



John R. Kasich, Governor
 Mary Taylor, Lt. Governor
 Craig W. Butler, Director

1/25/2016

SETH STOCKMEISTER
 Elemental Refining LLC
 16064 BEAVER PIKE
 PO BOX 605
 JACKSON, OH 45640

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 0640010105
 Permit Number: P0111334
 Permit Type: Renewal
 County: Jackson

Dear Permit Holder:

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

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**
- **What should you do if you notice a spill or environmental emergency?**

How to appeal this permit

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

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

Certified Mail

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

How to save money, reduce pollution and reduce energy consumption

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

How to give us feedback on your permitting experience

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

How to get an electronic copy of your permit

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

What should you do if you notice a spill or environmental emergency?

Any spill or environmental emergency which may endanger human health or the environment should be reported to the Emergency Response 24-HOUR EMERGENCY SPILL HOTLINE toll-free at (800) 282-9378. Report non-emergency complaints to the appropriate district office or local air agency.

If you have any questions regarding your permit, please contact Ohio EPA DAPC, Southeast District Office at (740)385-8501 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael E. Hopkins, P.E.
Assistant Chief, Permitting Section, DAPC

Cc: Ohio EPA-SEDO



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for
Elemetal Refining LLC**

Facility ID:	0640010105
Permit Number:	P0111334
Permit Type:	Renewal
Issued:	1/25/2016
Effective:	1/25/2016
Expiration:	6/16/2020



**Division of Air Pollution Control
Permit-to-Install and Operate**

for
Elemetal Refining LLC

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Final Permit-to-Install and Operate
Elemetal Refining LLC
Permit Number: P0111334
Facility ID: 0640010105
Effective Date: 1/25/2016

Authorization

Facility ID: 0640010105
Application Number(s): A0045076, A0049936
Permit Number: P0111334
Permit Description: Renewal and administrative modification PTIO for emissions units N001, P001 - P009, and P011 - P018
Permit Type: Renewal
Permit Fee: \$0.00
Issue Date: 1/25/2016
Effective Date: 1/25/2016
Expiration Date: 6/16/2020
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

Elemetal Refining LLC
16064 Beaver Pike
Jackson, OH 45640

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

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

Ohio EPA DAPC, Southeast District Office
2195 Front Street
Logan, OH 43138
(740)385-8501

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


Craig W. Butler
Director



Authorization (continued)

Permit Number: P0111334

Permit Description: Renewal and administrative modification PTIO for emissions units N001, P001 - P009, and P011 - P018

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

Emissions Unit ID: N001
 Company Equipment ID: Natural gas fired burn-off oven
 Superseded Permit Number: P0089627
 General Permit Category and Type: Not Applicable

Emissions Unit ID: P018
 Company Equipment ID: Silver Hydrolysis Reactor
 Superseded Permit Number: P0089631
 General Permit Category and Type: Not Applicable

Group Name: Crude Gold Kettles 1-4

Emissions Unit ID:	P001
Company Equipment ID:	Crude Gold Kettle #1
Superseded Permit Number:	P0089608
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P002
Company Equipment ID:	Crude Gold Kettle #2
Superseded Permit Number:	P0089609
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P003
Company Equipment ID:	Crude Gold Kettle #3
Superseded Permit Number:	P0089610
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P004
Company Equipment ID:	Crude Gold Kettle #4
Superseded Permit Number:	P0089611
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P005
Company Equipment ID:	Crude Gold Kettle #5
Superseded Permit Number:	P0089612
General Permit Category and Type:	Not Applicable

Group Name: Fine Gold Kettles 1-4

Emissions Unit ID:	P012
Company Equipment ID:	Fine Gold Kettle #1
Superseded Permit Number:	P0089619
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P013
Company Equipment ID:	Fine Gold Kettle #2
Superseded Permit Number:	P0089620
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P014
Company Equipment ID:	Fine Gold Kettle #3



Superseded Permit Number:	P0089621
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P015
Company Equipment ID:	Crude Gold Kettle #6
Superseded Permit Number:	P0089622
General Permit Category andType:	Not Applicable

Group Name: SO2 kettles 1-3

Emissions Unit ID:	P008
Company Equipment ID:	SO2 Kettle #1
Superseded Permit Number:	P0089615
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P009
Company Equipment ID:	SO2 Kettle #2
Superseded Permit Number:	P0089616
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P017
Company Equipment ID:	SO2 Kettle 3
Superseded Permit Number:	P0089630
General Permit Category andType:	Not Applicable

Group Name: Sulfite Kettles 1-3

Emissions Unit ID:	P006
Company Equipment ID:	Sulfite Kettle #1
Superseded Permit Number:	P0089613
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P007
Company Equipment ID:	Sulfite Kettle #2
Superseded Permit Number:	P0089614
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P016
Company Equipment ID:	Sulfite Kettle 3
Superseded Permit Number:	P0089629
General Permit Category andType:	Not Applicable



Final Permit-to-Install and Operate
Elemetal Refining LLC
Permit Number: P0111334
Facility ID: 0640010105
Effective Date: 1/25/2016

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. For facilities that are permitted as synthetic minor sources, the fee schedule is adjusted annually for inflation. 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 of this permit 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 [DO/LAA] 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 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 emission 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 under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

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

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



Final Permit-to-Install and Operate
Elemetal Refining LLC
Permit Number: P0111334
Facility ID: 0640010105
Effective Date: 1/25/2016

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.



