



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

7/29/2013

Certified Mail

Jeremy Breitter  
GE Lighting Inc - Bucyrus Lamp Plant  
GE Company - Bucyrus Lamp Plant  
1250 South Walnut Street  
Bucyrus, OH 44820

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	MAJOR GHG
Yes	SYNTHETIC MINOR TO AVOID MAJOR GHG

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL

Facility ID: 0317010010  
Permit Number: P0114046  
Permit Type: Administrative Modification  
County: Crawford

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the permit. A public notice will appear in the Ohio Environmental Protection Agency (EPA) Weekly Review and the local newspaper, Bucyrus Telegraph-Forum. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page, [www.epa.ohio.gov/dapc](http://www.epa.ohio.gov/dapc) by clicking the "Search for Permits" link under the Permitting topic on the Programs tab. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall  
Permit Review/Development Section  
Ohio EPA, DAPC  
50 West Town Street, Suite 700  
P.O. Box 1049  
Columbus, Ohio 43216-1049

and Ohio EPA DAPC, Northwest District Office  
347 North Dunbridge Road  
Bowling Green, OH 43402

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Ohio EPA DAPC, Northwest District Office at (419)352-8461.

Sincerely,

*Michael W. Ahern*  
Michael W. Ahern, Manager  
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA Region 5 -Via E-Mail Notification  
Ohio EPA-NWDO; Canada

PUBLIC NOTICE  
Issuance of Draft Air Pollution Permit-To-Install  
GE Lighting Inc - Bucyrus Lamp Plant

Issue Date: 7/29/2013  
Permit Number: P0114046  
Permit Type: Administrative Modification  
Permit Description: Administrative modification to amend emission factors for each of the three existing HSH assembly groups, change monitoring frequency for several emissions units and establish an annual plant-wide natural gas usage restriction to limit emissions of Greenhouse Gases below major source levels.  
Facility ID: 0317010010  
Facility Location: GE Lighting Inc - Bucyrus Lamp Plant  
GE Company - Bucyrus Lamp Plant, 1250 South Walnut Street  
Bucyrus, OH 44820  
Facility Description: Electric Lamp Bulb and Part Manufacturing

The Director of the Ohio Environmental Protection Agency issued the draft permit above. The permit and complete instructions for requesting information or submitting comments may be obtained at: <http://epa.ohio.gov/dapc/permitsonline.aspx> by entering the permit # or: Andrea Moore, Ohio EPA DAPC, Northwest District Office, 347 North Dunbridge Road, Bowling Green, OH 43402. Ph: (419)352-8461





## Permit Strategy Write-Up

1. Check all that apply:

Synthetic Minor Determination

Netting Determination

2. Source Description: This Permit to Install (PTI) application was submitted by GE Lighting, Inc. – Bucyrus Lamp Plant (GE), as an administrative modification to emissions units P007, P008, and P035 to amend emissions factors and increase some emissions limits for each of these three HSH lamp assembly groups. In addition, GE has requested a facility-wide restriction on natural gas usage in order to synthetically minor the facility for greenhouse gas (GHG) emissions from the facility only associated with “general stationary fuel combustion sources” involving the use of combustible fuels, and avoid Major New Source Review permitting in the future.

There are a variety of natural gas sources at the facility. Also, there are sources of GHG emissions on site from sources other than the combustion of natural gas. The placement of a synthetic minor restriction in the facility-wide terms and conditions of this administrative modification permit allows application of the restriction to all natural gas sources at the facility, even though not all natural gas sources are included in this permit. GE has requested a synthetic minor limit of 74,000 short tons of carbon dioxide equivalents (CO<sub>2</sub>e) per rolling 12-month period, in order to limit GHG emissions. This will be accomplished by a federally-enforceable restriction of 1200 million cubic feet of natural gas per rolling 12-month period. The federally enforceable requirements are being established for purposes of limiting the PTE of carbon dioxide equivalent (CO<sub>2</sub>e) emissions from the facility only associated with “general stationary fuel combustion sources” involving the use of combustible fuels.

3. Facility Emissions and Attainment Status: GE’s current Potential to Emit (PTE) for CO<sub>2</sub>e is approximately 92,000 tons per year, which is close to the Prevention of Significant Deterioration (PSD) Major Source threshold of 100,000 tons per year. Actual emissions from combustion on site, however, have been below 25,000 tons per year of CO<sub>2</sub>e, consistently. In order to avoid potential increases above PSD Major Source threshold through exempt combustion source additions and potential future expansion, GE has applied for a facility-wide emissions limitation of 74,000 short tons of CO<sub>2</sub>e, and a federally-enforceable limit of 1200 million cubic feet of natural gas per year. GE is a major source for Title V permitting and is located in Crawford County, Ohio. Crawford County is in attainment for all criteria pollutants.
4. Source Emissions: GE’s current Potential to Emit (PTE) for CO<sub>2</sub>e is approximately 92,000 tons per year, however, actual emissions from combustion on site have been below 25,000 tons per year of CO<sub>2</sub>e. GE has applied for a facility-wide emissions limitation of 74,000 short tons of CO<sub>2</sub>e, and a federally-enforceable limit of 1200 million cubic feet of natural gas per year. Under the authority of OAC rule 3745-31-05(D), this permit establishes facility-wide terms and conditions for purposes of establishing federally enforceable requirements to limit the potential to emit (PTE) of greenhouse gases (GHGs) from the facility. The federally enforceable requirements are being established for purposes of limiting the PTE of carbon dioxide equivalent (CO<sub>2</sub>e) emissions from the facility only associated with “general stationary fuel combustion sources” involving the use of combustible fuels.



5. Conclusion: GE has applied for a facility-wide emissions limitation of 74,000 short tons of CO<sub>2</sub>e, and a federally-enforceable limit of 1200 million cubic feet of natural gas per rolling 12-month period. The PTE of 74,000 tons CO<sub>2</sub>e annually from fuel combustion sources along with the potential CO<sub>2</sub>e from non-combustion sources at the facility will result in a PTE below 100,000 tons per year of CO<sub>2</sub>e. The PTE of less than 100,000 tons CO<sub>2</sub>e annually will result in GHGs from the facility not becoming “subject to regulation” as defined in 40 CFR 51.166(b)(48)(i) and as a result no determination regarding major source status of the facility for GHGs on a mass basis will be required. With this synthetic minor limit in place, GE will avoid Major New Source Review permitting for future expansion projects.

6. Please provide additional notes or comments as necessary:

None

7. Total Permit Allowable Emissions Summary (for informational purposes only):

<u>Pollutant</u>	<u>Tons Per Year</u>
<u>CO<sub>2</sub>e</u>	<u>74,000 short tons</u>
<u>OC</u>	<u>56.15</u>
<u>NO<sub>x</sub></u>	<u>51.58</u>
<u>CO</u>	<u>38.91</u>
<u>PE</u>	<u>0.12</u>
<u>SO<sub>2</sub></u>	<u>12.66</u>
<u>Hg</u>	<u>0.004</u>



**DRAFT**

**Division of Air Pollution Control  
Permit-to-Install**  
for  
GE Lighting Inc - Bucyrus Lamp Plant

Facility ID:	0317010010
Permit Number:	P0114046
Permit Type:	Administrative Modification
Issued:	7/29/2013
Effective:	To be entered upon final issuance





**Division of Air Pollution Control**  
**Permit-to-Install**  
for  
GE Lighting Inc - Bucyrus Lamp Plant

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**Draft Permit-to-Install**  
GE Lighting Inc - Bucyrus Lamp Plant  
**Permit Number:** P0114046  
**Facility ID:** 0317010010  
**Effective Date:** To be entered upon final issuance

## Authorization

Facility ID: 0317010010  
Facility Description: Fluorescent Lamp Manufacturing  
Application Number(s): A0047032  
Permit Number: P0114046  
Permit Description: Administrative modification to amend emission factors for each of the three existing HSH assembly groups, change monitoring frequency for several emissions units and establish an annual plant-wide natural gas usage restriction to limit emissions of Greenhouse Gases below major source levels.  
Permit Type: Administrative Modification  
Permit Fee: \$300.00 *DO NOT send payment at this time, subject to change before final issuance*  
Issue Date: 7/29/2013  
Effective Date: To be entered upon final issuance

This document constitutes issuance to:

GE Lighting Inc - Bucyrus Lamp Plant  
GE Company - Bucyrus Lamp Plant  
1250 South Walnut Street  
Bucyrus, OH 44820

of a Permit-to-Install 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:

Ohio EPA DAPC, Northwest District Office  
347 North Dunbridge Road  
Bowling Green, OH 43402  
(419)352-8461

The above named entity is hereby granted a Permit-to-Install for the 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 emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Scott J. Nally  
Director



## Authorization (continued)

**Permit Number:** P0114046  
**Permit Description:** Administrative modification to amend emission factors for each of the three existing HSH assembly groups, change monitoring frequency for several emissions units and establish an annual plant-wide natural gas usage restriction to limit emissions of Greenhouse Gases below major source levels.

