



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

12/3/2012

Lauren Morrison
GE Ravenna Lamp Plant
6800 N. Chestnut Street
Ravenna, OH 44266

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 1667060009
Permit Number: P0110076
Permit Type: Renewal
County: Portage

Certified Mail

No	TOXIC REVIEW
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MODELING SUBMITTED
No	SYNTHETIC MINOR TO AVOID TITLE V
No	FEDERALLY ENFORCABLE PTIO (FEPTIO)
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**

How to appeal this permit

The issuance of this PTIO is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
77 South High Street, 17th Floor
Columbus, OH 43215

How to save money, reduce pollution and reduce energy consumption

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: www.ohioairquality.org/clean_air

How to give us feedback on your permitting experience

Please complete a survey at www.epa.ohio.gov/dapc/permitsurvey.aspx and give us feedback on your permitting experience. We value your opinion.

How to get an electronic copy of your permit

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Akron Regional Air Quality Management District at (330)3752480 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael W. Ahern, Manager

Permit Issuance and Data Management Section, DAPC

Cc: ARAQMD



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for
GE Ravenna Lamp Plant**

Facility ID:	1667060009
Permit Number:	P0110076
Permit Type:	Renewal
Issued:	12/3/2012
Effective:	12/3/2012
Expiration:	1/14/2021



Division of Air Pollution Control
Permit-to-Install and Operate
for
GE Ravenna Lamp Plant

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Final Permit-to-Install and Operate
GE Ravenna Lamp Plant
Permit Number: P0110076
Facility ID: 1667060009
Effective Date: 12/3/2012

Authorization

Facility ID: 1667060009
Application Number(s): A0044387, A0046197
Permit Number: P0110076
Permit Description: PTIO Administrative Modification being processed as a Renewal for lamp manufacturing equipment in order to revise BAT limits based on updated production rates and emission factors. P018's operational restriction for baghouse pressure drop was lowered to 0.5 inches of water based on improved filter efficiency.
Permit Type: Renewal
Permit Fee: \$0.00
Issue Date: 12/3/2012
Effective Date: 12/3/2012
Expiration Date: 1/14/2021
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

GE Ravenna Lamp Plant
6800 North Chestnut Street
Ravenna, OH 44266

of a Permit-to-Install and Operate for the emissions unit(s) identified on the following page.

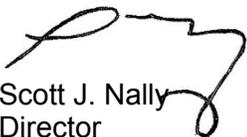
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Akron Regional Air Quality Management District
146 South High Street, Room 904
Akron, OH 44308
(330)375-2480

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (emissions unit(s)) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency



Scott J. Nally
Director



Authorization (continued)

Permit Number: P0110076

Permit Description: PTIO Administrative Modification being processed as a Renewal for lamp manufacturing equipment in order to revise BAT limits based on updated production rates and emission factors. P018's operational restriction for baghouse pressure drop was lowered to 0.5 inches of water based on improved filter efficiency.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID:	K001
Company Equipment ID:	HID bulb coating
Superseded Permit Number:	16-1124
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	K002
Company Equipment ID:	Dipcoaters 1 & 2
Superseded Permit Number:	16-1124
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P008
Company Equipment ID:	Lucalux Lamp Finishing Area
Superseded Permit Number:	16-1106
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P009
Company Equipment ID:	Mercury/Multi-vapor Finishing Area
Superseded Permit Number:	16-1106
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P017
Company Equipment ID:	Rotary Pinch Arc Tube Line
Superseded Permit Number:	16-02300
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P018
Company Equipment ID:	Assembly & Finishing of High Intensity Discharge Lamps.
Superseded Permit Number:	16-02429
General Permit Category and Type:	Not Applicable



Final Permit-to-Install and Operate
GE Ravenna Lamp Plant
Permit Number: P0110076
Facility ID: 1667060009
Effective Date: 12/3/2012

A. Standard Terms and Conditions



1. What does this permit-to-install and operate ("PTIO") allow me to do?

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

2. Who is responsible for complying with this permit?

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. What records must I keep under this permit?

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

4. What are my permit fees and when do I pay them?

There are two fees associated with permitted air contaminant sources in Ohio:

- PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

- Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. Unless otherwise specified, facilities subject to one or more synthetic minor restrictions must use Ohio EPA's "Air Services" to submit annual emissions associated with this permit requirement. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

5. When does my PTIO expire, and when do I need to submit my renewal application?

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is



very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

6. What happens to this permit if my project is delayed or I do not install or modify my source?

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

7. What reports must I submit under this permit?

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.



