

July 20, 2022

Division of Air Pollution Control
ATTN: Knoxville Environmental Field Office
3711 Middlebrook Pike
Knoxville, Tennessee 37921

Re: Heraeus Metal Processing, LLC
Permit 570857
SAR Correction (April 1, 2021 – September 30, 2021)

To Knoxville EFO,

Heraeus Metal Processing, LLC submits this correction to the previously submitted semiannual report for the period of April 1, 2021, through September 30, 2021. There are no changes to the compliance status of any condition.

Reason for Correction:

During preparation of the production and emission logs for the most recent semiannual report, Heraeus identified incorrect information in the logs submitted with previous reports. Heraeus changed production tracking software in January 2021. Certain permit conditions and emission logs are based on the production data from the new system. Production data is pulled from the system in a large report which is then sorted and consolidated using filters and pivot tables. This separates the production data for different sources and process steps, and it allows it to be input into the appropriate production and emission compliance logs.

Heraeus found that there were mistakes in the data ranges used to extract information for the pivot tables and in the applied filters. These mistakes impacted the reported data from January 2021 through September 2021, so this semiannual report period was affected. Heraeus reprocessed all affected production and emission data using the corrected data ranges and filters. The data has been included in the attached semiannual report correction.

Affected Conditions and Logs:

Though there are changes to the data, these corrections do not change the compliance status of any condition or limit. For more information regarding the changes, see Appendix C. The following conditions and logs are corrected in the attached semiannual report:

- E4-3: Source 01 Material Input
- E5-1: Source 04 Material Input
- E9-3: Source 12 Material Input
- Appendix A – VOC and HAP Logs:
 - o Monthly HAP's Logs (Condition E3-6) – April – September 2021
 - o Annual HAP's Log (Condition E3-6)
 - o Source 01 Emission Log (Condition E4-5 / E4-8)
 - o Source 12 Emission Log (Condition: E9-11)

If you have any questions concerning this report, please contact Andrew Morgan at 423-346-1065 or my consultant Shea Cofer at 615-418-1414.

Respectfully,

A handwritten signature in black ink, appearing to read "Norbert Ritschel", with a stylized flourish at the end.

Norbert Ritschel
Senior Vice President and Plant Manager

SEMI-ANNUAL REPORT CERTIFICATION

Facility Owner/Company Name: Heraeus Precious Metals North America, LLC

Facility Address: 1975 Knoxville Highway, Wartburg, TN

Emission Source Reference Number: 65-0049

Title V Permit Number	Reporting Period	Report Deadline
570857 AA2: 1/15/2021 AA3: 8/3/2021	April 1, 2021 through September 30, 2021	November 29, 2021

This report is required pursuant to TNAPCR 1200-03-09-.02(11)(e)1.(iii).

RESPONSIBLE OFFICIAL CERTIFICATION

I, the undersigned, am the responsible official as defined in TAPCR 1200-3-9-.02 (11)(b)21. of the Title V source for which this document is being submitted. I hereby certify, based on the information and belief formed after reasonable inquiry, that the statements made and data contained in this document are true, accurate, and complete.

Signature: _____.

Name: Norbert Ritschel_____.

Title: Sr. Vice President and Plant Manager Wartburg Facility.

Date: 7/26/2022_____.

SEMI-ANNUAL REPORT CERTIFICATION
Heraeus Precious Metals North America, LLC
Emission Source Reference No. 65-0049

Discussion of Administrative Amendment During Reporting Period:

Administrative Amendment #3: This amendment is based on the application letter dated June 22, 2021. This amendment changed the description of Source 01 to include the emergency bypass stack and added condition E4-4(d) which applies to the emergency bypass stack. This change does not impact regular operations or source emissions since the bypass stack is for emergency use and worker safety only.

Section I

Monitoring and Recordkeeping required by Permit Conditions *(including identification of all instances of deviations and identification of excursions and/or exceedances among the deviations)*:

- I. E3-2
- II. E3-6(MM3)
- III. E4-3
- IV. E4-4(MM4, AA1, AA3)
- V. E4-4(MM1, AA1, AA3)(b)(1)
- VI. E4-4(MM1, AA1, AA3)(c)(1)
- VII. E4-5(MM1) & E4-8
- VIII. E5-1
- IX. E5-2(MM2)
- X. E6-3 and E6-4(MM2)
- XI. E7-2
- XII. E7-3
- XIII. E7-4(MM4)
- XIV. E7-5(MM2)
- XV. E7-5(MM2)(c)(2)
- XVI. E8-1
- XVII. E9-3(MM1)
- XVIII. E9-4(MM3)
- XIX. E9-5(MM3)
- XX. E9-11(MM3)
- XXI. E13-3(AA2)
- XXII. E13-4(AA2)
- XXIII. E13-5(AA2)

- I. **Permit Condition: E3-2:** The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996, as amended September 11, 2013.

Visible Emissions Evaluations (VEEs) conducted in accordance with the opacity matrix on the dates shown below have been submitted with the previous semiannual report(s). The next VEE's will be conducted within one year of the Title V permit expiration, or by utilizing the opacity matrix.

Emission Source	Date of VEE	Highest 6-Minute Average
Source 01	11/16/2017	3.13%
Source 04	11/16/2017	0 %
Source 06	Not in Service	--
Source 09	<10 tpy each emission – Not required	--
Source 11	No. 2 fuel burning source – Not required	--
Source 12	4/26/2019	0%
Source 13	Each allowable emission >10 TPY is from a colorless pollutant (VOC) – not required	--

There were no discrepancies or deviations during this reporting period.

- II. **Permit Condition: E3-6(MM3):** The permittee shall assure compliance with the facility wide HAP limit of 9.9 tons per year for each individual HAP and 24.9 tons per year for all HAPs combined.

The HAPs log is included in Appendix A.

There were no discrepancies or deviations during this reporting period.

- III. **Permit Condition: E4-3:** The total raw material input to this source (01) shall not exceed 18,395 tons during any period of twelve (12) consecutive months. Material input is summarized in the table below.

Month	Material Input (lbs)	Material Input (Tons per rolling 12 months)
4/2021	79,221	753
5/2021	167,934	717
6/2021	130,200	686
7/2021	97,066	711
8/2021	59,974	680
9/2021	117,872	695

There were no discrepancies or deviations during this reporting period.