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

<b>Emissions Unit ID:</b>	<b>P007</b>
Company Equipment ID:	L-5
Superseded Permit Number:	P0107607
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P008</b>
Company Equipment ID:	L-6
Superseded Permit Number:	P0107607
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P035</b>
Company Equipment ID:	L-7
Superseded Permit Number:	P0105519
General Permit Category and Type:	Not Applicable



**Draft Permit-to-Install**  
GE Lighting Inc - Bucyrus Lamp Plant  
**Permit Number:** P0114046  
**Facility ID:** 0317010010  
**Effective Date:** To be entered upon final issuance

## **A. Standard Terms and Conditions**



## **1. Federally Enforceable Standard Terms and Conditions**

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
  - (1) Standard Term and Condition A.2.a), Severability Clause
  - (2) Standard Term and Condition A.3.c) through A. 3.e) General Requirements
  - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
  - (4) Standard Term and Condition A.9., Reporting Requirements
  - (5) Standard Term and Condition A.10., Applicability
  - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
  - (7) Standard Term and Condition A.14., Public Disclosure
  - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
  - (9) Standard Term and Condition A.16., Fees
  - (10) Standard Term and Condition A.17., Permit Transfers

## **2. Severability Clause**

- a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

## **3. General Requirements**

- a) The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.



- b) It shall not be a defense for the 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 federally enforceable terms and conditions of this permit.
- c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d) This permit does not convey any property rights of any sort, or any exclusive privilege.
- e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

#### **4. Monitoring and Related Record Keeping and Reporting Requirements**

- a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
  - (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.
  - (6) The operating conditions existing at the time of sampling or measurement.
- b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
  - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Northwest District Office.



- (2) Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Northwest District Office. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.
  - (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted (i.e., postmarked) to the Ohio EPA DAPC, Northwest District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
  - (4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
- d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

## 5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Ohio EPA DAPC, Northwest District Office in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

## 6. Compliance Requirements

- a) The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.
- b) Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.



- c) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
  - (1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
  - (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
  - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
  - (4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- d) The permittee shall submit progress reports to the Ohio EPA DAPC, Northwest District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
  - (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
  - (2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

## **7. Best Available Technology**

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

## **8. Air Pollution Nuisance**

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

## **9. Reporting Requirements**

The permittee shall submit required reports in the following manner:

- a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Northwest District Office.
- b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have



been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Ohio EPA DAPC, Northwest District Office. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

## **10. Applicability**

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

## **11. Construction of New Sources(s) and Authorization to Install**

- a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.
- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., 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) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in Ohio EPA's "Air Services" 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).



- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., 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). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

No emissions unit certified by the authorized official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

## **12. Permit-To-Operate Application**

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

## **13. Construction Compliance Certification**

The applicant shall identify the following dates in the online facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

## **14. Public Disclosure**

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.



**15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations**

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly (i.e., postmarked), by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

**16. Fees**

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

**17. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in Air Services once the transfer is legally completed. The change must be submitted through Air Services within thirty days of the ownership transfer date.

**18. Risk Management Plans**

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

**19. Title IV Provisions**

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.



**Draft Permit-to-Install**  
GE Lighting Inc - Bucyrus Lamp Plant  
**Permit Number:** P0114046  
**Facility ID:** 0317010010  
**Effective Date:** To be entered upon final issuance

## **B. Facility-Wide Terms and Conditions**



1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:
  - a) None.
2. Under the authority of OAC rule 3745-31-05(D), this permit establishes the following facility-wide terms and conditions for purposes of establishing federally enforceable requirements to limit the potential to emit (PTE) of greenhouse gases (GHGs) from the facility. The federally enforceable requirements are being established for purposes of limiting the PTE of carbon dioxide equivalent (CO<sub>2</sub>e) emissions from the facility only associated with “general stationary fuel combustion sources” involving the use of combustible fuels. A federally enforceable requirement limiting the use of natural gas at the facility will limit emissions of CO<sub>2</sub>e from combustion sources to 74,000 tons per rolling 12-month period. The PTE of 74,000 tons CO<sub>2</sub>e annually from fuel combustion sources along with the potential CO<sub>2</sub>e from non-combustion sources at the facility will result in a PTE below 100,000 tons per year of CO<sub>2</sub>e. The PTE of less than 100,000 tons CO<sub>2</sub>e annually will result in GHGs from the facility not becoming “subject to regulation” as defined in 40 CFR 51.166(b)(48)(i) and as a result no determination regarding major source status of the facility for GHGs on a mass basis will be required.
  - a) This permit establishes an operational restriction which limits the quantity of natural gas combusted at the entire facility as a means to limit total PTE for CO<sub>2</sub>e from all fuels combined. The maximum rolling 12-month quantity of natural gas used shall not exceed 1,200 million standard cubic feet (MMCF) per rolling 12-month period. This emissions unit has been in operation for more than 12 months and, as such, the permittee has existing records to generate the rolling, 12-month summation of the natural gas usage, upon issuance of this permit.
  - b) The permittee shall collect and record the following information each month for natural gas usage at the entire facility:
    - (1) The amount of natural gas usage, in MMCF, for the entire facility. This one value will include all operations, processes, emission units, etc. which combust natural gas;
    - (2) The rolling 12-month facility-wide usage of natural gas, in MMCF;
    - (3) The facility-wide CO<sub>2</sub>e emissions from natural gas combustion, in tons (short tons), quantified in accordance with the calculation methodologies outlined in 40 CFR Part 98.33. (It should be noted that 40 CFR Part 98.33 quantifies GHG emissions in metric tons and emissions must be converted to short tons for purposes of this monitoring and recordkeeping requirement due to PSD applicability involving short ton thresholds); and
    - (4) The rolling 12-month facility-wide CO<sub>2</sub>e emissions from natural gas combustion, in tons.
  - c) The permittee shall submit quarterly deviation reports that identify:
    - (1) all deviations of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit of any regulated air pollutant and have been detected by the monitoring, recordkeeping, and/or testing requirements in this permit:
      - a. all exceedances of the rolling 12-month natural gas usage restriction of 1,200 MMCF; and



- b. all exceedances of the rolling 12-month facility-wide CO<sub>2</sub>e emission limitation of 74,000 tons.

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

- d) Compliance with the emission limitation of 74,000 tons of CO<sub>2</sub>e per rolling 12-month period from the entire facility shall be demonstrated by the monitoring and recordkeeping in section B.2.b).



**Draft Permit-to-Install**  
GE Lighting Inc - Bucyrus Lamp Plant  
**Permit Number:** P0114046  
**Facility ID:** 0317010010  
**Effective Date:** To be entered upon final issuance

## **C. Emissions Unit Terms and Conditions**



1. P007, L-5

**Operations, Property and/or Equipment Description:**

L-5 High Speed Horizontal Lamp Assembly Line (Line K)- Coating, End Brushing, Natural Gas Combustion, and Mercury Evacuation with Cyclone and Carbon Adsorber (Modification to increase current permit emission limitations)

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (1) 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) (Administrative modification to PTI P0107607, issued 04/19/2011 to update emissions factors)	<p><u>Coating Emissions:</u>            3.24 lbs organic compounds (OC)/hour;            14.19 tons OC/year            * See also b)(2)a.</p> <p><u>Cleanup Emissions:</u>            2.82 lbs OC/month; 0.02 ton OC/year</p> <p><u>Natural Gas Combustion Emissions:</u>            3.53 lbs nitrogen oxides (NOx)/hour;            15.44 tons NOx/year</p> <p>2.96 lbs carbon monoxide (CO)/hour;            12.97 tons CO/year</p> <p><u>Binder Combustion Emissions:</u>            0.36 lbNOx/hour;            1.6 ton NOx/year</p> <p><u>End Brushing Emissions:</u>            0.01 lb particulate emissions (PE)/hour;            0.04 ton PE/year</p> <p>Visible PE shall not exceed 5% opacity, as a six-minute average.</p> <p><u>SO2 Lubricant Emissions:</u></p>



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		0.84 lb sulfur dioxide (SO <sub>2</sub> )/hr; 3.68 tons SO <sub>2</sub> /yr  <u>Mercury Evacuation System Emissions:</u> 0.0004 lb of Mercury (Hg)/hour; 0.002 ton of Hg/year  See b)(2)a through b)(2)c.
b.	OAC rule 3745-21-09(U)(1)(d)	3.5 pounds of volatile organic compounds (VOC) per gallon of coating, excluding water and exempt solvents [for the coatings used for the metal parts (base cement coatings)]
c.	OAC rule 3745-31-05(D)	Emissions of carbon dioxide equivalents (CO <sub>2</sub> e) from the entire facility shall not exceed 74,000 tons per rolling 12-month period [see Facility-Wide Terms and Conditions – B.2]
d.	OAC rule 3745-17-11(B)(2)	See b)(2)d
e.	OAC rule 3745-17-07(A)(1)	See b)(2)e
f.	OAC rule 3745-18-06(E)	Exempt [see b)(2)f]

(2) Additional Terms and Conditions

- a. The hourly OC emissions limitation of 3.24 pounds was established for PTI purposes to reflect the potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and reporting requirements to ensure compliance with this limitation.
- b. The requirements of this rule also include compliance with the requirements of OAC rule 3745-21-09(U)(1)(d) and OAC rule 3745-31-05(D).
- c. Best available technology (BAT) control requirements have been determined to be the following:
  - i. Use of a baghouse (fabric filter) for particulate emissions from the end brushing operation; the fabric filter shall achieve an overall control efficiency of 99%, by weight.
  - ii. Use of a carbon adsorber for mercury emissions from the mercury evacuation system; the carbon adsorber shall achieve a maximum outlet emission rate of 0.0004 pound of mercury per hour.
- d. The uncontrolled mass rate of particulate emissions from this emissions unit is less than 10 lbs/hr. Therefore, pursuant to OAC rule 3745-17-11(A)(2)(a)(ii), Figure II of OAC rule 3745-17-11 does not apply. In addition, Table I of OAC rule



3745-17-11 does not apply because the facility is located in Crawford County, which is identified as a P-2 county.

