Response to Comments:

US EPA:

EPA Comment 1:
Pursuant to 40 CFR Part 63 Subpart YYYYY Section 63.10686(e), the source must monitor the capture system and PM control device required by this subpart, maintain records, and submit reports according to the compliance assurance monitoring requirements in 40 CFR part 64. Additionally, the source must submit the monitoring information required by 40 CFR 64.4 to the applicable permitting authority for approval by no later than the compliance date for your affected source for this subpart. Pursuant to 40 CFR 63.10681(d), the applicable compliance date for this source is upon startup of the source. The applicable permitting authority is the District since Eastern Kern APCD has been delegated implementation and enforcement authority for 40 CFR Part 63 Subpart YYYYY. Please revise condition 15 of ATC 5024002 to specify a deadline for the facility to submit their CAM plan to the District for approval.

District Response:
This deadline is specified in Operational Condition 34 under the "Recordkeeping and Reporting" section of the operational conditions; the deadline for submittal is no later than date of start-up

EPA Comment 2:
CAM may also be required for NOx and SO2 if these pollutants are controlled with add-on control equipment and their pre-control emissions are above the major source thresholds. We note that the TSD does not seem to include pre and post control emission rates to allow for evaluation on a pollutant specific basis. We note that this information will be required as a part of the title V application.

District Response:
The District has requested and received the uncontrolled emission estimates for NOx and SO2 from the applicant. Uncontrolled NOx emissions from the EAF are estimated by the applicant to be 0.150 lb/ton steel (34.20 ton/yr); uncontrolled SO2 emissions from the EAF are estimated to be 0.150 lb/ton steel (34.20 ton/yr), and uncontrolled SO2 emissions from the LMF are estimated to be 0.080 lb/ton steel (18.24 ton/yr). Therefore, the pre-control NOx emissions are in excess of the major source threshold of 25 tons/yr, and CAM would apply to NOx emissions. SOx emissions would be below the major source threshold of 100 ton/yr, and CAM would not apply.

While monitoring of operational parameters for NOx emission controls are included in the proposed preconstruction permits, the District will ensure the applicant fully implements the requirements of 40 CFR Part 64 (CAM) for NOx emissions as part of the Title V permit.

EPA Comment 3:
The permit must include a deadline for submittal to the District of the Fugitive Dust Control Plan, the Pollution Prevention Plan, the Quality Assurance/Quality Control Plan, and the Site-Specific Monitoring Plan, based on their submittal requirements.

District Response:
Submittal deadlines for the Fugitive Dust Control Plan, Pollution Prevention Plan, QA/QC Plan, and Site-Specific Monitoring Plan have been added to the PSD Permit and District ATCs

EPA Comment 4:
- On page 4 of the PSD permit, please change operational conditions 1 and 2 to state that the averaging time for the yearly throughput limits are on a 12-month rolling basis. On page 17 of the PSD permit, please change operational conditions 1 and 2 to state that the averaging time for the yearly throughput limits are a 12-month rolling average.
- On page 6 of the PSD permit, please add a requirement that the source operator must periodically verify compliance on a 12-month rolling basis with the yearly throughput limits identified in operational conditions 1 and 2 of ATC 5024001. Please make this change within ATC 5024002 and ATC 5024003 as well.
- All PM10 and PM2.5 emissions limits must specify the particulate matter limit is for the sum of the filterable and condensable particulate matter.
- Please change design condition b of ATC 5024002 to state "direct evacuation control (DEC) system" instead of "direct evacuation capture (DEC) system."
- Please change design condition k of ATC 5024002 to state, "Wet scrubber shall be equipped with operational differential pressure indicator and volumetric scrubbing liquid flow meter. (Rule 210.1)."
- Under Section VI. Agency Notification, please change section A. to the following:
  "Director, Enforcement and Compliance Assurance Division (Attn: ENF-2-1)
  U.S. Environmental Protection Agency
  75 Hawthorne Street
  San Francisco, CA 94105
  Or by email to aeo_r9@epa.gov or CDX"
- On page 14 of the PSD permit, please change the statement, "In lieu of Method 201A and with prior approval from the District, Method 5 can be used followed by particle size speciation. (Rule 108.1)" to say, "In lieu of Method 201A and with prior approval from the District and the EPA (Attn: ENF-2-1), Method 5 may be used followed by particle size speciation."
- On page 14 of the PSD permit, please change the statement, "The District and the EPA (Attn: AIR-3) shall be notified in writing at least 30 days prior performance tests for PM10, PM2.5, NOx, SO2, VOC, and CO emissions to allow time for the development of an approvable performance test plan, and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. (Rule 108.1, 40 CFR §60.8, 40 CFR §63.7)" to state, "the EPA (Attn: ENF-2-1)" instead of "the EPA (Attn: AIR-3)." Additionally, please change "such prior approval shall minimize the possibility" to "such prior approval will minimize the possibility."