- IV. **Permit Condition: E4-4(MM4, AA1, AA3)**– Recordkeeping of surrogate monitoring and the use of pollution control equipment (quench tank, packed column, thermal oxidizer, packed tower scrubber and baghouse) is required to assure compliance with the particulate emission limit of 6.5 lb/hr. All required records are maintained on site in suitable permanent form and are available for inspection by the TNAPC.

Source 01 Cooling Chamber and Reburn Furnace Baghouse (Permit Limit: 0.5")

Time Period	Minimum Pressure Drop	Comments
4/2021	1.0" (4/4/21)	None
5/2021	1.4" (5/3/21)	None
6/2021	1.1" (6/7/21)	None
7/2021	0.9" (7/6/21)	None
8/2021	1.5" (8/30/21)	None
9/2021	1.3" (9/7/21)	None

- V. **Permit Condition: E4-4(MM4, AA1, AA3)(b)(1)** – The continuous monitoring equipment shall monitor the following operating parameters: scrubber liquor flow rate, in gallons per minute; and scrubber liquor pH, in standard pH units ($\text{pH} \geq 8.5$, and flow ≥ 100 gpm). Deviations during this report period are recorded below.

Source 01 Scrubber Summary

Time Period (mo/yr)	Minimum pH	Minimum Flow (gpm)	Comments
4/2021	8.73 (4/21/21)	321 (4/28/21)	None
5/2021	8.73 (5/11/21)	254 (5/12/21)	None
6/2021	8.73 (6/1/21)	293 (6/3/21)	None
7/2021	8.73 (7/15/21)	166 (7/27/21)	None
8/2021	8.69 (8/2/21)	353 (8/2/21)	None
9/2021	8.72 (9/8/21)	300 (9/30/21)	See Deviation 1 below.

Deviations during this report period are recorded below.

Deviation Number	Deviation Date	Deviation Description	Duration of Deviation (hrs)	Comments
1	9/8 – 9/30	The incorrect pH was continuously recorded in Historian.	17 Operational Days	Hourly manual logs were used to evaluate compliance during this period. No excess emissions occurred during the deviation.

EXPLANATION OR PROBABLE CAUSE FOR DEVIATION:

- A faulty wire connection resulted in incorrect pH values being recorded in Historian. There was a continuous data stream, and pH was being recorded, however, it did not accurately reflect the actual pH of the system. Historian checks occurred weekly during this timeframe to verify that there was a data connection, but due to the nature of the discrepancy, it was not identified until the monthly data review.

CORRECTIVE ACTIONS OR PREVENTATIVE MEASURES IMPLEMENTED:

- Maintenance replaced switch ports and wiring associated with this data stream. The wiring was the step that corrected the pH readings. The Historian data streams are checked weekly

to ensure connectivity, however additional care will be taken to ensure that the data stream is an accurate representation of the system.

IDENTIFICATION OF EXCURSIONS AND/OR EXCEEDANCES AMONG THE DEVIATIONS:

1. *This is an excursion from the continuous monitoring requirement, but not an excursion from the operating pH limit.. Hourly manual logs demonstrate compliance of scrubber pH during this data loss, so no exceedance occurred.*

VI. Permit Condition: E4-4(MM4, AA1, AA3)(c)(1) – The continuous monitoring equipment shall monitor the combustion temperature of the thermal oxidizer. (Temperature \geq 1400 F)

Oxidizer Temperature Summary

Time Period	Minimum Temperature (F)	Comments
4/2021	1471 (4/5/21)	None
5/2021	1300 (5/3/21)	The three-hour average associated with this time is 1483 F, so this is not a deviation.
6/2021	1556 (6/10/21)	None
7/2021	1585 (7/15/21)	This was the start of a malfunction. Production was stopped while the temperature was below the permit limit.
8/2021	1599 (8/4/21)	None
9/2021	1390 (9/20/21)	The lowest three-hour average associated with this time is 1466 F, so this is not a deviation.

There were no discrepancies or deviations during this reporting period.

Source 01 Operational Hours

Date	Historian Down (hrs)	Source Operation Down (hrs)	% Manual Data Not Available for Each 8hr Period	Explanation
4/1 10:30pm – 4/5 3am	0	76.5	0	Not processing
4/9 11pm – 4/12 5am	0	54	0	Not processing
4/16 10pm – 4/19 4am	0	54	0	Not processing
4/23 10pm – 4/26 4am	0	54	0	Not Processing
4/28 10pm – 5/3 5am	0	103	0	Not Processing
5/7 10pm – 5/10 4am	0	54	0	Not processing
5/14 4pm – 5/17 5am	0	61	0	Not processing
5/21 9am – 5/25 10am	0	97	0	Not Processing
5/28 10pm – 6/1 4am	0	54	0	Not Processing
6/4 10pm – 6/7 3am	0	53	0	Not processing
6/11 10pm – 6/15 1pm	0	87	0	Not processing
6/18 10pm – 6/21 3am	0	53	0	Not Processing
6/25 10pm – 6/28 3am	0	53	0	Not Processing
6/30 4pm – 7/6 6am	0	134	0	Not Processing
7/9 10:30pm – 7/12 3am	0	52.5	0	Not Processing
7/16 10:30pm – 7/19 3am	0	52.5	0	Not Processing
7/23 10:30pm – 7/26 12am	0	61.5	0	Not Processing
7/30 10pm – 8/2 3am	0	53	0	Not Processing
8/6 10pm – 8/8	0	50	0	Not Processing

Date	Historian Down (hrs)	Source Operation Down (hrs)	% Manual Data Not Available for Each 8hr Period	Explanation
8/13 3:30pm – 9/8 9am	0	25 days & 17.5 hours	0	Not Processing
9/8 9am – 9/30	17 days	0	0	Historian scrubber pH data does not accurately reflect actual pH. See Deviation for Condition E4-4(b)(1).
9/10 11pm – 9/13 10am	0	59	0	Not Processing
9/17 11pm – 9/20 8am	0	57	0	Not Processing
9/24 10pm – 9/27 12am	0	53	0	Not Processing

Except for the deviation stated above, Historian always operated properly during the operational report period. Manual records were recorded 100% of the report period.

VII. Permit Condition: E4-5(MM1) and E4-8: Volatile organic compounds (VOC) emitted from this source shall not exceed 10.89 tons during any period of twelve consecutive months. Compliance with this limitation shall be assured with recordkeeping of surrogate monitoring and the use of pollution control equipment (quench tank, packed column, thermal oxidizer, packed tower scrubber, and baghouse). The logs required in condition E4-4 and E4-8 shall be used to certify compliance with this condition.