Final Permit-to-Install and Operate
Elemetal Refining LLC
Permit Number: P0111334
Facility ID: 0640010105
Effective Date: 1/25/2016

C. Emissions Unit Terms and Conditions

1. N001, Natural gas fired burn-off oven

Operations, Property and/or Equipment Description:

1.76 mmBtu/hr natural gas fired 200 lb/hr burn-off oven with a fabric filter; administrative modification to correct burner sizes and update emissions limitations; supersedes PTI 06-08080 issued 7/20/2006

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

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

a. None.

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

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	Particulate emissions (PE) shall not exceed 0.014 lb/hr and 0.061 tpy. Carbon monoxide (CO) emissions shall not exceed 1.00 lb/hr and 4.38 tpy. Visible PE from the stack shall not exceed 0% opacity as a six-minute average. See b)(2)a.
b.	OAC rule 3745-17-07(A)	The emission limit specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05 (A)(3).

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-17-09(B)	The emission limit specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05 (A)(3).
d.	OAC rule 3745-17-09(C)	See b)(2)a.
e.	OAC rule 3745-18-06(E)	See b)(2)b.

(2) Additional Terms and Conditions

- a. The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-09(C), which states,

"Incinerators including all associated equipment and grounds, shall be designed, operated and maintained so as to prevent the emission of objectionable odors."
- b. This emissions unit is exempt from the requirements of OAC rule 3745-18-06(E) pursuant to OAC rule 3745-18-06(C) because the process weight rate of this emissions unit is equal to or less than 1,000 pounds per hour. This emission unit has a process weight rate of 200 lb/hr.

c) Operational Restrictions

- (1) This emissions unit shall be installed, operated and maintained in accordance with the manufacturer's specifications. The permittee shall not change any of the manufacturer's factory preset parameters for the equipment, or physically modify the equipment in any way, without first verifying with the manufacturer that the change(s) would not adversely affect air contaminant emissions from these units.
- (2) The permittee shall adhere to the manufacturer's recommendations pertaining to the operation of this furnace. This emissions unit shall be designed and operated in accordance with the following requirements:
 - a. the secondary combustion chamber shall be operated so that the exit gas temperature from the chamber is, at a minimum, 1,400 degrees Fahrenheit taking into account normal start-up procedures; and
 - b. the secondary combustion chamber shall allow for a minimum of 1.0 second retention time at 1,400 degrees Fahrenheit, taking into account normal start up procedures.
- (3) The permittee shall adhere to the manufacturer's recommendations pertaining to the operation of the furnace and shall comply with the following operational restrictions:
 - a. the permittee shall ensure that the pyrolysis furnace is operated only by properly trained personnel who have read, and understand, the furnace's operation manual;

- b. prior to start-up of the furnace the permittee shall remove ash residue left inside the furnace after the previous burn cycle;
 - c. the permittee shall not operate the furnace if the built-in safeguards and interlocks (furnace excess temperature and low water pressure switches) are not operating properly.
 - d. To the extent possible, oily materials, PVC's, or other non-conforming materials (elements other than carbon, hydrogen and oxygen) shall be removed from the material charged to this furnace.
- (4) The permittee shall properly operate and maintain the monitoring devices associated with the oven's safeguards and interlock system [See c)(3)c. above].
- (5) The permittee shall burn only natural gas as fuel in this emissions unit.
- d) **Monitoring and/or Recordkeeping Requirements**
- (1) The permittee shall install, operate and properly maintain a temperature gauge which monitors the temperature of the secondary combustion chamber of this emission unit. The permittee shall record the secondary combustion chamber temperature prior to each batch operation.
 - (2) The permittee shall maintain daily records of the following information for this emissions unit:
 - a. the dates the emissions unit was operated;
 - b. the number of batches processed in the emissions unit for each date the emissions unit was operated; and
 - c. the dates and descriptions of any additional maintenance activities performed on the emissions unit.
 - (3) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack 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 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.

- (4) 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.

e) Reporting Requirements

- (1) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit.
- (3) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements in term d)(2) above:
 - a. Any time period when the afterburner was less than the minimum temperature of 1,400 degrees F when the primary burner was in operation.
- (4) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements for visible emissions in term d)(3) above:
 - a. All days during which any visible particulate emissions were observed from the stack serving this emissions unit; and
 - b. Any corrective actions taken to minimize or eliminate the visible particulate emissions.
- (5) The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.

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. Emissions Limitation:

PE shall not exceed 0.014 lb/hr and 0.061 tpy.

Applicable Compliance Method:

The short-term limit was established by multiplying the emission factor of 7.0 lbs/ton from AP42 Section 2.1-12 (10/96) by the hourly maximum throughput rate of 200 lbs/hr, 1 ton/2,000 pounds and the baghouse control efficiency of 98%.

If required, PE shall be determined according to test Methods 1 - 4, and 5 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

Compliance with the annual limit is based on the short-term emissions limit of 0.014 lb/hr multiplied by 8,760 hrs/yr and divided by 2,000 lbs/ton.

b. Emissions Limitation:

Visible PE from the stack shall not exceed 0 percent opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, visible PE shall be determined according to USEPA Method 9.

c. Emissions Limitation:

CO emissions shall not exceed 1.00 lb/hr and 4.38 tpy

Applicable Compliance Method:

The short-term limit was established by multiplying the emission factor of 10.0 lbs/ton from AP42 Section 2.1-12 (10/96) by the hourly maximum throughput rate of 200 lbs/hr and 1 ton/2,000 pounds.