10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the Akron Regional Air Quality Management District in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

12. What happens if one or more emissions units operated under this permit is/are shut down permanently?

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting¹ a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emissions unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

¹ Permittees that use Ohio EPA's "Air Services" can mark the affected emissions unit(s) as "permanently shutdown" in the facility profile along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).



13. Can I transfer this permit to a new owner or operator?

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

15. What happens if a portion of this permit is determined to be invalid?

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.



Final Permit-to-Install and Operate
GE Ravenna Lamp Plant
Permit Number: P0110076
Facility ID: 1667060009
Effective Date: 12/3/2012

B. Facility-Wide Terms and Conditions



Final Permit-to-Install and Operate

GE Ravenna Lamp Plant

Permit Number: P0110076

Facility ID: 1667060009

Effective Date: 12/3/2012

1. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) None.
 - b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (1) None.



Final Permit-to-Install and Operate
GE Ravenna Lamp Plant
Permit Number: P0110076
Facility ID: 1667060009
Effective Date: 12/3/2012

C. Emissions Unit Terms and Conditions



1. K001, HID Bulb Coating

Operations, Property and/or Equipment Description:

Coatings are applied to the bulb interior using an upflush coating bench and Lehr oven.

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	4.87 lbs/hr and 21.33 tons/yr of Volatile Organic Compounds (VOC) See b)(2)a.
b.	OAC rule 3745-17-11(C)	See b)(2)b.

(2) Additional Terms and Conditions

a. The best available technology (BAT) requirements under OAC rule 3745-31-05(A)(3) were established to reflect the maximum potential to emit (PTE) for this emissions unit. Therefore, no emissions monitoring and recordkeeping requirements are necessary to ensure compliance with these limitations.

However, the permittee shall apply for and, if required, obtain a final permit-to-install and operate (PTIO) prior to equipment replacement or any proposed modifications of equipment or production procedures, or any other change that would increase the potential emissions of any air pollutant.



- b. Pursuant to OAC rule 3745-17-11(A)(1)(h), surface coating processes that apply only dip coatings, roll coatings, flow coatings, or brush coatings are exempt for the requirements of this rule.

- c) Operational Restrictions
 - (1) The application of cleanup material shall be limited to 8 hours per day.

- d) Monitoring and/or Recordkeeping Requirements
 - (1) For each day during which the application of cleanup material exceeds 8 hours, the permittee shall maintain a record of the quantity of cleanup material applied and the length of time the application of cleanup material occurred in this emissions unit.

- e) Reporting Requirements
 - (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

- f) Testing Requirements
 - (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Emission Limitations:
4.87 lbs VOC/hr and 21.33 tons VOC/yr

Applicable Compliance Methods:

Compliance with the hourly allowable VOC emission limitation identified above shall be demonstrated by adding the hourly emissions from coating and clean-up materials.

The hourly VOC emission rate from the coating process is calculated by multiplying the VOC content of the coating (MSDS) by the maximum hourly coating usage rate (0.878 gal/hr).

The hourly VOC emission rate from cleanup material is calculated by multiplying the VOC content of the cleanup material (MSDS) by the maximum amount of cleanup material used per day (1 gal/day), and dividing by the number of hours of cleanup operations per day (8 hrs).

The ton per year emission limitation was developed by multiplying the short-term allowable VOC emission limitation (4.87lbs/hr) by the maximum annual hours of



Final Permit-to-Install and Operate

GE Ravenna Lamp Plant

Permit Number: P0110076

Facility ID: 1667060009

Effective Date: 12/3/2012

operation (8,760 hours), and dividing by 2,000 lbs/ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

g) Miscellaneous Requirements

(1) None.



2. K002, Multi-Vapor Arc Tube Coating

Operations, Property and/or Equipment Description:

Dip coating lines #1 and #2 with electric curing ovens.

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) **Applicable Emissions Limitations and/or Control Requirements**

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	4.51 lbs/hr and 19.75 tons/yr of Volatile Organic Compounds (VOC) 0.08 lb/hr and 0.35 tons/yr of Ammonia (NH ₃) See b)(2)a.
b.	OAC rule 3745-17-11(C)	See b)(2)b.

(2) **Additional Terms and Conditions**

a. The best available technology (BAT) requirements under OAC rule 3745-31-05(A)(3) were established to reflect the maximum potential to emit (PTE) for this emissions unit. Therefore, monitoring and recordkeeping requirements are not necessary to ensure compliance with these emissions limitations.

However, the permittee shall apply for and, if required, obtain a final permit-to-install and operate (PTIO) prior to equipment replacement or any proposed



modifications of equipment or production procedures, or any other change that would increase the potential emissions of any air pollutant.