VOC and HAP Emissions Logs for this report are available for review in Appendix A of this report.

The recordkeeping deviation for this period is reported in the Condition E4-4(b)(1) above.

VIII. Permit Condition: E5-1: The total raw material input to this source shall not exceed 8,069 tons during any twelve (12) consecutive months. Material input is summarized in the table below.

Month	Material Input (lbs)	Material Input (Tons per rolling 12 months)
4/2021	16,644	486
5/2021	31,930	424
6/2021	45,626	381
7/2021	42,781	352
8/2021	53,016	342
9/2021	27,547	305

There were no discrepancies or deviations during this reporting period.

IX. Permit Condition: E5-2(MM2): Particulate matter emitted from this source shall not exceed 3.41 pounds per hour (lb/hr) on a daily average basis.

Compliance Method: Compliance with this emission limitation shall be assured by maintaining a minimum pressure drop across the filter media of 0.25 inches of water column. The pressure drop shall be recorded daily while this source is operating. This log shall be used to assure compliance with this condition and in the reporting requirements of Condition E2 of this permit and must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition E2 of this permit.

Ball Mill Baghouse Pressure Drop Summary

Time Period	Minimum Pressure Drop			Comments
	Low Grade BH	High Grade BH	Tray Roast BH	
4/2021	5.0" (4/13/21)	0.5" (4/13/21)	0.0" (4/12/21)	See Deviation 1 below. No exceedance.
5/2021	3.5" (5/28/21)	0.5" (5/10/21)	0.0" (5/3/21)	See Deviation 2 below. No exceedance.
6/2021	1.0" (6/1/21)	0.5" (6/1/21)	2.5" (6/4/21)	None
7/2021	2.0" (7/2/21)	1.5" (7/2/21)	2.0" (7/12/21)	None
8/2021	3.0" (8/30/21)	3.5" (8/2/21)	3.5" (8/2/21)	See Deviation 3 below. No exceedance.
9/2021	2.0" (9/8/21)	1.0" (9/28/21)	2.0" (9/20/21)	None

Deviations during this report period are recorded below.

Deviation Number	Deviation Date	Deviation Description	Duration of Deviation (hrs)	Comments
1	4/12 – 4/16	Roast baghouse pressure gauge read zero.	Sporadic over 5 days	Gauge malfunctions occurred on one or more gauges during 8 of the 30 readings taken on these 5 days.
2	5/3 – 5/6	Roast baghouse pressure gauge read zero.	Sporadic over 4 days	Gauge malfunctions occurred on one or more gauges during 6 of the 24 readings taken on these 5 days.
3	8/16 – 8/18	No Low Grade or High Grade baghouse pressure drop records available.	3 days	None.

EXPLANATION OR PROBABLE CAUSE FOR DEVIATION:

1. Gauge malfunctions.
2. Gauge malfunctions.
3. Daily pressure drops were not recorded, or they were misplaced.

CORRECTIVE ACTIONS OR PREVENTATIVE MEASURES IMPLEMENTED:

1. Maintenance was contacted. The gauge lines were cleared of water, and the gauges were re-zeroed. After repeat occurrences some were replaced.
2. Maintenance was contacted. The gauge lines were cleared of water, and the gauges were re-zeroed. After repeat occurrences some were replaced.
3. Personnel were retrained in the importance of maintaining daily pressure drop logs.

IDENTIFICATION OF EXCURSIONS AND/OR EXCEEDANCES AMONG THE DEVIATIONS:

1. This was a gauge malfunction. The control equipment was still operating as indicated by the non-zero readings between the malfunctions. No exceedance occurred.
2. This was a gauge malfunction. The control equipment was still operating as indicated by the non-zero readings between the malfunctions. No exceedance occurred.
3. This was an excursion from the permit requirement to maintain daily logs, however, greater than 95% of the records were available during the reporting period. The baghouse was operating during the time period when the logs were missed, and pressure drops prior to and following the missed readings are above permit limits, so no exceedance occurred.

X. Permit Conditions E6-3 and E6-4(MM2): - This Source (Crucible Furnace) did not operate during the reporting period of April 1, 2020 through September 30, 2020.

XI. Permit Condition E7-2: Only natural gas may be used as fuel.
The source did not operate during the reporting period.

XII. Permit Condition E7-3: The total raw material input to this source shall not exceed 1,500 pounds per hour on a daily basis. The table below shows the maximum lb/hr input for each month.

Time Period	Maximum Raw Material Input (lb/hr)	Comments
4/2021	N/A	Not processing.
5/2021	N/A	Not processing
6/2021	N/A	Not processing
7/2021	N/A	Not processing.
8/2021	N/A	Not processing
9/2021	N/A	Not processing

There were no discrepancies or deviations during this reporting period.

XIII. Permit Condition E7-4(MM4): Particulate matter emitted from this source shall not exceed 0.02 grains per dry cubic foot of stack gases corrected to 70°F and 1 atmosphere (0.23 pounds per hour (lb/hr)).

Compliance Method: Compliance with this emission limitation shall be assured by maintaining a minimum pressure drop across the filter media of 0.5 inch of water column. The pressure drop shall be recorded daily while this source is operating. This log shall be used to assure compliance with this condition and in the reporting requirements of Condition E2 of this permit and must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition E2 of this permit.

Rotary Baghouse Pressure Drop Summary

Time Period	Minimum Pressure Drop (inches H ₂ O)	Comments
4/2021	N/A	Not processing
5/2021	N/A	Not processing
6/2021	N/A	Not processing
7/2021	N/A	Not processing
8/2021	N/A	Not processing
9/2021	N/A	Not processing

There were no discrepancies or deviations during this reporting period.

XIV. Permit Condition E7-5(MM2): Volatile organic compounds (VOC) emitted from this source shall not exceed 3.0 tons during any period of twelve consecutive months.

The source did not operate during the reporting period. VOC and HAP Emissions Logs for this report are available for review in Appendix A of this report. There were no discrepancies or deviations during this reporting period.

- XV. Permit Condition E7-5(MM2)(c)(2):** The continuous monitoring equipment shall monitor the combustion chamber temperature of the furnace.

Note: Equipment is set up to prevent loading of material unless the furnace is at or above permitted temperature.

Rotary Combustion Chamber Temperature Summary:

Time Period	Minimum Temperature (F)	Comments
4/2021	N/A	Not processing.
5/2021	N/A	Not processing.
6/2021	N/A	Not processing.
7/2021	N/A	Not processing.
8/2021	N/A	Not processing.
9/2021	N/A	Not processing.

