ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM

June 21, 2024

SUBJECT: **ATI Flat Rolled Products Holdings, LLC**
100 River Road
Brackenridge, PA 15014-1597
Allegheny County

Installation Permit No. 0059-I006c

TO: JoAnn Truchan, P.E.
Program Manager, Engineering

FROM: Michael Dorman
Air Quality Engineer

FACILITY DESCRIPTION:

The ATI Flat Rolled Products Holdings, LLC (ATI) Brackenridge, PA facility is a primary steel manufacturer which produces specialty steel from scrap steel and iron.

The Brackenridge Plant operates two electric arc furnaces that melt specialty materials for subsequent refining in an argon-oxygen decarburization (AOD) vessel which feeds a continuous caster. The AOD is permitted to produce 600,000 tons of product annually. Slabs and ingots are presently conditioned, reheated and hot rolled on a reversing roughing mill followed by a seven-stand hot finishing mill co-located at the Brackenridge Plant. The Brackenridge Plant also has two annealing and pickling operations, as well as various cold rolling and slitting operations.

The facility is a major source (as defined in Article XXI §2101.02) for particulate matter (PM), particulate matter of 10 microns or less in diameter (PM_{10}), particulate matter of 2.5 microns or less in diameter ($PM_{2.5}$), volatile organic compounds (VOCs), nitrogen oxides (NO_X), and carbon monoxide (CO) and a minor source for sulfur oxides (SO_X), and hazardous air pollutants (HAPs) as defined in section 2101.20 of Article XXI.

INSTALLATION DESCRIPTION:

This permit is for the modification of the following:

1. Emissions limits for SO_X and NO_X for the F1 and F2 DEC baghouses; and
2. Emission limits for SO_X, NO_X, CO, and VOCs for the canopy (C002B) baghouse and the AOD/canopy (C006) baghouse.

PERMIT APPLICATION COMPONENTS:

1. Installation Permit Application No. 0059-I006c, dated October 17, 2023.
2. Quarterly Stack Test reports dated: November 16, 2022; March 7, 2023; May 10, 2023; and July 3, 2023.
3. Email correspondence dated October 4, 2023; October 10, 2023; October 11, 2023; and October 18, 2023 regarding stacking and emissions determinations.
4. Correspondence dated March 25, 2020; June 01, 2021; and May 18, 2022, with US EPA pertaining to emissions testing and stack test protocols.

EMISSION SOURCES:

I.D.	SOURCE DESCRIPTION	CONTROL DEVICE(S)	MAXIMUM CAPACITY	FUEL/RAW MATERIAL	STACK I.D.
P-001	F1 EAF	Baghouse	536,267 tons per year combined	Scrap, Lime, Fluxes	S001, S006
P-001	F2 EAF	Baghouse		Scrap, Lime, Fluxes	S002A, S002B
P-002	F1 Cooling Tower	None	12.000 gal/min	Water	
P-002	F2 Cooling Tower	None	12,000 gal/min	Water	

METHOD OF DEMONSTRATING COMPLIANCE:

Methods of demonstrating compliance with the emission standards of this permit include the following:

1. Recording hours of operation and production;
2. Recording motor amps (to ensure operation under the same conditions as the stack tests);
3. Periodic stack testing;
4. Visible emissions observations;
5. Equipment inspections; and
6. Measuring total dissolved solids in the cooling tower water.

Continuous compliance will be demonstrated by monitoring the parameters measured and set during the 2022-2023 quarterly stack test and maintaining them at those same levels. The gaseous emissions correlate with the emissions of PM (see Appendix A), therefore the regular monitoring of PM for continuous compliance acts as appropriate parametric monitoring for gaseous emissions. In the U.S. EPA's response to Petition Nos. III-2023-5 and III-2023-6 for U.S. Steel Clairton, they state "EPA has not indicated that in all cases testing and monitoring must exactly mirror the averaging times of associated emissions limits." The Department feels that the requirements in the draft permit amendment are sufficient to demonstrate continuous compliance with the limits.