- e. This emissions unit is exempt from the visible particulate emission limitations specified in OAC rule 3745-17-07(A), pursuant to OAC rule 3745-17-07(A)(3)(h), because OAC rule 3745-17-11 is not applicable.
- f. The maximum process weight rate for this emissions unit is less than 1000 lbs/hr. Therefore, pursuant to OAC rule 3745-18-06 (C), this emissions unit is exempt from OAC rule 3745-18-06 (E).
- g. The hourly and annual emission limitations for NO<sub>x</sub>, CO, PE, SO<sub>2</sub> and Hg were established for PTI purposes to reflect the potentials to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and reporting requirements to ensure compliance with these limitations.
- h. Sections b)(2)a. through b)(2)g. above are intended for clarification of current regulatory applicability and requirements at the time of permit issuance, and are not intended to address or prohibit any change that could otherwise be processed under OAC rule 3745-77-07(I).

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) When coating metal parts, the permittee shall collect and record the following information each month and maintain the information at the facility for a period of three years, for this emissions unit for the coatings used for the metal parts:
  - a. the company name and identification of each coating (base cement) employed;
  - b. the VOC content of each coating (pounds/gallon, excluding water and exempt solvents) employed. [The VOC content excluding water and exempt solvents shall be calculated in accordance with the equation specified in paragraph (B)(8) of OAC rule 3745-21-10 for CVOC,2.]
- (2) The permittee shall collect and record the following information each month for all OC emissions emitted from lamp processing and base bake operations for this emissions unit:
  - a. the name and identification number of each coating, ink and base cement employed;
  - b. the total number of lamps processed;
  - c. the total number of bases cemented;
  - d. the total OC emissions from the coatings and inks employed, calculated in accordance with the following equation:



$$\text{OC emissions (lbs/month)} = (\text{thousand lamps processed/month}) \times (A + B + C + D + E + F + G + H)$$

where:

A = emission factor for phosphor top coat:  
maximum gallons of coating/1000 lamps (2.54) x maximum OC content in lb/gal (0.0012) = 0.003 lb of OC/1000 lamps

B = emission factor for phosphor base coat:  
maximum gallons of coating/1000 lamps (0.53) x maximum OC content in lb/gal (0.0012) = 0.001 lb of OC/1000 lamps

C = emission factor for monogram ink:  
maximum liters of ink/1000 lamps (0.0021) / 3.78 liters/gallon x maximum OC content in lb/gal (8.09) = 0.0045 lb of OC/1000 lamps

D = emission factor for monogram ink diluent solvent:  
maximum liters of ink/1000 lamps (0.0002) / 3.78 liters/gallon x maximum OC content in lb/gal (9.34) = 0.00049 lb of OC/1000 lamps

E = emission factor for headmarking ink:  
maximum liters of ink/1000 lamps (0.0002) / 3.78 liters/gallon x maximum OC content in lb/gal (5.51) = 0.0003 lb of OC/1000 lamps

F = emission factor for headmarking ink diluent solvent:  
maximum liters of solvent/1000 lamps (0.0025) / 3.78 liters/gallon x maximum OC content in lb/gal (6.76) = 0.00452 lb of OC/1000 lamps

G = emission factor for E-Mix:  
maximum liters of E-Mix/1000 lamps (0.017) / 3.78 liters/gallon x 16.68 lb E-Mix/gallon x maximum OC content weight fraction (0.4) = 0.03 lb of OC/1000 lamps

H = emission factor for Dry-Film:  
maximum grams of Dry-Film/1000 lamps (1.6) / 454g/lb x maximum weight fraction (0.004) = 0.000014 lb of OC/1000 lamps

- e. the total OC emissions from all the base cement employed on this emissions unit, calculated in accordance with the following equation:

$$\text{OC emissions from base bake operations (lbs/month)} = (\text{thousand lamps processed/month}) \times (EF)$$

where

EF = emission factor for base cement:

$$EF (\text{lb OC/1000 lamps}) = \text{maximum lbs cement/1000 lamps (2.64)} \times \text{maximum OC content weight fraction (0.097)} \times 0.98^* = 0.251$$



\* 2% of the OC is emitted elsewhere

- f. the total OC emissions from lamp processing and base bake operations per month, calculated in accordance with the following equation:

total OC emissions (tons/month) = {the total OC emissions from lamp processing [from d(2)d.] + the total OC emissions from base bake operations [from d(2)e.]; and

- g. the total OC emissions from lamp processing and base bake operations per year, calculated by summing the monthly OC emissions [from d(2)f.] for the calendar year.

- (3) The permittee shall collect and record the following information each month for all the cleanup materials employed in this emissions unit:

- a. the name and identification of each cleanup material employed;
- b. the OC content of each cleanup material employed, in pounds per gallon;
- c. the number of gallons of each cleanup material employed;
- d. the OC emissions from each cleanup material employed [d(3)b. x d(3)c.];
- e. the total OC emissions per month from all the cleanup materials employed [summation of d(3)d. for all cleanup materials], in pounds; and
- f. the total OC emissions per calendar year from all cleanup materials employed, calculated by summing the monthly OC emissions from d(3)e. and dividing by 2000 lbs/ton.

- (4) The permittee shall monitor at least once every fifteen minutes the pressure drop across the carbon adsorber serving the vacuum pump, and across the baghouse (fabric filter) serving the end brushing operation, during operation of this emissions unit, and record the average of those values over the period during which this emissions unit operates each day. For purposes of this requirement, the permittee shall record one average total pressure drop value for each control device each day, for a period beginning at midnight or such time after midnight when the emissions unit begins to operate and ending at the time the emissions unit ceases that day or at midnight should the emissions unit operate beyond midnight. If the emissions unit starts and stops more than once during this 24-hour period, the permittee shall record the average value for the time during this 24-hour period when the emissions unit is in operation. Hereinafter this value shall be called a "Daily Pressure Drop Value".

Whenever the Daily Pressure Drop Value is outside of the applicable range specified below (hereinafter the "Pressure Drop Range"), the permittee shall promptly conduct an investigation to determine if there is a malfunction of the carbon adsorber or either baghouse (whichever is producing a Daily Pressure Drop Value outside of its Pressure Drop Range), and if so, comply with the requirements of OAC rule 3745-15-06. For each such occasion (i.e. when a Daily Pressure Drop Value is outside of its Pressure



Drop Range), the permittee shall record the number of days during which the Daily Pressure Drop Value remained outside of its Pressure Drop Range and a description of the maintenance or repairs, if any, made to the carbon adsorber or baghouse. If upon the investigation the permittee determines there is no malfunction that is subject to OAC rule 3745-15-06, the permittee shall also maintain records documenting the basis for such determination.

The Pressure Drop Ranges are:

- a. for the carbon adsorber, 0.01 to 5.0 inches of water.
- b. for the baghouse, 0.5 to 5.0 inches of water.

These Pressure Drop Ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA, Northwest District Office. The permittee may request revisions to the range(s) based upon information that demonstrates compliance with the allowable mercury emission rate (for the carbon adsorber) or particulate emission rate (for the baghouse) for this emissions unit. If the permittee submits a written request to establish a new Pressure Drop Range, Ohio EPA shall promptly evaluate and act on that request and, if approved, incorporate the new range into this permit as a minor permit modification.

e) Reporting Requirements

- (1) The permittee shall notify the Northwest District Office in writing of any monthly record showing the use of base cement exceeding 3.5 pounds of volatile organic compounds (VOC) per gallon of coating, excluding water and exempt solvents. The notification shall include a copy of such record and shall be sent to the Northwest District Office within 30 days following the end of the calendar month.
- (2) The permittee shall submit semiannual reports that identify the following information concerning the operation of the carbon adsorber during operation of this emissions unit:
  - a. the total duration (in days) that its Daily Pressure Drop Value was outside of its applicable Pressure Drop Range; and
  - b. any and all omissions of the monitoring, record keeping, investigation, and malfunction reporting requirements specified in d)(4).

These semiannual reports shall be submitted by January 31 for the six-month period ending December 31 and by July 31 for the six-month period ending June 30.