District Response:
The District has implemented these changes and correction as requested.

EPA Comment 5:
Operational condition 15 on page 10 of the PSD permit states, "Owner/operator shall monitor the PM capture system and PM control device serving the EAF in accordance with the District approved compliance assurance monitoring plan (CAM Plan) and 40 CFR §64.7, commencing no later than 180 days following District approval of the CAM Plan. (Rule 423 Subpart YYYYY, 40 CFR §63.10686(e))." Please ensure the PSD permit is using consistent language throughout the permit when referring to the facility's PM capture system and PM control device serving the EAF.

District Response:
The District has identified instances where this language was not consistent in permit operational conditions, and has corrected language for consistency as requested.

EPA Comment 6:
- There is a typo in the total PTE for VOC emissions for the facility on page 137 of the TSD. Emissions from Melting/Refining/Casting/Rolling is listed as 18.02 tpy, when the correct value is 20.83 (17.10 + 0.09 + 3.65). Thus, the total PTE for VOC for the facility is 21.60 tpy. Please revise Section IX. A and C from VOC PTE 18.02 to 21.60 tpy.
- On page 15 of the PSD permit, please change the VOC emission limit for the Caster Spray Stack to state 0.47 lb/day and 0.09 ton/yr to be consistent with the TSD.
- There is a typo with the emission calculations on page 126 in the TSD. Within the Scrap Unloading (indoor) table, the "Emissions, tons/yr" column should show PM = 0.018, PM10 = 0.008, and PM2.5 = 0.003. Instead, it appears the numbers were accidently copied over from the Scrap Unloading (outdoor) table. While this error did not affect the Scrap Unloading Total emissions value provided in the TSD, please correct it in the final TSD.

District Response:
The District has made the corrections as requested. The calculations for VOC emissions for the Caster Spray Stack on page 131 of the TSD were 0.01 lb/day & 0.01 ton/yr higher due to rounding error. This has been corrected to reflect the 0.46 lb/day & 0.08 ton/yr listed on the permits.

Steel Manufacturer's Association (SMA)

SMA Comment 1:
The proposed project utilizes a unique, innovative, and costly air pollution control strategy (unlike any control strategy ever attempted on a steel mill in the U.S.) to achieve the proposed permit limitations. The permitting record should provide a more robust discussion and context on this unique and costly feature of the project as discussed below.
From the TSD, below is a summary of the proposed the proposed air pollution control strategy:

"Emissions captured in the melt shop would be directed to the fume treatment plant and captured by the furnace exhaust system. There are several pollution control technologies occurring within the fume treatment plant to minimize pollutant discharges to the atmosphere from the melt shop processes.

A primary circuit would capture emissions from the EAF and include the following pollution control mechanisms:

- *Urea injection with air lancing applied to primary exhaust ducts and chamber before primary baghouse using selective non-catalytic reduction (SNCR) to control emissions of oxides of nitrogen (NOx).*
- *Settling chamber to capture larger particulate matter (PM) through the settling process (i.e. gravitational force)*
- *A primary baghouse to control PM emissions, including PM with an aerodynamic diameter of 10 microns or less (PM10) and PM with an aerodynamic diameter of 2.5 microns or less (PM2.5).*
- *A wet scrubber to control emissions of oxides of sulfur (SOx) and PM/PM10/PM2.5 (filterable and condensable).*

Emissions from the LMS captured by canopy hood would be passed through a secondary circuit, which would use a hydrated lime injection system for the LMS stream to control SOx. The secondary circuit will capture all other emissions from the primary meltshop baghouse.

This emission stream would then combine with the primary circuit and pass through the following control mechanisms:

- *An activated carbon injection system to control emissions of mercury and volatile organic compounds (VOC).*
- *A secondary baghouse to further control PM/PM10/PM2.5 emissions.*

Dust collected by the fume treatment plant baghouses would be transferred to a dust silo controlled with a bin vent filter. The bin vent filter would be ducted to the inlet of the fume treatment plant control system, with dust captured by the filter being stored in enclosed containers to be shipped off-site by truck for recycling."