Compliance with the short-term (lb/hr) limits must be maintained at all times, including startup and shutdown unless explicitly stated otherwise in the permit. Any emissions due to startup and/or shutdown are included in the facility's total annual emissions. See Installation Permit No. 0059-I006c for the specific conditions for determining compliance with the applicable requirements.

REGULATORY APPLICABILITY:

1. **Article XX1 Requirements for Issuance:**
   See Permit Application No. 0059-I006c, Section 5: Applicable Requirements. The requirements of Article XXI, Parts B and C for the issuance of minor modification installation permits have been met for this facility. Article XXI, Part D, Part E & Part H will have the necessary sections addressed individually.

2. **BACT Analysis:**
   A BACT analysis was included in the Application for Installation Permit No. 0059-I006. There are no changes in equipment or the method of operation that would require a change in the BACT analysis.

3. **Testing Requirements:**
   Stack testing is required every five years. The Department reserves the right to require additional testing, if necessary, to assure compliance with the terms and conditions of this Installation Permit.

4. **New Source Review/Prevention of Significant Deterioration (NSR/PSD):**
IP #0059-I006 did not include emissions limits for gaseous pollutants (NO_X, CO, SO_X, and VOC) from the Canopy Hoods. Limits for these emissions are being added in this draft permit. Because this is an increase in the total proposed limits, it must be evaluated for NSR and PSD. See the applicability analyses sections below and Appendix A for full analysis details. The proposed emissions changes are not subject to NSR or PSD.

5. **New Source Performance Standards (NSPS):**
This installation is subject to 40 CFR Part 60 Subpart AAa – *Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983,* because this facility includes Electric Arc Furnaces that were installed after August 7, 1983.

6. **NESHAP and MACT Standards:**
The facility is subject to 40 CFR Part 63, Subpart YYYYY – *National Emissions Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities* because this facility includes electric arc furnaces.

7. **Risk Management Plan; CAA Section 112(r):**
The facility is not required to have a risk management plan at this time because none of the regulated chemicals exceed the thresholds in the regulation.

8. **Greenhouse Gas Reporting (40 CFR Part 98):**
The ATI Flat Rolled Products Holdings, LLC facility is a major source of greenhouse gas (CO_2) emissions. However, the Greenhouse Gas (GHG) reporting rule under 40 CFR Part 98 are not considered applicable requirements under the Title V regulations at this time. Therefore, there are presently no greenhouse gas requirements at the facility. There are no CO_2 emissions from the cooling towers.

EMISSIONS CALCULATIONS:

Electric Arc Furnaces F1 and F2
Emissions for EAFs 1 and 2 and their associated canopy hoods are based on four stack tests conducted between November 2022 and May 2023. This permit revises the basis for emissions from pounds per ton of production to pounds per hour of operation. The pounds per hour rate for each pollutant was based on the stack test results. The highest individual emission rate in a single run for each pollutant was used. A safety factor of 20% was added to each emission factor to account for operational variability. See Appendix A for full calculation details.

POLLUTANT	SHORT-TERM EMISSION LIMIT (lbs/hr)	LONG-TERM EMISSION LIMIT (tons/year/furnace)
PM	10.13	24.01
PM_{10}	5.78	13.50
$PM_{2.5}$	5.78	13.50
Nitrogen Oxides (NO_X)	22.8	63.12
Carbon Monoxide (CO)	124.98	318.66
Sulfur Oxides (SO_X)	12.60	30.42
Volatile Organic Compounds (VOC)	28.56	65.09
Lead	0.08	0.16

Cooling Towers

Basis: 12,000 gpm flow rate (each)
0.005% drift
1,360 ppm TDS
8.345 lb/gal water density
60 min/hr
8,760 hr/yr of operation

Pounds per Hour (each cooling tower) = (12,000 × 60 × 0.00005 × 1,360 × 8.345) ÷ 1,000,000
Pounds per Hour (each cooling tower) = 0.41
2 × 0.41 = 0.81 lbs/hr combined emissions
(0.81 × 8,760) ÷ 2,000 = 3.58 tons/yr combined emissions

EMISSIONS SUMMARY:

F1 & F2 EAF, Canopy Baghouses, and Cooling Towers
Emission Limitations Summary

POLLUTANT	ANNUAL EMISSION LIMIT (tons/year)*
PM	51.62
PM_{10}	30.60
$PM_{2.5}$	30.60
Sulfur Oxides (SO_X)	60.84
Nitrogen Oxides (NO_X)	126.24
Carbon Monoxide (CO)	637.33
Volatile Organic Compounds (VOC)	130.18
Lead	0.32

* A year is defined as any consecutive 12-month period.

