Term (§2103.12.e, §2103.13.a)

- a. This permit shall remain valid for five (5) years from the date of issuance, or such other shorter period if required by the Clean Air Act, unless revoked. The terms and conditions of an expired permit shall automatically continue pending issuance of a new operating permit provided the permittee has submitted a timely and complete application and paid applicable fees required under Article XXI Part C, and the Department through no fault of the permittee is unable to issue or deny a new permit before the expiration of the previous permit.
- b. Expiration. Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted consistent with the requirements of Article XXI Part C.

7. Need to Halt or Reduce Activity Not a Defense (§2103.12.f.2)

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

8. Property Rights (§2103.12.f.4)

This permit does not convey any property rights of any sort, or any exclusive privilege.

9. Duty to Provide Information (§2103.12.f.5)

- a. The permittee shall furnish to the Department in writing within a reasonable time, any information that the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Department copies of any records required to be kept by the permit.
- b. Upon cause shown by the permittee the records, reports, or information, or a particular portion thereof, claimed by the permittee to be confidential shall be submitted to the Department in accordance with the requirements of Article XXI, §2101.07.d.4. Information submitted to the Department under a claim of confidentiality, shall be available to the US EPA and the PADEP upon

request and without restriction. Upon request of the permittee the confidential information may be submitted to the USEPA and PADEP directly. Emission data or any portions of any draft, proposed, or issued permits shall not be considered confidential.

10. Modification of Section 112(b) Pollutants which are VOCs or PM₁₀ (§2103.12.f.7)

Except where precluded under the Clean Air Act or federal regulations promulgated under the Clean Air Act, if this permit limits the emissions of VOCs or PM₁₀ but does not limit the emissions of any hazardous air pollutants, the mixture of hazardous air pollutants which are VOCs or PM₁₀ can be modified so long as no permit emission limitations are violated. A log of all mixtures and changes shall be kept and reported to the Department with the next report required after each change.

11. Right to Access (§2103.12.h.2)

Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized Department and other federal, state, county, and local government representatives to:

- a. Enter upon the permittee's premises where a permitted source is located or an emissions-related activity is conducted, or where records are or should be kept under the conditions of the permit;
- b. Have access to, copy and remove, at reasonable times, any records that must be kept under the conditions of the permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
- d. As authorized by either Article XXI or the Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements.

12. Certification of Compliance (§2103.12.h.5.)

- a. The permittee shall submit on an annual basis, certification of compliance with all terms and conditions contained in this permit, including emission limitations, standards, or work practices. The certification of compliance shall be made consistent with General Condition 4 above and shall include the following information at a minimum:
 - 1) The identification of each term or condition of the permit that is the basis of the certification;
 - 2) The compliance status;
 - 3) Whether any noncompliance was continuous or intermittent;
 - 4) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with the provisions of this permit; and
 - 5) Such other facts as the Department may require to determine the compliance status of the source.
- b. All certifications of compliance must be submitted to the Administrator as well as the Department by May 30 of each year for the time period beginning April 1 of the previous year and ending March 31 of the same year. Compliance certifications may be emailed to the Administrator at R3_APD_Permits@epa.gov in lieu of mailing a hard copy.

13. Record Keeping Requirements (§2103.12.j.1)

- a. The permittee shall maintain records of required monitoring information that include the following:

- 1) The date, place as defined in the permit, and time of sampling or measurements;
 - 2) The date(s) analyses were performed;
 - 3) The company or entity that performed the analyses;
 - 4) The analytical techniques or methods used;
 - 5) The results of such analyses; and
 - 6) The operating parameters existing at the time of sampling or measurement.
- b. The permittee shall maintain and make available to the Department, upon request, records including computerized records that may be necessary to comply with the reporting and emission statements in Article XXI §2108.01.e. Such records may include records of production, fuel usage, maintenance of production or pollution control equipment or other information determined by the Department to be necessary for identification and quantification of potential and actual air contaminant emissions.

14. Retention of Records (§2103.12.j.2)

The permittee shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

15. Reporting Requirements (§2103.12.k)

- a. The permittee shall submit reports of any required monitoring at least every six (6) months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by the Responsible Official.
- b. Prompt reporting of deviations from permit requirements is required, including those attributable to upset conditions as defined in this permit and Article XXI §2108.01.c, the probable cause of such deviations, and any corrective actions or preventive measures taken.
- c. All reports submitted to the Department shall comply with the certification requirements of General Condition III.4 above.
- d. Semiannual reports required by this permit shall be submitted to the Department as follows:
 - 1) One semiannual report is due by October 31 of each year for the time period beginning April 1 and ending September 30.
 - 2) One semiannual report is due by April 30 of each year for the time period beginning October 1 and ending March 31.
- e. Reports may be submitted electronically to AQReports@AlleghenyCounty.us. Certification by the responsible official in accordance with General Condition III.4 above shall be provided separately via hard copy.

16. Severability Requirement (§2103.12.l)

The provisions of this permit are severable, and if any provision of this permit is determined by a court of competent jurisdiction to be invalid or unenforceable, such a determination will not affect the remaining provisions of this permit.

17. Existing Source Reactivations (§2103.13.d)

The permittee shall not reactivate any source that has been out of operation or production for a period of one year or more unless the permittee has submitted a reactivation plan request to, and received a written reactivation plan approval from, the Department. Existing source reactivations shall meet all requirements of Article XXI §2103.13.d.

18. Administrative Permit Amendment Procedures (§2103.14.b)

An administrative permit amendment may be made consistent with the procedures of Article XXI §2103.14.b and §2103.24.b. Administrative permit amendments are not authorized for any amendment precluded by the Clean Air Act or the regulations there under.

19. Revisions and Minor Permit Modification Procedures (§2103.14.c)

Sources may apply for revisions and minor permit modifications on an expedited basis in accordance with Article XXI §2103.14.c and §2103.24.a.

20. Significant Permit Modifications (§2103.14.d)

Significant permit modifications shall meet all requirements of the applicable subparts of Article XXI, Part C, including those for applications, fees, public participation, review by affected States, and review by EPA, as they apply to permit issuance and permit renewal. The approval of a significant permit modification, if the entire permit has been reopened for review, shall commence a new full five (5) year permit term. The Department shall take final action on all such permits within nine (9) months following receipt of a complete application.

21. Duty to Comply (§2103.12.f.1)

The permittee shall comply with all permit conditions and all other applicable requirements at all times. Any permit noncompliance constitutes a violation of the Clean Air Act, the Air Pollution Control Act, and Article XXI and is grounds for any and all enforcement action, including, but not limited to, permit termination, revocation and reissuance, or modification, and denial of a permit renewal application.

22. Renewals (§2103.13.b.)

Renewal of this permit is subject to the same fees and procedural requirements, including those for public participation and affected State and EPA review, that apply to initial permit issuance. The application for renewal shall be submitted at least six (6) months but not more than eighteen (18) months prior to expiration of this permit. The application shall also include submission of a supplemental compliance review as required by Article XXI §2102.01.

23. Reopenings for Cause (§2103.15, §2103.12.f.3)

a. This permit shall be reopened and reissued under any of the following circumstances:

- 1) Additional requirements under the Clean Air Act become applicable to a major source with a remaining permit term of three (3) or more years. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended solely due to the failure of

the Department to act on a permit renewal application in a timely fashion.

- 2) Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into this permit.
 - 3) The Department or EPA determines that this permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit.
 - 4) The Administrator or the Department determines that this permit must be reissued or revoked to assure compliance with the applicable requirements.
- b. This permit may be modified; revoked, reopened, and reissued; or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes, for changes that are provided for in this permit.

24. Reopenings for Cause by the EPA (§2103.25.b)

This permit may be modified, reopened and reissued, revoked or terminated for cause by the EPA in accordance with procedures specified in Article XXI §2103.25.b.

25. Annual Operating Permit Administration Fee (§2103.40)

In each year during the term of this permit, on or before the last day of the month in which the application for this permit was submitted, the permittee shall submit to the Department, in addition to any other applicable administration fees, an Annual Operating Permit Administration Fee in accordance with §2103.40. by check or money order payable to the “Allegheny County Air Pollution Control Fund” in the amount specified in the fee schedule applicable at that time.

26. Annual Major Source Emissions Fees Requirements (§2103.41)

No later than September 1 of each year, the permittee shall pay an annual emission fee in accordance with Article XXI §2103.41 for each ton of a regulated pollutant (except for carbon monoxide) actually emitted from the source. The permittee shall not be required to pay an emission fee for emissions of more than 4,000 tons of each regulated pollutant. The emission fee shall be increased in each year after 1995 by the percentage, if any, by which the Consumer Price Index for the most recent calendar year exceeds the Consumer Price Index for the previous calendar year.

27. Other Requirements not Affected (§2104.08, §2105.02)

Compliance with the requirements of this permit shall not in any manner relieve any person from the duty to fully comply with any other applicable Federal, State, or County statute, rule, regulation, or the like, including but not limited to the odor emission standards under Article XXI §2104.04, any applicable NSPSs, NESHAPs, MACTs, or Generally Achievable Control Technology (GACT) standards now or hereafter established by the EPA, and any applicable requirements of BACT or LAER as provided by Article XXI, any condition contained in any applicable Installation or Operating Permit and/or any additional or more stringent requirements contained in an order issued to such person pursuant to Article XXI Part I.

28. Termination of Operation (§2108.01.a)

In the event that operation of any source of air contaminants is permanently terminated, the person responsible for such source shall so report, in writing, to the Department within 60 days of such termination.

29. Emissions Inventory Statements (§2108.01.e & g)

- a. Emissions inventory statements in accordance with Article XXI §2108.01.e shall be submitted to the Department by March 15 of each year for the preceding calendar year. The Department may require more frequent submittals if the Department determines that more frequent submissions are required by the EPA or that analysis of the data on a more frequent basis is necessary to implement the requirements of Article XXI or the Clean Air Act.
- b. The failure to submit any report or update within the time specified, the knowing submission of false information, or the willful failure to submit a complete report shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02.

30. Tests by the Department (§2108.02.d)

Notwithstanding any tests conducted pursuant to Article XXI §2108.02, the Department or another entity designated by the Department may conduct emissions testing on any source or air pollution control equipment. At the request of the Department, the person responsible for such source or equipment shall provide adequate sampling ports, safe sampling platforms and adequate utilities for the performance of such tests.

31. Other Rights and Remedies Preserved (§2109.02.b)

Nothing in this permit shall be construed as impairing any right or remedy now existing or hereafter created in equity, common law or statutory law with respect to air pollution, nor shall any court be deprived of such jurisdiction for the reason that such air pollution constitutes a violation of this permit.

32. Enforcement and Emergency Orders (§2109.03, §2109.05)

- a. The person responsible for this source shall be subject to any and all enforcement and emergency orders issued to it by the Department in accordance with Article XXI §2109.03, §2109.04 and §2109.05.
- b. Upon request, any person aggrieved by an Enforcement Order or Emergency Order shall be granted a hearing as provided by Article XXI §2109.03.d; provided however, that an Emergency Order shall continue in full force and effect notwithstanding the pendency of any such appeal.
- c. Failure to comply with an Enforcement Order or immediately comply with an Emergency Order shall be a violation of this permit thus giving rise to the remedies provided by Article XXI §2109.02.

33. Penalties, Fines, and Interest (§2109.07.a)

A source that fails to pay any fee required under this permit when due shall pay a civil penalty of 50% of the fee amount, plus interest on the fee amount computed in accordance with Article XXI §2109.06.a.4 from the date the fee was required to be paid. In addition, the source may have this permit revoked for failure to pay any fee required.

34. Appeals (§2109.10)

In accordance with State Law and County regulations and ordinances, any person aggrieved by an order or other final action of the Department issued pursuant to Article XXI or any unsuccessful petitioner to the Administrator under Article XXI Part C, Subpart 2, shall have the right to appeal the action to the Director in accordance with the applicable County regulations and ordinances.

35. Risk Management (§2104.08, 40 CFR Part 68)

Should this stationary source, as defined in 40 CFR Part 68.3, become subject to Part 68, then the owner or operator shall submit a risk management plan (RMP) by the date specified in Part 68.10 and shall certify compliance with the requirements of Part 68 as part of the annual compliance certification as required by General Condition III.12 above.

36. Permit Shield (§2103.22)

- a. The permittee's compliance with the conditions of this permit shall be deemed compliance with all major source applicable requirements as of the date of permit issuance, provided that:
 - 1) Such major source applicable requirements are included and are specifically identified in the permit; or
 - 2) The Department, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof.
- b. Nothing in Article XXI §2103.22.e or the Title V Permit shall alter or affect the following:
 - 1) The provisions of Section 303 of the Clean Air Act and the provisions of Article XXI regarding emergency orders, including the authority of the Administrator and the Department under such provisions;
 - 2) The liability of any person who owns, operates, or allows to be operated, a source in violation of any major source applicable requirements prior to or at the time of permit issuance;
 - 3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; or
 - 4) The ability of the EPA or the County to obtain information from the permittee pursuant to Section 114 of the Clean Air Act, the provisions of Article XXI and State law.
- c. Unless precluded by the Clean Air Act or regulations therein, final action by the Department on administrative amendments, minor and significant permit modifications, and operational flexibility changes shall be covered by the permit shield provided such amendments, modifications and changes meet the relevant requirements of Article XXI.
- d. The permit shield authorized under Article XXI §2103.22 is in effect for the permit terms and conditions as identified in this permit.

37. Circumvention (§2101.14)

For purposes of determining compliance with the provisions of this permit and Article XXI, no credit shall be given to any person for any device or technique, including but not limited to the operation of any source

with unnecessary amounts of air, the combining of separate sources except as specifically permitted by Article XXI and the Department, the use of stacks exceeding Good Engineering Practice height as defined by regulations promulgated by the US EPA at 40 CFR §§51.100 and 51.110 and Subpart I, and other dispersion techniques, which without reducing the amount of air contaminants emitted, conceals or dilutes an emission of air contaminants which would otherwise violate the provisions of this Article; except that, for purposes of determining compliance with Article §2104.04 concerning odors, credit for such devices or techniques, except for the use of a masking agent, may be given.

38. Duty to Supplement and Correct Relevant Facts (§2103.11.d.2)

- a. The permittee shall provide additional information as necessary to address requirements that become applicable to the source after the date it files a complete application but prior to the Department taking action on the permit application.
- b. The permittee shall provide supplementary fact or corrected information upon becoming aware that incorrect information has been submitted or relevant facts were not submitted.
- c. Except as otherwise required by this permit and Article XXI, the Clean Air Act, or the regulations thereunder, the permittee shall submit additional information as necessary to address changes occurring at the source after the date it files a complete application but prior to the Department taking action on the permit application.
- d. The applicant shall submit information requested by the Department which is reasonably necessary to evaluate the permit application.

39. Effect (§2102.03.g.)

- a. Except as specifically otherwise provided under Article XXI, Part C, issuance of a permit pursuant to Article XXI Part B or Part C shall not in any manner relieve any person of the duty to fully comply with the requirements of this permit, Article XXI or any other provision of law, nor shall it in any manner preclude or affect the right of the Department to initiate any enforcement action whatsoever for violations of this permit or Article XXI, whether occurring before or after the issuance of such permit. Further, except as specifically otherwise provided under Article XXI Part C the issuance of a permit shall not be a defense to any nuisance action, nor shall such permit be construed as a certificate of compliance with the requirements of this permit or Article XXI.

40. Installation Permits (§2102.04.a.1.)

It shall be a violation of this permit giving rise to the remedies set forth in Article XXI Part I for any person to install, modify, replace, reconstruct, or reactivate any source or air pollution control equipment which would require an installation permit or permit modification in accordance with Article XXI Part B or Part C.