- (3) The permittee shall submit semiannual reports that identify the following information concerning the operation of the baghouse (fabric filter) during operation of this emissions unit:
  - a. the total duration (in days) that its Daily Pressure Drop Value was outside of its applicable Pressure Drop Range; and



- b. any and all omissions of the monitoring, record keeping, investigation, and malfunction reporting requirements specified in d)(4).

These semiannual reports shall be submitted by January 31 for the six-month period ending December 31 and by July 31 for the six-month period ending June 30.

- (4) The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following limitations:

- a. the monthly OC emission limitation of 2.82 pounds (from cleanup materials).

The permittee shall submit these reports in accordance with the Standard Terms and Conditions of this permit.

- (5) The permittee shall submit annual reports that summarize the actual annual OC emissions from lamp processing and base bake operations for this emissions unit for the previous calendar year. These reports shall be submitted by January 31 of each year.
- (6) The permittee shall submit annual reports that summarize the actual annual OC emissions from cleanup for this emissions unit for the previous calendar year. These reports shall be submitted by January 31 of each year.
- (7) The permittee shall submit quarterly summaries that include a log of the downtime for the capture (collection) system, control device and monitoring equipment when the associated emissions unit was in operation.

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:

3.24 lbs OC/hour

Applicable Compliance Method:

The hourly allowable OC emission rate was established based on the summation of the OC emissions generated during lamp manufacturing and OC emissions generated during lamp base bake operations. Emissions of OC resulting from combustion and clean up at this source are excluded from this limit. The following outlines potential emissions generated during each process:

- i. Lamp manufacturing - the potential to emit for lamp manufacturing is 0.35 lbs of OC per hour based on the summation of emissions from the following components of the line and a maximum lamp manufacturing rate of 8000 lamps per hour:



Phosphor Top Coating - 0.024 pounds of OC per hour (based on a maximum coating usage rate of 2.54 gal/1000 lamps and a maximum OC content of 0.0012 lb VOC/gal).

Phosphor Base Coating - 0.005 pounds of OC per hour (based on a maximum coating usage rate of 0.53 gal/1000 lamps and a maximum OC content of 0.0012 lb VOC/gal).

Monogram Ink - 0.04 pound of OC per hour (based on a maximum ink usage rate of 0.0021 liters/1000 lamps and a maximum OC content of 8.09 lb/gallon, plus a maximum diluent usage rate of 0.002 liters/1000 lamps and a maximum OC content of 9.34 lb/gallon).

Headmarking Ink - 0.039 pound of OC per hour (based on a maximum ink usage rate of 0.0002 liters/1000 lamps and a maximum OC content of 5.51 lb/gallon, plus a maximum diluent solvent usage rate of 0.0025 lb/1000 lamps and maximum OC content 6.76 lb/gallon).

E-Mix - 0.24 pound of OC per hour (based on a maximum usage rate of 0.017 liters/1000 lamps and a maximum OC content of 40% by weight).

Dry Film - 0.00011 pound of OC per hour (based on a maximum usage rate of 1.6 grams/1000 lamps and a maximum OC content of 0.4% by weight).

- ii. Lamp base bake operations - the potential to emit for lamp base bake operations is 2.01 lbs of OC per hour based on a maximum lamp base baking rate of 16,000 bases per hour and a maximum cement usage rate of 2.64 lbs/1000 bases, a maximum OC content of 9.7 % by weight and a maximum emission rate of 98% (98% for this emissions unit, i.e. 2% of the OC is emitted during base cement mixing).

If required, the permittee shall demonstrate compliance in accordance with Methods 1 - 4, 18, 25, or 25A, as appropriate, of 40 CFR, Part 60, Appendix A.

b. Emission Limitation:

14.19 tons OC/year

Applicable Compliance Method:

Compliance with the OC emission limitation above shall be demonstrated based on the monitoring and record keeping requirements established in d)(2). Emissions of OC resulting from combustion and clean up at this source are excluded from this limit.

c. Emission Limitation:

2.82 lbs OC/month, from cleanup materials



Applicable Compliance Method:

Compliance with the OC emission limitation above shall be demonstrated based on the monitoring and record keeping requirements established in d)(3).

d. Emission Limitation:

0.02 ton OC/year, from cleanup materials

Applicable Compliance Method:

Compliance with the OC emission limitation above shall be demonstrated based on the monitoring and record keeping requirements established in d)(3) and shall be the summation of the 12 OC emission rates for the calendar year.

e. Emission Limitation:

3.53 lbsNO<sub>x</sub>/hour (natural gas combustion)

Applicable Compliance Method:

The hourly allowable NO<sub>x</sub> emission limitation was established by multiplying the maximum natural gas usage rate of 35,257 cu. ft /hr by the AP-42 emission factor of 100 lbs of NO<sub>x</sub>/mm cu. ft (AP-42, Section 1.4, Table 1.4-1 [revised 7/98]).

If required, the permittee shall demonstrate compliance in accordance with Methods 1- 4 and 7 of 40 CFR, Part 60, Appendix A.

f. Emission Limitation:

2.96 lb CO/hour (natural gas combustion)

Applicable Compliance Method:

The hourly allowable CO emission limitation was established by multiplying the maximum natural gas usage rate of 35,257 cu. ft /hr by the AP-42 emission factor of 84 lbs of CO/mm cu. ft (AP-42, Section 1.4, Table 1.4-1 [revised 7/98]).

If required, the permittee shall demonstrate compliance in accordance with Methods 1- 4 and 10 of 40 CFR, Part 60, Appendix A.

g. Emission Limitation:

0.01 lb PE/hour (end brushing)

Applicable Compliance Method:

The hourly allowable PE limitation was established by multiplying the maximum phosphor coating application rate of 12.56 lbs/1000 lamps by the production rate of 8000 lamps per hour, a removal rate of 1% of the phosphor applied, and then multiplying by a control factor (1-0.99\*).



If required, the permittee shall demonstrate compliance in accordance with Methods 1- 5 of 40 CFR, Part 60, Appendix A.

\* thebaghouse control efficiency is assumed to be  $\geq 99\%$ .

h. Emission Limitation:

Visible PE shall not exceed 5% opacity, as a six-minute average (end brushing)

Applicable Compliance Method:

If required, compliance shall be determined in accordance with the test method and procedures in Method 9 of 40 CFR, Part 60, Appendix A.

i. Emission Limitation:

0.84 lb SO<sub>2</sub>/hour (SO<sub>2</sub> lubricant)

Applicable Compliance Method:

The hourly allowable SO<sub>2</sub> emission limitation was established by summing the maximum of 0.11 lb of SO<sub>2</sub>/hour injected in the Lehr and 0.73 lb of SO<sub>2</sub>/hour injected in the flare machines.

If required, the permittee shall demonstrate compliance in accordance with Methods 1 - 4 and 6 of 40 CFR, Part 60, Appendix A.

j. Emission Limitation:

0.36 lbNO<sub>x</sub>/hour (binder combustion)

Applicable Compliance Method:

The hourly allowable NO<sub>x</sub> emission limitation was established by multiplying the maximum phosphor coating application rate of 0.53 gal/1000 lamps by the maximum lamp processing rate of 8000 lamps per hour and by 0.084 lb of NO<sub>x</sub>/gal of binder. This assumes all ammonia in the coating is converted to NO<sub>x</sub>.

If required, the permittee shall demonstrate compliance in accordance with the test methods and procedures in Methods 1- 4 and 7 of 40 CFR, Part 60, Appendix A.

k. Emission Limitation:

0.0004 lb Hg/hour

Applicable Compliance Method:

Compliance with this emission limitation was demonstrated with the results of emissions testing conducted on November 18, 2003.



If required, the permittee shall conduct any future compliance demonstration with the emission limitation in accordance with Methods 1 through 4 and 29 of 40 CFR, Part 60, Appendix A.

I. Emission Limitation:

15.44 tons NO<sub>x</sub>/year (natural gas combustion)

12.97 tons CO/year (natural gas combustion)

0.04 ton PE/year (end brushing)

3.75 tons SO<sub>2</sub>/year (SO<sub>2</sub> lubricant)

1.6 ton NO<sub>x</sub>/year (binder combustion)

0.002 ton Hg/year

Applicable Compliance Method:

The annual emission limitation for each pollutant was determined by multiplying the hourly emission limitation for the specific pollutant by 8760, and then dividing by 2000. Therefore, provided compliance is shown with the hourly emissions limitation, compliance with the annual emissions limitation shall also be demonstrated.

- (2) Formulation data or U.S. EPA Method 24 shall be used to determine the OC/VOC contents of all the coatings and cleanup materials.

g) Miscellaneous Requirements

- (1) None.