If required, CO emissions shall be determined according to test Methods 1 - 4, and 10 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

Compliance with the annual limit is based on the allowable hourly emissions limit of 1.00 lbs/hr multiplied by 8,760 hrs/yr and divided by 2,000 lbs/ton.

g) Miscellaneous Requirements

- (1) None.

2. P018, Silver Hydrolysis Reactor

Operations, Property and/or Equipment Description:

Silver Hydrolysis Reactor. 18,000 troy oz max/batch., vented to the wet scrubber; administrative modification to update emissions limitations based on updated calculations and the addition of a NOx absorber to the process; supersedes PTI 06-08171 issued 10/3/2006.

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

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

a. None.

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

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	Nitrogen oxides (NOx) emissions from emissions units P001-P005, P012-P015, P018 and P023 shall be controlled with a wet scrubber with a control efficiency of 90%. NOx emissions shall not exceed 3.84 tpy. See b)(2)a. below.

(2) Additional Terms and Conditions

a. The enclosure has been designed using corrosion resistant materials with adequate containment and air flow to minimize fugitive emissions in accordance with good engineering practices. These enclosures are necessary for employee

safety. Therefore no recordkeeping or reporting is necessary to ensure proper operation.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall properly install, operate, and maintain equipment to continuously monitor the stage 4 recirculation water flow rate, purge water flow rate and the stage 4 pH for the scrubber during operation of this emissions unit, including periods of startup and shutdown.

The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s).

- (2) The permittee shall collect and record the following information daily:

- a. stage 4 recirculation water flow rate,
- b. purge water flow rate, and
- c. the stage 4 pH for the scrubber.

- (3) Whenever the monitored value for the stage 4 recirculation water flow rate, purge water flow rate or the stage 4 pH for the scrubber deviates from the range(s) specified in d)(6), the permittee shall promptly investigate the cause of the deviation.

The permittee shall maintain records of the following information for each deviation:

- a. the date and time the deviation began,
- b. the magnitude of the deviation at that time,
- c. the date(s) the investigation was conducted,
- d. the names of the personnel who conducted the investigation, and
- e. the findings and recommendations.

- (4) In response to each deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges/values specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended.

- (5) The permittee shall maintain records of the following information for each deviation:

- a. a description of the corrective action,

- b. the date it was completed,
- c. the date and time the deviation ended,
- d. the total period of time (in minutes) during which there was a deviation,
- e. the ranges/values immediately after the corrective action, and
- f. the names of the personnel who performed the work.

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

- (6) Acceptable ranges for the operational parameters for the scrubber are:
- a. a stage 4 recirculation water flow rate of not less than 360 gallons per minute (gpm).
 - b. a purge water flow rate of not less than 2,880 gallons per day or the value established during the most recent performance test that demonstrated compliance, whichever is greater.
 - c. a pH range of 8.5 to 11.5 in stage 4.

These ranges/values are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA Southeast District Office. The permittee may request revisions to the ranges/values based upon information obtained during future emission tests that demonstrate compliance with the allowable emission rate for this emissions unit. In addition, approved revisions to the ranges/values will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted 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 in the annual PER the following information concerning the operation of the control equipment during the operation of this emissions unit:
 - a. each period of time when the stage 4 recirculation water flow rate, purge water flow rate and the stage 4 pH for the scrubber was not operating within the acceptable ranges specified in d)(6);
 - b. an identification of each incident of deviation described in d)(3) where a prompt investigation was not conducted;



- c. an identification of each incident of deviation described in d)(3) where prompt corrective action, that would bring the affected parameter into compliance with the acceptable ranges, was determined to be necessary and was not taken; and
 - d. an identification of each incident of deviation described in d)(3) where proper records were not maintained for the investigation and/or the corrective action.
- (3) The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.
- 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. **Emissions Limitation:**

NOx emissions from emissions units P001-P005, P012-P015, P018 and P023 shall be controlled with a wet scrubber with a control efficiency of 90%

Applicable Compliance Method:

Compliance shall be demonstrated based upon emissions testing in accordance with methods and procedures in f)(2).
 - b. **Emissions Limitation:**

NOx emissions shall not exceed 3.84 tpy.

Applicable Compliance Method:

Compliance shall be demonstrated using the following equations:

5.8 lb NOx /1000 troy oz. silver {based on stoichiometry chemical reaction data in the permittee's application}

18,000 troy ounces per batch, 2 batches per day

90% NOx control for scrubber

 $(5.8 \text{ lb NOx} / 1,000 \text{ troy oz.}) * (18,000 \text{ troy oz/batch}) * (2 \text{ batches per day}) * (1 - 0.90) = 20.9 \text{ lb NOx/day}$

 $[(20.9 \text{ lb NOx/day}) * (365 \text{ days/yr})] / (2,000 \text{ lbs/ton}) = 3.84 \text{ tpy}$
- (2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. Emission testing for the overall control efficiency of the scrubber shall be conducted within six (6) months of the effective date of this permit, within five (5) years from the date of the first performance test required by this permit and within twelve (12) months prior to the expiration date of this permit. The emission testing shall be conducted to demonstrate that the wet scrubber serving emissions units P001-P005, P012-P015, P018 and P023 is in compliance with the 90% control efficiency limitation for NO_x.

- b. The following test method(s) shall be employed to demonstrate compliance with the removal efficiency requirement for the scrubber:

Methods 1-4 and 7E for NO_x.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.) The test method and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

- c. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined by calculating the percent reduction in mass emissions between the inlet and outlet of the control system.
- d. The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.
- e. No later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Southeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Southeast District Office's refusal to accept the results of the emission test(s).



