Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

Certified Mail

6/15/2010

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	SYNTHETIC MINOR TO AVOID TITLE V
No	FEDERALLY ENFORCABLE PTIO (FEPTIO)

Curt Shaffer
Gregory Galvanizing & Metal Processing, Inc.
1218 15th Street SW
Canton, OH 44706

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL AND OPERATE
Facility ID: 1576055013
Permit Number: P0106335
Permit Type: Initial Installation
County: Stark

Dear Permit Holder:

Enclosed please find a final Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully. Please complete a survey at www.epa.ohio.gov/dapc/permitsurvey.aspx and give us feedback on your permitting experience. We value your opinion.

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

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, OH 43215

If you have any questions, please contact Canton City Health Department at (330)489-3385 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. This permit can be accessed electronically on the DAPC Web page, www.epa.ohio.gov/dapc, by clicking the "Issued Air Pollution Control Permits" link.

Sincerely,

Michael W. Ahern

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

Cc: Canton

50 West Town Street, Suite 700
P.O. Box 1049
Columbus, OH 43216-1049

614 | 644 3020
614 | 644 3184 (fax)
www.epa.ohio.gov

Ohio Environmental Protection Agency

FINAL

Division of Air Pollution Control
Permit-to-Install and Operate
for
Gregory Galvanizing & Metal Processing, Inc.

Facility ID: 1576055013
Permit Number: P0106335
Permit Type: Initial Installation
Issued: 6/15/2010
Effective: 6/15/2010
Expiration: 6/15/2020

Ohio Environmental Protection Agency

Division of Air Pollution Control
Permit-to-Install and Operate
for
Gregory Galvanizing & Metal Processing, Inc.

Table of Contents

Authorization

Facility ID: 1576055013
Application Number(s): A0039280
Permit Number: P0106335
Permit Description: Installation of a new batch dip zinc galvanizing line for steel posts. The new equipment will include 1 caustic cleaning tank, 3 acid cleaning/pickling tanks, 2 rinse tanks, 1 pre-flux tank, 1 molten zinc tank, and 1 final quenching/cooling tank. PM emissions of HCl from the acid tanks will be reduced by 60% by means of an anti-vapor additive to the tank solution. The zinc will be melted by a 7.6 million BTU/hr natural gas-fired kettle furnace with low-NOx, pulse-fired burners.
Permit Type: Initial Installation
Permit Fee: $1,000.00
Issue Date: 6/15/2010
Effective Date: 6/15/2010
Expiration Date: 6/15/2020
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

Gregory Galvanizing & Metal Processing, Inc.
1218 15th Street SW
Canton, OH 44706

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

Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Canton City Health Department
420 Market Avenue
Canton, OH 44702-1544
(330)489-3385

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

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Chris Korleski
Director

Authorization (continued)

Permit Number: P0106335
Permit Description: Installation of a new batch dip zinc galvanizing line for steel posts. The new equipment will include 1 caustic cleaning tank, 3 acid cleaning/pickling tanks, 2 rinse tanks, 1 pre-flux tank, 1 molten zinc tank, and 1 final quenching/cooling tank. PM emissions of HCl from the acid tanks will be reduced by 60% by means of an anti-vapor additive to the tank solution. The zinc will be melted by a 7.6 million BTU/hr natural gas-fired kettle furnace with low-NOx, pulse-fired burners.

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

Emissions Unit ID:	**P001**
Company Equipment ID:	Batch dip zinc galvanizing line
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

A. Standard Terms and Conditions

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

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

2. Who is responsible for complying with this permit?

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.
The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. What records must I keep under this permit?

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

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

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

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

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

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

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

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

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

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

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

7. What reports must I submit under this permit?

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

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

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).
The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

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

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

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

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the Canton City Health Department in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted

emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.
If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

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

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

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

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31.
You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting[1] a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emissions unit once the certification has been submitted to Ohio EPA by the authorized official.
You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.
Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

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

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

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

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated

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

under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

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

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

B. Facility-Wide Terms and Conditions

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

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

      (1) None.

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

      (1) None.