There were no discrepancies or deviations during this reporting period.

Source 09 Operating Hours

Date	Historian Down (hrs)	Source Operation (hrs)	% Manual Data Not Available for Each 8hr Period	Explanation
4/2021	0	N/A	N/A	Not processing.
5/2021	0	N/A	N/A	Not processing.
6/2021	0	N/A	N/A	Not processing.
7/2021	0	N/A	N/A	Not processing.
8/2021	0	N/A	N/A	Not processing.
9/2021	0	N/A	N/A	Not processing.

- XVI. Permit Condition E8-1:** Emergency engine operating hours restricted. Maintain a log of operating hours.

There were no discrepancies or deviations during this reporting period. Summary table is included in Appendix B.

- XVII. Permit Condition E9-3(MM1):** Raw material input limit of 5,111 tons during 12 consecutive months.

Month	Material Input (lbs)	Material Input (Tons per rolling 12 months)
4/2021	53,361	306
5/2021	49,915	312
6/2021	53,717	307
7/2021	59,780	310
8/2021	38,004	298
9/2021	56,208	289

There were no discrepancies or deviations during this reporting period.

XVIII. Permit Condition E9-4(MM3): Particulate matter emitted from this source shall not exceed 4.96 pounds per hour (lb/hr) based on daily average basis.

Compliance Method: The permittee shall assure compliance with the particulate matter emission limitation by keeping the pressure drop across the baghouse equal to or above 1.3 inches of water. The control equipment shall be operating at all times when the source is operating. The pressure drop for the baghouse shall be recorded once daily when the source is in operation. The days when the source does not operate shall be noted. For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

Source 12 Baghouse Pressure Drop Summary

Time Period	Minimum Pressure Drop ("H ₂ O)	Comments
4/2021	2.9 (4/1/21)	None
5/2021	3.0 (5/11/21)	None
6/2021	2.9 (6/11/21)	None
7/2021	3.0 (7/2/21)	None
8/2021	2.0 (8/4/21)	None
9/2021	2.5 (10/3/21)	None

XIX. Permit Condition E9-5(MM3): Volatile organic compounds (VOC) emitted from this source shall not exceed 32.11 tons during any period of twelve consecutive months.

Compliance Method: Compliance with this limitation shall be assured with recordkeeping of surrogate monitoring and the use of pollution control equipment (afterburner). The logs required in Conditions E9-4(MM3) and E9-8(MM3) shall be used to certify compliance with this condition. Certifications shall be submitted in accordance with Condition E2.

Source 12 Afterburner Temperature Summary

Time Period	Minimum Temperature (F)	Comments
4/2021	1383 (4/16/21)	This was a malfunction, not a Deviation. Processing was stopped and maintenance was called. Temp was below permit limit for approximately 10 minutes before processing was stopped, so the 3-hr average was above the permit limit.
5/2021	1445 (5/11/21)	None
6/2021	1497 (6/25/21)	None
7/2021	1464 (7/1/21)	None
8/2021	1460 (8/19/21)	None
9/2021	1548 (9/24/21)	None

There were no discrepancies or deviations during this reporting period.

Operational Hours – Source 12 Tray Furnaces with Afterburner

Date	Historian/ Control Equipment Down (hrs)	Source Operation Down (hrs)	% Manual Data Not Available for Each 8hr Period	Explanation
4/2-4, 6, 8, 10-11, 15, 17-18, 20, 24-25, 27-28	0	360	0	No Production
5/1-3, 8-9, 12-13, 15-17, 22-25, 27, 29-31	0	432	0	No Production
6/4-6, 11-13, 15, 19-20, 24, 26-27, 29	0	312	0	No Production
7/2-5, 10-11, 13-14, 17-18, 24-25, 31	0	312	0	No Production
8/1, 7-8, 13-16, 20-29	0	408	0	No Production
9/4-6, 8, 11-12, 14, 17-19, 25-26	0	288	0	No Production

Note: Source does not standardly operate outside of 7am – 6pm

- XX. Permit Condition E9-11(MM1)(MM3):** Calculate actual quantities of VOC and organic HAPs emitted in a log.

VOC and HAP emission calculations for this source are included in Appendix A.

- XXI. Permit Condition E13-3(AA2) -** The total raw material input to this source shall not exceed 12.5 tons during any period of twelve (12) consecutive months.

Month	Material Input (lbs)	Material Input (Tons per rolling 12 months)
1/2021	1,200	0.6
2/2021	0	0.6
3/2021	0	0.6
4/2021	0	0.6
5/2021	0	0.6
6/2021	0	0.6
7/2021	356	0.8
8/2021	0	0.8
9/2021	1,926	1.7

There were no discrepancies or deviations during this reporting period. Please note that the previous semiannual report did not note the few days of operation in January. This was preliminary material and process testing and is included in the table above and in all required emission logs. The control equipment was operating during all processing as required by the conditions below.

XXII. Permit Condition E13-4(MM3) Particulate matter emitted from the Rhodium-Oil Furnace shall not exceed **0.3** pounds per hour (lb/hr) based on a daily average.

Compliance Method: The permittee shall assure compliance with the PM emission limitations by operating, maintaining, and inspecting the air pollution control devices (APCD) as follows:

- (a) The permittee shall comply with **Conditions E3-3 and E3-4** of this permit.
- (b) Compliance with this requirement shall be assured through the use of a baghouse to control particulate emissions. A new wet scrubber will collect emissions from the furnace and will exhaust to the existing baghouse. Within 30 days of start-up of the new wet scrubber at this source, the permittee shall begin taking daily pressure drop readings for the baghouse when the new scrubber is in operation. The first thirty (30) days of pressure drop (inches of water column) readings shall be compiled in a log. The designated person(s) shall note any relevant baghouse conditions/problems/concerns when recording the values. This data shall be submitted to the Division, along with a proposed minimum pressure drop for the baghouse, no later than 15 days following the 30 days of readings. The minimum pressure drop value for compliance assurance will be incorporated into the permit.
- (c) (Not applicable during this reporting period.)

There were no discrepancies or deviations during this reporting period. 30 days of pressure drop readings were still being collected at the end of this reporting period. They have since been completed and submitted to the Bureau in accordance with the E13-4 (b), and Heraeus will continue to maintain daily logs while the source is in operation.