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- f. Personnel from the Ohio EPA, Southeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
 - g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Southeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Southeast District Office.
- g) Miscellaneous Requirements
- (1) None.

3. Emissions Unit Group -Crude Gold Kettles 1-5: P001,P002,P003,P004,P005

EU ID	Operations, Property and/or Equipment Description
P001	Crude Gold Kettle 1 vented to a wet scrubber. 2600 troy oz max/batch; administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006
P002	Crude Gold Kettle 2 vented to a wet scrubber. 2600 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006
P003	Crude Gold Kettle 3 vented to a wet scrubber. 2600 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006
P004	Crude Gold Kettle 4 vented to a wet scrubber. 2600 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006
P005	Crude Gold Kettle 5 vented to a wet scrubber. 2600 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006

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. d)(7), d)(8), d)(9), d)(10), and e)(3).

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

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC Rule 3745-31-05(A)(3)	Nitrogen oxides (NOx) emissions from emissions units P001-P005, P012-P015, P018 and P023 shall be controlled with a wet scrubber with a control efficiency of 90%.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>Hydrochloric acid (HCl) emissions from emissions units P001-P005, P012-P015, and P023 shall be controlled with a wet scrubber with a control efficiency of 98%.</p> <p>NOx emissions from this emissions unit shall not exceed 3.8 tons/year.</p> <p>Emissions of hydrochloric acid (HCl) from this emissions unit shall not exceed 0.54 ton/year.</p> <p>See b)(2)a. below.</p>

(2) Additional Terms and Conditions

a. The enclosure has been designed using corrosion resistant materials with adequate containment and air flow to minimize fugitive emissions in accordance with good engineering practices. These enclosures are necessary for employee safety. Therefore no recordkeeping or reporting is necessary to ensure proper operation.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall properly install, operate, and maintain equipment to continuously monitor the stage 4 recirculation water flow rate, purge water flow rate and the stage 4 pH for the scrubber during operation of this emissions unit, including periods of startup and shutdown.

The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s).

(2) The permittee shall collect and record the following information daily:

- a. stage 4 recirculation water flow rate,
- b. purge water flow rate, and
- c. the stage 4 pH for the scrubber.

- (3) Whenever the monitored value for the stage 4 recirculation water flow rate, purge water flow rate or the stage 4 pH for the scrubber deviates from the range(s) specified in d)(6), the permittee shall promptly investigate the cause of the deviation.

The permittee shall maintain records of the following information for each deviation:

- a. the date and time the deviation began,
 - b. the magnitude of the deviation at that time,
 - c. the date(s) the investigation was conducted,
 - d. the names of the personnel who conducted the investigation, and
 - e. the findings and recommendations.
- (4) In response to each deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges/values specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended.
- (5) The permittee shall maintain records of the following information for each deviation:
- a. a description of the corrective action,
 - b. the date it was completed,
 - c. the date and time the deviation ended,
 - d. the total period of time (in minutes) during which there was a deviation,
 - e. the ranges/values immediately after the corrective action, and
 - f. the names of the personnel who performed the work.

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

- (6) Acceptable ranges for the operational parameters for the scrubber are:
- a. a stage 4 recirculation water flow rate of not less than 360 gallons per minute (gpm).
 - b. a purge water flow rate of not less than 2,880 gallons per day or the value established during the most recent performance test that demonstrated compliance, whichever is greater.

- c. a pH range of 8.5 to 11.5 in stage 4.

These ranges/values are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA Southeast District Office. The permittee may request revisions to the ranges/values based upon information obtained during future emission tests that demonstrate compliance with the allowable emission rate for this emissions unit. In addition, approved revisions to the ranges/values will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

- (7) The permit-to-install and operate (PTIO) application for emissions units P001-P005, P012-P015, and P023, combined, was evaluated based on the actual materials and the design parameters of the emissions unit's(s') exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to this/these emissions unit(s) for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:
- a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):
- i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or
- ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.
- b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

- c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “24” hours per day and “7” days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

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

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

Toxic Contaminant: hydrochloric acid

TLV (mg/m³): 7.464

Maximum Hourly Emission Rate (lbs/hr): 1.26 (worst case, entire facility)

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m³): 115.187

MAGLC (ug/m³): 177.714

The permittee, has demonstrated that emissions of HCl, from emissions units P001-P005, P012-P015 and P023, combined, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

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

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

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

- (9) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F):
- a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);
 - b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);
 - c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and
 - d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.
- (10) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.
- e) Reporting Requirements
- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted 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 in the annual PER the following information concerning the operation of the control equipment during the operation of this emissions unit:

- a. each period of time when the stage 4 recirculation water flow rate, purge water flow rate and the stage 4 pH for the scrubber was not operating within the acceptable ranges specified in d)(6);
 - b. an identification of each incident of deviation described in d)(3) where a prompt investigation was not conducted;
 - c. an identification of each incident of deviation described in d)(3) where prompt corrective action, that would bring the affected parameter into compliance with the acceptable ranges, was determined to be necessary and was not taken; and
 - d. an identification of each incident of deviation described in d)(3) where proper records were not maintained for the investigation and/or the corrective action.
- (3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the annual Permit Evaluation Report (PER). If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.
- (4) The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.
- 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. **Emissions Limitation:**

NOx emissions from emissions units P001-P005, P012-P015, P018 and P023 shall be controlled with a wet scrubber with a control efficiency of 90%.