Based on this description, and with limited understanding on the technical design and specifications given lack of technical details in the record, we believe the record should include a further discussion of the proposed control strategy and drivers and consequences thereof.

- The proposed air pollution control strategy incorporates the following aspects never before attempted, demonstrated or achieved in practice at any steel mill in the U.S.: (1) Extraordinarily low PM emission rates; (2) Use of SNCR to control NOx recently disqualified by U.S. EPA in their NSPS rulemaking; (3) Application of a wet scrubber/lime injection for SO2 control; and (4) Use of activated carbon injection for VOC and mercury control. Neither individually, nor in combination, has any steel mill in U.S. demonstrated compliance with the emissions rates proposed in this permit and/or applied the proposed control techniques.
- The applicant cites vendor specifications in numerous places to support its application. However, the permit record contains no specific technology data or engineering analyses providing assurance that the selected or proposed air pollution control systems have been properly engineered and documenting vendor guarantees that the limits are achievable.\
- The application does not provide cost effectiveness data on the proposed pollution control strategies; however, we estimate that capital costs could exceed a similar steel mill applying currently established BACT-level controls by $50-$100 million. Furthermore, the annual operating costs will be substantially greater than similar steel mills applying current BACT control.
- In reviewing the air quality analysis component of the permit application, it appears that the aggressive and extraordinarily low emission rates were necessary to demonstrate the project did not cause or contribute to a NAAQS or PSD Increment exceedance– that is, the need for the proposed innovative control strategy was driven by the requirement to comply with the PSD air quality analysis and not by BACT requirements themselves.

District Response:
The Eastern Kern Air Pollution Control District (District) concurs that the applicant's proposal for emission rates and control devices for PM, SOx, NOx, & VOC constitutes "beyond BACT" for steel manufacturing, and is driven by the District's new source review (NSR) requirements for emissions of PM10, SOx, NOx, & VOC emissions, as well as PSD requirements for PM2.5.

The applicant is voluntarily proposing to implement emission controls beyond what would be found cost-effective under BACT; this is similar to a source voluntarily accepting enforceable emission limits to remain below major source thresholds for Title V permitting (referred to as a 'synthetic minor source'). The requirement to implement the applicant's proposed controls may not be found to be broadly applicable to steel facilities (given it is not being proposed as 'cost effective'), and is a strategy chosen for this specific project.

Additional discussion of the chosen control strategies has been added to the TSD.

SMA Comment 2:
The permit record identifies several sources that often emit outdoors at steel mills and are listed as being captured and controlled by the melt shop baghouse. These sources often include slag dumping, ladle and tundish dumping, silo bin vents, and scrap cutting torches The permit needs to reflect if these sources are captured and controlled by the baghouse.

District Response:
Per applicant, the dumping of slag from the EAF and dumping from the ladle & tundish occur within a fully enclosed building (no designed draft openings in the melt shop area) that is ventilated via canopy hood to the fume treatment plant. Design condition e of ATC 5024002 requires there be no ventilation openings as part of the roof ventilation system to ensure emissions from dumping operations in the melt shop are captured & routed to the fume treatment plant.

Silo bin vents for supplemental materials are also specified by the applicant to be ventilated to the baghouses in the fume treatment plant (see section 2.1 of the application), and Design Condition a of ATC 5024001 requires these silos to be vented to the melt shop dust collector.

Cutting torches, used for oversized scrap unable to be cut with the shears in the unloading bay, are to be located in the melt shop (see section 2.1 of the application), where emissions would be captured by the roof canopy & vented to the melt shop baghouse. The PSD permit and District ATC 5024002 will be updated to include this.

Baker & Hostetler (BH)

Comment 1:
The proposed facility is located in a serious nonattainment area for ozone (which also impacts NOx limits), and serious nonattainment area for PM10 (which also impacts SO2 limits). Thus BACT is not the correct standard that applies to emissions of those pollutants from the facility under federal law, since it is Lowest Achievable Emission Rate (LAER), and not BACT, that applies to emissions in nonattainment areas. See 42 U.S. Code §7503(a)(2).