**2. P008, L-6**

**Operations, Property and/or Equipment Description:**

L-6 High Speed Horizontal Lamp Assembly Line (Line L) - Coating, End Brushing, Natural Gas Combustion, and Mercury Evacuation with Cyclone and Carbon Adsorber (Modification to increase current permit emission limitations)

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (1) 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) (Administrative modification to PTI P0107607, issued 04/19/2011, to update emissions factors)	<p><u>Coating Emissions:</u>            4.47 lbs organic compounds (OC)/hour*;            19.59 tons OC/year            * see also b)(2)a</p> <p><u>Cleanup Emissions:</u>            2.82 lbs OC/month; 0.02 ton OC/year</p> <p><u>Natural Gas Combustion Emissions:</u>            3.53 lbs nitrogen oxides (NOx)/hour;            15.44 tons NOx/year</p> <p>2.96 lbs carbon monoxide (CO)/hour;            12.97 tons CO/year</p> <p><u>Binder Combustion Emissions:</u>            0.36 lbNOx/hour;            1.6 ton NOx/year</p> <p><u>End Brushing Emissions:</u>            0.01 lb particulate emissions (PE)/hour;            0.04 ton PE/year</p> <p>Visible PE shall not exceed 5% opacity, as a six-minute average.</p> <p><u>SO2 Lubricant Emissions:</u></p>



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		0.84 lb sulfur dioxide (SO <sub>2</sub> )/hr; 3.68 tons SO <sub>2</sub> /yr  <u>Mercury Evacuation System Emissions:</u> 0.0004 lb of Mercury (Hg)/hour; 0.002 ton of Hg/year  See b)(2)a through b)(2)c.
b.	OAC rule 3745-21-09(U)(1)(d)	3.5 pounds of volatile organic compounds (VOC) per gallon of coating, excluding water and exempt solvents [for the coatings used for the metal parts (base cement coatings)]
c.	OAC rule 3745-31-05(D)	Emissions of carbon dioxide equivalents (CO <sub>2</sub> e) from the entire facility shall not exceed 74,000 tons per rolling 12-month period [see Facility-Wide Terms and Conditions – B.2]
d.	OAC rule 3745-17-11(B)(2)	See b)(2)d
e.	OAC rule 3745-17-07(A)(1)	See b)(2)e
f.	OAC rule 3745-18-06(E)	Exempt [see b)(2)f]

(2) Additional Terms and Conditions

- a. The hourly OC emission limitation of 4.47 pounds was established for PTI purposes to reflect the potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and reporting requirements to ensure compliance with this limitation.
- b. The requirements of this rule also include compliance with the requirements of OAC rule 3745-21-09(U)(1)(d) and OAC rule 3745-31-05(D) .
- c. Best available technology (BAT) control requirements have been determined to be the following:
  - i. Use of a cyclone (or fabric filter) for particulate emissions from the end brushing operation; the cyclone (or fabric filter) shall achieve an overall control efficiency of 80%, by weight.
  - ii. Use of a carbon adsorber for mercury emissions from the mercury evacuation system; the carbon adsorber shall achieve a maximum outlet emission rate of 0.0004 pound of mercury per hour.
- d. The uncontrolled mass rate of particulate emissions from this emissions unit is less than 10 lbs/hr. Therefore, pursuant to OAC rule 3745-17-11(A)(2)(a)(ii), Figure II of OAC rule 3745-17-11 does not apply. In addition, Table I of OAC rule



3745-17-11 does not apply because the facility is located in Crawford County, which is identified as a P-2 county.

- e. This emissions unit is exempt from the visible particulate emission limitations specified in OAC rule 3745-17-07(A), pursuant to OAC rule 3745-17-07(A)(3)(h), because OAC rule 3745-17-11 is not applicable.
  - f. The maximum process weight rate for this emissions unit is less than 1000 lbs/hr. Therefore, pursuant to OAC rule 3745-18-06 (C), this emissions unit is exempt from OAC rule 3745-18-06 (E).
  - g. The hourly and annual emission limitations for NO<sub>x</sub>, CO, PE, SO<sub>2</sub> and Hg were established for PTI purposes to reflect the potentials to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and reporting requirements to ensure compliance with these limitations.
  - h. Sections b)(2)a through b)(2)g above are intended for clarification of current regulatory applicability and requirements at the time of permit issuance, and are not intended to address or prohibit any change that could otherwise be processed under OAC rule 3745-77-07(I).
- c) Operational Restrictions
- (1) None.
- d) Monitoring and/or Recordkeeping Requirements
- (1) When coating metal parts, the permittee shall collect and record the following information each month and maintain the information at the facility for a period of three years, for this emissions unit for the coatings used for the metal parts:
    - a. the company name and identification of each coating (base cement) employed;
    - b. the VOC content of each coating (pounds/gallon, excluding water and exempt solvents) employed. [The VOC content excluding water and exempt solvents shall be calculated in accordance with the equation specified in paragraph (B)(8) of OAC rule 3745-21-10 for CVOC,2.]
  - (2) The permittee shall collect and record the following information each month for all OC emissions emitted from lamp processing and base bake operations for this emissions unit:
    - a. the name and identification number of each coating, ink and base cement employed;
    - b. the total number of lamps processed;
    - c. the total number of bases cemented;
    - d. the total OC emissions from the coatings and inks employed, calculated in accordance with the following equation:



$$\text{OC emissions (lbs/month)} = (\text{thousand lamps processed/month}) \times (A + B + C + D + E + F + G + H)$$

where:

A = emission factor for phosphor top coat:  
maximum gallons of coating/1000 lamps (2.54) x maximum OC content in lb/gal (0.0012) = 0.003 lb of OC/1000 lamps

B = emission factor for phosphor base coat:  
maximum gallons of coating/1000 lamps (0.53) x maximum OC content in lb/gal (0.0012) = 0.001 lb of OC/1000 lamps

C = emission factor for monogram ink:  
maximum liters of ink/1000 lamps (0.0021) / 3.78 liters/gallon x maximum OC content in lb/gal (8.09) = 0.0045 lb of OC/1000 lamps

D = emission factor for monogram ink diluent solvent:  
maximum liters of ink/1000 lamps (0.0002) / 3.78 liters/gallon x maximum OC content in lb/gal (9.34) = 0.00049 lb of OC/1000 lamps

E = emission factor for headmarking ink:  
maximum liters of ink/1000 lamps (0.0002) / 3.78 liters/gallon x maximum OC content in lb/gal (5.51) = 0.0003 lb of OC/1000 lamps

F = emission factor for headmarking ink diluent solvent:  
maximum liters of solvent/1000 lamps (0.0025) / 3.78 liters/gallon x maximum OC content in lb/gal (6.76) = 0.00452 lb of OC/1000 lamps

G = emission factor for E-Mix:  
maximum liters of E-Mix/1000 lamps (0.017) / 3.78 liters/gallon x 16.68 lb E-Mix/gallon x maximum OC content weight fraction (0.4) = 0.03 lb of OC/1000 lamps

H = emission factor for Dry-Film:  
maximum grams of Dry-Film/1000 lamps (1.6) / 454g/lb x maximum weight fraction (0.004) = 0.000014 lb of OC/1000 lamps

- e. the total OC emissions from all the base cement employed on this emissions unit, calculated in accordance with the following equation:

$$\text{OC emissions from base bake operations (lbs/month)} = (\text{thousand lamps processed/month}) \times (EF)$$

where

EF = emission factor for base cement:

$$EF (\text{lb OC/1000 bases}) = \text{maximum lbs cement/1000 lamps (4.41)} \times \text{maximum OC content weight fraction (0.093)} \times 0.98^* = 0.402$$



\* 2% of the OC is emitted elsewhere

- f. the total OC emissions from lamp processing and base bake operations per month, calculated in accordance with the following equation:

total OC emissions (tons/month) = {the total OC emissions from lamp processing [from d(2)d.] + the total OC emissions from base bake operations [from d(2)e.]; and

- g. the total OC emissions from lamp processing and base bake operations per year, calculated by summing the monthly OC emissions [from d(2)f.] for the calendar year.

- (3) The permittee shall collect and record the following information each month for all the cleanup materials employed in this emissions unit:

- a. the name and identification of each cleanup material employed;
- b. the OC content of each cleanup material employed, in pounds per gallon;
- c. the number of gallons of each cleanup material employed;
- d. the OC emissions from each cleanup material employed [d(3)b x d(3)c];
- e. the total OC emissions per month from all the cleanup materials employed [summation of d(3)d for all cleanup materials], in pounds; and
- f. the total OC emissions per calendar year from all cleanup materials employed, calculated by summing the monthly OC emissions from d(3)e. and dividing by 2000 lbs/ton.

- (4) The permittee shall monitor at least once every fifteen minutes the pressure drop across the carbon adsorber serving the vacuum pump, and across the baghouse(s) (fabric filter) serving the end brushing operation, during operation of this emissions unit, and record the average of those values over the period during which this emissions unit operates each day. For purposes of this requirement, the permittee shall record one average total pressure drop value for each control device each day, for a period beginning at midnight or such time after midnight when the emissions unit begins to operate and ending at the time the emissions unit ceases that day or at midnight should the emissions unit operate beyond midnight. If the emissions unit starts and stops more than once during this 24-hour period, the permittee shall record the average value for the time during this 24-hour period when the emissions unit is in operation. Hereinafter this value shall be called a "Daily Pressure Drop Value".

