



**STATEMENT OF BASIS**  
**Page 1 of 10**  
BAQ Air Permitting Division

<b>Company Name:</b>	Santee Cooper Cross Generating Station	<b>Permit Writer:</b>	Denise H. Hall
<b>Agency Air Number:</b>	0420-0030	<b>Date:</b>	March 5, 2025
<b>Permit Number:</b>	PSD-50000004 v1.0		

**DATE APPLICATION RECEIVED:** August 18, 2014, with multiple amendments:  
September 24, 2014  
December 31, 2018  
May 13, 2019  
August 16, 2019  
March 09, 2020  
April 15, 2021  
August 26, 2021

**MODELING RECEIVED:** April 20, 2015 (protocol)  
June 10, 2019  
October 16, 2019

**DATE OF CZC APPROVAL:** January 18, 2019

**AGENCY AIR NUMBER:** 0420-0030

The draft permit was started as permit number 0420-0030-CR but will be issued under permit number PSD-50000004 v1.0. The change in the permit number is due to the transition of the Bureau into the ePermitting system.

**PROJECT DESCRIPTION**

This project is to establish sulfuric acid mist (SAM) BACT limits for existing Boilers 3 and 4 and to permit the installation of a permanent hydrated lime injection system as the control method to meet those limits, including the installation of associated hydrated lime loading, unloading, storage, and transfer equipment necessary to support the hydrated lime injection system. This project also establishes BACT limits for the PM and PM<sub>10</sub> emissions from the hydrated lime injection system.

With the establishment of the SAM BACT limits for Boilers 3 and 4, this permit removes the synthetic minor SAM limits that were established to avoid the PSD process for setting SAM BACT limits during the original permitting of Boilers 3 and 4 that occurred under PSD construction permit 0420-0030-CI/CI.R1. This project addresses only emissions of SAM from the boilers and particulate matter emissions from the hydrated lime handling system. The emissions of other pollutants emitted from the boilers are addressed in PSD permit 0420-0030-CI.R1.

**FACILITY DESCRIPTION**

SIC CODE: 4911 – Electric Services, 4931- Electric and Other Services Combined  
NAICS CODE: 221112 – Fossil Fuel Electric Power Generation

This facility operates four coal-fired boilers (Boilers 1-4) for electricity production. Each boiler is equipped with a dry ESP to control particulate matter emissions, a flue gas desulfurization unit (wet FGD scrubber) to control SO<sub>2</sub> emissions, and a selective catalytic reduction (SCR) system to control NO<sub>x</sub> emissions.

The facility also operates ancillary processes and equipment in support of boiler operation, including coal handling and treatment, petcoke handling, limestone handling, gypsum handling, ammonia handling, ash handling, cooling



**STATEMENT OF BASIS**  
**Page 2 of 10**  
BAQ Air Permitting Division

<b>Company Name:</b>	Santee Cooper Cross Generating Station	<b>Permit Writer:</b>	Denise H. Hall
<b>Agency Air Number:</b>	0420-0030	<b>Date:</b>	March 5, 2025
<b>Permit Number:</b>	PSD-50000004 v1.0		

towers, boiler feed water treatment, cooling tower water treatment, unpaved and paved haul roads, and material stockpiles.

**OPERATING PERMIT INCORPORATION**

This facility operates under a Title V Operating Permit issued on December 15, 2006; effective on January 1, 2007; original expiration date on December 31, 2011; and the TV Renewal application received on May 19, 2011. This construction permit revision shall be incorporated to the Title V permit upon its renewal.

**PROJECT HISTORY**

Boiler 3 began operation in 2006. Boiler 4 began operation in 2008. Both boilers were originally permitted under PSD construction permit 0420-0030-CI (issued February 2004), which was revised in 0420-0030-CI-R1 (issued in August 2004). Although permitted as a PSD project for some pollutants, the installation of Boilers 3 and 4 did not include a PSD/BACT analysis for SAM, as the permit applicant at that time showed that installation of these boilers would not be a significant modification for SAM as defined in the PSD regulation and thus did not require a BACT analysis or the establishment of BACT for SAM under PSD.