- b. Pursuant to OAC rule 3745-17-11(A)(1)(h), surface coating processes that apply only dip coatings, roll coatings, flow coatings, or brush coatings are exempt for the requirements of this rule.
- c) Operational Restrictions
 - (1) None.
- d) Monitoring and/or Recordkeeping Requirements
 - (1) The permit to install and operate (PTIO) application for this emissions unit, K002, was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground level concentration results from the approved air dispersion model, were compared to the Maximum Acceptable Ground Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:
 - a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit, (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):
 - i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or
 - ii. short term exposure limit (STEL) or the ceiling value from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.
 - b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).
 - c. This standard is adjusted to account for the duration of the exposure or the operating hours of the emissions unit, i.e., "X" hours per day and "Y" days per



week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the MAGLC:

$$TLV/10 \times 8/X \times 5/Y = 4 TLV/XY = MAGLC$$

- d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Toxic Contaminant: Methanol

TLV (mg/m³): 262

Maximum Hourly Emission Rate (lbs/hr): 3.91

Predicted 1-Hour Maximum Ground Level Concentration (ug/m³): 25.33

MAGLC (ug/m³): 6238

Toxic Contaminant: Aluminum Oxide

TLV (mg/m³): 10

Maximum Hourly Emission Rate (lbs/hr): 0.59

Predicted 1 Hour Maximum Ground Level Concentration (ug/m³): 3.81

MAGLC (ug/m³): 238.09

The permittee, has demonstrated that emissions of methanol and aluminum oxide, from emissions unit K002, are calculated to be less than eighty per cent of the MAGLC. Any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

- (2) Prior to making any physical changes to or changes in the method of operation of the emissions unit, that could impact the parameters or values that were used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:
- a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a new toxic air contaminant with a lower TLV than the lowest TLV previously modeled;
 - b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and
 - c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Toxic Air Contaminant Statute" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to a non-restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminant Statute", ORC



3704.03(F), has been documented. If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final PTIO prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

- (3) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):
 - a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);
 - b. the MAGLC for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);
 - c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and
 - d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit or the materials applied.
- (4) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground level concentration. The record shall include the date and reason(s) for the change and if the change would increase the groundlevel concentration.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

The permittee shall include in the annual PER any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the



Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground level concentration.

f) Testing Requirements

(1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitations:

4.51 lbs VOC/hr and 19.75 tons VOC/yr

Applicable Compliance Methods:

Compliance with the hourly allowable VOC emission limitation identified above shall be demonstrated by adding hourly emissions from the pre coat and final coat processes.

The hourly VOC emission rate for the pre coat process is calculated by multiplying the VOC content of the pre coat (MSDS) by the maximum hourly pre coat usage rate (0.25 gal/hr).

The hourly VOC emission rate for the final coat process is calculated by multiplying the VOC content of the final coat (MSDS) by the maximum hourly final coat usage rate (0.40 gal/hr).

The ton per year emission limitation was developed by multiplying the short-term allowable VOC emission limitation (4.51 lbs/hr) by the maximum annual hours of operation (8,760 hours), and dividing by 2,000 lbs/ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

b. Emission Limitations:

0.08lb NH₃/hr and 0.35 tons NH₃/yr

Applicable Compliance Methods:

Compliance with the hourly allowable NH₃ emission limitation identified above shall be demonstrated by multiplying the company-supplied emission factor of 0.168 lb NH₃/gal by the maximum hourly final coat usage rate (0.40 gal/hr).

The ton per year emission limitation was developed by multiplying the short-term allowable NH₃ emission limitation (0.08 lb/hr) by the maximum annual hours of operation (8,760 hours), and dividing by 2,000 lbs/ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.



Final Permit-to-Install and Operate
GE Ravenna Lamp Plant
Permit Number: P0110076
Facility ID: 1667060009
Effective Date: 12/3/2012

g) Miscellaneous Requirements

(1) None.



3. P008, Lucalox Lamp Finishing Area

Operations, Property and/or Equipment Description:

Assembly lines #5 & #6 for Lucalox high pressure sodium lamps. Equipment includes: 3 mount assembly machines, 3 sealers, 4 exhaust machines, and 1 basing wheel.

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	0.01 lb/hr of Particulate Emissions (PE) 0.03 lb/hr of Ozone (O ₃) 0.04 lb/hr of Lead (Pb) 0.001 lb/hr of Sulfur Dioxide (SO ₂) 0.15 lb/hr of Nitrogen Oxides (NO _x) 0.13 lb/hr of Carbon Monoxide (CO) 1.85 lbs/hr of Volatile Organic Compounds (VOC) 0.30 lb/hr of Ethylene Glycol 0.20 lb/hr of Denatured Ethanol See b)(2)a.
b.	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established under OAC rule 3745-31-05(A)(3).