HCl emissions from emissions units P001-P005, P012-P015, and P023 shall be controlled by a wet scrubber with a control efficiency of 98%.

Applicable Compliance Method:

Compliance shall be demonstrated based upon emissions testing in accordance with methods and procedures in f)(2).
 - b. **Emissions Limitation:**

Nitrogen oxide compounds (NOx) emissions shall not exceed 3.8 tons/year.



Applicable Compliance Method:

Compliance shall be demonstrated using the following equations:

39.67 lb NO_x /1000 troy oz. gold {based on stoichiometry chemical reaction data in the permittee's application}

2,600 troy ounces per batch, 2 batches per day

90% NO_x control for scrubber

$(39.67 \text{ lb NO}_x / 1000 \text{ troy oz.}) \times (2,600 \text{ troy oz./batch}) \times (2 \text{ batches per day}) \times (1 - 0.90)$
= 20.6 lb NO_x/day

$[(20.6 \text{ lb NO}_x/\text{day})(365 \text{ days/yr})]/(2,000 \text{ lb/ton}) = 3.8 \text{ tpy}$

c. Emissions Limitation:

Hydrochloric acid (HCl) emissions shall not exceed 0.54 tons/year.

Applicable Compliance Method:

Compliance shall be demonstrated using the following equations:

28.33 lbHCl /1000 troy oz. gold {based on stoichiometry chemical reaction data in the permittee's application}

2,600 troy ounces per batch, 2 batches per day

98% HCl control for scrubber

$(28.29 \text{ lbHCl}/1000 \text{ troy oz.}) \times (2,600 \text{ troy oz./batch}) \times (2 \text{ batches per day}) \times (1 - 0.98) =$
2.94 lbHCl/day

$[(2.94 \text{ lbHCl}/\text{day})(365 \text{ days/yr})]/(2,000 \text{ lb/ton}) = 0.54 \text{ tpy}$

(2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

a. Emission testing for the overall control efficiency of the scrubber shall be conducted within six (6) months of the effective date of this permit, within five (5) years from the date of the first performance test required by this permit and within twelve (12) months prior to the expiration date of this permit. The emission testing shall be conducted to demonstrate that the wet scrubber serving emissions units P001-P005, P012-P015, P018 and P023 is in compliance with the 90% control efficiency limitation for NO_x and P001-P005, P012-P015, and P023 is in compliance with the 98% control efficiency limitation for HCl emissions.

- b. The following test method(s) shall be employed to demonstrate compliance with the removal efficiency requirement for the scrubber:

Methods 1-4 and 7E for NO_x, and

Methods 1-4 and 26 or 26A for HCl.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.) The test method and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

- c. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined by calculating the percent reduction in mass emissions between the inlet and outlet of the control system.
- d. The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.
- e. No later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Southeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Southeast District Office's refusal to accept the results of the emission test(s).
- f. Personnel from the Ohio EPA, Southeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Southeast District Office within 30 days following completion of the



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test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Southeast District Office.

- g) Miscellaneous Requirements
 - (1) None.

4. Emissions Unit Group -Fine Gold Kettles 1-4: P012,P013,P014,P015,

EU ID	Operations, Property and/or Equipment Description
P012	Fine Gold Kettle 1 vented to a wet scrubber. 2300 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006
P013	Fine Gold Kettle 2 vented to a wet scrubber. 2300 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006
P014	Fine Gold Kettle 3 vented to a wet scrubber. 2300 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006
P015	Fine Gold Kettle 4 vented to a wet scrubber. 2300 troy oz max/batch; administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006

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

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

a. None.

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

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC Rule 3745-31-05(A)(3)	Nitrogen oxides (NOx) emissions from emissions units P001-P005, P012-P015, P018 and P023 shall be controlled with a wet scrubber with a control efficiency of 90%. Hydrochloric acid (HCl) emissions from emissions units P001-P005, P012-P015,



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>and P023 shall be controlled with a wet scrubber with a control efficiency of 98%.</p> <p>NOx emissions from this emissions unit shall not exceed 2.3 tons/year.</p> <p>Emissions of hydrochloric acid (HCl) from this emissions unit shall not exceed 0.18 ton/year.</p> <p>See b)(2)a. below.</p>

(2) Additional Terms and Conditions

a. The enclosure has been designed using corrosion resistant materials with adequate containment and air flow to minimize fugitive emissions in accordance with good engineering practices. These enclosures are necessary for employee safety. Therefore no recordkeeping or reporting is necessary to ensure proper operation.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall properly install, operate, and maintain equipment to continuously monitor the stage 4 recirculation water flow rate, purge water flow rate and the stage 4 pH for the scrubber during operation of this emissions unit, including periods of startup and shutdown.

The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s).

(2) The permittee shall collect and record the following information daily:

- a. stage 4 recirculation water flow rate,
- b. purge water flow rate, and
- c. the stage 4 pH for the scrubber.

(3) Whenever the monitored value for the stage 4 recirculation water flow rate, purge water flow rate or the stage 4 pH for the scrubber deviates from the range(s) specified in d)(6), the permittee shall promptly investigate the cause of the deviation.

The permittee shall maintain records of the following information for each deviation:

- a. the date and time the deviation began,
 - b. the magnitude of the deviation at that time,
 - c. the date(s) the investigation was conducted,
 - d. the names of the personnel who conducted the investigation, and
 - e. the findings and recommendations.
- (4) In response to each deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges/values specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended.
- (5) The permittee shall maintain records of the following information for each deviation:
- a. a description of the corrective action,
 - b. the date it was completed,
 - c. the date and time the deviation ended,
 - d. the total period of time (in minutes) during which there was a deviation,
 - e. the ranges/values immediately after the corrective action, and
 - f. the names of the personnel who performed the work.