IV. SITE LEVEL TERMS AND CONDITIONS

1. Reporting of Upset Conditions (§2103.12.k.2)

The permittee shall promptly report all deviations from permit requirements, including those attributable to upset conditions as defined in Article XXI §2108.01.c, the probable cause of such deviations, and any corrective actions or preventive measures taken.

2. Visible Emissions (§2104.01.a)

Except as provided for by Article XXI §2108.01.d pertaining to a cold start, no person shall operate, or allow to be operated, any source in such manner that the opacity of visible emissions from a flue or process fugitive emissions from such source, excluding uncombined water:

- a. Equal or exceed an opacity of 20% for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period; or,
- b. Equal or exceed an opacity of 60% at any time.

3. Odor Emissions (§2104.04) (County-only enforceable)

No person shall operate, or allow to be operated, any source in such manner that emissions of malodorous matter from such source are perceptible beyond the property line.

4. Materials Handling (§2104.05)

The permittee shall not conduct, or allow to be conducted, any materials handling operation in such manner that emissions from such operation are visible at or beyond the property line.

5. Operation and Maintenance (§2105.03)

All air pollution control equipment required by this permit or any order under Article XXI, and all equivalent compliance techniques approved by the Department, shall be properly installed, maintained, and operated consistently with good air pollution control practice.

6. Open Burning (§2105.50)

No person shall conduct, or allow to be conducted, the open burning of any material, except where the Department has issued an Open Burning Permit to such person in accordance with Article XXI §2105.50 or where the open burning is conducted solely for the purpose of non-commercial preparation of food for human consumption, recreation, light, ornament, or provision of warmth for outside workers, and in a manner which contributes a negligible amount of air contaminants.

7. Shutdown of Control Equipment (§2108.01.b)

- a. In the event any air pollution control equipment is shut down for reasons other than a breakdown, the person responsible for such equipment shall report, in writing, to the Department the intent to shut down such equipment at least 24 hours prior to the planned shutdown. Notwithstanding the submission of such report, the equipment shall not be shut down until the approval of the Department is obtained; provided, however, that no such report shall be required if the source(s)

served by such air pollution control equipment is also shut down at all times that such equipment is shut down.

- b. The Department shall act on all requested shutdowns as promptly as possible. If the Department does not take action on such requests within ten (10) calendar days of receipt of the notice, the request shall be deemed denied, and upon request, the owner or operator of the affected source shall have a right to appeal in accordance with the provisions of Article XI.
- c. The prior report required by Site Level Condition IV.7.a above shall include:
 - 1) Identification of the specific equipment to be shut down, its location and permit number (if permitted), together with an identification of the source(s) affected;
 - 2) The reasons for the shutdown;
 - 3) The expected length of time that the equipment will be out of service;
 - 4) Identification of the nature and quantity of emissions likely to occur during the shutdown;
 - 5) Measures, including extra labor and equipment, which will be taken to minimize the length of the shutdown, the amount of air contaminants emitted, or the ambient effects of the emissions;
 - 6) Measures which will be taken to shut down or curtail the affected source(s) or the reasons why it is impossible or impracticable to shut down or curtail the affected source(s) during the shutdown; and
 - 7) Such other information as may be required by the Department.

8. Breakdowns (§2108.01.c)

- a. In the event that any air pollution control equipment, process equipment, or other source of air contaminants breaks down in such manner as to have a substantial likelihood of causing the emission of air contaminants in violation of this permit, or of causing the emission into the open air of potentially toxic or hazardous materials, the person responsible for such equipment or source shall immediately, but in no event later than sixty (60) minutes after the commencement of the breakdown, notify the Department of such breakdown and shall, as expeditiously as possible but in no event later than seven (7) days after the original notification, provide written notice to the Department.
- b. To the maximum extent possible, all oral and written notices required shall include all pertinent facts, including:
 - 1) Identification of the specific equipment which has broken down, its location and permit number (if permitted), together with an identification of all related devices, equipment, and other sources which will be affected.
 - 2) The nature and probable cause of the breakdown.
 - 3) The expected length of time that the equipment will be inoperable or that the emissions will continue.
 - 4) Identification of the specific material(s) which are being, or are likely to be emitted, together with a statement concerning its toxic qualities, including its qualities as an irritant, and its potential for causing illness, disability, or mortality.
 - 5) The estimated quantity of each material being or likely to be emitted.
 - 6) Measures, including extra labor and equipment, taken or to be taken to minimize the length of the breakdown, the amount of air contaminants emitted, or the ambient effects of the emissions, together with an implementation schedule.
 - 7) Measures being taken to shut down or curtail the affected source(s) or the reasons why it is

impossible or impractical to shut down the source(s), or any part thereof, during the breakdown.

- c. Notices required shall be updated, in writing, as needed to advise the Department of changes in the information contained therein. In addition, any changes concerning potentially toxic or hazardous emissions shall be reported immediately. All additional information requested by the Department shall be submitted as expeditiously as practicable.
- d. Unless otherwise directed by the Department, the Department shall be notified whenever the condition causing the breakdown is corrected or the equipment or other source is placed back in operation by no later than 9:00 AM on the next County business day. Within seven (7) days thereafter, written notice shall be submitted pursuant to Paragraphs a and b above.
- e. Breakdown reporting shall not apply to breakdowns of air pollution control equipment which occur during the initial startup of said equipment, provided that emissions resulting from the breakdown are of the same nature and quantity as the emissions occurring prior to startup of the air pollution control equipment.
- f. In no case shall the reporting of a breakdown prevent prosecution for any violation of this permit or Article XXI.

9. Cold Start (§2108.01.d)

In the event of a cold start on any fuel-burning or combustion equipment, except stationary internal combustion engines and combustion turbines used by utilities to meet peak load demands, the person responsible for such equipment shall report in writing to the Department the intent to perform such cold start at least 24 hours prior to the planned cold start. Such report shall identify the equipment and fuel(s) involved and shall include the expected time and duration of the startup. Upon written application from the person responsible for fuel-burning or combustion equipment which is routinely used to meet peak load demands and which is shown by experience not to be excessively emissive during a cold start, the Department may waive these requirements and may instead require periodic reports listing all cold starts which occurred during the report period. The Department shall make such waiver in writing, specifying such terms and conditions as are appropriate to achieve the purposes of Article XXI. Such waiver may be terminated by the Department at any time by written notice to the applicant.

10. Monitoring of Malodorous Matter Beyond Facility Boundaries (§2104.04)

The permittee shall take all reasonable action as may be necessary to prevent malodorous matter from becoming perceptible beyond facility boundaries. Further, the permittee shall perform such observations as may be deemed necessary along facility boundaries to insure that malodorous matter beyond the facility boundary in accordance with Article XXI §2107.13 is not perceptible and record all findings and corrective action measures taken.

11. Orders (§2108.01.f)

In addition to meeting the requirements of General Condition III.28 and Site Level Conditions IV.7 through IV.10 above, inclusive, the person responsible for any source shall, upon order by the Department, report to the Department such information as the Department may require in order to assess the actual and potential contribution of the source to air quality. The order shall specify a reasonable time in which to make such a report.

12. Violations (§2108.01.g)

The failure to submit any report or update thereof required by General Condition III.28 and Site Level Conditions IV.7 through IV.11 above, inclusive, within the time specified, the knowing submission of false information, or the willful failure to submit a complete report shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02.

13. Emissions Testing (§2108.02)

- a. **Orders.** The person responsible for any source shall, upon order by the Department, conduct, or cause to be conducted, such emissions tests as specified by the Department within such reasonable time as is specified by the Department. Test results shall be submitted in writing to the Department within 20 days after completion of the tests, unless a different period is specified in the Department's order. Emissions testing shall comply with all applicable requirements of Article XXI §2108.02.e.
- b. **Tests by the Department:** Notwithstanding any tests conducted pursuant to this permit, the Department or another entity designated by the Department may conduct emissions testing on any source or air pollution control equipment. At the request of the Department, the permittee shall provide adequate sampling ports, safe sampling platforms and adequate utilities for the performance of such tests.
- c. **Testing Requirements.** No later than 45 days prior to conducting any tests required by this permit, the person responsible for the affected source shall submit for the Department's approval a written test protocol explaining the intended testing plan, including any deviations from standard testing procedures, the proposed operating conditions of the source during the test, calibration data for specific test equipment and a demonstration that the tests will be conducted under the direct supervision of persons qualified by training and experience satisfactory to the Department to conduct such tests. In addition, at least 30 days prior to conducting such tests, the person responsible shall notify the Department in writing of the time(s) and date(s) on which the tests will be conducted and shall allow Department personnel to observe such tests, record data, provide pre-weighed filters, analyze samples in a County laboratory and to take samples for independent analysis. Test results shall be comprehensively and accurately reported in the units of measurement specified by the applicable emission limitations of this permit.
- d. Test methods and procedures shall conform to the applicable reference method set forth in this permit or Article XXI Part G, or where those methods are not applicable, to an alternative sampling and testing procedure approved by the Department consistent with Article XXI §2108.02.e.2.
- e. **Violations:** The failure to perform tests as required by this permit or an order of the Department, the failure to submit test results within the time specified, the knowing submission of false information, the willful failure to submit complete results, or the refusal to allow the Department, upon presentation of a search warrant, to conduct tests, shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02.

14. Abrasive Blasting (§2105.51)

- a. Except where such blasting is a part of a process requiring an operating permit, no person shall conduct or allow to be conducted, abrasive blasting or power tool cleaning of any surface, structure, or part thereof, which has a total area greater than 1,000 square feet unless such abrasive blasting

complies with all applicable requirements of Article XXI §2105.51.

- b. In addition to complying with all applicable provisions of §2105.51, no person shall conduct, or allow to be conducted, abrasive blasting of any surface unless such abrasive blasting also complies with all other applicable requirements of Article XXI unless such requirements are specifically addressed by §2105.51.

15. Asbestos Abatement (§2105.62, §2105.63)

In the event of removal, encasement, or encapsulation of Asbestos-Containing Material (ACM) at a facility or in the event of the demolition of any facility, the permittee shall comply with all applicable provisions of Article XXI §2105.62 and §2105.63.

16. Protection of Stratospheric Ozone (40 CFR Part 82)

- a. Permittee shall comply with the standards for labeling of products using ozone-depleting substances pursuant to 40 CFR Part 82, Subpart E:
 - 1) All containers in which a Class I or Class II substance is stored or transported, all products containing a Class I substance, and all products directly manufactured with a process that uses a Class I substance must bear the required warning statement if it is being introduced into interstate commerce pursuant to §82.106;
 - 2) The placement of the required warning statement must comply with the requirements pursuant to §82.108;
 - 3) The form of the label bearing the required warning statement must comply with the requirements pursuant to §82.110; and
 - 4) No person may modify, remove or interfere with the required warning statement except as described in §82.112.
- b. Permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F:
 - 1) Persons opening appliances for maintenance, service, repair or disposal must comply with the prohibitions and required practices pursuant to §82.154 and §82.156;
 - 2) Equipment used during the maintenance, service, repair or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to §82.158;
 - 3) Persons maintaining, servicing, repairing or disposing of appliances, must be certified by an approved technician certification program pursuant to §82.161;
 - 4) Persons maintaining, servicing, repairing or disposing of appliances must certify to the Administrator of the U.S. Environmental Protection Agency pursuant to §82.162;
 - 5) Persons disposing of small appliances, motor vehicle air conditioners (MVAC) and MVAC-like appliances, must comply with the record keeping requirements pursuant to §82.166;
 - 6) Owners of commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to §82.156; and
 - 7) Owners or operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to §82.166.
- c. If the permittee manufactures, transforms, destroys, imports or exports a Class I or Class II substance, the Permittee is subject to all the requirements as specified in 40 CFR Part 82, Subpart A (Production and Consumption Controls).
- d. If the permittee performs a service on a motor vehicle that involves an ozone-depleting substance,

refrigerant or regulated substitute substance in the MVAC, the Permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B (Servicing of Motor Vehicle Air Conditioners).

- e. The permittee may switch from any ozone-depleting substance to any alternative that is listed as acceptable in the Significant New Alternatives Policy (SNAP) program promulgated pursuant to 40 CFR Part 82, Subpart G.

17. Volatile Organic Compound Storage Tanks (§2105.12.a)

No person shall place or store, or allow to be placed or stored, a volatile organic compound having a vapor pressure of 1.5 psia or greater under actual storage conditions in any aboveground stationary storage tank having a capacity equal to or greater than 2,000 gallons but less than or equal to 40,000 gallons, unless there is in operation on such tank pressure relief valves which are set to release at the higher of 0.7 psig of pressure or 0.3 psig of vacuum or at the highest possible pressure and vacuum in accordance with State or local fire codes, National Fire Prevention Association guidelines, or other national consensus standard approved in writing by the Department. Petroleum liquid storage vessels that are used to store produced crude oil and condensate prior to lease custody transfer are exempt from these requirements.

18. Fugitive Emissions (§2105.49)

The person responsible for a source of fugitive emissions, in addition to complying with all other applicable provisions of this permit shall take all reasonable actions to prevent fugitive air contaminants from becoming airborne. Such actions may include, but are not limited to:

- a. The use of asphalt, oil, water, or suitable chemicals for dust control;
- b. The paving and maintenance of roadways, parking lots and the like;
- c. The prompt removal of earth or other material which has been deposited by leaks from transport, erosion or other means;
- d. The adoption of work or other practices to minimize emissions;
- e. Enclosure of the source; and
- f. The proper hooding, venting, and collection of fugitive emissions.

19. Episode Plans (§2106.02)

The permittee shall upon written request of the Department, submit a source curtailment plan, consistent with good industrial practice and safe operating procedures, designed to reduce emissions of air contaminants during air pollution episodes. Such plans shall meet the requirements of Article XXI §2106.02.

20. New Source Performance Standards (§2105.05)

- a. It shall be a violation of this permit giving rise to the remedies provided by §2109.02 of Article XXI for any person to operate, or allow to be operated, any source in a manner that does not comply with all requirements of any applicable NSPS now or hereafter established by the EPA, except if such person has obtained from EPA a waiver pursuant to Section 111 or Section 129 of the Clean Air Act or is otherwise lawfully temporarily relieved of the duty to comply with such requirements.
- b. Any person who operates, or allows to be operated, any source subject to any NSPS shall conduct, or cause to be conducted, such tests, measurements, monitoring and the like as is required by such

standard. All notices, reports, test results and the like as are required by such standard shall be submitted to the Department in the manner and time specified by such standard. All information, data and the like which is required to be maintained by such standard shall be made available to the Department upon request for inspection and copying.

21. National Emission Standards for Hazardous Air Pollutants (§2104.08)

- a. The permittee shall comply with each applicable emission limitation, work practice standard, and operation and maintenance requirement of 40 CFR Part 63, Subpart HHHHH – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing for all applicable equipment and processes in the Paint Plant.
- b. The permittee shall comply with each applicable emission limitation, work practice standard, and operation and maintenance requirement of 40 CFR Part 63, Subpart FFFF – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing for all applicable equipment and processes in the Development Center.

22. Facility-wide Emission Limitations

- a. Production of coatings at the Paint Plant facility shall be limited to a total of 20,000,000 gallons during any 12 consecutive months.

23. Greenhouse Gas Reporting (40 CFR Part 98)

If the facility emits 25,000 metric tons or more of carbon dioxide equivalent (CO₂e) in any 12-month period, the facility shall submit reports to the US EPA in accordance with 40 CFR Part 98.