(2) Additional Terms and Conditions

- a. The best available technology (BAT) requirements under OAC rule 3745-31-05(A)(3) were established to reflect the maximum potential to emit (PTE) for this emissions unit. Therefore, monitoring and recordkeeping requirements are not necessary to ensure compliance with these emissions limitations.

However, the permittee shall apply for and, if required, obtain a final permit-to-install and operate (PTIO) prior to equipment replacement or any proposed modifications of equipment or production procedures, or any other change that would increase the potential emissions of any air pollutant.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) None.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

0.01 lb PE/hr

Applicable Compliance Method:

Compliance with the hourly allowable particulate emission (PE) limitation identified above shall be demonstrated by multiplying the emission factor of 7.6 lb PE/10⁶scf (AP-42 Table 1.4-2, 07/98) by the maximum hourly amount of natural gas consumed (1,522 scf/hr).

b. Emission Limitation:

0.03 lb O₃/hr



Applicable Compliance Method:

Compliance with the hourly allowable ozone (O₃) emission limitation identified above shall be demonstrated by multiplying the emission rate of 0.01 lb O₃/hr by the number of mount assembly machines (3). The hourly ozone emission rate from the mount assembly process was based on information provided by the GE Ravenna Lamp Plant in the application for PTI 16-1106, which states that ozone emissions from these machines are limited to very small quantities generated by electrical arcing.

c. Emission Limitation:

0.04 lbPb/hr

Applicable Compliance Method:

Compliance with the hourly allowable lead (Pb) emission limitation identified above shall be demonstrated by adding the hourly emission rates from the bulb sealing and lamp basing processes.

For the bulb sealing process, the hourly lead emission rate shall be calculated by multiplying the emission rate of 0.01 lbPb/hr by the number of bulb sealing machines (3). The hourly lead emission rate from the bulb sealing process was based on information provided by the GE Ravenna Lamp Plant in the application for PTI 16-1106, which states that small quantities of lead may be emitted from the glass used in this process during sealing.

For the lamp basing process, the hourly lead emission rate shall be calculated by multiplying the emission rate of 0.01 lbPb/hr by the number of lamp basing wheels (1). The hourly lead emission rate from the lamp basing process was based on information provided by the GE Ravenna Lamp Plant in the application for PTI 16-1106, which states that the soldering operation emits metal fumes which contain some amount of lead.

d. Emission Limitation:

0.001 lb SO₂/hr

Applicable Compliance Method:

Compliance with the hourly allowable sulfur dioxide (SO₂) emission limitation identified above shall be demonstrated by multiplying the emission factor of 0.6 lb SO₂/10⁶scf (AP-42 Table 1.4-2, 07/98) by the maximum hourly amount of natural gas consumed (1,522 scf/hr).

e. Emission Limitation:

0.15 lb NO_x/hr



Applicable Compliance Method:

Compliance with the hourly allowable nitrogen oxides (NO_x) emission limitation identified above shall be demonstrated by multiplying the emission factor of 100 lbs NO_x/10⁶scf (AP-42 Table 1.4-1, 07/98) by the maximum hourly amount of natural gas consumed (1,522 scf/hr).

f. Emission Limitation:

0.13 lb CO/hr

Applicable Compliance Method:

Compliance with the hourly allowable carbon monoxide (CO) emission limitation identified above shall be demonstrated by multiplying the emission factor of 84 lbs CO/10⁶ scf (AP-42 Table 1.4-1, 07/98) by the maximum hourly amount of natural gas consumed (1,522 scf/hr).

g. Emission Limitation:

1.85 lbs VOC/hr

Applicable Compliance Method:

Compliance with the hourly allowable volatile organic compound (VOC) emission limitation identified above shall be demonstrated by adding the following hourly VOC emission rates:

The hourly VOC emissions from the bulb sealing process shall be calculated by multiplying the emission factor of 5.5 lbs VOC/10⁶scf (AP-42 Table 1.4-2, 07/98) by the maximum hourly amount of natural gas consumed (1,522 scf/hr);

The hourly VOC emissions from the lamp basing process shall be calculated by adding the company-supplied emission factors of 0.045 lb VOC/lbhexylene glycol and 0.066 lb VOC/lb linseed oil, then multiplying the total by the number of lamp basing wheels (1);

The hourly VOC emissions from solder flux shall be calculated by multiplying the emission factor of 0.7 lb VOC/lb flux (MSDS) by the maximum hourly solder flux usage rate (0.37 lb/hr);

The hourly VOC emissions from monogram ink shall be calculated by multiplying the emission factor of 0.25 lb VOC/lb ink (MSDS) by the maximum hourly ink usage rate (0.08 lb/hr);