C. Emissions Unit Terms and Conditions

1. P001, Batch dip zinc galvanizing line

Operations, Property and/or Equipment Description:

Batch dip zinc galvanizing line for steel posts, including 1 caustic cleaning tank, 3 acid cleaning/pickling tanks, 2 rinse tanks, 1 pre-flux tank, 1 molten zinc tank, and 1 final quenching/cooling tank. PM emissions of HCl from the acid tanks will be reduced 60% by means of an anti-vapor additive to the tank solution. The zinc will be melted by a 7.6 million BTU/hr natural gas-fired kettle furnace with low-NOx, pulse-fired burners.

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

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

a. b)(1)c.

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

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(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. 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), as effective 11/30/01 [Best Available Technology (BAT)]	Total particulate emissions (PE) shall not exceed 2.83 lb/hr and 12.40 tons per year. PM_{10} emissions shall not exceed 2.13 lb/hr and 9.33 tons per year. Nitrogen oxides (NO_x) emissions from the kettle furnace shall not exceed 0.75 lb/hr and 3.29 tons per year. Carbon monoxide (CO) emissions from the kettle furnace shall not exceed 0.63 lb/hr and 2.76 tons per year. Total hazardous air pollutant (HAP)

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		emissions shall not exceed 0.11 lb/hr and 0.48 tons per year. See b)(2)a. thru b)(2)c.
b.	OAC rule 3745-31-05(A)(3)(b), as effective 12/01/06 [less than 10 tpy BAT exemption]	See b)(2)d.
c.	ORC 3704.03(F)(4)(b) [Toxic Air Contaminant Statute]	Exempt. See b)(2)e. if b)(1)a. [BAT] is applicable, or, See b)(2)d.ii. and b)(2)e. if b)(1)b. [less than 10 tpy BAT exemption] is applicable.
d.	OAC rule 3745-17-07(B)(1)	Visible emissions of fugitive dust from this emissions unit shall not exceed 20% opacity as a three-minute average
e.	OAC rule 3745-17-08(B) [RACM for fugitive dust in Appendix A areas]	OAC rule 3745-17-08(C) See b)(2)f.

(2) Additional Terms and Conditions

a. At all times the emissions unit is in operation, the HCl pickling tanks shall be operated using an anti-vapor additive to reduce HCl emissions by a minimum of 60% compared with no additive.

b. The kettle furnace shall use controlled, low-NO_x, pulse-fired burners.

c. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC rule 3745-31-05(A)(3), as effective November 30, 2001. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform with ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for sources having potential to emit, taking into account controls, less than ten tons per year of emissions of an NAAQS pollutant or precursor. 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 requirements to satisfy BAT still exist as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then the emission limits listed above in b)(1)a. no longer apply. Mass emission and other limits will apply under different rules (see next section, b)(2)d.)

d. This rule (less than 10 tpy BAT exemption) only applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State

Implementation Plan. In that case only, the following Terms and Conditions will apply:

i. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE/PM_{10}, NO_x, and CO emissions from this air contaminant source since the uncontrolled potential to emit for PE/PM_{10}, NO_x, and CO is less than ten tons per year each. [3745-31-05(A)(3)(a)(ii)]

ii. This permit will take into account the following voluntary restrictions as proposed by the permittee for the purpose of avoiding state Air Toxics Modeling requirements (see explanation in b)(2)e. below):

(a) At all times the emissions unit is in operation, the HCl pickling tanks shall be operated using an anti-vapor additive to reduce HCl emissions by a minimum of 60% compared with no additive.

(b) HCl emissions shall not exceed 0.99 tons per year.

e. 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 the Ohio Modeling Significant Emission Rate (SER) of 1.0 ton per year.* [ref. Ohio EPA DAPC Engineering Guide #69, Table 3]

OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified PTIOs 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 PTIO.

*Note: Hydrogen chloride (HCl) is the only relevant toxic air contaminant with respect to potential modeling requirements for this emissions unit, because its uncontrolled potential-to-emit is 1.05 tpy and all other toxic air contaminants are well below the 1.0 tpy SER. The use of the anti-vapor additive in the acid tanks, as required in b)(2)a. under the BAT rule or in b)(2)d.ii.(a) under the less than 10 tpy BAT exemption, is a necessary control in order to keep the potential-to-emit for HCl below 1.0 tpy.