District Response:
The project does not trigger major nonattainment new source review as proposed. The facility is located in an area designated as unclassified/attainment with the PM10 NAAQS (see 40 CFR §81.305 for the defined boundaries of the PM10 NAAQS nonattainment area in EKAPCD) and severe nonattainment for the 2008 ozone NAAQS. Emissions of NOx & VOC are proposed to be less than the major source thresholds for severe nonattainment. Therefore, federal LAER does not apply to this project.

BH Comment 2:
These proposed emission limits and control technologies for PM/PM10/PM2.5, NOx, SO2/SOx and CO are by definition not BACT, and likely not even LAER.

a. 42 U.S. Code § 7501(3) defines LAER as the more stringent of either the most stringent limit contained in a State implementation plan, or the most stringent emission limitation achieved in practice. BACT on the other hand is typically limited to options that have both been demonstrated in practice and can further consider economic, energy, and technical rationales for a less stringent standard. E.g. EPA OAQPS "Transmittal of Background Statement on 'Top-Down' Best Available Control Technology (BACT)" at 6, (June 13, 1989) ("The top-down approach maintains the statutory distinctions between BACT and the LAER requirement under section 171(3) of the CAA (which major new sources and major modifications locating in nonattainment areas are required to meet). The LAER requirement provides that all affected sources must comply with either the most stringent limit contained in a State implementation plan, or the most stringent emission limitation achieved in practice, whichever is more stringent. In contrast, under BACT, consideration of energy, environmental, or economic impacts may justify a lesser degree of control in the particular case.").
b. Page 5-23 of PSGM3's permit application, admits that it "plans to reduce the project's PM/PM10, NOx and SO2 /SOx emissions beyond the BACT limits established in the permits of the comparable facilities…"
c. Technical Support Document at 31 admits "Review of California air district BACT determinations did not reveal any determinations for NOx emissions from steelmaking facilities" and that "Use of SNCR was not found to be an 'achieved in practice' BACT for NOx emissions from steelmaking facilities."
d. Page 29 of the Technical Support Document admits the PM emission rate "is below the currently established BACT (i.e. not 'achieved in practice') for currently operational similar facilities. Therefore, it will be necessary to demonstrate it is achievable during initial compliance testing for the facility."

e. Page 30 of the Technical Support Document found the proposed CO emission rate "is lower than the currently established BACT (i.e. 'achieved in practice' BACT) for similar facilities."
f. Pages 30-31 of the Technical Support Document states that "Review of California air district BACT determinations did not reveal any determinations for SOx emissions from steelmaking facilities." And "Lime Injection & wet scrubbers were not found to be an 'achieved in practice' BACT for control of SOx emissions from steelmaking facilities."
g. Accordingly, by definition and admission, these limits being proposed are not BACT limits, and potentially not even LAER limits since they have admittedly not been "achieved in practice" for an electric arc furnace (EAF) and its associated melt shop.
h. It is doubtful whether a local air quality district other than SCAQMD is legally authorized to impose a BACT more stringent than federal LAER, since only SCAQMD is specifically authorized by statute to potentially do so. See HSC § 40405; HSC § 40440.11. And even if the same authorization extended to Eastern Kern Air Pollution Control District, the California statutory provisions for going beyond federal LAER requires preconditions not met here, including but not limited to a full cost effectiveness analysis. HSC §40440.11.
i. At minimum, even if the agency chooses to accept these proposed limits, it must be clarified that they are not being imposed to satisfy federal BACT, but are being imposed as LAER or beyond LAER requirements.

District Response:

The District acknowledges that the proposed controls and emission rates for $PM_{10}/PM_{2.5}$, SO2/SOx, NOx, VOC, and CO from the melt shop baghouse stack are more stringent than what has been found to be achieved in practice for steel facilities. The applicant has voluntarily proposed to implement these controls and is accepting emission limitations necessary to ensure the facility complies with PSD & NSR requirements.

Applicants are allowed to "propose any emissions controls technology demonstrated to be capable of reducing air pollutant(s) as effectively or more effectively than previously identified BACT" in accordance with District BACT Policy (Policy No. 92.01, Revised 3/6/00). Controls and emission limits more stringent than required under BACT/LAER have previously been proposed and implemented for purposes such as the generation of emission offsets or to remain below Title V major source permitting thresholds (i.e. a 'synthetic minor source').