The hourly emissions of ethylene glycol, see f)(1)h. below; and

The hourly emissions of denatured ethanol, see f)(1)i. below.



h. Emission Limitation:

0.30 lb Ethylene Glycol/hr

Applicable Compliance Method:

Compliance with the hourly allowable ethylene glycol emission limitation identified above shall be demonstrated by multiplying the company-supplied emission factor of 0.3 lb ethylene glycol/hr from the lamp basing process by the number of lamp basing wheels (1).

i. Emission Limitation:

0.20 lb Denatured Ethanol/hr

Applicable Compliance Method:

Compliance with the hourly allowable denatured ethyl alcohol emission limitation identified above shall be demonstrated by multiplying the company-supplied emission factor of 0.2 lb denatured alcohol/hr from the lamp basing process by the number of lamp basing wheels (1).

g) Miscellaneous Requirements

(1) None.



4. P009, Mercury/Multi-Vapor Finishing Area

Operations, Property and/or Equipment Description:

Assembly lines #1A, #2 & #3 for mercury multi-vapor discharge lamps. Equipment includes: 3 electrostatic coaters with fabric filters, 3 mount assembly machines, 3 sealers, 3 exhaust machines, and 3 basing wheels.

- a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - (1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - a. None.
 - (2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - a. None.
- b) Applicable Emissions Limitations and/or Control Requirements
 - (1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	0.25lb/hr of Particulate Emissions (PE) 0.03 lb/hr of Ozone (O ₃) 0.06 lb/hr of Lead (Pb) 0.001 lb/hr of Sulfur Dioxide (SO ₂) 0.20 lb/hr of Nitrogen Oxides (NO _x) 0.16 lb/hr of Carbon Monoxide (CO) 2.29lbs/hr of Volatile Organic Compounds (VOC) 0.90 lb/hr of Ethylene Glycol 0.60 lb/hr of Denatured Ethanol See b)(2)a.
b.	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established under OAC rule 3745-31-



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		05(A)(3).
c.	OAC rule 3745-17-11(C)(3)	See b)(2)b.

(2) Additional Terms and Conditions

- a. The best available technology (BAT) requirements under OAC rule 3745-31-05(A)(3) were established to reflect the maximum potential to emit (PTE) for this emissions unit. Therefore, monitoring and recordkeeping requirements are not necessary to ensure compliance with these emissions limitations.

However, the permittee shall apply for and, if required, obtain a final permit-to-install and operate (PTIO) prior to equipment replacement or any proposed modifications of equipment or production procedures, or any other change that would increase the potential emissions of any air pollutant.

- b. Any surface coating process with a permit-to-install (PTI) issued after January 1, 1990 (PTI #16-1106, issued on 11/15/1995) that identifies particulate emission limitations and control measures based on best available technology shall comply with such limitations and measures instead of paragraphs (C)(1) and (C)(2) of OAC rule 3745-17-11.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) None.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:



a. Emission Limitation:

0.25lb PE/hr

Applicable Compliance Method:

Compliance with the hourly allowable particulate emission (PE) limitation identified above shall be demonstrated by adding the hourly emission rates from the bulb sealing and electrostatic coating operations.

For the bulb sealing process, the hourly PE rate shall be calculated by multiplying the emission factor of 7.6 lb PE/10⁶ scf (AP-42 Table 1.4-2, 07/98) by the maximum hourly amount of natural gas consumed (1,955 scf/hr).

For the electrostatic coating processes, the hourly PE rate shall be calculated by multiplying the company-supplied emission factor 0.678lb PE/lb (material balance) by the powder coaters' combined maximum usage rate of 6.91 lbs PE/hr and by the minimum filter control efficiency (1.0 - 0.95).

b. Emission Limitation:

0.03 lb O₃/hr

Applicable Compliance Method:

Compliance with the hourly allowable ozone (O₃) emission limitation identified above shall be demonstrated by multiplying the emission rate of 0.01 lb O₃/hr by the number of mount assembly machines (3). The hourly ozone emission rate from the mount assembly process was based on information provided by the GE Ravenna Lamp Plant in the application for PTI 16-1106, which states that ozone emissions from these machines are limited to very small quantities generated by electrical arcing.

c. Emission Limitation:

0.06 lbPb/hr

Applicable Compliance Method:

Compliance with the hourly allowable lead (Pb) emission limitation identified above shall be demonstrated by adding the hourly lead emission rates from the bulb sealing and lamp basing processes.