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

- (6) Acceptable ranges for the operational parameters for the scrubber are:
- a. a stage 4 recirculation water flow rate of not less than 360 gallons per minute (gpm).
 - b. a purge water flow rate of not less than 2,880 gallons per day or the value established during the most recent performance test that demonstrated compliance, whichever is greater.
 - c. a pH range of 8.5 to 11.5 in stage 4.

These ranges/values are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA Southeast District Office. The permittee may request revisions to the ranges/values based upon information obtained during future emission tests that demonstrate compliance with the

allowable emission rate for this emissions unit. In addition, approved revisions to the ranges/values will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted 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 in the annual PER the following information concerning the operation of the control equipment during the operation of this emissions unit:
 - a. each period of time when the stage 4 recirculation water flow rate, purge water flow rate and the stage 4 pH for the scrubber was not operating within the acceptable ranges specified in d)(6);
 - b. an identification of each incident of deviation described in d)(3) where a prompt investigation was not conducted;
 - c. an identification of each incident of deviation described in d)(3) where prompt corrective action, that would bring the affected parameter into compliance with the acceptable ranges, was determined to be necessary and was not taken; and
 - d. an identification of each incident of deviation described in d)(3) where proper records were not maintained for the investigation and/or the corrective action.
- (3) The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.

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. Emissions Limitation:

NOx emissions from emissions units P001-P005, P012-P015, P018 and P023 shall be controlled with a wet scrubber with a control efficiency of 90%.

HCl emissions from emissions units P001-P005, P012-P015, and P023 shall be controlled with a wet scrubber with a control efficiency of 98%.

Applicable Compliance Method:

Compliance shall be demonstrated based upon emissions testing in accordance with methods and procedures in f)(2).

b. Emissions Limitation:

Nitrogen oxide compounds (NO_x) emissions shall not exceed 2.3 tons/year.

Applicable Compliance Method:

Compliance shall be demonstrated using the following equations:

18.3 lb NO_x /1000 troy oz. gold {based on stoichiometry chemical reaction data in the permittee's application}

2,300 troy ounces per batch, 3 batches per day

90% NO_x control for scrubber

$(18.3 \text{ lb NO}_x /1000 \text{ troy oz.}) \times (2,300 \text{ troy oz./batch}) \times (3 \text{ batches per day}) \times (1-0.90) = 12.6 \text{ lb NO}_x/\text{day}$

$[(12.6 \text{ lb NO}_x/\text{day})(365 \text{ days/yr})]/(2,000 \text{ lb/ton})=2.3 \text{ tpy}$

c. Emissions Limitation:

Hydrochloric acid (HCl) emissions shall not exceed 0.18 tons/year.

Applicable Compliance Method:

Compliance shall be demonstrated using the following equations:

7.22 lbHCl /1000 troy oz. gold {based on stoichiometry chemical reaction data in the permittee's application}

2,300 troy ounces per batch, 3 batches per day

98% HCl control for scrubber

$(7.22 \text{ lbHCl}/1000 \text{ troy oz.}) \times (2,300 \text{ troy oz./batch}) \times (3 \text{ batches per day}) \times (1-0.98) = 1.0 \text{ lbHCl}/\text{day}$

$[(1.0 \text{ lbHCl}/\text{day})(365 \text{ days/yr})]/(2,000 \text{ lb/ton})=0.18 \text{ tpy}$

(2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

a. Emission testing for the overall control efficiency of the scrubber shall be conducted within six (6) months of the effective date of this permit, within five (5) years from the date of the first performance test required by this permit and within twelve (12) months prior to the expiration date of this permit. The emission testing shall be conducted to demonstrate that the wet scrubber serving emissions units P001-P005, P012-P015, P018 and P023 is in compliance with

the 90% control efficiency limitation for NO_x and P001-P005, P012-P015, and P023 is in compliance with the 98% control efficiency limitation for HCl emissions.

- b. The following test method(s) shall be employed to demonstrate compliance with the removal efficiency requirement for the scrubber:

Methods 1-4 and 7E for NO_x, and

Methods 1-4 and 26 or 26A for HCl .

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.) The test method and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

- c. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined by calculating the percent reduction in mass emissions between the inlet and outlet of the control system.
- d. The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.
- e. No later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Southeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Southeast District Office's refusal to accept the results of the emission test(s).
- f. Personnel from the Ohio EPA, Southeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.



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Elemetal Refining LLC
Permit Number: P0111334
Facility ID: 0640010105
Effective Date: 1/25/2016

g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Southeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Southeast District Office.

g) Miscellaneous Requirements

(1) None.

5. Emissions Unit Group -SO2 kettles 1-3: P008,P009,P017,

EU ID	Operations, Property and/or Equipment Description
P008	SO2 Kettle 1 vented to a wet scrubber. 1000 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006.
P009	SO2 Kettle 2 vented to a wet scrubber. 1000 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006.
P017	SO2 Kettle 3 vented to a wet scrubber. 1000 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006.

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

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

a. None.