RECOMMENDATION:

All applicable Federal, State, and County regulations have been addressed in the permit application. The facility is not subject to the restrictions of §2102.04.k of Article XXI because there have been no Notices of Violation issued for this or any other ATI facility in Allegheny County during the last 18 months. The installation permit for ATI Flat Rolled Products Holdings, LLC should be approved with the emission limitations and Terms and Conditions in Installation Permit No. 0059-I006c.

APPLICABILITYANALYSIS FOR NONATTAINMENT NEW SOURCE REVIEW (NSR):

While the facility is not increasing production, the establishment of new emission factors, coupled with the addition of permit limits on pollutants that previously did not have limits, requires that the change in emissions be evaluated for Nonattainment New Source Review. The regulations for NSR can be found under 25 Pa. Code §127.203a (as referenced under Article XXI, §2102.06.a), and apply to pollutants for which Allegheny County is designated as being in nonattainment. These include ozone (NO_X and VOC) and $PM_{2.5}$. With respect to ozone precursors, the project is a major source for NO_X and VOC. There are no proposed changes to the limits for $PM_{2.5}$, so NSR applicability does not need to be evaluated for $PM_{2.5}$.

The applicability analysis for NSR is a two-step process. Step 1 is to calculate the emissions increases only and determine if they exceed the significant increase threshold. Step 2 is to calculate the net emissions increase (project increases + contemporaneous increases – contemporaneous decreases) and determine if they exceed the significant increase threshold.

See Appendix A for full calculation details.

NSR Step 1 – Increases Due to Project

Step 1 is to calculate the emissions increase due to the project and compare to the NSR significant increase threshold values. Per §127.203a(a)(1)(i)(A), the emissions increase is the difference between the projected actual emissions and the baseline actual emissions excluding what the units "could have accommodated". Baseline actual emissions are determined in accordance with §127.203a(a)(4), and are the average rate, in tpy, during a consecutive 24-month period within the previous 5 years. ATI chose the period of January 2018 – December 2019.

Projected actual emissions are based on the highest stack test average lb/hr. Furthermore, the projected actual emissions are based on operation of the furnaces for 7,900 hours per year (historically, the units operate and average of ~5,800 hours per year). Section 127.203a(a)(5)(i) allows for the exclusion of emissions that "could have been accommodated". For the NO_X emissions limits the facility is opting to amend the existing limit from the DEC baghouses as well as add the limit on emissions from the Canopy baghouses. For the VOC emissions limits, the facility has demonstrated compliance with the existing limit from the DEC baghouses, so this analysis is only for the emissions from the Canopy baghouses, as the facility "could have accommodated" the permitted DEC baghouse emissions.

Nonattainment New Source Review Applicability – Project Emissions

Pollutant	NO_X[2]	VOC[3]
Projected Actual Emissions (tpy)	126.24	36.34
Baseline Actual Emissions (tpy)	94.84	21.93
Emissions Increase (tpy)	31.4	14.41
Significant Emissions Threshold [1]	40	40
Above NSR Threshold?	No	No

(1) 40 CFR, §52.21(b)(23)
(2) F1 & F2 combined; DEC baghouses and Canopy baghouses.
(3) F1 & F2 combined; Canopy baghouses only.

NSR Step 2 – Netting Analysis

Step 2 is to calculate the net emissions increase based on the proposed increase due to the project from Step 1 above plus the previously determined increases and decreases contemporaneous with the project. The contemporaneous period is defined by §127.203a(a)(2)(ii) as occurring within 10 years prior to the date of receipt of the completed Installation Permit application. There were no contemporaneous increases or decreases at the facility in the preceding 10-year period.