[ORC 3704.03(F)(3)(c) and F(4)]

f. The permittee shall take or install reasonably available control measures to minimize visible particulate emissions of fugitive dust from the galvanizing process into the ambient air. Such reasonably available control measures shall include, but not be limited to, the following:

i. The use of water or other suitable dust suppression chemicals for the control of fugitive dust from construction operations for the galvanizing process.

ii. Minimize the amount of time that windows and doors are open when the emissions unit is in operation. Reasonable consideration may be given to

allow doors and windows to be open if required for worker comfort and safety during hot weather conditions.

[OAC 3745-17-08(B) and Ohio EPA DAPC Engineering Guide No. 75, Scenario No. 16]

c) Operational Restrictions

(1) The permittee shall burn only natural gas in the kettle furnace for this emissions unit.

(2) The permittee shall maintain the HCl tanks with an anti-vapor additive at a concentration recommended by the manufacturer.

d) Monitoring and/or Recordkeeping Requirements

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

(2) The permittee shall maintain records of each addition of anti-vapor solution and each addition of HCl used as make-up solution. The date of each addition, as well as the volume of HCl and anti-vapor solution shall be recorded. These records shall be maintained by the permittee in accordance with the Standard Terms and Conditions of this permit.

(3) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible emissions of fugitive dust from the galvanizing process from the egress points (i.e., building windows, doors, vents, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. the location and color of the emissions;

b. whether the emissions are representative of normal operations;

c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;

d. the total duration of any visible emissions incident; and

e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

[OAC rule 3745-17-07(B)]

(4) The permittee may, upon receipt of written approval from the Canton local air agency (Canton City Health Department), modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.

e) Reporting Requirements

(1) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the Director by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit.

(2) The permittee shall identify the following information in the annual permit evaluation report in accordance with monitoring requirement d)(1) for fuels other than natural gas, and d)(3) for visible emissions:

a. all periods of time during which a fuel other than natural gas was burned in the kettle furnace for this emissions unit;

b. all days during which any abnormal visible emissions of fugitive dust were observed from the egress points (i.e., building windows, doors, vents, roof monitors, etc.) serving this emissions unit; and

c. any corrective actions taken to minimize or eliminate the visible emissions of fugitive dust, regardless of whether or not the emissions were representative of normal operations or were abnormal visible emissions reported per e)(2)b. above.

f) Testing Requirements

(1) Compliance with the emissions limits in b)(1) or b(2) of these terms and conditions, as applicable, shall be determined in accordance with the following methods:

a. <u>Emission Limitation:</u>

Total particulate emissions (PE) shall not exceed 2.83 lb/hr and 12.40 tons per year under b)(1)a. above (BAT limitation), if applicable.

<u>Applicable Compliance Method:</u>

Compliance with the hourly emission limitation shall be demonstrated by summing together the individual particulate emissions from the following operations contained within the overall emissions unit:

1. The molten zinc tank (zinc)
2. The acid tanks (HCl)
3. The caustic tank (NaOH)

4. The natural gas-fired kettle furnace (products of combustion)

The individual components shall be calculated by applying the appropriate emissions factors as described below:

Molten Zinc Tank (Zn)

1. The overall process is limited by the maximum process weight rate for the steel posts to be galvanized, based upon 294 posts/hr, as stated by the permittee in the permit application:

   (294 posts/hr) x (51 lb_{steel}/post) = 15,000 lb_{steel}/hr

2. The amount of zinc added in the process has been conservatively estimated by the permittee at equal to 5% of the steel post weight (ref American Galvanizing Association average value of 3.5%; increased to 5% by the permittee to account for other factors):

   (15,000 lb_{steel}/hr) x (0.05 lb_{Zn}/lb_{steel}) = 750 lb_{Zn}/hr = 0.375 ton_{Zn}/hr

3. The emissions factor for zinc galvanizing is 5.0 lb total PE per ton of zinc used (AP 42, Fifth Edition, Table 12.14-2):