The establishment of synthetic minor SAM limits to avoid triggering applicability of PSD for SAM emissions from the installation of Boilers 3 and 4 was based on a netting analysis showing that recent upgrades and changes to the scrubbing systems on existing Boilers 1 and 2 would reduce SAM emissions enough to offset the increases in SAM from the proposed installation of Boilers 3 and 4. The SAM emissions and subsequent netting analysis was based on SO<sub>2</sub> emissions reductions. In the Engineering Calculation Sheet that accompanied the original permit, the permit writer includes notes from a phone call with EPA commenting the netting calculations indicating the EPA stated that "H<sub>2</sub>SO<sub>4</sub> is calculated by multiplying the SO<sub>2</sub> emissions by .007 (taken from AP-42 Table 1.1-3 footnote) and the ratio of moles of H<sub>2</sub>SO<sub>4</sub> vs. SO<sub>2</sub> (98/64)." In the June 2003 construction permit application for the construction of Boilers 3 and 4, Santee Cooper outlined expected reductions in SO<sub>2</sub> emissions. The application indicated current upgrades were underway to Boiler 2's scrubber system that would change the system from a natural oxidation system to a forced oxidation system like Boiler 1 and provide for more reliable scrubber operation. Santee Cooper also indicated plans to enhance removal efficiency of SO<sub>2</sub> on both Boilers 1 and 2 through the use of a slurry additive system to the wet limestone scrubbing process. This system adds organic acids to the slurry feed system which increases overall SO<sub>2</sub> removal efficiency. These upgrades and changes to the SO<sub>2</sub> scrubber systems for existing Boilers 1 and 2 were accounted for in the SAM emissions calculations used for the netting analysis.

The combined increases of SAM from the installation of Boilers 3 and 4 and decreases from better control of SO<sub>2</sub> (and thus SAM) on Boilers 1 and 2 were shown to be less than the significant net increase threshold of 7 TPY of SAM that would have triggered PSD. As such, synthetic minor limits for SAM (listed as H<sub>2</sub>SO<sub>4</sub>) were established both for the proposed new boilers, Boilers 3 and 4, to ensure the increases did not exceed the increase predicted in the construction permit application, and also for the existing boilers, Boilers 1 and 2, to facilitate creditable reductions of SAM emissions that were relied on in the netting analysis.<sup>1</sup>

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<sup>1</sup> It should be noted that if the installation of Boilers 3 and 4 had gone through PSD and the BACT process for SAM, the permit would have only established SAM PSD limits for Boilers 3 and 4, and synthetic minor limits ensuring decreases in SAM from Boilers 1 and 2 would not have been needed.



**STATEMENT OF BASIS**  
**Page 3 of 10**  
BAQ Air Permitting Division

<b>Company Name:</b>	Santee Cooper Cross Generating Station	<b>Permit Writer:</b>	Denise H. Hall
<b>Agency Air Number:</b>	0420-0030	<b>Date:</b>	March 5, 2025
<b>Permit Number:</b>	PSD-50000004 v1.0		

The SAM synthetic minor limits were established at phased-in levels for Boilers 1 and 2. The first phase limit applied once Boiler 3 was operational, and the second phase limits applied after Boiler 4 was operational. After Boiler 4 became operational, the facility was unable to demonstrate compliance with the synthetic minor SAM limits that had been established. As required in a compliance agreement with the Department, Santee Cooper performed a study on sulfuric acid mist emissions. After the study, Santee Cooper agreed to submit a PSD construction permit application and establish appropriate BACT SAM limits for Boilers 3 and 4 in place of the synthetic minor limits that had been established to avoid the PSD process and associated BACT SAM limits in the original permit in 2004. Santee Cooper submitted the PSD construction permit application addressing SAM for Boilers 3 and 4 on August 18, 2014, and requested the removal of the synthetic minor limits on all four boilers. Pursuant to SC Regulation 61-62.5, Standard No. 7, Section (R)(4), a source that becomes a major stationary source or major modification by virtue of relaxing a limit established to avoid PSD review must apply PSD as if construction had not yet commenced. Based on this provision, Boilers 3 and 4 must go through PSD and establish BACT limits for Boilers 3 and 4 for sulfuric acid mist emissions.