XXIII. Permit Condition E13-5(AA2) - Volatile organic compounds (VOC) emitted from the Rhodium-Oil Furnace shall not exceed **12.5** tons during any period of twelve consecutive months.

Compliance Method: The permittee shall assure compliance with the VOC emission limitation by complying with the heat input capacity restriction and the raw material input limit and by operating, maintaining, and inspecting the air pollution control devices (APCD).

There were no discrepancies or deviations during this reporting period.

SEMI-ANNUAL REPORT CERTIFICATION

Heraeus Precious Metals North America, LLC
Emission Source Reference No. 65-0049

Section II

Identification of all instances of deviations from ALL PERMIT REQUIREMENTS.

No deviations have occurred from the requirements in Conditions E1(MM3, AA1), E2, E3-1 through E3-5, E3-7, E3-8, E4-1(MM4), E4-2(MM1), E4-6(MM4), E4-7, E4-9(MM4), E6-1, E6-2, E6-5, E6-6, E6-7, E7-1, E7-6, E7-7, E8-2 through E8-10, E9-1(MM3), E9-2(MM3), E9-6, E9-7(MM3) through E9-10(MM1), E13-1(MM3), E13-2(MM3), E13-6(MM3), E13-7(MM3) and relevant conditions of Section A and B and all conditions of Section D.

There were no other instances of deviations from the rest of the permit conditions or requirements.

SEMI-ANNUAL REPORT CERTIFICATION
Heraeus Precious Metals North America, LLC
Emission Source Reference No. 65-0049

APPENDIX A
Permit Condition E3-6, E4-5, E4-8, E7-5, E9-11
VOC & HAP Logs

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
April 2021

Process Source	Arsenic 7440-38-2 (lbs/month)	Cobalt 7440-48-4 (lbs/month)	Chromium 7440-47-3 (lbs/month)	Nickel 8049-31-8 (lbs/month)	Lead 7439-92-1 (lbs/month)	Selenium 7782-49-2 (lbs/month)	Tetrachloroethene 127-18-4 (lbs/month)	Mercury (lbs/month)	Cadmium (lbs/month)	Antimony (lbs/month)	Methanol (lbs/month)	Benzene 71-43-2 (lbs/month)	Ethylbenzene (lbs/month)
65-0049-01	0.00	0.00	0.00	0.05	0.10	0.00	0.00	0.00	0.05	0.00	28.33	0.00	0.00
65-0049-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00
65-0049-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-12	0.00	0.01	2.57	2.49	0.12	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
65-0049-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.01	2.57	2.54	0.23	0.00	0.00	0.00	0.06	0.00	28.66	0.00	0.00

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
April 2021

Xylene (lbs/month)	Toluene 108-88-3 (lbs/month)	Cumene (lbs/Month)	P-Cresol (lbs/Month)	Isophorone (lbs/month)	HCl (lbs/month)	Naphthalene (lbs/month)	Biphenyl (lbs/month)	Phenol 108-95-2 (lbs/month)	Phosphorus (lbs/month)	Manganese Compounds (lbs/month)	Chlorine (lbs/month)	HF (lbs/month)	Dimethylformam ide (lbs/month)	Total HAP Emissions (lbs/month)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.53
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.20
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.07

Pounds Processed
79,221
16,644
0
0
53,361
0
149,226

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
May 2021

Process Source	Arsenic 7440-38-2 (lbs/month)	Cobalt 7440-48-4 (lbs/month)	Chromium 7440-47-3 (lbs/month)	Nickel 8049-31-8 (lbs/month)	Lead 7439-92-1 (lbs/month)	Selenium 7782-49-2 (lbs/month)	Tetrachloroethene 127-18-4 (lbs/month)	Mercury (lbs/month)	Cadmium (lbs/month)	Antimony (lbs/month)	Methanol (lbs/month)	Benzene 71-43-2 (lbs/month)	Ethylbenzene (lbs/month)
65-0049-01	0.09	0.18	0.09	0.09	1.65	0.00	0.00	0.00	0.09	0.18	74.48	0.00	0.00
65-0049-04	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00
65-0049-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-12	0.00	0.00	1.59	1.58	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.09	0.19	1.68	1.67	1.68	0.00	0.00	0.00	0.10	0.19	75.10	0.00	0.00

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
May 2021

Xylene (lbs/month)	Toluene 108-88-3 (lbs/month)	Cumene (lbs/Month)	P-Cresol (lbs/Month)	Isophorone (lbs/month)	HCl (lbs/month)	Naphthalene (lbs/month)	Biphenyl (lbs/month)	Phenol 108-95-2 (lbs/month)	Phosphorus (lbs/month)	Manganese Compounds (lbs/month)	Chlorine (lbs/month)	HF (lbs/month)	Dimethylformam ide (lbs/month)	Total HAP Emissions (lbs/month)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.87
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	1.69	0.05	0.00	4.95
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	1.69	0.05	0.00	82.46

Pounds Processed
167,934
31,930
0
0
49,915
0
249,779

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
June 2021

Process Source	Arsenic 7440-38-2 (lbs/month)	Cobalt 7440-48-4 (lbs/month)	Chromium 7440-47-3 (lbs/month)	Nickel 8049-31-8 (lbs/month)	Lead 7439-92-1 (lbs/month)	Selenium 7782-49-2 (lbs/month)	<i>Tetrachloroethene</i> 127-18-4 (lbs/month)	Mercury (lbs/month)	Cadmium (lbs/month)	Antimony (lbs/month)	Methanol (lbs/month)	Benzene 71-43-2 (lbs/month)	Ethylbenzene (lbs/month)
65-0049-01	0.00	7.68	0.59	7.04	7.95	0.00	0.00	0.00	0.95	0.00	38.09	0.00	0.00
65-0049-04	0.00	0.11	0.01	0.10	0.12	0.00	0.00	0.00	0.01	0.00	0.56	0.00	0.00
65-0049-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-12	0.00	0.00	0.16	0.13	0.04	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
65-0049-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	7.79	0.76	7.27	8.10	0.00	0.00	0.00	0.99	0.00	38.65	0.00	0.00

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
June 2021

Xylene (lbs/month)	Toluene 108-88-3 (lbs/month)	Cumene (lbs/Month)	P-Cresol (lbs/Month)	Isophorone (lbs/month)	HCl (lbs/month)	Naphthalene (lbs/month)	Biphenyl (lbs/month)	Phenol 108-95-2 (lbs/month)	Phosphorus (lbs/month)	Manganese Compounds (lbs/month)	Chlorine (lbs/month)	HF (lbs/month)	Dimethylformam ide (lbs/month)	Total HAP Emissions (lbs/month)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.29
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.37
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	63.57