   (5.0 lb PE_{Zn}/ton_{Zn}) x (0.375 ton_{Zn}/hr) = 1.875 lb PE_{Zn}/hr

Acid Tanks (HCl)

1. The emissions factor for the acid tanks is 0.001 lb total PE per square ft surface area per hour (ref. South Coast Air Quality Management District). There are three tanks, each measuring 16 ft x 5 ft:

   3 x (16 ft x 5 ft) x (0.001 lb PE_{HCl}/ft^2-hr) = 0.24 lb PE_{HCl}/hr

2. Anti-Vapor additive with a 60% minimum control efficiency shall be used in the acid tanks (permit condition b)(2)a.):

   (0.24 lb PE_{HCl}/hr) x (1 – 0.60) = 0.096 lb PE_{HCl}/hr

Caustic Tank (NaOH)

1. The emissions factor for the caustic tanks is 0.01 lb total PE per square ft surface area per hour (ref. South Coast Air Quality Management District). There is one tank measuring 16 ft x 5 ft:

   (16 ft x 5 ft) x (0.01 lb PE_{NaOH}/ft^2-hr) = 0.80 lb PE_{NaOH}/hr

Kettle Furnace (kf)

1. The kettle furnace will have two burners rated at 3.8 million Btu/hr each based upon manufacturer's data provided by the permittee in the permit application. Maximum natural gas usage is then calculated as follows:

   2 x (3.8×10^6 Btu/hr) ÷ (1020 Btu/scf gas) = 0.00745×10^6 scf gas/hr

2. The emissions factor is 7.6 lb total PE per million scf natural gas burned (AP 42, Fifth Edition, Table 1.4-2):

$(7.6\ lb\ PE_{kf}/10^6\ scf\ gas) \times (0.00745 \times 10^6\ scf\ gas/hr) = 0.057\ lb\ PE_{kf}/hr$

Summation:

Zinc, HCl, NaOH and kettle furnace total PE per hour:

$1.875\ lb_{Zn} + 0.096\ lb_{HCl} + 0.80\ lb_{NaOH} + 0.057\ lb_{kf} = 2.828 \approx 2.83\ lb/hr$

Compliance with the annual emission limitation shall then be demonstrated by multiplying the hourly emissions rate as demonstrated above by a maximum operating schedule of 8760 hr/yr, then dividing by 2000 lb/ton:

$(2.83\ lb/hr) \times (8760\ hr/yr) \div 2000\ lb/ton = 12.395 \approx 12.40\ ton/yr$

b. Emission Limitation:

PM_{10} emissions shall not exceed 2.13 lb/hr and 9.33 tons per year under b)(1)a. above (BAT limitation), if applicable.

Applicable Compliance Method:

As in f)(1)a. above, compliance with the hourly emission limitation shall be demonstrated by summing together the individual particulate emissions from the following operations contained within the overall emissions unit:

1. The molten zinc tank (zinc)
2. The acid tanks (HCl)
3. The caustic tank (NaOH)
4. The natural gas-fired kettle furnace (products of combustion

The individual components shall be calculated by applying the appropriate emissions factors as described below:

Molten Zinc Tank (Zn)
For zinc galvanizing, all particulate emissions are assumed to be less than or equal to 10 microns in diameter (PM_{10}), as stated by the permittee in the permit application. Therefore, the numerical result for $PM_{10\text{-}Zn}$ is the same as above in f)(1)a. for total PE_{Zn}:

$(5.0\ lb\ PM_{10\text{-}Zn}/ton_{Zn}) \times (0.375\ ton_{Zn}/hr) = 1.875\ lb\ PM_{10\text{-}Zn}/hr$

Acid Tanks (HCl)
The ratio of PM_{10} emissions to total PE = 0.22 for both the acid and caustic tanks, as stated by the permittee in the permit application (ref. South Coast Air Quality Management District). From above in f)(1)a., the total PE for HCl was 0.096 lb/hr. Therefore:

$PM_{10}/PE = 0.22 \dashrightarrow 0.22 \times (0.096\ lb\ PE_{HCl}/hr) = 0.021\ lb\ PM_{10\text{-}HCl}/hr$