The only other relevance for producing actual costs would occur if the current applicant was challenging the use of the control technology on the PSGM3 project; however, the current applicant is not challenging the use of or cost effectiveness of the proposed control technology. The applicant has claimed that providing cost data on the proposed control would disclose proprietary information that is subject to non-disclosure agreements with their vendor, and would cause substantial harm to the applicant.

The District has revised the TSD and proposed permits to clarify the emission limits are beyond BACT requirement.

BH Comment 3:
It appears that PSGM3 may have backed into their proposed emission rates to circumvent PSD and modeling requirements—i.e., selecting emission rates that would allow them to pass the demonstrations needed to show compliance with the NAAQS (e.g. for CO and PM2.5), or to wholly avoid otherwise applicable PSD NAAQS related review (e.g. for NO2 and SO2) and for nonattainment NSR, including avoiding offset requirements (for VOC, NOx, SOx and PM2.5).

a. The modeling performed for NAAQS and PSD Increment purposes for CO and PM2.5 purported to be below the applicable significant impact rates, thereby avoiding a cumulative impact assessment to determine whether the project will cause or contribute to any modeled violations of the NAAQS. However, higher (and more realistic) emission rates may demonstrate that the facility could not stay under the SIL and would have been required to perform cumulative impact analysis. Furthermore, part of the PM2.5 estimates must account for secondary PM2.5 formation, which is driven by secondary PM2.5 precursors NOx and SO2, which the modeling demonstration artificially deflated by assuming emission rates that reflect the aspirational reductions of NOx and SO2 by the proposed SNCR and wet scrubber, respectively.
b. Moreover, it appears that accounting for these aspirational emission limits allows PSGM3 to avoid: PSD review otherwise required for NOx and SO2; NNSR requirements including offset requirements for VOC and NOx, SOx, PM_{10} due to nonattainment status for PM and Ozone; and any modeling related to the NO2 1-hour and annual NAAQS standards, and SO2 1- hour and 3-hour NAAQS standards; in each case by taking credit for hypothetical reductions from the proposed SNCR (for NOx/NO2) and wet scrubber (SO2), respectively, neither of which have been demonstrated to be feasible for control of EAF emissions, let alone at the aspirational control efficiency rates assumed in the application.
c. Eastern Kern Air Pollution Control District should not allow for the circumvention preconstruction permit review by giving PSGM3 credit for these mere aspirational promises of as yet undemonstrated emission rates that are so drastically different from what has been actually demonstrated by the industry. Any inability to achieve these aspirational limits will likely result in exceedances of the modeled parameters, and result in construction and operation of a facility that never went through proper legally required PSD review, including satisfaction of offset requirements for nonattainment pollutants, and modeling to demonstrate the project will not cause or contribute to any modeled violations of the NAAQS for other criteria pollutants the facility has the potential to emit in significant amounts absent such aspirational controls. And the facility may even be able to obtain such upward revisions after the fact under EPA's Ogden (1987) guidance. To be clear, the facility should not be approved without first assessing PSD/NNSR applicability without taking credit for these undemonstrated and aspirational control technology and control efficiencies, and for any pollutants the facility has a potential to emit above PSD/NNSR significance thresholds, must demonstrate that it will not cause or contribute to NAAQS exceedances, again, without speculatively taking credit for technology and emission rates, neither of which have been demonstrated to be achievable for an EAF.
d. Specific Conditions: aa of the draft ATC also appears to circumvent preconstruction review requirements by automatically authorizing new permit limits based upon stack test results which were never included in the underlying PSD applicability assessment, BACT analysis, or air quality impact

modeling. PSD/NNSR preconstruction review is not supposed to be aspirational in nature. It is intended to ensure compliance with the NAAQS and other Clean Air Act requirements prior to (not after) construction of a facility. Taking credit for aspirational emission estimates also would allow the facility to avoid offset requirements that are required prior to the issuance of the underlying ATC.

e. The modeling impact analysis for PM2.5, at 6-5, misrepresents that the only precursors for secondary PM2.5 are NOx and SO2 and that there are no ammonia emissions from the facility. However, this contradicts the acknowledgement elsewhere in the permitting record that the proposed SNCR system, like all SNCR systems, will experience ammonia slip, and thus there will be ammonia emissions which the impact analysis claims not to have accounted for.

District Response:

Secondary PM2.5 impacts have been accounted for in the AQIA and additional impact analyses, based on the proposed emission rates.