V. EMISSION UNIT LEVEL TERMS AND CONDITIONS**A. Process P001: Paint Plant (Controlled Emissions)**

Process Description: CP Cell, Light Cell, Dark Cell, and Environ Work Centers; Large Batch Center; Solvent Still, Small Order Department, and Tank Cleaning
Raw Materials: Pigment, Resin, Solvent
Control Device(s): Paint Plant Regenerative Thermal Oxidizer (RTO); Ohio Blowpipe Dust Collector; Environ Baghouse
Capacity: 1.6 MMBtu/hr
Fuel: Natural Gas

1. Restrictions:

- a. The permittee shall not operate any equipment from the CP Cell, Light Cell, Dark Cell, and Environ work centers; Large Batch Center, or Solvent Still at any time while generating VOC emissions unless the Paint Plant RTO is in service and operating properly. [§2103.12.a; IP #0057-I003, VI.1.a; IP #0057-I005c, V.A.1.a]
- b. The permittee shall equip each stationary mixer and stationary process vessel with a tightly fitting vented cover or lid that must be closed at all times when the vessel contains HAP, except for material additions and sampling. [§2103.12.a; §2104.08; §63.8005(a)(1); 40 CFR Part 63 Subpart HHHHH Table 1.2.b.i; RACT Order #254, 1.13, 1.14; 25 Pa. Code §129.99]
- c. The permittee shall not operate or allow to be operated any dispensing or filling systems for solvent-borne coatings unless they are of closed design or minimize free-fall of liquids. [§2103.12.a; RACT Order #254, 1.16 & 1.17; 25 Pa. Code §129.99]
- d. The Paint Plant RTO shall be properly operated and maintained according to good engineering practices (as proscribed in Monitoring Section V.A.3 below), manufacturer's recommendations, and the following conditions at all times while treating process emissions: [§2103.05; §2105.30; IP #0057-I003, VI.1.b; IP #0057-I005c, V.A.1.b]
 - 1) A minimum VOC destruction efficiency of 98% by weight; or [25 Pa. Code §129.99]
 - 2) A VOC concentration less than 20 ppm by volume, dry basis.
- e. The permittee shall reduce emissions of total organic HAP from stationary process vessels by the amount specified in condition V.A.1.d.1) above or greater by venting emissions through the existing Paint Plant regenerative thermal oxidizer (RTO) at all times when paint is being produced. [§2103.12.a; §2104.08; §63.8005(a)(1); 63 Subpart HHHHH Table 1.2.b.i; §63.988(a)(2)]
- f. The RTO shall be operated at a minimum operating temperature of 1,500 °F or the temperature at which a destruction efficiency of 98% is demonstrated during the most recent stack test, whichever is greater. [§2103.05; §2105.30.b; IP #0057-I005c, V.A.1.c; 25 Pa. Code §129.99]
- g. The permittee shall meet the requirements of condition V.A.1.e above for emissions during automatic cleaning operations. [§2103.12.a; §2104.08; §63.8005(a)(1)(ii)]
- h. The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [§2103.12.a; RACT Order #254, 1.20; 25 Pa. Code §129.99]

- i. The permittee shall not operate or allow to be operated any grinding mills unless they are completely closed at all times. [§2103.12.a; RACT Order #254, 1.18]
- j. The permittee shall not operate, nor allow to be operated, the Paint Plant RTO using a fuel other than utility-grade natural gas. [§2103.12.a.2.B; IP #0057-I005c, V.A.1.e]
- k. Emissions from the Paint Plant RTO shall not exceed the limits in Table V-A-1 at any time: [§2103.12.a; IP #0057-I005c, V.A.1.d]

Table V-A-1: Paint Plant RTO Emission Limitations

Pollutant	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.013	0.056
Particulate Matter < 10 µm (PM ₁₀)	0.013	0.056
Particulate Matter < 2.5 µm (PM _{2.5})	0.013	0.056
Nitrogen Oxides (NO _x)	0.180	0.790
Sulfur Oxides (SO _x)	0.001	0.005
Carbon Monoxide (CO)	0.152	0.664
Volatile Organic Compounds (VOCs)	2.37	10.42
Hazardous Air Pollutants (HAPs)	1.49	6.52

¹ A year is defined as any 12 consecutive month period.

- l. The Paint Plant RTO shall be equipped with instrumentation that continuously monitors the thermal oxidizer combustion chamber temperature to within 0.75% of the temperature measured, and records to the nearest 1 °F. The permittee shall at all times properly maintain and calibrate the continuous temperature monitor and recorder in accordance with manufacturer's specifications and good engineering practices. [§2103.12.a.2.B; IP #0057-I003, VI.1.c; IP #0057-I005c, V.A.1.f]
- m. The Paint Plant RTO shall meet the requirements of 40 CFR Part 63, Subpart SS, §63.982(c)(2), as specified in 40 CFR Part 63, Subpart HHHHH. [§2103.12.a; §2104.08; §63.8000(c)(1); §63.8005(a)(2)]
- n. The permittee shall at no time, conduct or allow to be conducted, charging of solid materials into the Environ processes and Large Batch Cells processes unless the Environ Baghouse and Ohio Blowpipe collection and control system are properly maintained and operated at all times, according to the following conditions: [§2103.12.a.2.B; IP #0057-I003, VI.1.d]
 - 1) All particulate emissions from the charging of solid materials into the Environ processes shall be vented through the Environ Baghouse and all particulate emissions from the charging of the Large Batch Cells processes shall be vented through the Ohio Blowpipe dust collection and control system. Each baghouse shall be equipped with automatic cleaning controls and instrumentation that shall continuously measure the differential pressure drop across the baghouse to within 2.0% of the measuring span of the device.
 - 2) The differential pressure drop across the baghouse shall not exceed a maximum of 6.0" w.c. of water column and a minimum of 1.0" w.c. at any time except during cleaning cycles.
- o. Emissions from the Environ Baghouse shall not exceed the limits in Table V-A-2 at any time:

[§2103.12.a.2.B; IP #0057-I003, VI.1.h]

Table V-A-2: Controlled Emission Limits

Pollutant	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.62	2.72
Particulate Matter < 10 µm (PM ₁₀)	0.62	2.72
Hazardous Air Pollutants (particulates)	0.25	1.10

¹ A year is defined as any 12 consecutive month period.

- p. Emissions from the Ohio Blowpipe Baghouse shall not exceed the limits in Table V-A-3 at any time: [§2103.12.a.2.B; IP #0057-I003, VI.1.j]

Table V-A-3: Controlled Emission Limits

Pollutant	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.73	3.20
Particulate Matter < 10 µm (PM ₁₀)	0.73	3.20

¹ A year is defined as any 12 consecutive month period.

- q. The permittee shall determine whether wastewater from the emission unit is Group 1 or Group 2 wastewater according to 40 CFR §63.8020. Group 1 wastewater streams shall be conveyed using hard-piping and shall be treated as a hazardous waste in accordance with 40 CFR part 264, 265, or 266 either onsite or offsite. Alternatively, if the wastewater contains <50 ppmw of partially soluble HAP, the permittee may elect to treat the wastewater in an enhanced biological treatment system that is located either onsite or offsite. [§2103.12.a; §2104.08; §63.8020(a); §63.8105; 40CFR Part 63 Subpart HHHHH Table 4, 2.a-b]
- r. To maintain Group 2 transfer rack status, the permittee shall not allow bulk loading of coating products that contain greater than or equal to 3.0 million gallons per year of HAP with a weighted average HAP partial pressure greater than or equal to 1.5 psia. If the permittee exceeds these requirements, the permittee shall control the transfer rack to the RTO and complete appropriate permit modification applications. [§2103.12.b.; §2104.08.a; §63.8015]
- s. The permittee shall develop and implement a written startup, shutdown, and malfunction plan (SSMP) that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the conditions of this permit. The SSMP shall meet the requirements of 63 Subpart A, §63.6(e)(3). [§2103.12.a; §2104.08; §63.6(e)(3)]
- 1) During periods of startup, shutdown, and malfunction, the permittee shall operate and maintain such source (including associated air pollution control equipment) in accordance with the procedures specified in the SSMP.
 - 2) When actions taken by the permittee during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the SSMP, the permittee shall keep records for that event that demonstrate that the procedures specified in the plan were followed. In addition, the permittee shall keep records of these events as specified in condition V.A.4.f below, including records of the occurrence and duration of

each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control equipment.

- 3) If an action taken by the permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the SSMP, the permittee shall record the actions taken for that event and shall report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event.
 - 4) The permittee shall keep the written SSMP on record to be made available for inspection, upon request, by the Department for the life of the affected source or until the affected source is no longer subject to the provisions of this part. In addition, if the SSMP is revised, the permittee shall keep previous versions of the SSMP on record, to be made available for inspection, upon request, by the Department, for a period of 5 years after each revision to the plan.
- t. Opening of a safety device, as defined in §63.8105, is allowed at any time conditions require it to avoid unsafe conditions. [§2103.12.a; §2104.08; §63.8000(b)(2)]

2. Testing Requirements:

- a. The permittee shall conduct VOC and HAP emissions testing on the inlet and the outlet of the Paint Plant RTO to demonstrate compliance with condition V.A.1.e above. Such testing shall be conducted in accordance with US EPA approved test methods and §2108.02 of Article XXI. The testing shall be performed after initial start-up and once every five (5) years after the most recent stack test. [§2103.12.h.1; §63.982(c)(2); IP #0057-I005c, V.A.2.a; 25 Pa. Code §129.100]
- b. The permittee shall conduct tests to measure emissions using the following methods: [§2103.12.h; §2104.08; §63.8000(d)(1); §63.997(e)(2)(i)-(iv)]
 - 1) Conduct gas molecular weight analysis using Method 3, 3A, or 3B in appendix A to 40 CFR Part 60.
 - 2) Measure moisture content of the stack gas using Method 4 in appendix A to 40 CFR Part 60.
 - 3) The gas volumetric flow rate shall be determined using Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR Part 60, appendix A, as appropriate.
 - 4) TOC concentration shall be determined using Method 18 or 25/25A of 40 CFR Part 60, appendix A, as applicable.
 - 5) As an alternative to using Method 18, Method 25/25A, or Method 26/26A of 40 CFR Part 60, appendix A, the permittee may use Method 320 of 40 CFR part 60, appendix A. When using Method 320, the permittee shall follow the analyte spiking procedures of section 13 of Method 320, unless the permittee demonstrates that the complete spiking procedure has been conducted at a similar source.
- c. Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for at least 1 hour and under the conditions specified in condition V.A.2.e below. For the purpose of determining compliance, the arithmetic means of results of the three runs shall apply. [§2103.12.h; §2104.08; §63.997(e)(1)(v)]
- d. The permittee shall determine the minimum operating temperature as required under condition V.A.1.f from the most recent valid stack test that demonstrates compliance with the requirements in condition V.A.1.e above, as approved by the Department. On and after the date the approved stack test results are available, the permittee shall operate the Paint Plant RTO at or above the average temperature as observed during the compliant stack test. [§2103.12.h.1; §63.8005(e); §63.998(a)(2)(ii)(B)(1); IP#0057-I005c, V.A.2.b; 25 Pa. Code §129.100]

- e. The permittee shall conduct all tests while operating the Paint Plant at maximum routine operating conditions. Documentation of the Paint Plant operating conditions shall be included in the stack test report. Such documentation shall include but not be limited to: [§2108.02.e.2.A; §63.8005(d)(1); IP#0057-I005c, V.A.2.c]
 - 1) A listing of all vessels and equipment in use and connected to the RTO during the stack test.
 - 2) A listing of the production of each vessel in use and connected to the RTO during the stack test.
 - 3) Total material in process during the stack test.
 - 4) Tank cleaning that occurs during the stack test, including type and amount of solvent used.
- f. The Department reserves the right to require additional emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Article XXI §2108.02. [§2103.12.h.1; §63.997(c)(2)]

3. Monitoring Requirements:

- a. The permittee shall externally inspect the Paint Plant RTO and associated ductwork weekly for proper operation as well as for integrity of the thermal oxidizer, process equipment, and gaseous collection systems. [§2103.12.i; §63.8000(c)(1); IP #0057-I005c, V.A.3.a]
- b. The permittee shall continuously monitor and record the Paint Plant RTO combustion chamber to the nearest 1°F of actual temperature at all times while treating process emissions. [§2102.04.b.6; §2103.12.i; §63.996(c); IP #0057-I003, VI.3.b; IP #0057-I005c, V.A.3.b; 25 Pa. Code §129.100]
- c. If the permittee chooses to demonstrate compliance with the outlet concentration standard in condition V.A.1.d.2) above, then the permittee shall install and properly operate and maintain a continuous monitoring system (CMS) to measure and record the amount of VOC (in ppm by volume, dry basis) exiting the Paint Plant RTO stack. [§2103.12.i; IP #0057-I005c, V.A.3.c; §63.998(2)(ii)(B)(4)]
- d. The permittee shall inspect the Environ Baghouse and Ohio Blowpipe collection and control system weekly to ensure compliance with conditions V.A.1.a and V.A.1.n through p. [§2103.12.i; IP #0057-I003, VI.3.a]
- e. The permittee shall perform monthly Leak Detection and Repair (LDAR) in accordance with condition V.B.3.a. [§2103.12.i; §2104.08; §63.8015(a); 63 Subpart HHHHH Table 3.1.a; §63.424(a)-(d)]

4. Record Keeping Requirements:

- a. The permittee shall record the monthly usage of all raw materials necessary to demonstrate compliance with this permit. Such records shall provide sufficient data and calculations to clearly demonstrate that all requirements of this permit are met. Such records shall include, but not be limited to the following: [§2103.12.j; IP #0057-I003, VI.4.a; RACT Order #254, 1.22]
 - 1) Records of specific solvents and quantities used;
 - 2) Records of paint production rates by number of batches and quantity of paint produced in each batch.
- b. The permittee shall record the results of the inspection required by condition V.A.3.d above and

- the differential pressure drop across the Environ Baghouse and Ohio Blowpipe collection and control system weekly. [§2103.12.j; IP #0057-I003, VI.4.b]
- c. The temperature in the combustion chamber of the Paint Plant RTO shall be continuously recorded, at all times, while processing emissions from the Paint Plant. [§2103.12.j; §2104.08; §63.8000(d)(5); §63.998(b)(1)-(3), & (6); IP #0057-I003, VI.4.c; IP #0057-I005c, V.A.4.a; 25 Pa. Code §129.100]
- d. The permittee shall maintain the following records for the thermal oxidizer unit: [§2103.12.j; IP #0057-I005c, V.A.4.b]
- 1) Hours of operation;
 - 2) All data required to demonstrate compliance with the minimum temperature requirements of condition V.A.1.f above;
 - 3) All data recorded under condition V.A.4.c above; and
 - 4) Records of operation, maintenance, inspection, calibration, and/or replacement of combustion equipment.
- e. For the Paint Plant RTO temperature monitoring system, the permittee shall keep and maintain the calibration records outlined in 40 CFR Part 63, Subpart SS, §63.998(c). [§2103.12.j; §2104.08; §63.8000(c); §63.8000(d)(5); §63.8080(a)]
- f. The permittee shall maintain the following information for each startup, shutdown, or malfunction: [§2103.12.j; §2104.08; §63.10(b)(2)(i)-(v)]
- 1) The occurrence and duration of each startup, shutdown, or malfunction of operation (i.e., process equipment);
 - 2) The occurrence and duration of each malfunction of the air pollution control equipment;
 - 3) All maintenance performed on the air pollution control equipment;
 - 4) Actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) when such actions are different from the procedures specified in the SSMP required under condition V.A.1.s above; and
 - 5) All information necessary to demonstrate conformance with the SSMP required under condition V.A.1.s above when all actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan.
- g. The permittee shall keep and maintain records of each time a safety device is opened to avoid unsafe conditions. [§2103.12.j; §2104.08; §63.8000(b)(2); §63.8080(c)]
- h. The permittee shall maintain all manufacturer specification and recommendations required to demonstrate compliance with condition V.A.1.d on file. These files shall be made available to the Department upon request. [§2103.12.j]
- i. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.j; §63.998(d)(5); IP #0057-I003, VI.4.b; IP #0057-I005c, V.A.4.c]