For the bulb sealing process, the hourly lead emission rate shall be calculated by multiplying the emission rate of 0.01 lbPb/hr by the number of bulb sealing machines (3). The hourly lead emission rate from the bulb sealing process was based on information provided by the GE Ravenna Lamp Plant in the application for PTI 16-1106, which states that small quantities of lead may be emitted from the glass used in this process during sealing.



For the lamp basing process, the hourly lead emission rate shall be calculated by multiplying the emission rate of 0.01 lbPb/hr by the number of lamp basing wheels (3). The hourly lead emission rate from the lamp basing process was based on information provided by the GE Ravenna Lamp Plant in the application for PTI 16-1106, which states that the soldering operation emits metal fumes which contain some amount of lead.

d. Emission Limitation:

0.001 lb SO₂/hr

Applicable Compliance Method:

Compliance with the hourly allowable sulfur dioxide (SO₂) emission limitation identified above shall be demonstrated by multiplying the emission factor of 0.6 lb SO₂/10⁶scf (AP-42 Table 1.4-2, 07/98) by the maximum hourly amount of natural gas consumed (1,955 scf/hr).

e. Emission Limitation:

0.20lb NO_x/hr

Applicable Compliance Method:

Compliance with the hourly allowable nitrogen oxides (NO_x) emission limitation identified above shall be demonstrated by multiplying the emission factor of 100 lbs NO_x/10⁶scf (AP-42 Table 1.4-1, 07/98) by the maximum hourly amount of natural gas consumed (1,955 scf/hr).

f. Emission Limitation:

0.16 lb CO/hr

Applicable Compliance Method:

Compliance with the hourly allowable carbon monoxide (CO) emission limitation identified above shall be demonstrated by multiplying the emission factor of 84 lbs CO/10⁶ scf (AP-42 Table 1.4-1, 07/98) by the maximum hourly amount of natural gas consumed (1,955 scf/hr).

g. Emission Limitation:

2.29lbs VOC/hr

Applicable Compliance Method:

Compliance with the hourly allowable volatile organic compound (VOC) emission limitation identified above shall be demonstrated by adding the following hourly VOC emission rates:



The hourly VOC emissions from the bulb sealing process shall be calculated by multiplying the emission factor of 5.5 lbs VOC/10⁶scf (AP-42 Table 1.4-2, 07/98) by the maximum hourly amount of natural gas consumed (1,955 scf/hr);

The hourly VOC emissions from the lamp basing process shall be calculated by adding the company-supplied emission factors of 0.045 lb VOC/lbhexylene glycol and 0.066 lb VOC/lb linseed oil, then multiplying this total by the number of lamp basing wheels (3);

The hourly VOC emissions from solder flux shall be calculated by multiplying the emission factor of 0.7 lb VOC/lb flux (MSDS) by the maximum hourly solder flux usage rate (0.6 lb/hr);

The hourly VOC emissions from monogram ink shall be calculated by multiplying the emission factor of 0.25 lb VOC/lb ink (MSDS) by the maximum hourly ink usage rate (0.1 lb/hr);

The hourly emissions of ethylene glycol, see f)(1)h. below; and

The hourly emissions of denatured ethanol, see f)(1)i. below.

h. Emission Limitation:

0.90 lb Ethylene Glycol/hr

Applicable Compliance Method:

Compliance with the hourly allowable ethylene glycol emission limitation identified above shall be demonstrated by multiplying the company-supplied emission factor of 0.3 lb ethylene glycol/hr from the lamp basing process by the number of lamp basing wheels (3).

i. Emission Limitation:

0.60 lb Denatured Ethanol/hr

Applicable Compliance Method:

Compliance with the hourly allowable denatured ethyl alcohol emission limitation identified above shall be demonstrated by multiplying the company-supplied emission factor of 0.2 lb denatured alcohol/hr from the lamp basing process by the number of lamp basing wheels (3).

g) Miscellaneous Requirements

(1) None.



5. P017, Rotary Pinch Arc Tube Line

Operations, Property and/or Equipment Description:

Rotary pinch line for the assembly of quartz tubing, electrodes, and fill gases into an arc tube. Equipment includes: electrode mount welder, pinch machine, and exhaust machines.

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	0.64 lb/hr and 2.80 tons/yr of Isopropyl Alcohol See b)(2)a.

(2) Additional Terms and Conditions

a. The best available technology (BAT) requirements under OAC rule 3745-31-05(A)(3) were established to reflect the maximum potential to emit (PTE) for this emissions unit. Therefore, monitoring and recordkeeping requirements are not necessary to ensure compliance with these emissions limitations.

However, the permittee shall apply for and, if required, obtain a final permit-to-install and operate (PTIO) prior to equipment replacement or any proposed modifications of equipment or production procedures, or any other change that would increase the potential emissions of any air pollutant.