Caustic Tank (NaOH)
The ratio of PM_{10} emissions to total PE = 0.22 for both the acid and caustic tanks, as stated by the permittee in the permit application (ref. South Coast

Air Quality Management District). From above in f)(1)a., the total PE for NaOH was 0.80 lb/hr. Therefore:

$PM_{10}/PE = 0.22 \dashrightarrow 0.22 \times (0.80 \text{ lb } PE_{NaOH}/hr) = 0.176 \text{ lb } PM_{10\text{-}NaOH}/hr$

Kettle Furnace (kf)
Per AP 42, Fifth Edition, Table 1.4-2, all PM from burning natural gas is assumed to be less than 1.0 µm. Therefore, the numerical result for PM_{10} is the same as above in f)(1)a for total PE_{kf}:

$(7.6 \text{ lb } PM_{10\text{-}kf}/10^6 \text{ scf gas}) \times (0.00745 \times 10^6 \text{ scf gas/hr}) = 0.057 \text{ lb } PM_{10\text{-}kf}/hr$

Summation:

Zinc, HCl, NaOH and kettle furnace PM_{10} emissions per hour:

$1.875 \text{ lb}_{Zn} + 0.021 \text{ lb}_{HCl} + 0.176 \text{ lb}_{NaOH} + 0.057 \text{ lb}_{kf} = 2.129 \approx 2.13 \text{ lb/hr}$

Compliance with the annual emission limitation shall then be demonstrated by multiplying the hourly emissions rate as demonstrated above by a maximum operating schedule of 8760 hr/yr, then dividing by 2000 lb/ton:

$(2.13 \text{ lb/hr}) \times (8760 \text{ hr/yr}) \div 2000 \text{ lb/ton} = 9.329 \approx 9.33 \text{ ton/yr}$

c. Emission Limitation:

NO_x emissions shall not exceed 0.75 lb/hr and 3.29 tons per year under b)(1)a. above (BAT limitation), if applicable.

Applicable Compliance Method(s):

As established above in f)(1)a., the maximum natural gas usage for the kettle furnace is 0.00745×10^6 scf/hr. The emissions factor is 100 lb NO_x per million scf natural gas burned (AP 42, Fifth Edition, Table 1.4-2):

$(100 \text{ lb}_{NOx}/10^6 \text{ scf gas}) \times (0.00745 \times 10^6 \text{ scf gas/hr}) = 0.745 \approx 0.75 \text{ lb}_{NOx}/hr$

Compliance with the annual emission limitation shall then be demonstrated by multiplying the hourly emissions rate as demonstrated above by a maximum operating schedule of 8760 hr/yr, then dividing by 2000 lb/ton:

$(0.75 \text{ lb/hr}) \times (8760 \text{ hr/yr}) \div 2000 \text{ lb/ton} = 3.285 \approx 3.29 \text{ ton/yr}$

d. Emission Limitation:

CO emissions shall not exceed 0.63 lb/hr and 2.76 tons per year under b)(1)a. above (BAT limitation), if applicable.

Applicable Compliance Method(s):

As established above in f)(1)a., the maximum natural gas usage for the kettle furnace is 0.00745×10^6 scf/hr. The emissions factor is 84 lb CO per million scf natural gas burned (AP 42, Fifth Edition, Table 1.4-2):

(84 $lb_{CO}/10^6$ scf gas) x (0.00745 x 10^6 scf gas/hr) = 0.626 ≈ 0.63 lb_{CO}/hr

Compliance with the annual emission limitation shall then be demonstrated by multiplying the hourly emissions rate as demonstrated above by a maximum operating schedule of 8760 hr/yr, then dividing by 2000 lb/ton:

(0.63 lb/hr) x (8760 hr/yr) ÷ 2000 lb/ton = 2.759 ≈ 2.76 ton/yr

e. Emission Limitation:

Total HAP emissions shall not exceed 0.11 lb/hr and 0.48 tons per year under b)(1)a. above (BAT limitation), if applicable.