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

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC Rule 3745-31-05(A)(3)	Sulfur dioxide (SO2) emissions from emissions units P006-P009 and P016-P017 shall be controlled with a wet scrubber with a control efficiency of 90%. SO2 emissions from this emissions unit shall not exceed 1.6 tons/year. See b)(2)a. below.
b.	OAC rule 3745-18-06(E)	Exempt per OAC rule 3745-18-06(C)

(2) Additional Terms and Conditions

- a. The enclosure has been designed using corrosion resistant materials with adequate containment and air flow to minimize fugitive emissions in accordance with good engineering practices. These enclosures are necessary for employee safety. Therefore no recordkeeping or reporting is necessary to ensure proper operation.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall properly install, operate, and maintain equipment to continuously monitor the stage 4 recirculation water flow rate, purge water flow rate and the stage 4 pH for the scrubber during operation of this emissions unit, including periods of startup and shutdown.

The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s).

- (2) The permittee shall collect and record the following information daily:

- a. stage 4 recirculation water flow rate,
b. purge water flow rate, and
c. the stage 4 pH for the scrubber.

- (3) Whenever the monitored value for the stage 4 recirculation water flow rate, purge water flow rate or the stage 4 pH for the scrubber deviates from the range(s) specified in d)(6), the permittee shall promptly investigate the cause of the deviation.

The permittee shall maintain records of the following information for each deviation:

- a. the date and time the deviation began,
b. the magnitude of the deviation at that time,
c. the date(s) the investigation was conducted,
d. the names of the personnel who conducted the investigation, and
e. the findings and recommendations.

- (4) In response to each deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges/values specified below, unless the permittee determines that corrective action is not necessary and

documents the reasons for that determination and the date and time the deviation ended.

- (5) The permittee shall maintain records of the following information for each deviation:
- a. a description of the corrective action,
 - b. the date it was completed,
 - c. the date and time the deviation ended,
 - d. the total period of time (in minutes) during which there was a deviation,
 - e. the ranges/values immediately after the corrective action, and
 - f. the names of the personnel who performed the work.

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

- (6) Acceptable ranges for the operational parameters for the scrubber are:
- a. a stage 4 recirculation water flow rate of not less than 360 gallons per minute (gpm).
 - b. a purge water flow rate of not less than 2,880 gallons per day or the value established during the most recent performance test that demonstrated compliance, whichever is greater.
 - c. a pH range of 8.5 to 11.5 in stage 4.

These ranges/values are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA Southeast District Office. The permittee may request revisions to the ranges/values based upon information obtained during future emission tests that demonstrate compliance with the allowable emission rate for this emissions unit. In addition, approved revisions to the ranges/values will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted 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 in the annual PER the following information concerning the operation of the control equipment during the operation of this emissions unit:

- a. each period of time when the stage 4 recirculation water flow rate, purge water flow rate and the stage 4 pH for the scrubber was not operating within the acceptable ranges specified in d)(6);
 - b. an identification of each incident of deviation described in d)(3) where a prompt investigation was not conducted;
 - c. an identification of each incident of deviation described in d)(3) where prompt corrective action, that would bring the affected parameter into compliance with the acceptable ranges, was determined to be necessary and was not taken; and
 - d. an identification of each incident of deviation described in d)(3) where proper records were not maintained for the investigation and/or the corrective action.
- (3) The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.
- 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. Emissions Limitation:

SO₂ emissions from emissions units P006-P009, P016 and P017 shall be controlled with a wet scrubber with a control efficiency of 90%.

Applicable Compliance Method:

Compliance shall be demonstrated based upon emissions testing in accordance with methods and procedures in f)(2).
 - b. Emissions Limitation:

Sulfur dioxide compounds (SO₂) emissions shall not exceed 1.6 tons/year.

Applicable Compliance Method:

Compliance shall be demonstrated using the following equations:

11.1 lb SO₂ /1000 troy oz. gold {based on stoichiometry chemical reaction data in the permittee's application}

1000 troy ounce per batch, 8 batches per day

90% SO₂ control for scrubber

$(11.1 \text{ lb SO}_2/1000 \text{ troy oz.}) \cdot (1,000 \text{ troy oz/batch}) \cdot (8 \text{ batches per day}) \cdot (1-0.90) = 8.9 \text{ lb SO}_2/\text{day}$

$[(8.9 \text{ lb SO}_2/\text{day}) \cdot (365 \text{ days/yr})] / (2,000 \text{ lb/ton}) = 1.6 \text{ tpy}$

(2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. Emission testing for the overall control efficiency of the scrubber shall be conducted within six (6) months of the effective date of this permit, and within twelve (12) months prior to the expiration date of this permit. The emission testing shall be conducted to demonstrate that the wet scrubber serving emissions units P006-P009 and P016-P017 is in compliance with the 90% control efficiency limitation for SO₂.
- b. The following test method(s) shall be employed to demonstrate compliance with the removal efficiency requirement for the scrubber:

Methods 1-4 and 6C for SO₂.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.) The test method and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

- c. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined by calculating the percent reduction in mass emissions between the inlet and outlet of the control system.
- d. The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.
- e. No later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Southeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to



submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Southeast District Office's refusal to accept the results of the emission test(s).

- f. Personnel from the Ohio EPA, Southeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Southeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Southeast District Office.

g) Miscellaneous Requirements

- (1) None.

6. Emissions Unit Group -Sulfite Kettles 1-3: P006,P007,P016,

EU ID	Operations, Property and/or Equipment Description
P006	Sulfite Kettle 1 vented to a wet scrubber. 2300 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006
P007	Sulfite Kettle 2 vented to a wet scrubber. 2300 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006
P016	Sulfite Kettle 3 vented to a wet scrubber. 2300 troy oz max/batch;administrative modification to update emissions limitations based on updated calculations supersedes PTI 06-08171 issued 10/3/2006

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

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

a. None.