- c) Operational Restrictions
 - (1) None.
- d) Monitoring and/or Recordkeeping Requirements
 - (1) None.
- e) Reporting Requirements
 - (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.
- f) Testing Requirements
 - (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Emission Limitations:
0.64 lb Isopropyl Alcohol/hr and 2.80 tons Isopropyl Alcohol/yr

Applicable Compliance Methods:

Compliance with the hourly allowable isopropyl alcohol emission limitation identified above shall be demonstrated by multiplying the emission rate of 0.41 lb isopropyl alcohol/hr (GE Ravenna Lamp Plant application for PTI 16-1106) by the factor of 500/320 (arc tube production increase from PTI 16-02300).

The ton per year emission limitation was developed by multiplying the short-term allowable isopropyl alcohol emission limitation (0.64 lb/hr) by the maximum annual hours of operation (8,760 hours), and dividing by 2,000 lbs/ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.
- g) Miscellaneous Requirements
 - (1) None.



6. P018, HID Lamp Assembly Group

Operations, Property and/or Equipment Description:

Finishing line for the assembly of Lucalox mercury multi-vapor high-intensity discharge lamps. Equipment includes: 1 electrostatic coater with fabric filter, 2 mount assembly machines, 1 sealer, 1 exhaust unit, and 1 basing unit.

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) **Applicable Emissions Limitations and/or Control Requirements**

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	0.19lb/hr and 0.83 ton/yr of Particulate Emissions (PE) 0.003 lb/hr and 0.01 ton/yr of Sulfur Dioxide (SO ₂) 0.45 lb/hr and 1.97 tons/yr of Nitrogen Oxides (NO _x) 0.38 lb/hr and 1.66 tons/yr of Carbon Monoxide (CO) 0.95lb/hr and 4.16 tons/yr of Volatile Organic Compounds (VOC) See b)(2)a. and b)(2)b. Visible particulate emissions from any stack shall not exceed 5% opacity, as a 6-minute average.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
b.	OAC rule 3745-17-07(A)(1)	See b)(2)c.
c.	OAC rule 3745-17-11(B)(1)	See b)(2)c.
d.	OAC rule 3745-17-11(C)(3)	See b)(2)d.

(2) Additional Terms and Conditions

- a. The best available technology (BAT) requirements under OAC rule 3745-31-05(A)(3) were established to reflect the maximum potential to emit (PTE) for this emissions unit. Therefore, no emissions monitoring and recordkeeping requirements are necessary to ensure compliance with these limitations.

However, the permittee shall apply for and, if required, obtain a final permit-to-install and operate (PTIO) prior to equipment replacement or any proposed modifications of equipment or production procedures, or any other change that would increase the potential emissions of any air pollutant.

- b. The permittee shall properly adjust, operate, and maintain the emissions unit covered under this permit in accordance with the manufacturer's recommendations, instructions, and operating manual(s).
- c. The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
- d. Any surface coating process with a permit-to-install (PTI) issued after January 1, 1990 (PTI #16-02429, issued on 12/6/2005) that identifies particulate emission limitations and control measures based on best available technology shall comply with such limitations and measures instead of paragraphs (C)(1) and (C)(2) of OAC rule 3745-17-11.

c) Operational Restrictions

- (1) The permittee shall only employ natural gas as fuel in this emissions unit, or other such inherently clean fuel that would result in emissions that comply with the limitations and restrictions of this permit for this emissions unit.
- (2) The pressure drop across the fabric filter baghouse shall be maintained within the range of 0.5 to 6.0 inches of water column while the emissions unit is in operation.

d) Monitoring and/or Recordkeeping Requirements

- (1) For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.



- (2) The permittee shall properly install, operate, and maintain equipment to monitor the pressure drop across the baghouse while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the baghouse on a daily basis.

- (3) Whenever the monitored value for any control equipment parameter deviates from the range established in section c)(2) of this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:
 - a. the date and time the deviation began;
 - b. the magnitude of the deviation at that time;
 - c. the date the investigation was conducted;
 - d. the name(s) of the personnel who conducted the investigation; and
 - e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the control equipment parameters within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date the corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the pressure drop readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more



than twelve-months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

f) Testing Requirements

(1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitations:

0.19lb PE/hr and 0.83 ton PE/yr

Applicable Compliance Methods:

Compliance with the hourly allowable particulate emission (PE) limitation identified above shall be demonstrated by adding the hourly emission rates from natural gas combustion and the electrostatic coating operation.

For natural gas combustion, the hourly PE rate shall be calculated by multiplying the emission factor of 7.6 lb PE/10⁶ scf (AP-42 Table 1.4-2, 07/98) by the maximum hourly amount of natural gas consumed (4,500scf/hr).