Applicable Compliance Method(s):

Compliance with the hourly emission limitation shall be demonstrated by summing together the HAP emissions from the acid tanks and from the natural gas-fired kettle furnace. The individual components shall be calculated by applying the appropriate emissions factors as described below:

Acid Tanks

1. All HAP emissions from the acid tanks are hydrogen chloride. The emissions factor for HCl from the acid tanks is 0.001 lb per square ft surface area per hour, as stated by the permittee in the permit application (ref. South Coast Air Quality Management District). There are three tanks, each measuring 16 ft x 5 ft:

   3 x (16 ft x 5 ft) x (0.001 lb_{HCl}/ft^2-hr) = 0.24 lb_{HCl}/hr

2. Anti-Vapor additive with a 60% minimum control efficiency shall be used in the acid tanks (permit condition b)(2)a.):

   (0.24 lb_{HCl}/hr) x (1 – 0.60) = 0.096 lb_{HCl}/hr

Kettle Furnace (kf)

As established above in f)(1)a., the maximum natural gas usage is 0.00745 x 10^6 scf/hr. Based upon manufacturer's data provided by the permittee in the permit application, the emissions factor for total HAPs from the furnace is 1.9 lb per million scf natural gas burned:

(1.9 lb/10^6 scf gas) x (0.00745 x 10^6 scf gas/hr) = 0.014 lb/hr

Summation:

HCl and kettle furnace HAPs emissions per hour:

0.096 lb_{HCl} + 0.014 $lb_{kf\text{-}HAPs}$ = 0.11 lb/hr

Compliance with the annual emission limitation shall then be demonstrated by multiplying the hourly emissions rate as demonstrated above by a maximum operating schedule of 8760 hr/yr, then dividing by 2000 lb/ton:

(0.11 lb/hr) x (8760 hr/yr) ÷ 2000 lb/ton = 0.482 ≈ 0.48 ton/yr

f. Emission Limitation:

The following limitation only applies if the BAT limitation under b)(1)a. above no longer applies. In that case only, and under the terms listed under b)(1)b. above (less than 10 tons per year BAT exemption), HCl emissions shall not exceed 0.99 tons per year.

Applicable Compliance Method(s):

Compliance with the annual emission limitation shall be demonstrated by multiplying the hourly potential-to-emit for HCl established above in f)(1)e. by a maximum operating schedule of 8760 hr/yr, then dividing by 2000 lb/ton:

(0.096 lb/hr) x (8760 hr/yr) ÷ 2000 lb/ton = 0.42 ton/yr

0.42 ton/yr < 0.99 ton/yr

g. Emission Limitation:

Visible emissions of fugitive dust shall not exceed 20 percent opacity as a three-minute average.

Applicable Compliance Method:

If required, compliance with the limitation for visible emission limitation identified above shall be determined in accordance with U.S. EPA Method 9, with the following modifications as specified in OAC rule 3745-17-03(B)(3):

i. the data reduction and average opacity calculation shall be based upon sets of twelve consecutive visible emissions observations recorded at 15-second intervals;

ii. opacity observations shall be made from a position that provides the observer a clear view of the emissions unit and the fugitive dust, with the sun behind the observer;

iii. where possible, visible opacity observations shall be conducted at a position of at least fifteen feet from the source of emissions and the line of sight should be approximately perpendicular to the flow of fugitive dust and to the longer axis of the emissions; and

iv. the visible opacity observations shall be made for the point of highest opacity within the fugitive dust emitted from the source.

[OAC rule 3745-17-03(B)(3) and Method 9 of 40 CFR, Part 60, Appendix A]

h. Emission Limitation:

The permittee shall take or install reasonably available control measures to minimize visible particulate emissions of fugitive dust from the galvanizing process into the ambient air.

Applicable Compliance Method:

A control measure shall be considered adequate if it complies with the following:

i. The visible particulate emission limitation(s) contained in rule 3745-17-07(B)(1). See b)(1)d. above and for compliance method, f)(1)g. above.

ii. The requirements described in Additional Terms and Conditions b)(1)f. above.

iii. The definition of reasonably available control measures in paragraph (B)(18) of OAC rule 3745-17-01.

[OAC rule 3745-17-08(C)]

g) Miscellaneous Requirements

(1) None.