The Department has reviewed the regulations, the preamble to the applicable rules, and available guidance. Upon review, the Department agrees with Santee Cooper that the synthetic minor SAM limits for all four units may be removed as no longer applicable upon the establishment of BACT limits for Boilers 3 and 4, and the SAM limits on Boilers 1 and 2 may revert to those in existence prior to the establishment of the synthetic minor limits (including a SAM PSD limit of 0.04 lb/MMBtu for Boiler 1). A more detailed explanation on the limits for Boilers 1 and 2 follows later in this document.

Based on the above, this permit will replace the synthetic minor limits for SAM on Boilers 3 and 4 with newly established BACT limits. This permit will replace the synthetic minor limit for SAM on Boiler 1 with the previously permitted limit under construction permit 0420-0030-CA prior to PSD Permit 0420-0030-CI. Boiler 2 did not have a previously established SAM limit; thus, this permit does not contain any new limitation on SAM emissions for Boiler 2.<sup>2</sup>

The chosen control technology for SAM requires the installation of some additional sources of PM/PM<sub>10</sub>, and since the original construction permit for Boilers 3 and 4 established BACT limits for PM and PM<sub>10</sub>, this permit will also establish BACT PM and PM<sub>10</sub> limits for the additional sources. Specifically, the facility will be installing a permanent hydrated lime injection system on Boilers 3 and 4 to reduce emissions of SAM in order to meet the newly established BACT limits. Each hydrated lime injection system will have an associated hydrated lime handling system that will be a source of particulate matter emissions. The hydrated lime handling system will include hydrated lime silos and pneumatic conveying equipment. Hydrated lime will be pneumatically conveyed from a delivery truck into the vertical silo with an inherent bin vent where it will be stored for use. The vertical silo has four rotary feeders that can feed lime at a controlled rate into a pneumatic conveying line where it is injected into the exhaust stream of the respective unit. All PM and PM<sub>10</sub> emissions from the hydrated lime handling system will vent through the bin vent on the associated storage silo.

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<sup>2</sup> It should be noted that at the time of permit issuance for Boiler 3 and 4, there were no limits on SAM for Boiler 1 or Boiler 2. However, during this review, it was determined that Boiler 1 previously had a SAM limit of 0.04 lbs/million Btu that was established in November 1990 in the PSD construction permit for Boiler 1 (0420-0030-CA) and subsequently removed in the revision to that permit in October 1994. The basis for the removal was not documented. The Bureau could not establish a basis for the removal and therefore will reinstate the limit on Boiler 1 as part of this action.



**STATEMENT OF BASIS**  
**Page 4 of 10**  
 BAQ Air Permitting Division

<b>Company Name:</b>	Santee Cooper Cross Generating Station	<b>Permit Writer:</b>	Denise H. Hall
<b>Agency Air Number:</b>	0420-0030	<b>Date:</b>	March 5, 2025
<b>Permit Number:</b>	PSD-50000004 v1.0		

**EMISSIONS**

This project addresses only emissions of SAM from boilers and particulate matter (PM/PM<sub>10</sub>) from the proposed hydrated lime handling system. All other emissions from each boiler will remain the same as listed in CP-0420-0030-CI.R1 and are not addressed here.