- j. All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; RACT Order #254, 1.23]

5. Reporting Requirements:

- a. The permittee shall submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin. [§2103.12.k; §2104.08; §63.8070(c); §63.999(a)(1)]
- b. The permittee shall report the following information to the Department semiannually in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report, and shall include but not be limited to all of the information required under §63.999(c) and the information below: [§2103.12.k.1; §2104.08; 63 Subpart HHHHH Table 9.3 & Table 3.1; §63.8075(b); §63.8075(e)(1)-(6); §63.999(c); IP #0057-I003, VI.5.a; IP #0057-I005c, V.A.5.a]
- 1) Company name and address.
 - 2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.
 - 3) Date of report and beginning and ending dates of the reporting period.
 - 4) Monthly minimum temperatures, minimum temperature for the reporting period, and daily average temperatures for any days when the temperature was below the minimum in condition V.A.1.f.
 - 5) For each startup, shutdown, or malfunction (SSM) during which excess emissions occur, the compliance report shall include the following information:
 - a) Records that the procedures specified in the startup, shutdown, and malfunction plan (SSMP) were followed or documentation of actions taken that are not consistent with the SSMP.
 - b) A description of each malfunction.
 - 6) Non-compliance information required to be recorded by condition V.A.4.h above; and
 - 7) A certified statement signed by the responsible official that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.
- c. The semiannual compliance report must also contain the following information for any deviations: [§2103.12.i; §2104.08; §63.8075(e)(6); 63 Subpart HHHHH Table 9.3 & Table 3.1]
- 1) If there are no deviations from any emission limit, operating limit, or work practice standard, include a statement that there were no deviations from the emission limits, operating limits, or work practice standards during the reporting period.
 - 2) For each deviation from an emission limit or operating limit, the permittee shall include the following information. This includes periods of startup, shutdown, and malfunction (SSM).
 - a) The date and time that each continuous monitoring system (CMS) was inoperative, except for zero (low-level) and high-level checks.
 - b) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.
 - c) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.
 - d) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.
 - e) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total source operating time during that

- reporting period.
 - f) An identification of each HAP that is known to be in the emission stream or wastewater stream, as applicable.
 - g) A description of the product being produced.
 - h) Identification of the CMS.
 - i) The date of the latest CMS certification or audit.
 - j) The operating day or operating block average values of monitored parameters for each day(s) during which the deviation occurred.
- d. The permittee shall notify the Department at least ten (10) days prior to the use of a new hazardous air pollutant in the Environ Work Center that will exceed 500 pounds consumption during any one month period. [§2103.12.k; IP #0057-I003, VI.5.c]
- e. If the permittee makes any changes to the proposed process, the following notifications must be submitted: [§2103.12.k; §2104.08; §63.8075(e)(8); 63 Subpart HHHHH Table 3.1]
- 1) Except as specified in paragraph condition V.A.5.e.2) below, whenever the permittee changes any of the information submitted in either the notification of compliance status report or any previously reported change to the notification of compliance status report, the permittee shall document the change in the compliance report. The notification shall include revisions to any of the information reported in the original notification of compliance status report.
 - 2) The permittee shall submit a report 60 days before the scheduled implementation date of any of the following changes:
 - a) Any change to the information contained in either the precompliance report or any previously reported change to the precompliance report.
 - b) A change in the status of a control device from small to large.
 - c) A change in compliance status.
- f. Reporting instances of non-compliance and malfunction, does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2102.04.b.4; §2108.01.c]

6. Work Practice Standard:

- a. The permittee shall be properly operate and maintain the Paint Plant in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; 25 Pa. Code §129.99]
 - 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;
 - 2) Keep records of any maintenance; and
 - 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Paint Plant and associated thermal oxidizer and baghouses shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; 25 Pa. Code §129.99]
 - 1) Properly calibrate all instrumentation;
 - 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
 - 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
 - 4) Cover all open solvent containers when not in use.

- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j; 25 Pa. Code §129.99]

B. Process P002: Paint Plant (Uncontrolled Emissions)

Process Description: CP Cell, Light Cell, Dark Cell, and Environ Work Centers; Large Batch Center; Solvent Still, Small Order Department, and Tank Cleaning

Control Device: None

1. Restrictions:

- a. Uncontrolled emissions from the Paint Plant shall not exceed the limits in Table V-B-1 at any time: [§2103.12.a.2.B]

Table V-B-1: Uncontrolled Paint Plant Emission Limits

Pollutant	Short-term Emissions (lb/hr ²)	Annual Emissions (tons/year ¹)
VOC's	54.34	238.0
HAP's	26.92	117.9

¹ A year is defined as any 12 consecutive months.

² Based on a daily average.

- b. The permittee shall equip each portable process vessel with a cover or lid that must be in place at all times when the vessel contains a HAP, except for material additions and sampling. The covers shall be maintained in good condition, such that when in place, they maintain contact with their respective rims for at least 90% of the circumference of the rim. [§2103.12.a; §2104.08; §63.8005(a)(1); 63 Subpart HHHHH Table 1.1; IP #0057-I004, V.A.1.b; RACT Order #254, 1.15; §129.99]
- c. The permittee shall not operate or allow to be operated any dispensing or filling systems for solvent-borne coatings unless they are of closed design or minimize free-fall of liquids. [§2103.12.a; RACT Order #254, 1.16 & 1.17; §129.99]
- d. The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [§2103.12.a; RACT Order #254, 1.20; §129.99]
- e. The permittee shall not conduct or allow to be conducted any floor cleaning operations unless they employ water-based cleaners. The use of solvents shall be limited to spot cleaning. [§2103.12.a; RACT Order #254, 1.21; §129.99]

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing." [§2103.12.h.1]

3. Monitoring Requirements:

- a. Leak Detection and Repair [§2103.12.i; §2104.08; §63.8015(a); 63 Subpart HHHHH Table 3.1.a; §63.424(a)-(d); §129.99]

- 1) The permittee shall perform a monthly leak inspection of all equipment in organic HAP service, with the exception of equipment in service less than 300 hours per year, equipment in vacuum service, or equipment contacting non-process fluids, as per 40 CFR 63.8015(b)(4). For this inspection, detection methods incorporating sight, sound, and smell are acceptable. Each piece of equipment must be inspected when it is operating in organic HAP service.
- 2) A log book shall be used and shall be signed by the permittee at the completion of each inspection. A section of the log shall contain a list, summary description, or diagram(s) showing the location of all equipment in organic HAP service at the facility.
- 3) Each detection of a liquid or vapor leak shall be recorded in the log book. When a leak is detected, an initial attempt at repair shall be made as soon as practicable, but no later than 5 calendar days after the leak is detected. Repair or replacement of leaking equipment shall be completed within 15 calendar days after detection of each leak, except as provided below.
- 4) Delay of repair of leaking equipment will be allowed upon a demonstration to the Department that repair within 15 days is not feasible. The permittee shall provide the reason(s) a delay is needed and the date by which each repair is expected to be completed.

4. Record Keeping Requirements:

- a. The permittee shall keep and maintain, at a minimum, the following records: [§2103.12.j]
 - 1) The Absolute Material Utilization (AMU) value, or equivalent, and the plant-wide solvent use based on that value;
 - 2) The monthly amount of non-bulk solvent-based paint waste, and records of solvent content in that waste;
 - 3) The monthly amount of non-bulk aqueous paint waste, and records of solvent content in that waste;
 - 4) The monthly amount of bulk still sludge and bulk paint waste, and records of solvent content in that waste.
- b. The permittee shall record the following information in the log book required by condition V.B.3.a.2) for each leak that is detected: [§2103.12.j; §2104.08; §63.8000(a); 63 Subpart HHHHH Table 3.1.a; §63.428(e); §129.100]
 - 1) The equipment type and identification number;
 - 2) The nature of the leak (i.e., vapor or liquid) and the method of detection (i.e., sight, sound, or smell);
 - 3) The date the leak was detected and the date of each attempt to repair the leak;
 - 4) Repair methods applied in each attempt to repair the leak;
 - 5) "Repair delayed" and the reason for the delay if the leak is not repaired within 15 calendar days after discovery of the leak;
 - 6) The expected date of successful repair of the leak if the leak is not repaired within 15 days; and
 - 7) The date of successful repair of the leak.
- c. The log book required by condition V.B.3.a.2) shall be maintained on site and shall be available for Department inspection at all times. [§2103.12.h.2.A-B; 2103.12.j.1-2]
- d. All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; RACT Order #254, 1.23]

5. Reporting Requirements:

- a. If the annual production exceeds 15 MMgal/12-month period, the permittee shall submit the following information as part of the semiannual report required under General Condition III.15: [§2103.12.k.1]
 - 1) All information required under condition V.B.4.a above;
 - 2) A rolling 12-month total estimate of emissions to demonstrate compliance with condition V.B.1.a above.
- b. For the LDAR program required under condition V.B.3.a, the permittee shall report to the Department a description of the types, identification numbers, and locations of all equipment in organic HAP service as part of the initial notification. If the facility elects to implement an instrument program, the report shall contain a full description of the program. [§2103.12.k; §2104.08; §63.8000(a); 63 Subpart HHHHH Table 3.1.a; §63.428(f); §129.100]
- c. The permittee shall include in the semiannual report each occurrence of an equipment leak for which no repair attempt was made within 5 days or for which repair was not completed within 15 days after detection: [§2103.12.k; §2104.08; 63 Subpart HHHHH Table 9.3 & Table 3.1; §63.428(h)(4)]
 - 1) The date on which the leak was detected;
 - 2) The date of each attempt to repair the leak;
 - 3) The reasons for the delay of repair; and
 - 4) The date of successful repair.

6. Work Practice Standard:

- a. The permittee shall properly operate and maintain the Paint Plant in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; §129.99]
 - 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;
 - 2) Keep records of any maintenance; and
 - 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Paint Plant shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; §129.99]
 - 1) Properly calibrate all instrumentation;
 - 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
 - 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
 - 4) Cover all open solvent containers when not in use.
- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j]

C. Process P003: Paint Plant – Freightliner Spray Booth

Process Description: Surface Coating and Clean-up Operations.
Facility ID: No. 2004-B1
Number of Units: One (1) spray booth
Raw Materials: Sample metal & plastic panels (uncoated); solid & metallic coatings; hardener; clear coat; cleaning solvent (50% acetone, 50% butyl acetate)
Control Device(s): Filters on the back of the spray booth; electrostatic spray guns (transfer efficiency: 25-45%); 90% collection on cleaning solution.

1. Restrictions:

- a. The permittee shall not use any cleaning material that contains organic HAPs. [§2103.12.a.2.D; Installation Permit #0057-I004, V.A.1.a]
- b. The surface coating process shall use electrostatic spray guns for coating applications at all times. These guns shall be maintained and operated according to manufacturer's recommendations and good engineering practice. [§2105.03; IP #0057-I004, V.A.1.b; §129.97]
- c. The paint spray booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [§2103.12.a.2.D §2105.03; IP #0057-I004, V.A.1.c; §129.97]
- d. Emissions from the surface coating process and clean-up operations shall not exceed the following at any time: [§2103.12.a; IP #0057-I004, V.A.1.d; §129.97]

Table V-C-1: Uncontrolled Paint Plant Emission Limits

Pollutant	lbs/hr ¹	tpy ²
Volatile Organic Compounds	0.57	2.50
Hazardous Air Pollutants	0.057	0.25

¹ Average per 8-hour shift.² A year is defined as any 12 consecutive months.**2. Testing Requirements:**

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Article XXI §2108.02. [§2103.12.h.1]

3. Monitoring Requirements:

The surface coating spray units and overspray filters shall be inspected weekly while in operation for compliance with conditions V.C.1.b and V.C.1.c. [§2103.12.i; #0057-I004, V.A.2]

4. Record Keeping Requirements:

- a. The permittee shall maintain daily records while in operation of the following: [§2103.12.j; #0057-

I004, V.A.4.a]

- 1) The following parameters for each coating, thinner, and other component as-supplied:
 - a) The coating, thinner, or component name and identification number;
 - b) The volume used;
 - c) The mix ratio;
 - d) The density or specific gravity; and
 - e) The weight percent of total volatiles, water, solids, and exempt solvents.
 - 2) The VOC and HAP content of each coating, thinner, and other components as-supplied; and
 - 3) The VOC and HAP content of each as-applied coating.
- b. The name and volume of each cleaning material and/or solvent used. [§2103.12.j; IP #0057-I004, V.A.4.b]
- c. The permittee shall maintain records of inspection and maintenance of the overspray filters required under condition V.C.3 above. [§2103.12.j; #0057-I004, V.A.4.c]
- d. The permittee shall maintain all manufacturer specifications and recommendations required to demonstrate compliance with condition V.C.1.b on file. These files shall be made available to the Department upon request. [§2103.12.j]
- e. All records shall be maintained by the permittee for a period of at least five (5) years following the date of such record. [§2103.12.j.2]

5. Reporting Requirements:

- a. The permittee shall submit semi-annual reports to the Department in accordance with General Condition III.15. [§2103.12.k]
- b. The semi-annual report shall include the following information: [§2103.12k; IP #0057-I004, V.A.5.b]
 - 1) Calendar dates covered in the reporting period;
 - 2) The as-applied coating with the maximum VOC content and the as-applied coating with the maximum HAP content for each month of the reporting period;
 - 3) The total volume of as-applied coating material used during each month of the reporting period;
 - 4) All records of solvents and/or cleaning materials obtained under condition V.C.4.b; and
 - 5) Reasons for any noncompliance with the emission standards.