Whenever the Daily Pressure Drop Value is outside of the applicable range specified below (hereinafter the "Pressure Drop Range"), the permittee shall promptly conduct an investigation to determine if there is a malfunction of the carbon adsorber or either baghouse (whichever is producing a Daily Pressure Drop Value outside of its Pressure Drop Range), and if so, comply with the requirements of OAC rule 3745-15-06. For each such occasion (i.e. when a Daily Pressure Drop Value is outside of its Pressure



Drop Range), the permittee shall record the number of days during which the Daily Pressure Drop Value remained outside of its Pressure Drop Range and a description of the maintenance or repairs, if any, made to the carbon adsorber or either baghouse(s). If upon the investigation the permittee determines there is no malfunction that is subject to OAC rule 3745-15-06, the permittee shall also maintain records documenting the basis for such determination.

The Pressure Drop Ranges are:

- a. for the carbon adsorber, 0.01 to 5.0 inches of water.
  - b. for the P008 baghouse, 0.2 to 6.0 inches of water.
- (5) These Pressure Drop Ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA, Northwest District Office. The permittee may request revisions to the range(s) based upon information that demonstrates compliance with the allowable mercury emission rate (for the carbon adsorber) or particulate emission rate (for the baghouse) for this emissions unit. If the permittee submits a written request to establish a new Pressure Drop Range, Ohio EPA shall promptly evaluate and act on that request and, if approved, incorporate the new range into this permit as a minor permit modification.

e) Reporting Requirements

- (1) The permittee shall notify the Northwest District Office in writing of any monthly record showing the use of base cement exceeding 3.5 pounds of volatile organic compounds (VOC) per gallon of coating, excluding water and exempt solvents. The notification shall include a copy of such record and shall be sent to the Northwest District Office within 30 days following the end of the calendar month.
- (2) The permittee shall submit semiannual reports that identify the following information concerning the operation of the carbon adsorber during operation of this emissions unit:
  - a. the total duration (in days) that its Daily Pressure Drop Value was outside of its applicable Pressure Drop Range; and
  - b. any and all omissions of the monitoring, record keeping, investigation, and malfunction reporting requirements specified in d)(4).

These semiannual reports shall be submitted by January 31 for the six-month period ending December 31 and by July 31 for the six-month period ending June 30.

- (3) The permittee shall submit semiannual reports that identify the following information concerning the operation of the baghouse (fabric filter) during operation of this emissions unit:
  - a. the total duration (in days) that its Daily Pressure Drop Value was outside of its applicable Pressure Drop Range; and



- b. any and all omissions of the monitoring, record keeping, investigation, and malfunction reporting requirements specified in d)(4).

These semiannual reports shall be submitted by January 31 for the six-month period ending December 31 and by July 31 for the six-month period ending June 30.

- (4) The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following limitations:

- a. the monthly OC emission limitation of 2.82 pounds (from cleanup materials).

The permittee shall submit these reports in accordance with the Standard Terms and Conditions of this permit.

- (5) The permittee shall submit annual reports that summarize the actual annual OC emissions from lamp processing and base bake operations for this emissions unit for the previous calendar year. These reports shall be submitted by January 31 of each year.
- (6) The permittee shall submit annual reports that summarize the actual annual OC emissions from cleanup for this emissions unit for the previous calendar year. These reports shall be submitted by January 31 of each year.
- (7) The permittee shall submit quarterly summaries that include a log of the downtime for the capture (collection) system, control device and monitoring equipment when the associated emissions unit was in operation.

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:

4.47 lbs OC/hour

Applicable Compliance Method:

The hourly allowable OC emission rate was established based on the summation of the OC emissions generated during lamp manufacturing and OC emissions generated during lamp base bake operations. Emissions of OC resulting from combustion and clean up at this source are excluded from this limit. The following outlines potential emissions generated during each process:

- i. Lamp manufacturing - the potential to emit for lamp manufacturing is 0.35 lbs of OC per hour based on the summation of emissions from the following components of the line and a maximum lamp manufacturing rate of 8000 lamps per hour:



Phosphor Top Coating – 0.024 pounds of OC per hour (based on a maximum coating usage rate of 2.54 gal/1000 lamps and a maximum OC content of 0.0012 lb VOC/gal).

Phosphor Base Coating – 0.005 pounds of OC per hour (based on a maximum coating usage rate of 0.53 lb/1000 lamps and a maximum OC content of 0.0012 lb VOC/gal).

Monogram Ink - 0.04 pound of OC per hour (based on a maximum ink usage rate of 0.0021 liters/1000 lamps and a maximum OC content of 8.09 lb/gal, plus a maximum diluent usage rate of 0.002 liters/1000 lamps and a maximum OC content of 9.34 lb/gal).

Headmarking Ink - 0.039 pound of OC per hour (based on a maximum ink usage rate of 0.0002 liters/1000 lamps and a maximum OC content of 5.51 lb/gal, plus a maximum diluent solvent usage rate of 0.0025 liters/1000 lamps and maximum OC content of 6.76 lb/gal).

E-Mix - 0.24 pound of OC per hour (based on a maximum usage rate of 0.02 liters/1000 lamps and a maximum OC content of 40% by weight).

Dri-Film - 0.000011 pound of OC per hour (based on a maximum usage rate of 1.6 grams/1000 lamps and a maximum OC content of 0.4% by weight).

- ii. Lamp base bake operations - the potential to emit for lamp base bake operations on this emissions unit is 3.22 lbs of OC per hour based on a maximum lamp base baking rate of 16,000 bases per hour and a maximum cement usage rate of 4.41 lbs/1000 bases, a maximum OC content of 9.32 % by weight and a maximum emission rate of 98% (98% for this emissions unit, i.e. 2% of the OC is emitted during base cement mixing).

If required, the permittee shall demonstrate compliance in accordance with Methods 1 - 4, 18, 25, or 25A, as appropriate, of 40 CFR, Part 60, Appendix A.

b. Emission Limitation:

21.48 tons OC/year

Applicable Compliance Method:

Compliance with the OC emission limitation above shall be demonstrated based on the monitoring and record keeping requirements established in d)(2).

c. Emission Limitation:

2.82 lbs OC/month, from cleanup materials



Applicable Compliance Method:

Compliance with the OC emission limitation above shall be demonstrated based on the monitoring and record keeping requirements established in d)(3).

d. Emission Limitation:

0.02 ton OC/year, from cleanup materials

Applicable Compliance Method:

Compliance with the OC emission limitation above shall be demonstrated based on the monitoring and record keeping requirements established in d)(3) and shall be the summation of the 12 OC emission rates for the calendar year.

e. Emission Limitation:

3.53 lbsNO<sub>x</sub>/hour (natural gas combustion)

Applicable Compliance Method:

The hourly allowable NO<sub>x</sub> emission limitation was established by multiplying the maximum natural gas usage rate of 35,257 cu. ft /hr by the AP-42 emission factor of 100 lbs of NO<sub>x</sub>/mm cu. ft (AP-42, Section 1.4, Table 1.4-1 [revised 7/98]).

If required, the permittee shall demonstrate compliance in accordance with Methods 1- 4 and 7 of 40 CFR, Part 60, Appendix A.

f. Emission Limitation:

2.96 lb CO/hour (natural gas combustion)

Applicable Compliance Method:

The hourly allowable CO emission limitation was established by multiplying the maximum natural gas usage rate of 35,257 cu. ft /hr by the AP-42 emission factor of 84 lbs of CO/mm cu. ft (AP-42, Section 1.4, Table 1.4-1 [revised 7/98]).

If required, the permittee shall demonstrate compliance in accordance with Methods 1- 4 and 10 of 40 CFR, Part 60, Appendix A.

g. Emission Limitation:

0.01 lb PE/hour (end brushing)

Applicable Compliance Method:

The hourly allowable PE limitation was established by multiplying the maximum phosphor coating application rate of 12.56 lbs/1000 lamps by the production rate of 8000 lamps per hour, a removal rate of 1% of the phosphor applied, and then multiplying by a control factor (1-0.99\*).



If required, the permittee shall demonstrate compliance in accordance with Methods 1- 5 of 40 CFR, Part 60, Appendix A.

\* thebaghouse control efficiency is assumed to be  $\geq 99\%$ .

h. Emission Limitation:

Visible PE shall not exceed 5% opacity, as a six-minute average (end brushing)

Applicable Compliance Method:

If required, compliance shall be determined in accordance with the test method and procedures in Method 9 of 40 CFR, Part 60, Appendix A.

i. Emission Limitation:

0.84 lb SO<sub>2</sub>/hour (SO<sub>2</sub> lubricant)

Applicable Compliance Method:

The hourly allowable SO<sub>2</sub> emission limitation was established by summing the maximum of 0.11 lb of SO<sub>2</sub>/hour injected in the Lehr and 0.73 lb of SO<sub>2</sub>/hour injected in the flare machines.

If required, the permittee shall demonstrate compliance in accordance with Methods 1 - 4 and 6 of 40 CFR, Part 60, Appendix A.

j. Emission Limitation:

0.35 lbNO<sub>x</sub>/hour (binder combustion)

Applicable Compliance Method:

The hourly allowable NO<sub>x</sub> emission limitation was established by multiplying the maximum phosphor base coating application rate of 0.53 gal/1000 lamps by the maximum lamp processing rate of 8000 lamps per hour and by 0.084 lb of NO<sub>x</sub>/gal of binder. This assumes all ammonia in the coating is converted to NO<sub>x</sub>.