Pounds Processed
130,200
45,626
0
0
53,717
0
229,543

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
July 2021

Process Source	Arsenic 7440-38-2 (lbs/month)	Cobalt 7440-48-4 (lbs/month)	Chromium 7440-47-3 (lbs/month)	Nickel 8049-31-8 (lbs/month)	Lead 7439-92-1 (lbs/month)	Selenium 7782-49-2 (lbs/month)	Tetrachloroethene 127-18-4 (lbs/month)	Mercury (lbs/month)	Cadmium (lbs/month)	Antimony (lbs/month)	Methanol (lbs/month)	Benzene 71-43-2 (lbs/month)	Ethylbenzene (lbs/month)
65-0049-01	0.00	1.99	0.00	1.99	2.30	0.00	0.00	0.00	0.00	0.00	65.04	0.00	0.00
65-0049-04	0.00	0.02	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00
65-0049-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-12	0.00	0.00	0.04	0.44	0.33	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00
65-0049-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	2.02	0.04	2.45	2.66	0.00	0.00	0.00	0.16	0.00	65.82	0.00	0.00

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
July 2021

Xylene (lbs/month)	Toluene 108-88-3 (lbs/month)	Cumene (lbs/Month)	P-Cresol (lbs/Month)	Isophorone (lbs/month)	HCl (lbs/month)	Naphthalene (lbs/month)	Biphenyl (lbs/month)	Phenol 108-95-2 (lbs/month)	Phosphorus (lbs/month)	Manganese Compounds (lbs/month)	Chlorine (lbs/month)	HF (lbs/month)	Dimethylformam ide (lbs/month)	Total HAP Emissions (lbs/month)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.33
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.15

Pounds Processed
97,066
42,781
0
0
59,780
0
199,626

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
August 2021

Process Source	Arsenic 7440-38-2 (lbs/month)	Cobalt 7440-48-4 (lbs/month)	Chromium 7440-47-3 (lbs/month)	Nickel 8049-31-8 (lbs/month)	Lead 7439-92-1 (lbs/month)	Selenium 7782-49-2 (lbs/month)	Tetrachloroethene 127-18-4 (lbs/month)	Mercury (lbs/month)	Cadmium (lbs/month)	Antimony (lbs/month)	Methanol (lbs/month)	Benzene 71-43-2 (lbs/month)	Ethylbenzene (lbs/month)
65-0049-01	0.00	8.83	0.18	12.39	16.42	0.00	0.00	0.00	4.05	0.00	21.16	0.00	0.00
65-0049-04	0.00	0.15	0.00	0.21	0.28	0.00	0.00	0.00	0.07	0.00	0.36	0.00	0.00
65-0049-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-12	0.00	0.01	0.04	0.04	0.07	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
65-0049-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	8.99	0.23	12.64	16.77	0.00	0.00	0.00	4.13	0.00	21.51	0.00	0.00

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
August 2021

Xylene (lbs/month)	Toluene 108-88-3 (lbs/month)	Cumene (lbs/Month)	P-Cresol (lbs/Month)	Isophorone (lbs/month)	HCl (lbs/month)	Naphthalene (lbs/month)	Biphenyl (lbs/month)	Phenol 108-95-2 (lbs/month)	Phosphorus (lbs/month)	Manganese Compounds (lbs/month)	Chlorine (lbs/month)	HF (lbs/month)	Dimethylformam ide (lbs/month)	Total HAP Emissions (lbs/month)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.27

Pounds Processed
59,974
53,016
0
0
38,004
0
150,994

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
September 2021

Process Source	Arsenic 7440-38-2 (lbs/month)	Cobalt 7440-48-4 (lbs/month)	Chromium 7440-47-3 (lbs/month)	Nickel 8049-31-8 (lbs/month)	Lead 7439-92-1 (lbs/month)	Selenium 7782-49-2 (lbs/month)	Tetrachloroethene 127-18-4 (lbs/month)	Mercury (lbs/month)	Cadmium (lbs/month)	Antimony (lbs/month)	Methanol (lbs/month)	Benzene 71-43-2 (lbs/month)	Ethylbenzene (lbs/month)
65-0049-01	0.10	9.72	0.10	13.66	18.62	0.00	0.00	0.00	4.15	0.20	25.87	0.00	0.00
65-0049-04	0.00	0.07	0.00	0.10	0.14	0.00	0.00	0.00	0.03	0.00	0.20	0.00	0.00
65-0049-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65-0049-12	0.00	0.00	0.17	0.21	0.32	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
65-0049-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.10	9.80	0.27	13.97	19.08	0.00	0.00	0.00	4.33	0.20	26.07	0.00	0.00

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
Wartburg, Tennessee

Monthly HAP's Log
(65-0049 - Permit Condition E3-6)
September 2021

Xylene (lbs/month)	Toluene 108-88-3 (lbs/month)	Cumene (lbs/Month)	P-Cresol (lbs/Month)	Isophorone (lbs/month)	HCl (lbs/month)	Naphthalene (lbs/month)	Biphenyl (lbs/month)	Phenol 108-95-2 (lbs/month)	Phosphorus (lbs/month)	Manganese Compounds (lbs/month)	Chlorine (lbs/month)	HF (lbs/month)	Dimethylformam ide (lbs/month)	Total HAP Emissions (lbs/month)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.42
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	2.30	0.26	0.00	3.52
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	2.30	0.26	0.00	76.49

Pounds Processed
117,872
27,547
0
0
56,208
1,926
203,553

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC (HPMN)
Wartburg, Tennessee

Annual HAP's Log
(65-0049 - Permit Condition E3-6)