6. Work Practice Standard:

- a. The permittee shall store all VOC-containing coatings, thinners, coating-related waste material, cleaning materials and used shot towels in closed containers. [§2103.12.a.2.D; §129.97]
- b. The permittee shall ensure that mixing and storage containers used for VOC-containing coatings, thinners, coating-related waste materials, and cleaning materials are kept closed at all times except when depositing or removing these materials. [§2103.12.a.2.D; §129.97]
- c. The permittee shall minimize all spills of VOC-containing coatings, thinners, coating-related waste materials and cleaning materials, cleaning up spills immediately. [§2103.12.a.2.D; §129.97]

- d. The permittee shall convey VOC-containing coatings, thinners, coating-related waste materials and cleaning materials from one location to another in closed containers or pipes. [§2103.12.a.2.D; §129.97]
- e. The permittee shall operate and maintain all process equipment according to manufacturers' specifications and recommendations, and good engineering practices. [§2103.12.a.2.D; §2105.03; §129.97]
- f. The permittee shall keep the manufacturer's operating manuals on site and available at all times. [§2103.12.a.2.D; §2105.03; §129.97]

D. Process P004: Development Center (Controlled Emissions)

Process Description: K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, and R2000 Reactor Process
Raw Materials: Solvent, Epoxy, Catalyst, Monomers
Control Device: Development Center Regenerative Thermal Oxidizer (RTO)
Capacity: 1.6 MMBtu/hr
Fuel: Natural Gas

1. Restrictions:

- a. The permittee shall not operate the K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, and R2000 Reactor Process at any time while generating VOC emissions unless the Development Center RTO is in service and operating as required. [§2103.12.a; IP #0057-I005c; V.B.1.a; IP #0057-I008, V.A.1.a]
- b. The Development Center RTO shall be properly operated and maintained according to good engineering practices (as proscribed in Monitoring Section V.D.3 below, manufacturer's recommendations, and the following conditions at all times while treating process emissions: [§2103.12.a; §2104.08; IP #0057-I001, V.1.b; IP #0057-I005c, V.B.1.b; IP #0057-I008, V.A.1.b; §63.2460(a); 40 CFR Part 63 Subpart FFFF Table 2.1.a & c;]
 - 1) The minimum VOC destruction efficiency shall be 98% by weight; or [§129.99]
 - 2) A VOC concentration less than 20 ppm by volume dry basis.
- c. The RTO shall be operated at a minimum operating temperature of 1,500 °F or the temperature at which the destruction efficiency in condition V.D.1.b.1) above is demonstrated during the most recent stack test, whichever is greater. [§2103.12.a; §2105.30.b; IP #0057-I001, V.1.b; IP #0057-I008, V.A.1.c; IP #0057-I005c, V.B.1.c]
- d. The permittee shall not operate, nor allow to be operated, the Development Center RTO using a fuel other than utility-grade natural gas. [§2103.12.a.2.B; IP #0057-I005c, V.B.1.e; IP #0057-I008, V.A.1.d]
- e. If the Development Center RTO is not in operation for a period of an hour or greater, the permittee shall vent all emissions from the K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, and R2000 Reactor Process to the carbon bins within the second hour in which the RTO is offline. [§2103.12.a.2.B; IP #0057-I008, V.A.1.e]
- f. The permittee shall vent emissions from the Large Side Reactor System to the respective scrubbers any time those systems are processing batches with chemistry incompatible with the RTO (such as those containing ammonia). [§2103.12.a.2.B; IP #0057-I008, V.A.1.f]
- g. Emissions from the Development Center RTO shall not exceed the values in Table V-D-1 at any time: [§2103.12.a; IP #0057-I005c, V.B.1.e; IP #0057-I008, V.A.1.g]

TABLE V-D-1: Development Center RTO Emission Limitations

POLLUTANT	Hourly Emissions (lb/hr)	Yearly Emissions (tons/yr)¹
Particulate Matter	0.013	0.056
Particulate Matter <10µm (PM ₁₀)	0.013	0.056
Particulate Matter <2.5µm (PM _{2.5})	0.013	0.056
Nitrogen Oxides (NO _x)	0.180	0.790
Sulfur Oxides (SO _x)	0.001	0.005
Carbon Monoxide (CO)	0.152	0.664
Volatile Organic Compounds (VOC's)	0.846	3.703
Hazardous Air Pollutants (HAP's)	0.846	3.703

¹ A year is defined as any 12 consecutive months.

- h. The Development Center RTO shall be equipped with instrumentation that continuously monitors the thermal oxidizer combustion chamber temperature to within 0.75% of the temperature measured, and records to the nearest 1°F. The permittee shall at all times properly maintain and calibrate the continuous temperature monitor and recorder in accordance with manufacturer's specifications and good engineering practices. [§2103.12.a; IP #0057-I005c, V.B.1.f; IP #0057-I008, V.A.1.h]
- i. The permittee shall not operate or allow to be operated any filling systems unless they are of closed design or minimize free-fall of liquids. [§2103.12.a.2.B; IP #0057-I008, V.A.1.i]
- j. The Development Center RTO shall meet the requirements of 40 CFR Part 63, Subpart SS, §63.982(c)(2), as specified in 40 CFR Part 63, Subpart FFFF. [IP #0057-I008, V.A.1.j ; §2103.12.a; §2104.08; §63.2450(e)(1)]
- k. The permittee shall determine the Group 1 or 2 status of storage tanks. To maintain Group 2 storage tank status, the permittee shall not store any materials with a maximum true vapor pressure of total HAP greater than or equal to 1.0 psia in any storage tank with a capacity greater than or equal to 10,000 gallons. If the storage tank changes to Group 1 status, the permittee shall connect the tank to control and complete appropriate permit modification applications. [§2103.12.a; §2104.08; §63.2470(a)]
- l. The permittee shall determine the Group 1 or 2 status of transfer racks. To maintain Group 2 transfer rack status, the permittee shall not allow bulk loading of any materials that contain greater than or equal to 0.17 million gallons per year of liquids that contain organic HAP with a rack-weighted partial pressure, as defined in §63.111, greater than or equal to 1.5 psia. If the transfer rack changes to Group 1 status, the permittee shall connect the rack to control and complete appropriate permit modification applications. [§2103.12.a; §2104.08; §63.2475(a)]
- m. The permittee shall develop and implement a written startup, shutdown, and malfunction plan (SSMP) that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the conditions of

this permit. The SSMP shall meet the requirements of 63 Subpart A, §63.6(e)(3). [§2103.12.a; §2104.08; §63.6(e)(3)]

- 1) During periods of startup, shutdown, and malfunction, the permittee shall operate and maintain such source (including associated air pollution control equipment) in accordance with the procedures specified in the SSMP.
 - 2) When actions taken by the permittee during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the SSMP, the permittee shall keep records for that event that demonstrate that the procedures specified in the plan were followed. In addition, the permittee shall keep records of these events as specified in condition V.D.4.h below, including records of the occurrence and duration of each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control equipment.
 - 3) If an action taken by the permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the SSMP, the permittee shall record the actions taken for that event and shall report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event.
 - 4) The permittee shall keep the written SSMP on record to be made available for inspection, upon request, by the Department for the life of the affected source or until the affected source is no longer subject to the provisions of this part. In addition, if the SSMP is revised, the permittee shall keep previous versions of the SSMP on record, to be made available for inspection, upon request, by the Department, for a period of 5 years after each revision to the plan.
- n. Opening of a safety device, as defined in §63.8105, is allowed at any time conditions require it to avoid unsafe conditions. [§2103.12.a; §2104.08; §63.2450(p) ; IP #0057-I008, V.A.1.k]
- o. The permittee shall meet the requirements of Section V.G for all process and maintenance wastewater from the equipment in the Development Center. [§2103.12.a; §2104.08; §63.2485(a)]

2. Testing Requirements:

- a. The permittee shall conduct VOC and HAP emissions testing on the inlet and the outlet of the Development Center RTO to demonstrate compliance with the requirements in condition V.D.1.b.1) above and limits in condition V.D.1.g above. Such testing shall be conducted in accordance with US EPA approved test methods and §2108.02 of Article XXI. The testing shall be performed after initial start-up and once every five (5) years thereafter. [§2103.12.h.1; IP #0057-I001, V.2.a; IP #0057-I005c, V.B.2.a; IP #0057-I008, V.A.2.a; §129.100]
- b. The permittee shall determine the minimum operating temperature as required under condition V.D.1.c from the most recent valid stack test that demonstrates compliance with limits in condition V.D.1.g above, as approved by the Department. On and after the date the approved stack test results are available, the permittee shall operate the thermal oxidizer at or above the average temperature as observed during the compliant stack test. [§2103.12.h.1; IP #0057-I005c, V.B.2.b; IP #0057-I008, V.A.2.b; §129.100]
- c. The permittee shall conduct all tests while operating the Development Center at maximum routine operating conditions. Documentation of the Development Center operating conditions shall be included in the stack test report. Such documentation shall include but not be limited to: [§2108.02e.2.A; IP #0057-I005c, V.B.2.c]
 - 1) A listing of all vessels and equipment in use and connected to the RTO during the stack test.

- 2) A listing of the material in each vessel in use and connected to the RTO during the stack test.
- d. The permittee shall conduct tests to measure emissions using the following methods unless other methods are approved by the Department: [§2103.12.h; §2104.08; §63.2450(g); §63.997(e)(2)(i)-(iv) ; IP #0057-I008, V.A.2.d]
 - 1) Conduct gas molecular weight analysis using Method 3, 3A, or 3B in appendix A to 40 CFR Part 60.
 - 2) Measure moisture content of the stack gas using Method 4 in appendix A to 40 CFR Part 60.
 - 3) The gas volumetric flow rate shall be determined using Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR Part 60, appendix A, as appropriate.
 - 4) TOC concentration shall be determined using Method 18 or 25/25A of 40 CFR Part 60, appendix A, as applicable.
 - 5) As an alternative to using Method 18, Method 25/25A, or Method 26/26A of 40 CFR Part 60, appendix A, the permittee may use Method 320 of 40 CFR part 60, appendix A. When using Method 320, the permittee shall follow the analyte spiking procedures of section 13 of Method 320, unless the permittee demonstrates that the complete spiking procedure has been conducted at a similar source.
- e. If the permittee adds supplemental combustion air and is required to correct the measured concentration at the outlet of the RTO to 3 percent oxygen, the permittee shall use Equation 1 of §63.2460. [§2103.12.h; §2104.08; §63.2450(i) ; IP #0057-I008, V.A.2.e]
- f. Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for at least 1 hour and under the conditions specified in condition V.D.2.c above. For the purpose of determining compliance, the arithmetic means of results of the three runs shall apply. [§2103.12.h; §2104.08; §63.997(e)(1)(v); IP #0057-I008, V.A.2.f]
- g. If the permittee elects to demonstrate compliance with the outlet concentration limit in condition V.D.1.b.2) above by using a CEM, the testing methods in §63.2450(j) shall be followed. [§2103.12.h; §2104.08; §63.2450(j) ; IP #0057-I008, V.A.2.g]
- h. The Department reserves the right to require additional emissions testing sufficient to assure compliance with the terms and conditions of this permit. Testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing." [§2103.12.h.1; IP #0057-I008, V.A.2.h]

3. Monitoring Requirements:

- a. The permittee shall externally inspect the Development Center RTO and associated ductwork weekly for proper operation as well as for integrity of the thermal oxidizer, process equipment, and gaseous collection systems. [§2103.12.i; IP #0057-I001, V.3.a; IP #0057-I005c, V.B.3.a; IP #0057-I008, V.A.3.a]
- b. The permittee shall continuously monitor and record the Development Center RTO combustion chamber to the nearest 1°F of actual conditions at all times while treating process emissions. [§2103.12.i; IP #0057-I005c, V.B.3.b; IP #0057-I008, V.A.3.b; §129.100]
- c. If the permittee chooses to demonstrate compliance with the outlet concentration standard in condition V.D.1.b.2) above, then the permittee shall install and properly operate and maintain a continuous monitoring system (CMS) to measure and record the amount of VOC (in ppm by

volume, dry basis) exiting the Development Center RTO stack. [§2103.12.i; IP #0057-I005c, V.B.3.c; IP #0057-I008, V.A.3.c]

4. Record Keeping Requirements:

- a. The temperature in the combustion chamber of the Development Center RTO shall be continuously recorded, at all times, while processing emissions from the Development Center. [§2103.12.j; §2104.08; §63.2450(e); §63.998(b)(1)-(3); IP #0057-I005c, V.B.4.a; IP #0057-I008, V.A.4.a; §129.100]
- b. The permittee shall maintain the following records for the thermal oxidizer unit: [§2103.12.j; IP #0057-I005c, V.B.4.b; IP #0057-I008, V.A.4.b]
 - 1) Hours of operation;
 - 2) All data required to demonstrate compliance with the minimum temperature requirements of condition V.D.1.c above;
 - 3) All data recorded under condition V.D.4.a above; and
 - 4) Records of operation, maintenance, inspection, calibration, and/or replacement of combustion equipment.
- c. The permittee shall record the raw material usage and the type and amount of resin produced per batch, as well as results of the inspections required by condition V.D.3.a above along with any episodes of non-compliance with conditions V.D.1.a through c above and corrective actions taken. [§2103.12.j; IP #0057-I001, V.B.4.c; IP #0057-I008, V.A.4.c]
- d. For the Development Center RTO temperature monitoring system, the permittee shall keep and maintain the calibration records outlined in 40 CFR Part 63, Subpart SS, §63.998(c). [§2103.12.j; §2104.08; §63.2450(e); §63.2450(k); §63.2525(g); IP #0057-I008, V.A.4.d]
- e. The permittee shall keep and maintain records of each time a safety device is opened to avoid unsafe conditions in accordance with condition V.D.1.n. [§63.2525(f); IP #0057-I008, V.A.4.e]
- f. The permittee shall keep records of the Development Center RTO destruction efficiency tests to demonstrate compliance with the requirements of section V.D.1 above. Such records shall provide sufficient data and calculations to clearly demonstrate that all requirements have been met. [§2103.12.j; IP #0057-I005c, V.B.4.c; IP #0057-I008, V.A.4.f]
- g. The permittee shall keep each applicable record required by 40 CFR Part 63, Subpart A and in referenced Subparts F, G, SS, and UU. [§2103.12.j; §2104.08; §63.2525(a); IP #0057-I008, V.A.4.g]
- h. The permittee shall maintain the following information for each startup, shutdown, or malfunction: [§2103.12.j; §2104.08; §63.10(b)(2)(i)-(v); IP #0057-I008, V.A.4.h]
 - 1) The occurrence and duration of each startup, shutdown, or malfunction of operation (i.e., process equipment);
 - 2) The occurrence and duration of each malfunction of the air pollution control equipment;
 - 3) All maintenance performed on the air pollution control equipment;
 - 4) Actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) when such actions are different from the procedures specified in the SSMP required under condition V.D.1.m above; and

- 5) All information necessary to demonstrate conformance with the SSMP required under condition V.D.1.m above when all actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan.
- i. The permittee shall maintain all manufacturer specifications and recommendations required to demonstrate compliance with condition V.D.1.b on file. These files shall be made available to the Department upon request. [§2103.12.j; IP #0057-I008, V.A.4.i]
- j. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.j; IP #0057-I005c, V.B.4.d; IP #0057-I008, V.A.4.j]
- k. All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; IP #0057-I008, V.A.4.k]

5. Reporting Requirements:

- a. The permittee shall submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin. The permittee shall also submit the test plan required by §63.7(c) and the emission profile with the notification of the performance test. [§2103.12.k; §2104.08; §63.2515(c); IP #0057-I008, V.A.5.a]
- b. The permittee shall submit a compliance report to the Department semiannually in accordance with General Condition III.15. The compliance report must contain the following information: [§2103.12.k; §2104.08; §63.2450(a); §63.2520(a); Subpart FFFF Table 11.3; §63.2520(e); IP #0057-I008, V.A.5.b]
- 1) Company name and address.
 - 2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.
 - 3) Date of report and beginning and ending dates of the reporting period.
 - 4) For each startup, shutdown, or malfunction (SSM) during which excess emissions occur, the compliance report must include records that the procedures specified in the startup, shutdown, and malfunction plan (SSMP) were followed or documentation of actions taken that are not consistent with the SSMP, and include a brief description of each malfunction.
 - 5) The compliance report must contain the following information on deviations:
 - a) If there are no deviations from any condition in this permit, include a statement that there were no deviations during the reporting period.
 - b) For each deviation from an emission limit or operating limit, the permittee shall include the following information. This includes periods of SSM.
 - i) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.
 - ii) The date, time, and duration that each CEMS was out-of-control, including start and end dates and hours and descriptions of corrective actions taken.
 - iii) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.
 - iv) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total operating time of the affected source during that

- reporting period.
- v) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.
 - vi) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the affected source during that reporting period.
 - vii) An identification of each HAP that is known to be in the emission stream.
 - viii) A brief description of the process units.
 - ix) A brief description of the CMS.
 - x) The date of the latest CMS certification or audit.
 - xi) Operating logs of processes with batch vents from batch operations for each day(s) during which the deviation occurred.
 - xii) The operating day or operating block average values of monitored parameters for each day(s) during which the deviation occurred.
- 6) Applicable records and information for periodic reports as specified in referenced Subparts F, G, H, SS, and UU.
- 7) Notification of process change.
- a) Except as specified in condition V.D.5.b.7)b) below, whenever the permittee makes a process change, or change any of the information submitted in the notification of compliance status report or a previous compliance report, that is not within the scope of an existing operating scenario, the permittee shall document the change in the compliance report. A process change does not include moving within a range of conditions identified in the standard batch, and a nonstandard batch does not constitute a process change. The notification must include all of the information below:
 - i) A description of the process change.
 - ii) Revisions to any of the information reported in the original notification of compliance status report.
 - iii) Information required by the notification of compliance status report for changes involving the addition of processes or equipment.
 - b) The permittee shall submit a report 60 days before the scheduled implementation date of any change to the information contained in the precompliance report.
- c. The permittee shall report the following information to the Department semiannually in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report: [§2103.12.k.1; IP #0057-I001, V.5.a; IP #0057-I005c, V.B.5.a; IP #0057-I008, V.A.5.c]
- 1) Company name and address.
 - 2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.
 - 3) Date of report and beginning and ending dates of the reporting period.
 - 4) Monthly minimum temperatures, minimum temperature for the reporting period, and daily average temperatures for any days when the temperature was below the minimum in condition V.D.1.c.
 - 5) For each startup, shutdown, or malfunction (SSM) during which excess emissions occur, the compliance report shall include the following information:
 - a) Records that the procedures specified in the startup, shutdown, and malfunction plan (SSMP) were followed or documentation of actions taken that are not consistent with the SSMP.
 - b) A description of each malfunction.