Additionally, utilizing the MERPS View QLK online tool and the 2019 EPA guidance for a Tier 1 assessment of impacts for secondary formation of PM2.5 from NOx & SOx emissions, a source in Kern County, CA appears to need to have combined emissions of SOx & NOx of over 1,000 ton/yr before secondary PM2.5 impacts would approach the SIL, even when including this project's direct PM2.5 emissions proposed. Therefore, secondary PM2.5 resulting from SOx & NOx emissions from the project are not expected to be a significant contributor to PM2.5 impacts

State	*County*	*Metric*	*Precursor*	*Emissions (ton/yr)*	*Stack Height (m)*	*Max Conc. (µg/m^3)*
California	*Kern*	*Annual PM2.5*	*NOx*	*500*	*10*	*0.017*
California	*Kern*	*Annual PM2.5*	*NOx*	*500*	*90*	*0.014*
California	*Kern*	*Daily PM2.5*	*NOx*	*500*	*10*	*0.173*
California	*Kern*	*Daily PM2.5*	*NOx*	*500*	*90*	*0.172*
California	*Kern*	*Annual PM2.5*	*SO2*	*500*	*10*	*0.009*
California	*Kern*	*Annual PM2.5*	*SO2*	*500*	*90*	*0.009*
California	*Kern*	*Daily PM2.5*	*SO2*	*500*	*10*	*0.252*
California	*Kern*	*Daily PM2.5*	*SO2*	*500*	*90*	*0.138*

Metric	*Precursor*	*Emissions (ton/yr)*	*Stack Height (m)*	*Max Conc. (µg/m^3)*	*SIL (µg/m^3)*	*Emissions Needed to trigger SIL (ton/yr*
Annual PM2.5	*NOx*	*500*	*10*	*0.017*	*0.13*	3,866.90
Annual PM2.5	*NOx*	*500*	*90*	*0.014*	*0.13*	4,532.58
Daily PM2.5	*NOx*	*500*	*10*	*0.173*	*1.2*	*3,469.67*
Daily PM2.5	*NOx*	*500*	*90*	*0.172*	*1.2*	*3,483.40*
Annual PM2.5	*SO2*	*500*	*10*	*0.009*	*0.13*	6,982.54
Annual PM2.5	*SO2*	*500*	*90*	*0.009*	*0.13*	7,396.60
Daily PM2.5	*SO2*	*500*	*10*	*0.252*	*1.2*	2,381.58

Daily PM2.5	*SO2*	*500*	*90*	*0.138*	*1.2*	4,360.72

The applicant has provided the uncontrolled emission rates to the District, determined by the OEM for the melt shop equipment:

Pollutant	*Emission Factor*	*Units*	*PTE ton/yr)*
NOx (EAF)	*0.150*	*lb/ton steel*	*34.20*
SOx (EAF)	*0.150*	*lb/ton steel*	*34.20*
SOx (LMF)	*0.080*	*lb/ton steel*	*18.24*
VOC (EAF)	*0.139*	*lb/ton steel*	*31.69*

These uncontrolled emission rates are consistent with emission rates found during processing of the application:
NOx: 0.15 lb/ton steel (Gerdau Ameristeel, Cartersville)
SO2: 0.16 lb/ton steel (Gerdau Steel, Charlotte)
VOC: 0.09 lb/ton steel (NUCOR Steel Brandenburg)

The control effectiveness for SOx, NOx, & VOC controls claimed by the applicant to achieve their proposed post-control emission rates would be as follows:

Control Device	*Process Controlled*	*NOx*	*SOx*	*VOC*
SNCR	*EAF*	*40%*		
Wet Scrubber	*EAF*		*70%*	*40%*
DeSOx (Lime Injection/ Dry Scrubber)	*LMF*		*30%*	
Carbon Injection	*EAF +LMF*			*10%*

Per the EPA's Air Pollution Technology Fact Sheets and Cost Control Manuals, these control devices have been demonstrated to provide emission controls

- *SNCR, urea based- 25% to 90% (EPA-452/F-03-031)*
- *Wet Scrubber (PM)- 50% to 95% (Packed Bed Scrubber, EPA-452/F-03-015)*
- *Wet Scrubber (SOx)- 80% to 99% (Tray-Tower Scrubber, EPA-452/F-03-012)*
- *Dry Scrubber (SOx)- 50% to 80% (Flue Gas Desulfurization, EPA-452/F-03-034)*
- *Wet Scrubber (VOC)- 70% to >99% (Packed Bed Scrubber, EPA-452/F-03-015)*
- *Carbon Injection (VOC)- N/A*