There is no significant net increase for any of the pollutants. The modification to the emission limits for Furnaces F1 and F2 is not subject to NSR.

APPLICABILITY ANALYSIS FOR PREVENTION OF SIGNIFICANT DETERIORATION (PSD):

While the facility is not increasing production, the establishment of new emission factors, coupled with the addition of permit limits on pollutants that previously did not have limits, the change in emissions must be evaluated for Prevention of Significant Deterioration. The regulations for PSD can be found under 40 CFR, §52.21 (as referenced under Article XXI, §2102.07.a), and apply to pollutants for which Allegheny County is designated as being in attainment or unclassified. These include NO_2, SO_X (as SO_2), and CO. Additionally, PSD applies only to those sources considered a major source under PSD (greater than 250 tpy, except for the source categories in §52.21(b)(1)(iii), which are considered major at 100 tpy). ATI Flat Rolled Products is a steel mill and therefore must be evaluated for PSD.

The applicability analysis for PSD is a two-step process. Step 1 is to calculate the emissions increases only and determine if they exceed the significant increase threshold. If the emissions in Step 1 exceed the significant increase threshold, Step 2 is to calculate the net emissions increase (project increases + contemporaneous increases – contemporaneous decreases) and determine if they exceed the significant increase threshold.

See Appendix A for full calculation details.

PSD Step 1 – Increases Due to Project

Step 1 is to calculate the emissions increase due to the project and compare to the PSD significant increase threshold values. For an existing emissions unit, this increase is the difference between the projected actual emissions and the baseline actual emissions (§52.21(a)(2)(iv)(*c*)). Baseline actual emissions are determined using the procedures in §52.21(b)(48)(ii), using a consecutive 24-month period within the 10-year period prior to the complete permit application. The baseline in this case was determined to be January 2018 – December 2019 for NO_2. Per §52.21(b)(48)(ii)(*d*), a different baseline was used for emissions of CO as it was determined that a different period was more appropriate. See Appendix A for the analysis of CO emission variability. The baseline chosen for CO was January 2017 – December 2018.

Projected actual emissions are based on the highest stack test average lb/hr. Furthermore, the projected actual emissions are based on operation of the furnaces for 7,900 hours per year (historically, the units operate and average of ~5,800 hours per year). Section §52.21(b)(41)(ii) allows for the exclusion of emissions that "could have been accommodated". The emissions of NO_2 are identical to the NO_X emissions in the NSR analysis above. For the SO_2 emissions limits the facility is opting to amend the existing limit from the DEC baghouses as well as add the limit on emissions from the Canopy baghouses. For the CO emissions limits, the facility has demonstrated compliance with the existing limit from the DEC baghouses, so this analysis is only for the emissions from the Canopy baghouses, as the facility "could have accommodated" the permitted DEC baghouse emissions..

Prevention of Significant Deterioration Applicability – Project Emissions

Pollutant	NO_2 (2)	SO_2 (2)	CO (3)
Projected Actual Emissions (tpy)	126.24	60.83	342.39
Baseline Actual Emissions (tpy)	94.84	21.17	250.60
Emissions Increase (tpy)	31.4	39.66	91.79
Significant Emissions Threshold (1)	40	40	100
Subject to PSD Review?	No	No	No

(1) 40 CFR, §52.21(b)(23)
(2) F1 & F2 combined; DEC baghouses and Canopy baghouses.
(3) F1 & F2 combined; Canopy baghouses only.

PSD Step 2 – Netting Analysis

Because the emissions increase for all pollutants are *de minimis*, Step 2 is not necessary. However, Step 2 is presented here for informational purposes. Step 2 is to calculate the net emissions increase based on the proposed increase due to the project from Step 1 above plus the previously determined increases and decreases contemporaneous with the project. The contemporaneous period is defined by §52.21(b)(3)(ii)(*a*) as occurring within the previous 5 years. There were no contemporaneous increases or decreases at the facility in the preceding 5-year period.

There is no significant net increase for any of the pollutants. The modification to the emission limits for Furnaces F1 and F2 is not subject to PSD.