- 6) Non-compliance information required to be recorded by conditions V.D.4.c and V.D.4.i above; and
 - 7) A certified statement signed by the responsible official that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.
 - 8) Dates of any cold starts of the Development Center RTO.
- d. Reporting instances of non-compliance in accordance with condition V.D.5.c.1) above, does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2103.12.k.1; IP #0057-I005c, V.B.5.b; IP #0057-I008, V.A.5.d]

6. Work Practice Standard:

- a. The permittee shall properly operate and maintain the Development Center in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; IP #0057-I008, V.A.6; §129.99]
 - 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;
 - 2) Keep records of any maintenance; and
 - 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Development Center and associated thermal oxidizer shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; IP #0057-I008, V.A.6; §129.99]
 - 1) Properly calibrate all instrumentation;
 - 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
 - 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
 - 4) Cover all open solvent containers when not in use.
- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j; §129.99]

E. Process P005: Development Center (Uncontrolled Emissions)**Process Description:**

Fugitive emissions from the K13/K15 Reactor System, Large Side Reactor System, LUWA Filmtruder, BS5000 Resin Stripper, R2000 Reactor Process, and the Small Side Reactor System.

Control Device:

None

1. Restrictions:

- a. The permittee shall comply with the requirements 40 CFR Part 63, Subpart UU – National Emission Standards for Equipment Leaks – Control Level 2 for equipment leaks in all equipment in organic HAP service, except as specified in §63.2480(b). If the permittee elects to use a different compliance option in Table 6.1 of Subpart FFFF, the permittee shall notify the Department no later than 30 days prior to the change. [§2103.12.a; §2104.08; §63.2450(a); §63.2480(a); 63 Subpart FFFF Table 6.1.a; IP #0057-I008, V.B.1.a; §129.99]
- b. The permittee shall vent all emissions from the Small Side Reactors through a condenser at all times the reactor is processing material. [§2103.12.a.2]
- c. Emissions from the Small Side Reactor System shall not exceed the limits in Table V-E-1 at any time: [§2103.12.a.2.B; 25 Pa. Code §129.96(c)]

Table V-E-1: Small Side Reactor System Emission Limits

Pollutant	Short-term Emissions (lb/hr)	Annual Emissions (tons/year ¹)
VOC's	0.16	0.70
HAP's	0.08	0.35

¹ A year is defined as any 12 consecutive months.

- d. The permittee shall identify all equipment subject to Leak Detection and Repair (LDAR) in accordance with §63.1022 of Subpart UU. [§2103.12.a; §2104.08; §63.2480(a); §63.1022(a) ; IP #0057-I008, V.B.1.b; §129.99]
- e. The permittee shall meet the requirements of Section V.G for all process and maintenance wastewater from the equipment in the Development Center. [§2103.12.a; §2104.08; §63.2485(a)]

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing." [§2103.12.h.1]

3. Monitoring Requirements:

- a. The permittee shall monitor regulated equipment as specified in condition V.E.1.a above. [§2103.12.i; §2104.08; §63.2480(a); IP #0057-I008, V.A.3.a]

- b. *Leaking equipment identification and records.* [§2103.12.i; §2104.08; §63.2480(a); §63.1023(e); IP #0057-I008, V.A.3.b; §129.99]
- 1) When each leak is detected pursuant to the monitoring specified in §63.1023(a) in accordance with condition V.E.3.a above, a weatherproof and readily visible identification, shall be attached to the leaking equipment.
 - 2) When each leak is detected, the permittee shall record the information specified in V.E.4.b below.
- c. The permittee shall repair each leak detected as soon as practical, but not later than 15 calendar days after it is detected, except as provided in §§63.1024(d) and (e). A first attempt at repair as defined in this subpart shall be made no later than 5 calendar days after the leak is detected. [§2103.12.i; §2104.08; §63.2480(a); §63.1024(a); IP #0057-I008, V.A.3.c; §129.99]

4. Record Keeping Requirements:

- a. The permittee shall keep each applicable record required by 40 CFR Part 63, Subpart A and in referenced Subparts F, G, SS, and UU. [§2103.12.j; §2104.08; §63.2525(a); IP #0057-I008, V.A.4.a; §129.100]
- b. For each leak detected, the following information shall be recorded: [§63.2480(a); §63.1024(f); IP #0057-I008, V.A.4.b; §129.100]
- 1) The date of first attempt to repair the leak.
 - 2) The date of successful repair of the leak.
 - 3) Maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A at the time the leak is successfully repaired or determined to be nonreparable.
 - 4) “Repair delayed” and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak as specified in conditions a) and b) below:
 - a) The permittee may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of the startup, shutdown, and malfunction plan, as required by condition V.D.1.m, or may be part of a separate document that is maintained at the plant site. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.
 - b) If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked on-site before depletion and the reason for depletion.
 - 5) Dates of shutdowns that occur while the equipment is unrepaired.
- c. The permittee shall keep records of the number and types of components subject to LDAR, as required under condition V.E.1.d above. [§2103.12.j; §2104.08; §63.2480(a); §63.1022; IP #0057-I008, V.A.4.c; §129.100]
- d. The permittee shall keep specific equipment leak records according to §63.1038 of Subpart UU. [§2103.12.j; §2104.08; §63.2480(a); §63.1038(c); IP #0057-I008, V.A.4.d; §129.100]
- e. For the Small Side Reactor System, the permittee shall record the raw material usage and the type and amount of resin produced per batch. [§2103.12.j; IP #0057-I008, V.A.4.e]
- f. The permittee shall maintain records of each startup, shutdown, or malfunction in accordance with condition V.D.4.h. [§2103.12.j; §2104.08; §63.10(b)(2)(i)-(v); IP #0057-I008, V.A.4.f]

- g. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.j; IP #0057-I008, V.A.4.g]
- h. All records shall be retained by the facility for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2103.12.j.2; IP #0057-I008, V.A.4.h]

5. Reporting Requirements:

- a. The permittee shall report the monthly amount of resin produced in the Small Side Reactor System upon request by the Department. [§2103.12.k.1]
- b. The permittee shall report the following LDAR information in the semiannual report required under General Condition III.15 above: [§2103.12.k; §2104.08; §63.2480(a); §63.1039(b); IP #0057-I008, V.A.5.a); §129.100]
 - 1) For the following equipment, report in a summary format by equipment type, the number of components for which leaks were detected and for valves, pumps and connectors show the percent leakers, and the total number of components monitored. Also include the number of leaking components that were not repaired as required by condition V.E.3.c above, and for valves and connectors, identify the number of components that are determined to be nonreparable.
 - a) Valves in gas and vapor service and in light liquid service pursuant to §63.1025(b) and (c) of Subpart UU.
 - b) Pumps in light liquid service pursuant to §63.1026(b) and (c) of Subpart UU.
 - c) Connectors in gas and vapor service and in light liquid service pursuant to §63.1027(b) and (c) of Subpart UU.
 - d) Agitators in gas and vapor service and in light liquid service pursuant to §63.1028(c) of Subpart UU.
 - e) Compressors pursuant to §63.1031(d) of Subpart UU.
 - 2) Where any delay of repair is utilized pursuant to condition V.E.3.c above, report that delay of repair has occurred and report the number of instances of delay of repair.
 - 3) If applicable, report the valve subgrouping information specified in §63.1025(b)(4)(iv).
 - 4) For pressure relief devices in gas and vapor service pursuant to §63.1030(b) and for compressors pursuant to §63.1031(f) that are to be operated at a leak detection instrument reading of less than 500 parts per million, report the results of all monitoring to show compliance conducted within the semiannual reporting period.
 - 5) Report, if applicable, the initiation of a monthly monitoring program for valves pursuant to §63.1025(b)(3)(i).
 - 6) Report, if applicable, the initiation of a quality improvement program for pumps pursuant to §63.1035.
 - 7) Where the alternative means of emissions limitation for batch processes is utilized, report the information listed in §63.1036(f).

6. Work Practice Standard:

- a. The permittee shall properly operate and maintain the Development Center in accordance with the manufacturer's specifications and the applicable terms and conditions of this permit. [§2105.03; RACT Order #254, 1.19; §129.99]
 - 1) Perform regular maintenance considering the manufacturer's or the operator's maintenance

- procedures;
 - 2) Keep records of any maintenance; and
 - 3) Keep a copy of either the manufacturer's or the operator's maintenance procedures.
- b. The Development Center shall be properly operated and maintained according to good engineering practices at all times, with the exception of activities to mitigate emergency conditions, including, but not limited to: [§2105.03; RACT Order #254, 1.19; §2105.03; §129.99]
- 1) Properly calibrate all instrumentation;
 - 2) Minimize solvent spills and clean up solvent spills as expeditiously as practicable;
 - 3) Store solvent wastes and all rags used for solvent clean-up in closed containers; and
 - 4) Cover all open solvent containers when not in use.
- c. The permittee shall keep all manufacturers' specifications and operation manuals on-site and available for Department inspection and copying for the life of the equipment. [§2103.12.j; §129.99]
- d. The permittee shall equip each portable process vessel with a cover or lid that must be in place at all times when the vessel contains a HAP, except for material additions and sampling. The covers shall be maintained in good condition, such that when in place, they maintain contact with their respective rims for at least 90% of the circumference of the rim. [§2103.12.a; §2104.08; §63.8005(a)(1); V.A.1.b; §129.99]
- e. The permittee shall not operate or allow to be operated any dispensing or filling systems for solvents unless they are of closed design or minimize free-fall of liquids. [§2103.12.a; §129.99]
- f. The permittee shall conduct all process equipment cleaning so as to minimize VOC emissions. [§2103.12.a; §129.99]
- g. The permittee shall not conduct or allow to be conducted any floor cleaning operations unless they employ water-based cleaners. The use of solvents shall be limited to spot cleaning. [§2103.12.a; §129.99]

F. Process P006: Automated Paint Spray Booth

Process Description: Automated Paint Spray Booth with two 50,000 Btu/hr curing/drying ovens
Facility ID: P006
Capacity: 5,060 gallons of coatings per year
Raw Materials: coatings (pigment, resin, solvent); 12"×12" aluminum panels (substrates); natural gas (curing/drying ovens)
Control Device(s): none

1. Restrictions:

- a. Coating usage shall be limited to the following: [IP #0057-I009, V.A.1.a; §2103.12.a.2.D]
 - 1) For primer, 1.6 gallons per day (as a rolling 7-day average) and 560 gallons per 12-month period; and
 - 2) For topcoats, 12.1 gallons per day (as a rolling 7-day average) and 4,500 gallons per 12-month period.
- b. The VOC content, as applied, shall not at any time exceed 2.80 pounds per gallon for primer and 2.80 pounds per gallon for topcoats. [IP #0057-I009, V.A.1.b; §2103.12.a.2.D; §2105.83.g]
- c. The total HAP content, as applied, shall not at any time exceed 85.91% for primer and 71.56% for topcoat, as a percentage of VOC. [IP #0057-I009, V.A.1.c; §2103.12.a.2.D]
- d. The paint booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [IP #0057-I009, V.A.1.d; §2103.12.a.2.D; §2105.03; §129.99]
- e. All spray-applied coatings must be applied with an air-assisted rotary bell spray gun. [IP #0057-I009, V.A.1.e; §2103.12.a.2.D; §129.99]
- f. Emissions from the automated paint spray booth shall not exceed the following at any time [IP #0057-I009, V.A.1.f; §2103.12.a.2.D]:

Table V-F-1: Automated Paint Spray Booth Emission Limits

Pollutant	Emissions	
	lb/hr	tpy ¹
Volatile Organic Compounds (VOC)	2.12	6.96
Hazardous Air Pollutants (HAP)	1.54	5.09

¹ A year is defined as any 12 consecutive months.

- g. The permittee shall not use any cleaning solvents that contain VOC or HAP. [IP #0057-I009, V.A.1.g; §2103.12.a.2.D]

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing". [IP #0057-I009, V.A.2; §2103.12.h.1]

3. Monitoring Requirements:

The permittee shall inspect the spray units and overspray filters weekly for compliance with conditions V.F.1.d and V.F.1.e above. [IP #0057-I009, V.A.3; §2103.12.a.2.D; §2103.12.i]

4. Record Keeping Requirements:

- a. The permittee shall maintain daily, monthly, and 12-month records of the following for each primer and topcoat as applied: [IP #0057-I009, V.A.4.a; §2105.83.c]
 - 1) The topcoat or primer name and identification number;
 - 2) The volume used;
 - 3) The density or specific gravity;
 - 4) The weight percent of total volatiles, water, solids, and exempt solvents; and
 - 5) The HAP content and the VOC content.
- b. The permittee shall maintain records of inspection and maintenance of the overspray filters required under condition V.F.3 above. [IP #0057-I009, V.A.4.b; §2103.12.a.2.D; §2103.12.j]
- c. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [IP #0057-I009, V.A.4.c; §2103.12.a.2.D; §2103.12.j]
- d. All records shall be maintained by the permittee for a period of at least five (5) years following the date of such record. [IP #0057-I009, V.A.4.d; §2103.12.j.2]

5. Reporting Requirements:

- a. The permittee shall report the following information to the Department semiannually in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report: [IP #0057-I009, V.A.5.a; §2103.12.a.2.D; §2103.12.k]
 - 1) Company name and address;
 - 2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report;
 - 3) Calendar dates covered in the reporting period;
 - 4) Monthly totals of each primer or topcoat as required to be recorded under condition V.F.4.a above;
 - 5) The monthly maximum VOC content calculated in condition V.F.4.a.4) above;
 - 6) The monthly maximum HAP content calculated in condition V.F.4.a.5) above; and
 - 7) A monthly estimate of the emissions of VOCs and HAPs;
- b. Reporting instances of non-compliance does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [IP #0057-I009, V.A.5.b; §2103.12.a.2.D; §2103.12.k]

6. Work Practice Standard:

- a. The permittee shall store all VOC-containing coatings, thinners, coating-related waste material, cleaning materials and used shot towels in closed containers. [IP #0057-I009, V.A.6.a; §2103.12.a.2.D; §129.99]

- b. The permittee shall ensure that mixing and storage containers used for VOC-containing coatings, thinners, coating-related waste materials, and cleaning materials are kept closed at all times except when depositing or removing these materials. [IP #0057-I009, V.A.6.b; §2103.12.a.2.D; §129.99]
- c. The permittee shall minimize all spills of VOC-containing coatings, thinners, coating-related waste materials and cleaning materials, cleaning up spills immediately. [IP #0057-I009, V.A.6.c; §2103.12.a.2.D; §129.99]
- d. The permittee shall convey VOC-containing coatings, thinners, coating-related waste materials and cleaning materials from one location to another in closed containers or pipes. [IP #0057-I009, V.A.6.d; §2103.12.a.2.D; §129.99]
- e. The permittee shall operate and maintain all process equipment according to manufacturers' specifications and recommendations, and good engineering practices. [IP #0057-I009, V.A.6.e; §2103.12.a.2.D; §2105.03; §129.99]
- f. The permittee shall keep the manufacturer's operating manuals on site and available at all times. [IP #0057-I009, V.A.6.f; §2103.12.a.2.D; §2105.03; §129.99]

G. Process P004 & P005: Development Center – Wastewater Handling

The wastewater handling requirements apply to the process and maintenance wastewater generated from all Development Center sources listed in the Facility Description Table in Section II.