RBLC indicates a PM10 emission rate of 0.0024 gr/scf has been achieved by existing facilities; in order to comply with the Standards of Performance from 40 CFR Part 60 Subpart AAb (0.16 lb/ton steel), emissions from the EAF control device would need to be approximately 0.0014 gr/scf, based on the EAF control system exhaust flow rate proposed in the application. The corresponding emission rates would be as follows:

	gr/dscf	*lb/ton steel*	*lb/hr*	*ton/yr*
RBLC	*0.0024*	*0.27*	*13.93*	*61.00*
NSPS AAb	*0.0014*	*0.16*	*8.33*	*36.48*

The applicant proposed PM10 emission rate of 10.65 ton/yr from the melt shop dust collector stack would represent a 71% reduction of PM10 from what would be required to meet Subpart AAb standards. Use of the additional fabric filter dust collector and wet scrubber in series to achieve this reduction appears reasonable, given the well-established PM control efficiencies of these control devices (>99% for fabric filters, >50% for wet scrubbers).Wet scrubbers have been deemed technically feasible for PM control in evaluations for other steel facilities, but not cost effective due to the costs & challenges associated with handling & treatment of the wastewater generated.

Recent source testing results for cement plants in the District indicate that PM10 emission rates of 0.0003 – 0.0009-gr/dscf have been achieved for filterable PM from use of a single baghouse; the use multiple baghouses and wet scrubber in series can be reasonably inferred to be even more effective, and thus the applicant's propose PM emission rates from the melt shop do not appear unrealistic.

Wet scrubbers are a mature & established emission control technology for PM, SO2, & VOC emissions; the applicant's proposed control effectiveness appears to be a conservative assumption when compared to established efficiencies.

Temperatures from the EAF are comparable to portland cement kilns & glass melting furnaces (~3000 °F v. 2750 °F v. 2,800 °F), and the exhaust flow rates for the emission control systems (300,000 - 475,000-cfm) also appear comparable to those in use at the cement kilns in the District that have successfully implemented SNCR. The use of the Endless Charging System in lieu of the traditional batch charging process is expected to provide a steadier operation of the EAF, thereby reducing process variability and improving the feasibility of SNCR for NOx emission control.

Therefore, the District believes it would be reasonable that there is a zone in the furnace exhaust ducting that would meet the appropriate temperature range (1600-2000°F) and residence time (0.2-0.5 seconds) for the desired chemical reaction from an SNCR system to occur. The remaining limiting factor for SNCR effectiveness would be low NOx concentration in the EAF exhaust gases. This would restrict the potential reductions from SNCR, and thus the applicant has proposed a conservative estimate of 40% control, which has been consistently achieved or exceeded in practice across a variety of industries and fuel types.

The PSD permit and ATCs are preconstruction permits, not operating permits. Authorization to operate (beyond initial startup testing) requires verification of compliance with the conditions of approval, pursuant to District Rule 208 (Standards for Granting Applications) and Rule 210.1; compliance with the emission limitations on the ATC must also be verified before the Permit to Operate can be issued.

Special condition aa has been revised to special conditions aa through cc; these conditions clarify that emission limits will not automatically be adjusted without re-applying to modify the permit, and that if the proposed emission rates are not demonstrated in start-up testing that operations will have to be adjusted

to ensure compliance with the emission limits on the permit. The emission limits on the ATC & PSD permit are being implemented pursuant to the District's approved rules & regulations for NSR & PSD permitting, and thus are also federally enforceable.

While the application erroneously stated that there were no ammonia emissions, the secondary PM2.5 from ammonia slip emissions has been accounted for in the AQIA. Per the EPA's "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program" (April 30, 2019, amended April 30, 2024), secondary PM2.5 from ammonia is primarily in the form of ammonium sulfate and ammonium nitrate, formed when the ammonia interacts with sulfuric and nitric acid in the atmosphere, which are in turn formed from SOx & NOx emissions. Since secondary PM2.5 impacts from emissions of SOx & NOx were assessed in accordance with the EPA's guidance, this would include the secondary PM2.5 impacts from emissions of ammonia as well. Additionally, unlike SO2 and NOx, US EPA has not developed any quantitative relationship between facility ammonia emissions and secondary PM2.5 impact. Additionally, neither the California Air Resources Board (CARB) nor any other state agencies appear to have developed such quantitative relationships.