Month	Arsenic 7440-38-2 (lbs/month)	Arsenic 7440-38-2 (lbs/12-month)	Cobalt 7440-48-4 (lbs/month)	Cobalt 7440-48-4 (lbs/12-month)	Chromium 7440-47-3 (lbs/month)	Chromium 7440-47-3 (lbs/12-month)	Nickel 8049-31-8 (lbs/month)	Nickel 8049-31-8 (lbs/12-month)	Lead 7439-92-1 (lbs/month)	Lead 7439-92-1 (lbs/12-month)	Selenium 7782-49-2 (lbs/month)	Selenium 7782-49-2 (lbs/12-month)
Apr-21	0.00	1.57	0.01	124.39	2.57	63.68	2.54	564.55	0.23	166.32	0.00	0.57
May-21	0.09	1.06	0.19	122.19	1.68	61.79	1.67	540.38	1.68	153.20	0.00	0.00
Jun-21	0.00	0.93	7.79	110.61	0.76	62.52	7.27	417.93	8.10	130.82	0.00	0.00
Jul-21	0.00	0.93	2.02	99.10	0.04	62.56	2.45	363.09	2.66	118.71	0.00	0.00
Aug-21	0.00	0.93	8.99	103.31	0.23	62.78	12.64	311.73	16.77	131.42	0.00	0.00
Sep-21	0.10	0.91	9.80	107.44	0.27	62.93	13.97	243.75	19.08	130.04	0.00	0.00

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC (HPMN)
Wartburg, Tennessee

Annual HAP's Log
(65-0049 - Permit Condition E3-6)

Month	<i>Tetrachloroethene</i> 127-18-4 (lbs/month)	<i>Tetrachloroethene</i> 127-18-4 (lbs/12-month)	Mercury (lbs/month)	Mercury (lbs/12-month)	Cadmium (lbs/month)	Cadmium (lbs/12-month)	Antimony (lbs/month)	Antimony (lbs/12-month)	Methanol (lbs/month)	Methanol (lbs/12-month)	Benzene 71-43-2 (lbs/month)	Benzene 71-43-2 (lbs/12-month)
Apr-21	0.00	0.00	0.00	0.00	0.06	1.88	0.00	0.96	28.66	272.89	0.00	0.00
May-21	0.00	0.00	0.00	0.00	0.10	1.97	0.19	0.84	75.10	308.95	0.00	0.00
Jun-21	0.00	0.00	0.00	0.00	0.99	2.96	0.00	0.84	38.65	304.16	0.00	0.00
Jul-21	0.00	0.00	0.00	0.00	0.16	3.12	0.00	0.84	65.82	363.16	0.00	0.00
Aug-21	0.00	0.00	0.00	0.00	4.13	7.26	0.00	0.84	21.51	384.67	0.00	0.00
Sep-21	0.00	0.00	0.00	0.00	4.33	11.58	0.20	0.81	26.07	410.74	0.00	0.00

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC (HPMN)
Wartburg, Tennessee

Annual HAP's Log
(65-0049 - Permit Condition E3-6)

Month	Toluene (lbs/month)	Toluene (lbs/12-month)	Xylene (lbs/month)	Xylene (lbs/12-month)	Ethylbenzene (lbs/month)	Ethylbenzene (lbs/12-month)	Cumene (lbs/Month)	Cumene (lbs/12-Month)	P-Cresol (lbs/Month)	P-Cresol (lbs/12-Month)	Isophorone (lbs/month)	Isophorone (lbs/12-month)
Apr-21	0.06	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
May-21	0.10	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jun-21	0.99	2.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jul-21	0.16	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug-21	4.13	7.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep-21	4.33	11.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC (HPMN)
Wartburg, Tennessee

Annual HAP's Log
(65-0049 - Permit Condition E3-6)

Month	HCl (lbs/month)	HCl (lbs/12-month)	Naphthalene (lbs/month)	Naphthalene (lbs/12-month)	Biphenyl (lbs/month)	Biphenyl (lbs/12-month)	Phenol (lbs/month)	Phenol (lbs/12-month)	Phosphorus (lbs/month)	Phosphorus (lbs/12-month)	Manganese Compounds (lbs/month)	Manganese Compounds (lbs/12-month)
Apr-21	0.00	20.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00
May-21	0.00	20.87	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.13	0.00	0.00
Jun-21	0.00	20.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.01
Jul-21	0.00	20.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.01
Aug-21	0.00	13.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.01
Sep-21	0.00	13.99	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.24	0.00	0.02

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC (HPMN)
Wartburg, Tennessee

Annual HAP's Log
(65-0049 - Permit Condition E3-6)

Month	Chlorine (lbs/month)	Chlorine (lbs/12-month)	HF (lbs/month)	HF (lbs/12-month)	Dimethylformam ide (lbs/month)	Dimethylformam ide (lbs/12-month)	Total HAP Emissions (lbs/month)	Total HAP Emissions (lbs/12-month)
Apr-21	0.00	1.14	0.00	0.24	0.00	9.72	34.1	1,238.2
May-21	1.69	2.83	0.05	0.29	0.00	9.72	82.5	1,228.5
Jun-21	0.00	2.83	0.00	0.29	0.00	9.72	63.6	1,068.9
Jul-21	0.00	2.83	0.00	0.29	0.00	9.72	73.1	1,049.6
Aug-21	0.00	2.83	0.00	0.29	0.00	9.72	64.3	1,034.1
Sep-21	2.30	5.13	0.26	0.55	0.00	9.72	76.5	998.3

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC

Wartburg, Tennessee

Permit No. 570857

Source 01

Condition: E4-5 / E4-8

2021

Month	Material Input (lbs)	Mat'l Input (Tons per rolling 12 months)	VOC Pounds	VOC (Tons per rolling 12 months)	Arsenic 7440-38-2 (lbs)	Cobalt 7440-48-4 (lbs)	Chromium 7440-47-3 (lbs)	Nickel 8049-31-8 Ni (lbs)	Lead 7439-92-1 (lbs)	Selenium 7782-49-2 (lbs)	Mercury (lbs)	Cadmium (lbs)	Antimony (lbs)
Apr-21	79,221	753	141.6	1.36	0.00	0.00	0.00	0.05	0.10	0.00	0.00	0.05	0.00
May-21	167,934	717	538.0	1.38	0.09	0.18	0.09	0.09	1.65	0.00	0.00	0.09	0.18
Jun-21	130,200	686	243.1	1.16	0.00	7.68	0.59	7.04	7.95	0.00	0.00	0.95	0.00
Jul-21	97,066	711	349.1	1.29	0.00	1.99	0.00	1.99	2.30	0.00	0.00	0.00	0.00
Aug-21	59,974	680	107.5	1.31	0.00	8.83	0.18	12.39	16.42	0.00	0.00	4.05	0.00
Sep-21	117,872	695	286.2	1.38	0.10	9.72	0.10	13.66	18.62	0.00	0.00	4.15	0.20

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC

Wartburg, Tennessee

Permit No. 570857

Source 01

Condition: E4-5 / E4-8

2021

[illegible]