1. Restrictions:

- a. The permittee shall identify all process wastewater streams as either Group 1 or Group 2 wastewater according to 40 CFR §63.2485(c) and as designated in 40 CFR Part 63, Subpart G, §63.132(e). [§2103.12.a; §2104.08; §63.2485(c); Subpart FFFF Table 7.1; §63.144(a)(2)]
- b. The permittee shall treat all Group 1 process wastewater onsite in accordance with the requirements of 40 CFR Part 63, Subpart G, §§63.134 through §63.139 and the testing requirements of §63.145, or the permittee may elect to transfer process wastewater offsite for treatment. [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.1]
- c. *Offsite management and treatment option.*
 - 1) If the permittee elects to ship Group 1 process wastewater to an offsite treatment facility that meets the requirements of §63.138(h), the permittee may elect to document in the notification of compliance status report that the wastewater will be treated as hazardous waste at a facility that meets the requirements of §63.138(h) as an alternative to having the offsite facility submit the certification specified in condition V.G.1.d.2) below. [§2103.12.a; §2104.08; §63.2485(i)]
 - 2) (2) As an alternative to the management and treatment options specified in condition V.G.1.d.2) below, any affected process wastewater stream (or residual removed from an affected process wastewater stream) with a total annual average concentration of compounds in Table 8 to Subpart FFFF less than 50 ppmw may be transferred offsite in accordance with the following:
 - a) The permittee or transferee must demonstrate that less than 5 percent of the HAP in Table 9 to Subpart FFFF is emitted from the waste management units up to the activated sludge unit.
 - b) The transferee must treat the wastewater stream or residual in a biological treatment unit in accordance with Subpart G §§63.138 and §63.145 and the requirements referenced therein.
- d. The permittee may elect to transfer a Group 1 wastewater stream or residual removed from a Group 1 wastewater stream to an on-site treatment operation not owned or operated by the permittee, or to an off-site treatment operation. [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.132(g)]
 - 1) The permittee shall:
 - a) Comply with the provisions specified in §§63.133 through §63.137 for each waste management unit that receives or manages a Group 1 wastewater stream or residual removed from a Group 1 wastewater stream prior to shipment or transport.
 - b) Include a notice with the shipment or transport of each Group 1 wastewater stream or residual removed from a Group 1 wastewater stream. The notice shall state that the wastewater stream or residual contains organic hazardous air pollutants that are to be treated in accordance with the provisions of 40 CFR Part 63, Subpart G. When the transport is continuous or ongoing (for example, discharge to a publicly-owned treatment works), the notice shall be submitted to the treatment operator initially and whenever there is a change in the required treatment.
 - 2) The permittee may not transfer the wastewater stream or residual unless the transferee has submitted to the EPA a written certification that the transferee will manage and treat any Group

- 1 wastewater stream or residual removed from a Group 1 wastewater stream received from a source subject to the requirements of 63 Subpart G in accordance with the requirements of either §§63.133 through 63.147, or §63.102(b) of 63 Subpart F. The certifying entity may revoke the written certification by sending a written statement to the EPA and the permittee giving at least 90 days notice that the certifying entity is rescinding acceptance of responsibility for compliance with the regulatory provisions listed in this paragraph. Upon expiration of the notice period, the permittee may not transfer the wastewater stream or residual to the treatment operation.
- 3) By providing this written certification to the EPA, the certifying entity accepts responsibility for compliance with the regulatory provisions listed in condition V.G.1.d.2) above with respect to any shipment of wastewater or residual covered by the written certification. Failure to abide by any of those provisions with respect to such shipments may result in enforcement action by the EPA against the certifying entity in accordance with the enforcement provisions applicable to violations of these provisions by the permittee.
 - 4) Written certifications and revocation statements, to the EPA from the transferees of wastewater or residuals shall be signed by the responsible official of the certifying entity, provide the name and address of the certifying entity, and be sent to the EPA Regional Office at the addresses listed in the Contact Information Section I. Such written certifications are not transferable by the treater.
- e. The permittee shall operate and maintain a fixed roof on Group 1 process wastewater tanks. The fixed roof shall meet the following requirements: [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.133(a); §63.133(b)(1)]
- 1) The fixed roof and all openings (e.g., access hatches, sampling ports, and gauge wells) shall be maintained in accordance with the requirements specified in conditions V.G.3.d through f below.
 - 2) Each opening shall be maintained in a closed position (e.g., covered by a lid) at all times that the wastewater tank contains a Group 1 wastewater stream or residual removed from a Group 1 wastewater stream except when it is necessary to use the opening for wastewater sampling, removal, or for equipment inspection, maintenance, or repair.
- f. If the permittee transfers Group 1 process wastewater to a container greater than 0.1 m³ (26.4 gallons), the permittee shall meet the requirements of §63.135. [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.135(a)]
- g. The permittee shall determine the annual average concentration and annual average flowrate for all process wastewater streams. [§2103.12.a; §2104.08; §63.2485(j)]
- h. The permittee shall prepare a maintenance wastewater plan. The plan shall at a minimum: [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.2; §63.105(b)]
- 1) Specify the process equipment or maintenance tasks that are anticipated to create wastewater during maintenance activities.
 - 2) Specify the procedures that will be followed to properly manage the wastewater and control organic HAP emissions to the atmosphere; and
 - 3) Specify the procedures to be followed when clearing materials from process equipment.
- i. The permittee shall modify and update the information required by V.G.1.h above for maintenance wastewater as needed following each maintenance procedure based on the actions taken and the wastewaters generated in the preceding maintenance procedure. [§2103.12.a; §2104.08; §63.2485(a); Subpart FFFF Table 7.2; §63.105(c)]

2. Testing Requirements:

None, except as provided elsewhere.

3. Monitoring Requirements:

- a. The permittee shall visually inspect Group 1 process wastewater tanks semiannually for leaks in the fixed roof and all openings. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.133(f); §63.143(a)]
- b. Except as provided in the delay of repair provisions of conditions V.G.3.d through h below, if the permittee identifies a leak in the inspection required under condition V.G.3.a above, first efforts at repair shall be made no later than 5 calendar days after identification, and repair shall be completed within 45 calendar days after identification. If a failure cannot be repaired within 45 calendar days and if the vessel cannot be emptied within 45 calendar days, the permittee may utilize up to 2 extensions of up to 30 additional calendar days each. Documentation of a decision to utilize an extension shall include a description of the failure, shall document that alternate storage capacity is unavailable, and shall specify a schedule of actions that will ensure that the control equipment will be repaired or the vessel will be emptied as soon as practical. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.133(h); §63.148(b)]
- c. Leaks, as indicated by an instrument reading greater than 500 parts per million above background or by visual inspections, shall be repaired as soon as practicable, except as provided in conditions V.G.3.d through h below. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(d)]
 - 1) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
 - 2) Repair shall be completed no later than 15 calendar days after the leak is detected.
- d. Delay of repair of a fixed roof on process wastewater tanks for which leaks have been detected is allowed if the repair is technically infeasible without a shutdown, as defined in §63.101 of 63 Subpart F, or if the permittee determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next shutdown. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(e); §63.140(a)]
- e. Delay of repair of process wastewater tanks is allowed if the tank is emptied or is no longer used to treat or manage Group 1 wastewater streams or residuals removed from Group 1 wastewater streams. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.140(b)]
- f. Delay of repair of process wastewater tanks is also allowed if additional time is necessary due to the unavailability of parts beyond the control of the permittee. Repair shall be completed as soon as practical. The permittee shall comply with the requirements of condition V.G.4.b.2) to document the reasons that the delay of repair was necessary. [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.140(c)]
- g. If the fixed roof of process wastewater tanks is designated, as described in condition V.G.4.c.1), as unsafe to inspect are exempt from the inspection requirements of condition V.G.3.a if: [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(g)]

- 1) The permittee determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with condition V.G.3.a; and
 - 2) The permittee has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.
- h. If the fixed roof of process wastewater tanks is designated, as described in condition V.G.4.c.2), as difficult to inspect are exempt from the inspection requirements of condition V.G.3.a if: [§2103.12.i; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(h)]
- 1) The permittee determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface; and
 - 2) The permittee has a written plan that requires inspection of the equipment at least once every 5 years.

4. Record Keeping Requirements:

- a. The permittee shall keep a record of the notice sent to the treatment operator stating that the process wastewater stream or residual contains organic hazardous air pollutants which are required to be managed and treated in accordance with the provisions 40 CFR Part 63 Subpart FFFF and Subpart G. [§2103.12.j; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.147(a)]
- b. The permittee shall keep in a readily accessible location the following records: [§2103.12.j; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.147(b)(1) & (7)]
 - 1) The record that each process wastewater tank inspection required under condition V.G.3.a was performed.
 - 2) Documentation of a decision to use a delay of repair due to unavailability of parts, as specified in V.G.3.f, shall include a description of the failure, the reason additional time was necessary (including a statement of why replacement parts were not kept on site and when the manufacturer promised delivery), and the date when repair was completed.
- c. The permittee shall record the following information for process wastewater tanks: [§2103.12.j; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(i)(1), (2), & (4)]
 - 1) Identification of all parts of the fixed roof that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment.
 - 2) Identification of all parts of the fixed roof that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment.
 - 3) For each inspection during which a leak is detected, a record of the following information:
 - a) The instrument identification numbers; operator name or initials; and identification of the equipment.
 - b) The date the leak was detected and the date of the first attempt to repair the leak.
 - c) Maximum instrument reading measured by the method specified in condition V.G.3.c after the leak is successfully repaired or determined to be nonrepairable.
 - d) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - e) The name, initials, or other form of identification of the permittee (or designee) whose decision it was that repair could not be effected without a shutdown.
 - f) The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days.

- g) Dates of shutdowns that occur while the equipment is unrepaired.
- h) The date of successful repair of the leak.
- d. The permittee shall incorporate the procedures described in conditions V.G.1.h and i above for maintenance wastewater as part of the startup, shutdown, and malfunction plan required under condition V.D.1.m. [§2103.12.j; §2104.08; §63.2485(a); Subpart FFFF Table 7.2; §63.105(d)]
- e. The permittee shall maintain a record of the information required by conditions V.G.1.h and i above for maintenance wastewater as part of the start-up, shutdown, and malfunction plan required under condition V.D.1.m. [§2103.12.j; §2104.08; §63.2485(a); Subpart FFFF Table 7.2; §63.105(e)]
- f. Whenever the permittee makes a change to any of the information submitted in the notification of compliance status report or a previous compliance report, the permittee shall document the change in the compliance report. The permittee shall submit a report 60 days before the scheduled implementation date of any change to the information contained in the precompliance report. The report shall contain the following information: [§2103.12.j; §2104.08; §63.2520(e)]
 - 1) A description of the process change.
 - 2) Revisions to any of the information reported in the original notification of compliance status report.
 - a) Information required by the notification of compliance status report for changes involving the addition of processes or equipment. A description of the process change.
 - b) Revisions to any of the information reported in the original notification of compliance status report.
 - c) Information required by the notification of compliance status report for changes involving the addition of processes or equipment.

5. Reporting Requirements:

- a. The permittee shall report the following information to the Department in accordance with General Condition III.15 above. The reports shall contain all required information for the time period of the report: [§2103.12.k.1]
- b. The permittee shall submit in the semiannual report required under General Condition III.15, the information required under condition V.G.4.c.3) above. [§2103.12.k; §2104.08; §63.2485(a); Subpart FFFF Table 7.1; §63.148(j)(1)]

6. Work Practice Standard:

None, except as provided elsewhere.

VI. MISCELLANEOUS**A. Boiler B001 & B002: Paint Plant – Boilers No. 1a and No. 2**

Facility ID: Boiler #1a and Boiler #2
Max. Design Rate: 25.1 MMBtu/hr, each
Primary Fuel: Natural Gas
Secondary Fuel: #2 Fuel Oil
Control Device(s): none

1. Restrictions:

- a. Only natural gas shall be combusted in the boilers except in the case of emergencies when No.2 fuel oil meeting the specifications defined by ASTM D396-78, “Standard Specifications for Fuel Oils,” may be used. [§2103.12.a.2.B]
- b. Heat input in each boiler shall be limited to 25.1 MMBtu/hr based on the higher heating value of the fuel being combusted. [§2103.12.a.2.B; OP #5048898-000-76200; OP #5048898-000-00900]
- c. Combustion of fuel oil shall be limited to 89,600 gallons in each boiler during any 12 consecutive months. [§2103.12.a.2.B]
- d. Combustion of fuel oil shall be limited to 500 hours per 12-month period. [§2103.12.a.2.B]
- e. The permittee shall not combust or allow to be combusted fuel oil with greater than 0.05% sulfur content at any time. [§2103.12.a.2.B; OP #5048898-000-76200; OP #5048898-000-00900]
- f. Emissions from Boiler #1a and Boiler #2 shall not exceed the values in Table VI-A-1 at any time: [§2103.12.a; OP #5048898-000-76200; OP #5048898-000-00900; 25 Pa. Code §129.96(c)]

Table VI-A-1: Boiler 1a and 2 Emission Limits

Pollutant	Short-Term¹ lb/hr	Long-Term¹ tpy²	Total tpy²
Particulate Matter	0.025	0.110	0.220
Particulate Matter <10 µm (PM ₁₀)	0.025	0.110	0.220
Particulate Matter <2.5 µm (PM _{2.5})	0.025	0.110	0.220
Nitrogen Oxides (NO _x)	4.518	19.789	39.578
Sulfur Oxides (SO _x)	1.273	0.3182	0.7624
Carbon Monoxide (CO)	0.377	1.649	3.298
Volatile Organic Compounds (VOCs)	0.100	0.440	0.880

1. Per Boiler.
2. A year is defined as any 12 consecutive months.

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing". [IP #0057-I009, V.A.2; §2103.12.h.1]

3. Monitoring Requirements:

Compliance with the fuel oil sulfur limitations of Condition VI.A.1.d above may be determined based on a certification obtained from the fuel supplier meeting the requirements of Condition VI.A.4.b below. [§2103.12.i]

4. Record Keeping Requirements:

- a. The permittee shall record and maintain records of the monthly fuel natural gas consumption and daily fuel oil consumption. [§2103.12.j]
- b. Records of fuel supplier certifications used to demonstrate compliance with the sulfur limitations of this permit shall include the following information: [§2103.12.j]
 - 1) The name of the oil supplier
 - 2) Percent sulfur (by weight), and
 - 3) A statement from the fuel supplier that the oil complies with the specifications for fuel oil under ASTM D396-78.