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

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC Rule 3745-31-05(A)(3)	Sulfur dioxide (SO ₂) emissions from emissions units P006-P009 and P016-P017 shall be controlled with a wet scrubber with a control efficiency of 90%. SO ₂ emissions from this emissions unit shall not exceed 5.6 tons/year. See b)(2)a. below.
b.	OAC rule 3745-18-06(E)	Exempt per OAC rule 3745-18-06(C)

(2) Additional Terms and Conditions

- a. The enclosure has been designed using corrosion resistant materials with adequate containment and air flow to minimize fugitive emissions in accordance with good engineering practices. These enclosures are necessary for employee safety. Therefore no recordkeeping or reporting is necessary to ensure proper operation.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall properly install, operate, and maintain equipment to continuously monitor the stage 4 recirculation water flow rate, purge water flow rate and the stage 4 pH for the scrubber during operation of this emissions unit, including periods of startup and shutdown.

The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s).

- (2) The permittee shall collect and record the following information daily:

- a. stage 4 recirculation water flow rate,
b. purge water flow rate, and
c. the stage 4 pH for the scrubber.

- (3) Whenever the monitored value for the stage 4 recirculation water flow rate, purge water flow rate or the stage 4 pH for the scrubber deviates from the range(s) specified in d)(6), the permittee shall promptly investigate the cause of the deviation.

The permittee shall maintain records of the following information for each deviation:

- a. the date and time the deviation began,
b. the magnitude of the deviation at that time,
c. the date(s) the investigation was conducted,
d. the names of the personnel who conducted the investigation, and
e. the findings and recommendations.

- (4) In response to each deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges/values specified below, unless the permittee determines that corrective action is not necessary and

documents the reasons for that determination and the date and time the deviation ended.

- (5) The permittee shall maintain records of the following information for each deviation:
- a. a description of the corrective action,
 - b. the date it was completed,
 - c. the date and time the deviation ended,
 - d. the total period of time (in minutes) during which there was a deviation,
 - e. the ranges/values immediately after the corrective action, and
 - f. the names of the personnel who performed the work.

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

- (6) Acceptable ranges for the operational parameters for the scrubber are:
- a. a stage 4 recirculation water flow rate of not less than 360 gallons per minute (gpm).
 - b. a purge water flow rate of not less than 2,880 gallons per day or the value established during the most recent performance test that demonstrated compliance, whichever is greater.
 - c. a pH range of 8.5 to 11.5 in stage 4.

These ranges/values are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA Southeast District Office. The permittee may request revisions to the ranges/values based upon information obtained during future emission tests that demonstrate compliance with the allowable emission rate for this emissions unit. In addition, approved revisions to the ranges/values will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted 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 in the annual PER the following information concerning the operation of the control equipment during the operation of this emissions unit:
- a. each period of time when the stage 4 recirculation water flow rate, purge water flow rate and the stage 4 pH for the scrubber was not operating within the acceptable ranges specified in d)(6);
 - b. an identification of each incident of deviation described in d)(3) where a prompt investigation was not conducted;
 - c. an identification of each incident of deviation described in d)(3) where prompt corrective action, that would bring the affected parameter into compliance with the acceptable ranges, was determined to be necessary and was not taken; and
 - d. an identification of each incident of deviation described in d)(3) where proper records were not maintained for the investigation and/or the corrective action.
- (3) The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.

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. Emissions Limitation:

SO₂ emissions from emissions units P006-P009, P016 and P017 shall be controlled with a wet scrubber with a control efficiency of 90%.

Applicable Compliance Method:

Compliance shall be demonstrated based upon emissions testing in accordance with methods and procedures in f)(2).
 - b. Emissions Limitation:

Sulfur dioxide compounds (SO₂) emissions shall not exceed 5.6 tons/year.

Applicable Compliance Method:

Compliance shall be demonstrated using the following equations:

33.1 lb SO₂ /1000 troy oz. gold {based on stoichiometry chemical reaction data in the permittee's application}

2300 troy ounce per batch, 4 batches per day

90% SO₂ control for scrubber

$(33.1 \text{ lb SO}_2/1000 \text{ troy oz.}) \times (2,300 \text{ troy oz/batch}) \times (4 \text{ batches per day}) \times (1-0.90) = 30.5 \text{ lb SO}_2/\text{day}$

$[(30.5 \text{ lb SO}_2/\text{day}) \times (365 \text{ days/yr})] / (2,000 \text{ lb/ton}) = 5.6 \text{ tpy}$

- (2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. Emission testing for the overall control efficiency of the scrubber shall be conducted within six (6) months of the effective date of this permit, and within twelve (12) months prior to the expiration date of this permit. The emission testing shall be conducted to demonstrate that the wet scrubber serving emissions units P006-P009 and P016-P017 is in compliance with the 90% control efficiency limitation for SO₂.
- b. The following test method(s) shall be employed to demonstrate compliance with the removal efficiency requirement for the scrubber:

Methods 1-4 and 6C for SO₂.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.) The test method and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

- c. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined by calculating the percent reduction in mass emissions between the inlet and outlet of the control system.
- d. The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.
- e. No later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Southeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to



submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Southeast District Office's refusal to accept the results of the emission test(s).

- f. Personnel from the Ohio EPA, Southeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Southeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Southeast District Office.

g) Miscellaneous Requirements

- (1) None.