BH Comment 4:

There is no underlying technical basis for concluding that the technologies proposed are either feasible or cost effective, so as to rationally be required as BACT, or to be allowed to account for them in a modeling demonstration.

a. The Technical Support Document and application do not include any information to suggest that the technologies to be employed to control emissions from, e.g., the meltshop, have been demonstrated to be achievable, let alone demonstrated in practice, and we are not aware of any other steel mill in the world that has successfully implemented these technologies and met these proposed limits.
b. Notably, although the application claims that there are underlying vendor guarantees for the baghouse and scrubber (though apparently not based on any real demonstration in practice so as to qualify as BACT or otherwise achievable so as to be justified to use it for a modeling demonstration), there is no documentation of a vendor guarantee for the control percentage of the SNCR proposed to control NOx.
c. The application did not include any information about SNCR being demonstrated to be feasible in the steel industry, let alone at the efficiencies presumed by PSGM3 without any documented technical support. Despite acknowledging that SNCR efficiency varies by temperature and injection type, among other variables, the application does not address at all the specifications of the emission stream and how they would be anticipated to impact the efficiency on the SNCR, assuming it is feasible at all. There are several variables that could impact both feasibility and anticipated control percentage, including the variability of the flow from batch processes, the low concentration of NOx in the inlet to the SNCR, and the temperature of the emission stream into the SNCR. Temperature likewise impacts both whether SNCR is feasible at all, as well as what control efficiency can be anticipated, and thus this analysis must be provided before it can be assumed that the specific control efficiency assumed will be achievable. And if the temperature specifications will be met by either cooling or heating the exhaust stream prior to the inlet to the SNCR, then those additional emission units required to heat or cool the exhaust stream to the SNCR would involve additional emissions not

accounted for, which must be included both to make a reasonable determination, and because, under HSC § 40440.11(2), going beyond BACT via a control of one pollutant (here, NOx via SNCR) that increases other pollutants (e.g., CO, PM, PM2.5, NOx, SO2, CO2) from additional heating/cooling equipment and energy needs, must be justified by a thorough cost-effectiveness calculation regarding cost effectiveness of eliminating those additional pollutants.

District Response:

These controls are voluntarily being proposed by the applicant, and no claim of cost effectiveness is being made. While the proposed control technologies have not yet been demonstrated in use at steel mills, they have been successfully implemented in a variety of other industries for decades, including cement plants, metal smelters, petroleum refineries, and glass melting furnaces. Referring to the response to Comment 3, the process temperatures for the EAF are comparable to those in cement kilns and glass melting furnaces which have successfully implemented SNCR, and thus implementation for the EAF does not appear unrealistic.

The proposed design of the EAF uses the Endless Charging System with scrap preheating that is akin to a conveyor feed, thereby providing a more consistent feed process than batch dumping and is anticipated to provide more steady operating temperatures. No natural gas combustion is proposed for the facility heating the exhaust stream, therefore, additional emissions from heating of the exhaust stream would not be expected.

The TSD has been revised to include this additional information on the proposed emission controls.

BH Comment 5:
The approach to BACT is contradictory because, even though PSGM3 proposes to install carbon capture and sequestration (CCS) to control GHG emissions, CCS is excluded from being instituted as enforceable BACT simply because "CCS has not been demonstrated in practice in the steel industry." See Application at 3-18; see also Technical Support Document at 36 ("CCS has not been implemented in any EAF at this time; therefore, it is not yet achieved in practice."). By this same rationale, the so called "BACT" proposals for PM/PM2.5/NOx/SO2/CO would also be excluded from counting as BACT since they likewise have never been demonstrated in practice on an EAF. Accordingly, the current BACT explanation is inconsistent and arbitrary.

District Response:
The CCS system is designed with a bypass option for capture/control of GHG emissions, therefore no credit for emission control is allowed or given. There is no bypass option for the control for the SNCR and wet scrubber,

The BACT section of the TSD will be amended to reflect this & remove identified contradictory reasoning; the equipment descriptions of ATC 5024002 and the PSD permit will also be amended to include the CCS with bypass option.