If required, the permittee shall demonstrate compliance in accordance with the test methods and procedures in Methods 1- 4 and 7 of 40 CFR, Part 60, Appendix A.

k. Emission Limitation:

0.0004 lb Hg/hour

Applicable Compliance Method:

Compliance with this emission limitation was demonstrated with the results of emissions testing conducted on November 18, 2003.



If required, the permittee shall conduct any future compliance demonstration with the emission limitation in accordance with Methods 1 through 4 and 29 of 40 CFR, Part 60, Appendix A.

I. Emission Limitation:

15.44 tons NO<sub>x</sub>/year (natural gas combustion)

12.97 tons CO/year (natural gas combustion)

0.79 ton PE/year (end brushing)

3.68 tons SO<sub>2</sub>/year (SO<sub>2</sub> lubricant)

1.6 ton NO<sub>x</sub>/year (binder combustion)

0.002 ton Hg/year

Applicable Compliance Method:

The annual emission limitation for each pollutant was determined by multiplying the hourly emission limitation for the specific pollutant by 8760, and then dividing by 2000. Therefore, provided compliance is shown with the hourly emissions limitation, compliance with the annual emissions limitation shall also be demonstrated.

- (2) Formulation data or U.S. EPA Method 24 shall be used to determine the OC/VOC contents of all the coatings and cleanup materials.

g) Miscellaneous Requirements

- (1) None.



**3. P035, L-7**

**Operations, Property and/or Equipment Description:**

L-7 High Speed Horizontal Lamp Assembly Line - HSH IV (Modification to increase current permit emission limitations)

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)f. and d)(1).

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.	ORC 3704.03(T) (Administrative modification to PTI P0105519, issued 04/20/2010, to update emissions factors)	22.33 tons organic compounds (OC)/rolling, 12-month period from coating and cleanup operations  0.47 lb Nitrogen Oxide (NOx)/1000 bulbs from natural gas combustion and binder combustion  0.37 lb Carbon Monoxide (CO)/1000 bulbs from natural gas combustion
b.	OAC rule 3745-21-09 (U)(1)(d)	3.5 pounds of volatile organic compounds (VOC) per gallon of coating, excluding water and exempt solvents [for the coatings used for the metal parts (base cement coatings)]
c.	OAC rule 3745-31-05(D)	Emissions of carbon dioxide equivalents (CO <sub>2</sub> e) from the entire facility shall not exceed 74,000 tons per rolling 12-month period [see Facility-Wide Terms and Conditions – B.2]
d.	OAC rule 3745-17-11 (B)(2)	See b)(2)a.
e.	OAC rule 3745-17-07 (A)(1)	See b)(2)b.
f.	OAC rule 3745-18-06 (E)	Exempt [see b)(2)c.]
g.	ORC 3704.03 (F)(3)(c) & (F) (4)	See d)(1)
h.	OAC rule 3745-31-05(A)(3), as effective 11/30/01	0.01 lb particulate less than 10 micron in size (PM <sub>10</sub> )/hr& 0.04 ton PM <sub>10</sub> /yr from end brushing [see b)(2)i.]



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		Visible particulate emissions PE from end brushing shall not exceed 5% opacity, as a six-minute average.  1.21 lbs sulfur dioxide (SO <sub>2</sub> )/hr & 5.30 tons SO <sub>2</sub> /yr from sulfur lubricant operations  See b)(2)d. and b)(2)e.
i.	OAC rule 3745-31-05 (A)3(a)(ii), as effective 12/01/06	See b)(2)f.

(2) Additional Terms and Conditions

- a. The uncontrolled mass rate of particulate emissions (PE) is less than 10 lbs/hr. Therefore, pursuant to OAC rule 3745-17-11 (A)(2)(a)(ii), Figure II of OAC rule 3745-17-11 does not apply. In addition, Table I of OAC rule 3745-17-11 does not apply because the facility is located in Crawford County, which is identified as a P-2 county.
- b. This emissions unit is exempt from the visible particulate emission limitations specified in OAC rule 3745-17-07 (A), pursuant to OAC rule 3745-17-07 (A)(3)(h), because OAC rule 3745-17-11 is not applicable.
- c. The maximum process weight rate for this emissions unit is less than 1000 lbs/hr. Therefore, pursuant to OAC rule 3745-18-06 (C), this emissions unit is exempt from OAC rule 3745-18-06.
- d. The BAT requirements under OAC rule 3745-31-05(A)(3), effective 11/30/01 have been determined to the following:
  - i. The following mass emission rate limitations:
    - (a) 0.01 lb PM<sub>10</sub>/hr & 0.04 ton PM<sub>10</sub>/yr from end brushing; and
    - (b) 1.21 lbs sulfur dioxide SO<sub>2</sub>/hr & 5.30 tons SO<sub>2</sub>/hr from sulfur lubricant operations.
  - ii. Use of a baghouse (fabric filter) for particulate emissions from the end brushing operation; the fabric filter shall achieve an overall control efficiency of 99%, by weight;
  - iii. compliance with OAC rule 3745-21-09(U)(1)(d); and
  - iv. compliance with OAC rule 3745-31-05(D).



e. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05 (A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutant less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then these emission limits/control measures no longer apply.

f. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM10 and SO2 emissions from this air contaminant source since the uncontrolled potential to emit for PM10 and SO2 is less than 10 tons/year.

The potential to emit PM10 is 0.04 tons per year and was calculated by multiplying a maximum phosphor coating application rate of 12.56 lbs/1000 lamps by a maximum lamp production rate of 8500 lamps per hour and a removal rate of 1% of the phosphor applied. The potential to emit does not take into account the use of a baghouse as required under OAC rule 3745-31-05(A)(3), as effective 11/30/01.

The potential to emit SO2 is 5.3 tons per year and is the summation of SO2 emissions from the glass tube flare machine operations and the Lehr Oven. These emissions were calculated as follows:

Glass Tube Flaring Operations - multiplying the maximum material usage rate of 0.00013 lb material/bulb by an emission rate of 1.0 lbs SO2/bulb by a maximum bulb production rate of 8500 bulbs/hr.

g. Sections b)(2)a. through b)(2)g. above are intended for clarification of current regulatory applicability and requirements at the time of permit issuance, and are not intended to address or prohibit any change that could otherwise be processed under OAC rule 3745-77-07 (I).

h. All emissions of particulate matter are PM10.

c) Operational Restrictions

(1) None.



d) Monitoring and/or Recordkeeping Requirements

- (1) Modeling to demonstrate compliance with, the "Toxic Air Contaminant Statute", ORC 3704.03(F)(4)(b), was not necessary because the emissions unit's maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit-to-install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would cause the emissions of any toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new permit-to-install.
- (2) When coating metal parts, the permittee shall collect and record the following information each month and maintain the information at the facility for a period of three years, for this emissions unit for the coatings used for the metal parts:
  - a. the company name and identification of each coating (base cement) employed; and
  - b. the VOC content of each coating (pounds/gallon, excluding water and exempt solvents) employed. [The VOC content excluding water and exempt solvents shall be calculated in accordance with the equation specified in paragraph (B)(8) of OAC rule 3745-21-10 for CVOC,2.]
- (3) The permittee shall collect and record the following information each month for all OC emissions emitted from lamp processing and base bake operations for this emissions unit:
  - a. the name and identification number of each coating, ink and base cement employed;
  - b. the total number of lamps processed;
  - c. the total number of bases cemented;
  - d. the total OC emissions from the coatings and inks employed, calculated in accordance with the following equation:  
$$\text{OC emissions (lbs/month)} = (\text{thousand lamps processed/month}) \times (\text{A} + \text{B} + \text{C} + \text{D} + \text{E} + \text{F} + \text{G} + \text{H})$$

where:

A = emission factor for phosphor top coat:  
maximum gallons of coating/1000 lamps (3.2) x maximum OC content in lb/gal (0.0012) = 0.0038 lb of OC/1000 lamps

B = emission factor for phosphor base coat:  
maximum gallons of coating/1000 lamps (0.659) x maximum OC content in lb/gal (0.0012) = 0.0008 lb of OC/1000 lamps



C = emission factor for monogram ink:  
maximum liters of ink/1000 lamps (0.0021) / 3.78 liters/gallon x maximum OC content in lb/gal (8.09) = 0.0045 lb of OC/1000 lamps

D = emission factor for monogram ink diluent solvent:  
maximum liters of ink/1000 lamps (0.0002) / 3.78 liters/gallon x maximum OC content in lb/gal (9.34) = 0.00049 lb of OC/1000 lamps

E = emission factor for headmarking ink:  
maximum liters of ink/1000 lamps (0.0002) / 3.78 liters/gallon x maximum OC content in lb/gal (5.51) = 0.00029 lb of OC/1000 lamps

F = emission factor for headmarking ink diluent solvent:  
maximum liters of solvent/1000 lamps (0.0025) / 3.78 liters/gallon x maximum OC content in lb/gal (6.76) = 0.00452 lb of OC/1000 lamps