5. Reporting Requirements:

Until terminated by written notice from the Department, the requirement for the permittee to report cold starts 24 hours in advance in accordance with Site Level Condition IV.9 is waived and the permittee may report all cold starts in the semi-annual compliance report required under General Condition III.15. [§2103.12.k; §2108.01.d]

6. Work Practice Standard:

None except as provided elsewhere.

B. Boiler B003: Paint Plant – Warehouse Boiler

Facility ID: Warehouse Boiler
Max. Design Rate: 8.4 MMBtu/hr
Primary Fuel: Natural Gas
Secondary Fuel: #2 Fuel Oil
Control Device(s): none

1. Restrictions:

- a. Only natural gas shall be combusted except in the case of emergencies when No.2 fuel oil meeting the specifications defined by ASTM D396-78, “Standard Specifications for Fuel Oils,” may be used. [§2103.12.a.2.B]
- b. Heat input shall be limited to 8.4 MMBtu/hr based on the higher heating value of the fuel being combusted. [§2103.12.a.2.B; OP #5048898-001-00902]
- c. Combustion of fuel oil shall be limited to 30,000 gallons during any 12 consecutive months. [§2103.12.a.2.B]
- d. Combustion of fuel oil shall be limited to 500 hours per 12-month period. [§2103.12.a.2.B]
- e. The permittee shall not combust or allow to be combusted fuel oil with greater than 0.05% sulfur content at any time. [§2103.12.a.2.B; OP #5048898-001-00902]
- f. Emissions from the Warehouse Boiler shall not exceed the values in Table VI-B-1 at any time: [§2103.12.a; OP #5048898-001-00902; 25 Pa. Code §129.96(c)]

Table VI-B-1: Warehouse Boiler Emission Limits

Pollutant	Short-Term lb/hr	Long-Term tpy¹
Particulate Matter	0.008	0.037
Particulate Matter <10 µm (PM ₁₀)	0.008	0.037
Particulate Matter <2.5 µm (PM _{2.5})	0.008	0.037
Nitrogen Oxides (NO _x)	1.512	6.623
Sulfur Oxides (SO _x)	0.4260	0.107
Carbon Monoxide (CO)	0.126	0.552
Volatile Organic Compounds (VOCs)	0.034	0.147

1. A year is defined as any 12 consecutive months.

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled “Emissions Testing”. [IP #0057-I009, V.A.2; §2103.12.h.1]

3. Monitoring Requirements:

Compliance with the fuel oil sulfur limitations of Condition VI.B.1.d above may be determined based on a certification obtained from the fuel supplier meeting the requirements of Condition VI.B.4.b below. [§2103.12.i]

4. Record Keeping Requirements:

- a. The permittee shall record and maintain records of the monthly fuel natural gas consumption and daily fuel oil consumption. [§2103.12.j]
- b. Records of fuel supplier certifications used to demonstrate compliance with the sulfur limitations of this permit shall include the following information: [§2103.12.j]
 - 1) The name of the oil supplier
 - 2) Percent sulfur (by weight), and
 - 3) A statement from the fuel supplier that the oil complies with the specifications for fuel oil under ASTM D396-78.

5. Reporting Requirements:

Until terminated by written notice from the Department, the requirement for the permittee to report cold starts 24 hours in advance in accordance with Site Level Condition IV.9 is waived and the permittee may report all cold starts in the semi-annual compliance report required under General Condition III.15. [§2103.12.k; §2108.01.d]

6. Work Practice Standard:

None except as provided elsewhere.

C. Paint Plant – Spray Booths**Table VI-C-1: List of Spray Booths**

Spray Booths Name
COEX Lab Spray Booth #1
COEX Lab Spray Booth #2
1 st Floor General Industrial Lab Spray Booth
TRIX Cell Dispense Cell Lab Spray Booth
SDCC Cell Dispense Cell Lab Spray Booth
Dispersion Cell Spray Booth
1 st Floor Conductive Coatings Spray Booth
ADD Cell Dispense Lab Spray Booth
Ransburg Lab Spray Booth
Quality Assurance Lab Spray Booth
Color Lab Spray Booth
Basement General Industrial Spray Booth
Harley (Clean Room) Spray Booth
Development Lab Spray Booth

1. Restrictions:

- a. The spray guns shall be maintained and operated according to manufacturer's recommendations and good engineering practice. [§2103.12.a.2.B; §2105.03]
- b. Each paint spray booth shall be equipped with properly installed and maintained overspray filters. The filters shall be operated at all times during which the spray booth is in operation. [§2103.12.a.2.B; §2105.03]
- c. The permittee shall not use any cleaning material that contains organic HAPs. [§2103.12.a.2.B]

2. Testing Requirements:

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing". [IP #0057-I009, V.A.2; §2103.12.h.1]

3. Record Keeping Requirements:

- a. The permittee shall keep and maintain records of the following: [§2103.12.a.2.B; §2103.12.j]
 - 1) Total amount of coatings used in all spray booths;
 - 2) Total amount of solvent used in all spray booths.

D. Paint Plant – Storage Tanks

Tank ID	Capacity (gallons)		Tank ID	Capacity (gallons)
Tanks 103-104	30,000 ea.		Tank 311	12,000
Tank 224	25,000		Tank 312	12,000
Tank 225	30,000		Tank 313	12,000
Tanks 301-302	25,000 ea.		Tank 314	12,000
Tank 303	12,000		Tank 320	25,000
Tank 305	12,000		Tank 321	10,000
Tank 306	12,000		Tank 322	20,000
Tank 307	12,000		Tank 324	10,000
Tank 308	12,000		Tanks 400-402	30,000 ea.

1. Restrictions:

- a. The permittee shall store all materials in accordance with Site Level Condition IV.17. [§2103.12.a.2.B; §2105.12.a]
- b. Total emissions from the Paint Plant Storage Tanks shall not exceed the values in Table VI-D-1 at any time: [§2103.12.a.2.B; 25 Pa. Code §129.96(c)]

Table VI-D-1: Paint Plant Storage Tank Emission Limits

Pollutant	Emissions tpy¹
Volatile Organic Compounds (VOCs)	2.14
Hazardous Air Pollutants (HAPs)	2.14

1. A year is defined as any 12 consecutive months.

2. Record Keeping Requirements:

- a. The permittee shall record and maintain records of the material stored in each tank as well as the maximum true vapor pressure. [§2103.12.j]
- b. The permittee shall record and maintain records of the total yearly throughput of material in each tank. [§2103.12.j]

E. Development Center – Storage Tanks

Tank ID	Capacity (gallons)
Tank 1	5,000
Tank 2	5,200
Tank 3	5,000
Tank 4	5,000
Tank 5	5,000
Tanks 6-8	5,000 ea.
Tank BT122	5,000
Tank BT126	5,000

1. Restrictions:

- a. The permittee shall store all materials in accordance with Site Level Condition IV.17. [§2103.12.a.2.B; §2105.12.a]
- b. Total emissions from the Development Center Storage Tanks shall not exceed the values in Table VI-E-1 at any time: [§2103.12.a.2.B; 25 Pa. Code §129.96(c)]

Table VI-E-1: Development Center Storage Tank Emission Limits

Pollutant	Emissions tpy¹
Volatile Organic Compounds (VOCs)	0.687
Hazardous Air Pollutants (HAPs)	0.687

1. A year is defined as any 12 consecutive months.

2. Record Keeping Requirements:

- a. The permittee shall record and maintain records of the material stored in each tank as well as the maximum true vapor pressure. [§2103.12.j]
- b. The permittee shall record and maintain records of the total yearly throughput of material in each tank. [§2103.12.j]

F. Make-Up Air Units

I.D	Location	Name	Rating
MAU 1	Paint Plant	Lab Make-Up Air Unit	1.6 MMBtu/hr
MAU 2		Aluminum Extrusion Make-Up Air Unit	1.89 MMBtu/hr
MAU 3		Basement Make-Up Air Unit	3.93 MMBtu/hr
MAU 4		Lab Make-Up Air Unit	2.52 MMBtu/hr
MAU 5		Plant Make-Up Air Unit	0.6 MMBtu/hr
MAU 6		Plant Make-Up Air Unit	0.53 MMBtu/hr
MAU 23		Plant Make-Up Air Unit	0.55 MMBtu/hr
SJPX		Warehouse Cell Make-Up Air Unit	0.4 MMBtu/hr
DC MAU	Development Center	Automated Spray Lab Make-Up Air Unit	0.5 MMBtu/hr
DC		Make-Up Air Heater: DC	3.0 MMBtu/hr
K13/K15		Make-Up Air Heater: K13/K15	1.0 MMBtu/hr
R2000		Make-Up Air Heater: R2000	1.0 MMBtu/hr
Reznor		Make-Up Air Heater: Reznor	0.4 MMBtu/hr

1. Restrictions:

- The permittee shall not operate or allow to be operated any make-up air unit in such manner that emissions of particulate matter exceed 0.008 lb/MMBtu. [§2104.02.a.1.A; IP #0057-I009, V.B.1.a]
- The permittee shall not operate or allow to be operated any make-up air unit using a fuel other than utility-grade natural gas. [§2103.12.a.2.B; IP #0057-I009, V.B.1.b]
- Total emissions from the Paint Plant Make-Up Air Units shall not exceed the values in Table VI-F-1 at any time: [§2103.12.a.2.B; IP #0057-I009, V.B.1.c; 25 Pa. Code §129.96(c)]

Table VI-F-1: Paint Plant Make-Up Air Unit Emission Limits

Pollutant	Emissions tpy¹
Particulate Matter	0.42
Particulate Matter <10 µm (PM ₁₀)	0.42
Particulate Matter <2.5 µm (PM _{2.5})	0.42
Nitrogen Oxides (NO _x)	5.11
Sulfur Oxides (SO _x)	0.03
Carbon Monoxide (CO)	4.29
Volatile Organic Compounds (VOC)	0.28

1. A year is defined as any 12 consecutive months.

- d. Total emissions from the Development Center Make-Up Air Units shall not exceed the values in Table VI-F-2 at any time: [§2103.12.a.2.B; IP #0057-I009, V.B.1.c; 25 Pa. Code §129.96(c)]

Table VI-F-2: Development Center Make-Up Air Unit Emission Limits

Pollutant	Emissions tpy ¹
Particulate Matter	0.21
Particulate Matter <10 µm (PM ₁₀)	0.21
Particulate Matter <2.5 µm (PM _{2.5})	0.21
Nitrogen Oxides (NO _x)	2.51
Sulfur Oxides (SO _x)	0.02
Carbon Monoxide (CO)	2.11
Volatile Organic Compounds (VOC)	0.14

1. A year is defined as any 12 consecutive months.

G. Sources of Minor Significance

The following table summarizes the processes and/or activities conducted at the PPG Industries, Inc. Springdale facility that were determined to be of minor significance:

TABLE VI-G-1 - Sources of Minor Significance

Location	Source Description	Basis for Exemption
Paint Plant	Boiler House Emergency Generator (natural gas-fired) – 27kW	Total PTE is <2.5 tpy of NO _x for all emergency generators
	Computer Room Emergency Generator (natural gas-fired) – 36 kW	
	Warehouse Emergency Generator (natural gas-fired) – 45 kW	
	Process Control Emergency Generator (natural gas-fired) – 27 kW	
	Guardhouse Emergency Generator (natural gas-fired) – 27 kW	
	Fire Pump & Engine (diesel-fired) – 256 hp	
	Inert Gas Generator	Unit is electric
	20 – Laboratory Hoods	Laboratory equipment used exclusively for chemical or physical analyses
	26 – Laboratory Ovens (electric)	Units are electric
	1 – Laboratory Oven (natural gas-fired) – 40,000 Btu/hr	Units are <0.5 MMBtu/hr; total PTE is <0.6 tpy of NO _x and <0.5 tpy of CO for all Laboratory Ovens at the facility
	4 – Laboratory Ovens (natural gas-fired) – 50,000 Btu/hr ea.	
	1 – Laboratory Oven (natural gas-fired) – 200,000 Btu/hr	
	Conductive Coatings Operations	Tanks vent to RTO; PTE <0.1 tpy VOC and HAP.
	Coil Lab	Laboratory equipment used exclusively for chemical or physical analyses
	Dispersion Lab	Laboratory equipment used exclusively for chemical or physical analyses
	General Lab Ventilation	Laboratory equipment used exclusively for chemical or physical analyses
Research Building	2 – Automated Paint Spray Booth Ovens	Units are each 50,000 Btu/hr
	Laboratory Hoods	Laboratory equipment used exclusively for chemical or physical analyses
	Electric Ovens	Units are electric

Location	Source Description	Basis for Exemption
	Powder Coat Spray Booth and Dust Collector	Laboratory equipment used exclusively for chemical or physical analyses
	8 – Laboratory Spray Booths	
	Emergency Generator (diesel –fired) – 410 kW	Total PTE is <2.5 tpy of NO _x for all emergency generators
	2 – Laboratory Ovens (natural gas-fired) – 40,000 Btu/hr ea.	Units are <0.5 MMBtu/hr; total PTE is <0.6 tpy of NO _x and <0.5 tpy of CO for all Laboratory Ovens at the facility
	6 – Laboratory Ovens (natural gas-fired) – 50,000 Btu/hr ea.	
	2 – Laboratory Ovens (natural gas-fired) – 55,000 Btu/hr ea.	
	Laboratory Oven (natural gas-fired) – 300,000 Btu/hr	
	Laboratory Oven (natural gas-fired) – 80,000 Btu/hr	
	Laboratory Oven (natural gas-fired) – 65,000 Btu/hr	
	Electric Hot Oil Heater	Unit is electric
	Space Heaters	Units are electric
Facility	Parking Lots and Roadways	PTE is <0.7 tpy of particulate

1. Restrictions:

- a. The permittee shall not operate or allow to be operated the Warehouse Emergency Generator or the Fire Pump & Engine in such manner that emissions of particulate matter exceed 0.015 lb/MMBtu. [§2104.02.a.1.B]
- b. The permittee shall not operate or allow to be operated any emergency generator using a fuel other than No. 2 Fuel Oil meeting the specifications defined by ASTM D396-78, “Standard Specification for Fuel Oils.” [§2103.12.a.2.B]
- c. The permittee shall not operate or allow to be operated the Automated Paint Spray Booth ovens or any laboratory oven using a fuel other than utility-grade natural gas. [§2103.12.a.2.B]
- d. Each emergency generator shall not be operated for more than 500 hours, including operation for maintenance checks and readiness testing, in any 12-month period. [§2103.12.a.2.B]
- e. The permittee shall not operate or allow to be operated the Powder Coat Spray Booth unless the baghouse is in operation and filter cartridges are in use. [§2103.12.a.2.B]
- f. The permittee shall not use any HAP-containing solvents in the cleaning of the spray guns in the Powder Coat Spray Booth. [§2103.12.a.2.B]

VII. ALTERNATIVE OPERATING SCENARIOS

No alternative operating scenarios exist for this facility.

VIII. EMISSIONS LIMITATIONS SUMMARY

The annual emission limitations for PPG Industries Inc. - Springdale facility are summarized in the following table:

TABLE VIII-1: Emission Limitations Summary

POLLUTANT	ANNUAL EMISSION LIMIT (tons/year)*
Particulate Matter	7.84
Particulate Matter <10 µm (PM ₁₀)	7.14
Particulate Matter <2.5 µm (PM _{2.5})	7.01
Nitrogen Oxides (NO _x)	56.02
Sulfur Oxides (SO _x)	0.80
Carbon Monoxide (CO)	12.08
Volatile Organic Compounds (VOC)	280.31
Hazardous Air Pollutants (HAP)	143.60

* A year is defined as any consecutive 12-month period.