For the electrostatic coating process, the hourly PE rate shall be calculated by multiplying the company-supplied emission factor 0.678 lb PE/lb (material balance) by the powder coater's maximum usage rate of 4.50 lbs PE/hr and by the minimum filter control efficiency (1.0 - 0.95).

If required, compliance with the hourly PE limitation shall be determined through stack testing in accordance with the test methods and procedures specified in OAC rule 3745-17-03(B)(8), and U.S. EPA Methods 1-4 and 5 of 40 CFR Part 60, Appendix A.

The ton per year emission limitation was developed by multiplying the short-term allowable PE limitation (0.19 lb/hr) by the maximum annual hours of operation (8,760 hours), and dividing by 2,000 lbs/ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

b. Emission Limitations:

0.003 lb SO₂/hr and 0.01 ton SO₂/yr

Applicable Compliance Methods:

Compliance with the hourly allowable sulfur dioxide (SO₂) emission limitation identified above shall be demonstrated by multiplying the emission factor of 0.6 lb SO₂/10⁶scf (AP-42 Table 1.4-2, 07/98) by the maximum hourly amount of natural gas consumed (4,500scf/hr).



The ton per year emission limitation was developed by multiplying the short-term allowable SO₂ emission limitation (0.003 lb/hr) by the maximum annual hours of operation (8,760 hours), and dividing by 2,000 lbs/ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitations:

0.45lb NO_x/hr and 1.97 tons NO_x/yr

Applicable Compliance Methods:

Compliance with the hourly allowable nitrogen oxides (NO_x) emission limitation identified above shall be demonstrated by multiplying the emission factor of 100 lbs NO_x/10⁶scf (AP-42 Table 1.4-1, 07/98) by the maximum hourly amount of natural gas consumed (4,500scf/hr).

The ton per year emission limitation was developed by multiplying the short-term allowable NO_x emission limitation (0.45 lb/hr) by the maximum annual hours of operation (8,760 hours), and dividing by 2,000 lbs/ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

d. Emission Limitations:

0.38lb CO/hr and 1.66 tons CO/yr

Applicable Compliance Methods:

Compliance with the hourly allowable carbon monoxide (CO) emission limitation identified above shall be demonstrated by multiplying the emission factor of 84 lbs CO/10⁶ scf (AP-42 Table 1.4-1, 07/98) by the maximum hourly amount of natural gas consumed (4,500scf/hr).

The ton per year emission limitation was developed by multiplying the short-term allowable CO emission limitation (0.38 lb/hr) by the maximum annual hours of operation (8,760 hours), and dividing by 2,000 lbs/ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitations:

0.95lbVOC/hr and 4.16 tons VOC/yr

Applicable Compliance Methods:

Compliance with the hourly allowable volatile organic compound (VOC) emission limitation identified above shall be demonstrated by adding the following hourly VOC emission rates:



The hourly VOC emissions from the bulb sealing process shall be calculated by multiplying the emission factor of 5.5 lbs VOC/10⁶scf (AP-42 Table 1.4-2, 07/98) by the maximum hourly amount of natural gas consumed (4,500 scf/hr);

The hourly ethylene glycol emissions shall be calculated by multiplying the company-supplied emission rate of 0.3 lb ethylene glycol/hr from the lamp basing process by the number of lamp basing units (1);

The hourly denatured ethanol emissions shall be calculated by multiplying the company-supplied emission rate of 0.2 lb denatured alcohol/hr from the lamp basing process by the number of lamp basing units (1);

The hourly VOC emissions from solder flux shall be calculated by multiplying the emission factor of 0.7 lb VOC/lb flux (MSDS) by the maximum hourly solder flux usage rate (0.6 lb/hr); and

The hourly VOC emissions from the monogram ink shall be calculated by multiplying the emission factor of 0.25 lb VOC/lb ink (MSDS) by the maximum hourly ink usage rate (0.027 lb/hr).

If required, compliance with the hourly OC emission limitation shall be determined through stack testing in accordance with the U.S. EPA Methods 1-4 and 18 of 40 CFR Part 60, Appendix A.

The ton per year emission limitation was developed by multiplying the short-term allowable VOC emission limitation (0.95 lb/hr) by the maximum annual hours of operation (8,760 hours), and dividing by 2,000 lbs/ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 5% opacity, as a 6-minute average.

Applicable Compliance Method:

If required, compliance with the opacity limitation identified above shall be determined in accordance with U.S. EPA Method 9 of 40 CFR Part 60, Appendix A.

g) Miscellaneous Requirements

(1) None.