Wartburg, Tennessee

Permit No. 570857

Source 09

Condition: 7-5

Source 65-0049-09

2021

[illegible]

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC

Wartburg, Tennessee

Permit No. 570857

Source 12

Condition: E9-11

2021

Month	Material Input (lbs)	Mat'l Input (Tons per rolling 12 months)	VOC Emissions from Process (Lbs)	VOC Emissions (Tons per rolling 12 months)	Arsenic 7440-38-2 (lbs)	Cobalt 7440-48-4 (lbs)	Chromium 7440-47-3 (lbs)	Nickel 8049-31-8 Ni (lbs)	Lead 7439-92-1 (lbs)	Selenium 7782-49-2 (lbs)	Mercury (lbs)	Cadmium (lbs)	Antimony (lbs)	Methanol (lbs)
Apr-21	53,361	306	0.00	0.00	0.00	0.01	2.57	2.49	0.12	0.00	0.00	0.01	0.00	0.00
May-21	49,915	312	0.00	0.00	0.00	0.00	1.59	1.58	0.02	0.00	0.00	0.00	0.00	0.00
Jun-21	53,717	307	0.00	0.00	0.00	0.00	0.16	0.13	0.04	0.00	0.00	0.03	0.00	0.00
Jul-21	59,780	310	0.00	0.00	0.00	0.00	0.04	0.44	0.33	0.00	0.00	0.16	0.00	0.00
Aug-21	38,004	298	0.00	0.00	0.00	0.01	0.04	0.04	0.07	0.00	0.00	0.02	0.00	0.00
Sep-21	56,208	289	0.00	0.00	0.00	0.00	0.17	0.21	0.32	0.00	0.00	0.15	0.00	0.00

HERAEUS PRECIOUS METALS NORTH AMERICA, LLC

Wartburg, Tennessee

Permit No. 570857

Source 12

Condition: E9-11

2021

Month	Benzene (lbs)	Ethyl Benzene (lbs)	Xylene (lbs)	Toluene (lbs)	Cumene (lbs)	P-Cresol (lbs)	Isophorone (lbs)	HCl (lbs)	Phenol (lbs)	Phosphorus (lbs)	Manganese Compounds (lbs)	Chlorine (lbs)	HF (lbs)	Total HAPs (lbs)	Total HAPs (Tons per rolling 12 months)
Apr-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.20	0.16
May-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	1.69	0.05	4.95	0.15
Jun-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.37	0.12
Jul-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.09
Aug-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.09
Sep-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	2.30	0.26	3.52	0.06

SEMI-ANNUAL REPORT CERTIFICATION
Heraeus Precious Metals North America, LLC
Emission Source Reference No. 65-0049

APPENDIX B

Permit Condition E8-1

Emergency Engine Hours of Operation Log

HERAEUS METAL PROCESSING, LLC

Wartburg, Tennessee

1000 KW Emergency Generator
(Operating Log - Permit No. 570857)

Logs for Emergency Engine

Date	Emergency Operation (hr/mon)	Emergency Operation (hr/12 consecutive months)	Maintenance Checks and Readiness Testing (hr/mon)	Maintenance Checks and Readiness Testing (hr/12 consecutive months)	Non-Emergency Operation (hr/mon)	Non-Emergency Operation (hr/12 consecutive month)	Hours of Operation Total (hr/mon)	Hours of Operation Total (hr/12 consecutive month)
		Column A		Column B		Column C		Column D
Oct-2020		0.00	2.80	32.70		0.00	2.80	32.7
Nov-2020		0.00	3.50	32.70		0.00	3.50	32.7
Dec-2020		0.00	2.80	32.70		0.00	2.80	32.7
Jan-2021		0.00	0.40	30.80		0.00	0.40	30.8
Feb-2021		0.00	0.40	28.90		0.00	0.40	28.9
Mar-2021		0.00	1.70	28.30		0.00	1.70	28.3
Apr-2021		0.00	2.00	28.00		0.00	2.00	28.0
May-2021		0.00	3.40	29.00		0.00	3.40	29.0
Jun-2021		0.00	2.80	28.50		0.00	2.80	28.5
Jul-2021	2	2.00	4.80	30.90		0.00	6.80	32.9
Aug-2021		2.00	3.50	30.90		0.00	3.50	32.9
Sep-2021	2	4.00	4.80	32.90		0.00	6.80	36.9

SEMI-ANNUAL REPORT CERTIFICATION
Heraeus Precious Metals North America, LLC
Emission Source Reference No. 65-0049

APPENDIX C
Record of Corrected Data (July 2022)

SEMI-ANNUAL REPORT CERTIFICATION

Heraeus Precious Metals North America, LLC
Emission Source Reference No. 65-0049

Record of Corrected Data

The semiannual report was corrected and resubmitted in July 2022. There were no changes to the compliance of any condition. See the cover letter of this report for details. For reference, the conditions and logs that have been corrected are noted below.

Permit Condition: E4-3: The total raw material input to this source (01) shall not exceed 18,395 tons during any period of twelve (12) consecutive months. Material input is summarized in the table below.

Month	Material Input (lbs)	Material Input (Tons per rolling 12 months)
4/2021	36,118	695
5/2021	84,904	619
6/2021	117,700	581
7/2021	93,144	604
8/2021	38,755	562
9/2021	95,121	566

Permit Condition: E5-1: The total raw material input to this source shall not exceed 8,069 tons during any twelve (12) consecutive months. Material input is summarized in the table below.

Month	Material Input (lbs)	Material Input (Tons per rolling 12 months)
10/2020	149,832	681
11/2020	97,074	698
12/2020	44,920	673
1/2021	26,924	624
2/2021	35,375	577
3/2021	22,836	540

Permit Condition E9-3(MM1): Raw material input limit of 5,111 tons during 12 consecutive months.

Month	Material Input (lbs)	Material Input (Tons per rolling 12 months)
4/2021	21,643	250
5/2021	26,871	244
6/2021	48,335	236
7/2021	50,928	235
8/2021	24,842	217
9/2021	47,309	203

Record of Corrected Data (cont.)

Appendix A – VOC and HAP Logs

Monthly HAP's Log – April 2021
– May 2021
– June 2021
– July 2021
– August 2021
– September 2021

Annual HAP's Log (Condition E3-6)

Source 01 Emission Log (Condition E4-5 / E4-8)

Source 12 Emission Log (Condition: E9-11)