G = emission factor for E-Mix:  
maximum liters of E-Mix/1000 lamps (0.017) / 3.78 liters/gallon x 16.68 lb E-Mix/gallon x maximum OC content weight fraction (0.4) = 0.03 lb of OC/1000 lamps

H = emission factor for Dry-Film:  
maximum grams of Dry-Film/1000 lamps (2.0) / 454g/lb x maximum weight fraction (0.004) = 1.76E-05 lb of OC/1000 lamps; and

- e. the total OC emissions from all the base cement employed on this emissions unit, calculated in accordance with the following equation:

OC emissions from base bake operations (lbs/month) = (thousand lamps processed/month) x (EF)

where

EF = emission factor for base cement:

EF (lb OC/1000 bases) = maximum lbs cement/1000 lamps (4.40) x maximum OC content weight fraction (0.093) x 0.98\* = 0.411

\* 2% of the OC is emitted elsewhere

- (4) The permittee shall collect and record the following information each month for all the cleanup materials employed in this emissions unit:
  - a. the name and identification of each cleanup material employed;
  - b. the OC content of each cleanup material employed, in pounds per gallon;
  - c. the number of gallons of each cleanup material employed;
  - d. the OC emissions from each cleanup material employed [d)(4)b. x d)(4)c.];



- e. the total OC emissions per month from all the cleanup materials employed [summation of d)(4)d. for all cleanup materials], in pounds.
- (5) The permittee shall collect and record the following each month for total OC emissions for this emissions unit:
- a. the total OC emissions each month calculated as follows:  
  
$$\text{total OC emissions (tons/month)} = \{ \text{the total OC emissions from lamp processing [from d)(3)d]} + \text{the total OC emissions from base bake operations [from d)(3)e]} + \text{the total OC emissions from cleanup materials usage [from d)(4)e]} / 2000;$$
  - b. the rolling, 12-month summation of OC emissions.
- (6) The permittee shall monitor at least once every fifteen minutes the pressure drop across the baghouse (fabric filter) serving the end brushing operation during operation of this emissions unit, and record the average of those values over the period during which this emissions unit operates each day. For purposes of this requirement, the permittee shall record one average total pressure drop value for the control device each day, for a period beginning at midnight or such time after midnight when the emissions unit begins to operate and ending at the time the emissions unit ceases that day or at midnight should the emissions unit operate beyond midnight. If the emissions unit starts and stops more than once during this 24-hour period, the permittee shall record the average value for the time during this 24-hour period when the emissions unit is in operation. Hereinafter this value shall be called a "Daily Pressure Drop Value".

Whenever the Daily Pressure Drop Value is outside of the applicable range specified below (hereinafter the "Pressure Drop Range"), the permittee shall promptly conduct an investigation to determine if there is a malfunction of the baghouse, and if so, comply with the requirements of OAC rule 3745-15-06. For each such occasion (i.e. when a Daily Pressure Drop Value is outside of its Pressure Drop Range), the permittee shall record the number of days during which the Daily Pressure Drop Value remained outside of its Pressure Drop Range and a description of the maintenance or repairs, if any, made to the baghouse. If upon the investigation the permittee determines there is no malfunction that is subject to OAC rule 3745-15-06, the permittee shall also maintain records documenting the basis for such determination.

The Pressure Drop Range is:

- a. for the end brushing baghouse, 0.2 to 6.0 inches of water.
- (7) The pressure drop range is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA, Northwest District Office. The permittee may request revisions to the range(s) based upon information that demonstrates compliance with the allowable particulate emission rate (for the baghouse) for this emissions unit. If the permittee submits a written request to establish a new pressure drop range, Ohio EPA shall promptly evaluate and act on that request and, if approved, incorporate the new range into this permit as a minor permit modification.



e) Reporting Requirements

- (1) The permittee shall notify the Northwest District Office in writing of any monthly record showing the use of base cement exceeding 3.5 pounds of volatile organic compounds (VOC) per gallon of coating, excluding water and exempt solvents. The notification shall include a copy of such record and shall be sent to the Northwest District Office within 30 days following the end of the calendar month.
- (2) The permittee shall submit semiannual reports that identify the following information concerning the operation of the baghouse (fabric filter) during operation of this emissions unit:
  - a. the total duration (in days) that its Daily Pressure Drop Value was outside of its applicable Pressure Drop Range; and
  - b. any and all omissions of the monitoring, record keeping, investigation, and malfunction reporting requirements specified in d)(6) of this permit.

These semiannual reports shall be submitted by January 31 for the six-month period ending December 31 and by July 31 for the six-month period ending June 30

- (3) The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the rolling, 12-month OC emissions limitation of 22.33 tons.
- (4) The permittee shall submit quarterly summaries that include a log of the downtime for the capture (collection) system, control device and monitoring equipment when the associated emissions unit was in operation.
- (5) Quarterly reports and summaries, annual reports, and semiannual reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit, and shall be submitted electronically through Ohio EPA Air Services, by the dates indicated for each type of submission.

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:  
22.33 tons OC/rolling, 12-month period  
Applicable Compliance Method:  
Compliance with the OC emission limitation above shall be demonstrated based on the monitoring and recordkeeping established in section d)(5) of this permit.
  - b. Emission Limitation:  
0.47 lbNO<sub>x</sub>/1000 bulbs from natural gas combustion and binder combustion



Applicable Compliance Method:

The allowable NOx emission limitation was established by summing NOx emissions from natural gas combustion as well as emissions from the binder combustion as calculated below:

Natural gas combustion emissions were determined by multiplying the maximum natural gas usage rate of 35,257 cubic feet/hr by the AP-42 emission factor of 100 lbs of NOx/mm cu. ft (AP-42, Section 1.4, Table 1.4-1 [revised 7/98]), dividing by 8500 lamps/hr and multiply by a factor of 1000.

NOx emissions from the binder combustion were determined by multiplying the maximum phosphor base coating application rate of 0.66 gallons phosphor base coating/1000 lamps, by 0.084 lb of NOx/lb of binder.

If required, the permittee shall demonstrate compliance in accordance with the test methods and procedures in Methods 1-4 and 7 of 40 CFR, Part 60, Appendix A.

c. Emission Limitation:

0.01 lb PM10/hr

Applicable Compliance Method:

The hourly allowable PM10 limitation was established by multiplying the maximum phosphor coating application rate of 12.56 lbs/1000 lamps by the production rate of 8500 lamps per hour, a removal rate of 1% of the phosphor applied, and then multiplying by a control factor (1-0.99\*).

If required, the permittee shall demonstrate compliance in accordance with Methods 1-4 of 40 CFR, Part 60, Appendix A and Methods 201/201A and 202 of 40 CFR, Part 51, Appendix M.

\*the baghouse control efficiency is assumed to be 99%

d. Emission Limitation:

Visible PE shall not exceed 5% opacity, as a six-minute average (end brushing)

Applicable Compliance Method:

If required, compliance shall be determined in accordance with the test method and procedures in Method 9 of 40 CFR, Part 60, Appendix A.

e. Emission Limitation:

0.37 lb CO/1000 bulbs from natural gas combustion



Applicable Compliance Method:

The allowable CO emission limitation was established by multiplying the maximum natural gas usage rate of 35,257 cu. ft/hr by the AP-42 emission factor of 84 lbs of CO/mm cu.ft (AP-42, Section 1.4, Table 1.4-1 [revised 7/98]), dividing by 8500 bulbs/hour and multiplying by a factor of 1000.

If required, the permittee shall demonstrate compliance in accordance with the Methods 1-4 and 10 of 40 CFR, Part 60, Appendix A.

f. Emission Limitation:

1.21 lbs SO<sub>2</sub>/hr

Applicable Compliance Method:

The hourly allowable SO<sub>2</sub> emission limitation was established by summing the maximum of 0.11 lb of SO<sub>2</sub>/hr injected in the Lehr and 1.1 lbs SO<sub>2</sub>/hr injected in the flare machines.

If required, the permittee shall demonstrate compliance in accordance with Methods 1-4 and 6 of 40 CFR, Part 60, Appendix A.

g. Emission Limitations:

0.04 ton PM<sub>10</sub>/yr  
5.30 tons SO<sub>2</sub>/yr

Applicable Compliance Method:

The annual emission limitation for each pollutant was determined by multiplying the hourly emission limitation for the specific pollutant by 8760, and then dividing by 2000. . Therefore, provided compliance is shown with the hourly emissions limitation, compliance with the annual emissions limitation shall also be demonstrated.

h. Emission Limitation:

3.5 pounds of VOC/gallon of coating, excluding water and exempt solvents [for the coatings used for the metal parts (base cement coatings)]

Applicable Compliance Method:

Compliance with the OC emission limitation above shall be demonstrated based on the monitoring and recordkeeping established in section d)(2) of this permit.

- (2) Formulation data or U.S. EPA Method 24 shall be used to determine the OC/VOC contents of all the coatings and cleanup materials.



**Draft Permit-to-Install**  
GE Lighting Inc - Bucyrus Lamp Plant  
**Permit Number:** P0114046  
**Facility ID:** 0317010010  
**Effective Date:** To be entered upon final issuance

g) Miscellaneous Requirements

- (1) None.