Each hydrated lime handling system will include a silo equipped with an inherent bin vent filter. The bin vent filter is an integral part of the lime storage and handling system and is not considered a control device. During silo loading operations, air is used to pneumatically convey the material. This bulk conveying air is released through the bin vent; however, any particles in the air stream are contained by the bin vent. If the bin vent was not present, the material would be conveyed out of the silo through the silo vent. Even if there were not air quality regulations covering particulates, the bin vent filter would still be used due to the nature of pneumatically conveying powders such as hydrated lime. This assessment is consistent with EPA's November 27, 1995, letter on controls inherent to a process.

<b>SAM EMISSIONS for Boilers 1 and 2 (Existing Boilers at Issuance of 0420-0030-CP-CI)</b>				
<b>Pollutant</b>	<b>Uncontrolled</b>		<b>Controlled/Limited</b>	
	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>
Sulfuric Acid Mist (SAM) – Boiler 1	216	911	216	911
Sulfuric Acid Mist (SAM) – Boiler 2	216	911	No Control	No Control

Note 1 – For the purposes of calculating SAM emissions from Boilers 1 and 2, the rated capacity of 5,400 MMBtu/hr is used for short term (lb/hr) emissions calculations and the nominal rating of 5,200 MMBtu/hr is used for long term (TPY) emissions calculations.

<b>PROJECT EMISSIONS for Boilers 3 &amp; 4</b>				
<b>Pollutant</b>	<b>Uncontrolled</b>		<b>Controlled/Limited</b>	
	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>
Sulfuric Acid Mist (SAM) <sup>1</sup> – Boiler 3	200	828	51	213
Sulfuric Acid Mist (SAM) <sup>1</sup> – Boiler 4	200	828	51	213
PM – HL-HAND 3	0.03	0.12	No Control <sup>2</sup>	No Control <sup>2</sup>
PM <sub>10</sub> – HL-HAND 3	0.01	0.04	No Control <sup>2</sup>	No Control <sup>2</sup>
PM – HL-HAND 4	0.03	0.12	No Control <sup>2</sup>	No Control <sup>2</sup>
PM <sub>10</sub> – HL-HAND 4	0.01	0.04	No Control <sup>2</sup>	No Control <sup>2</sup>

Note 1 – For the purposes of calculating SAM emissions from Boilers 3 and 4, the rated capacity of 5,700 MMBtu/hr is used for short term (lb/hr) emissions calculations and the nominal rating of 5,400 MMBtu/hr is used for long term (TPY) emissions calculations.

Uncontrolled SAM emissions from the boilers are based on the base case of 0.035 lbs/MMBtu.



**STATEMENT OF BASIS**  
**Page 5 of 10**  
BAQ Air Permitting Division

<b>Company Name:</b>	Santee Cooper Cross Generating Station	<b>Permit Writer:</b>	Denise H. Hall
<b>Agency Air Number:</b>	0420-0030	<b>Date:</b>	March 5, 2025
<b>Permit Number:</b>	PSD-50000004 v1.0		

0.035 lbs/MMBtu X 5700 MMBtu/hr = 199.5 lbs/hr  
0.035 lbs/MMBtu X 5400 MMBtu/hr X 8760 hr/yr X 1 ton/2000 lbs = 827.8 TPY  
Controlled SAM emissions from the boilers are based on the proposed BACT of 0.009 lbs/MMBtu.  
0.009 lbs/MMBtu X 5700 MMBtu/hr = 51.3 lbs/hr  
0.009 lbs/MMBtu X 5400 MMBtu/hr X 8760 hr/yr X 1 ton/2000 lbs = 212.9 TPY

Note 2: As already discussed, the bin vent is considered inherent to the silo. As such, any emissions reductions due to the bin vent are included in the uncontrolled emissions listed.

**SOURCE TEST REQUIREMENTS**

The facility will be required to do an initial three load/two sulfur content test (total of six tests each consisting of three 1-hour sampling runs) and on-going annual compliance testing (one test consisting of three 1-hour sampling runs) at conditions based on the previous twelve months of operation to demonstrate compliance with the established BACT limit. Both the initial and on-going tests shall also be used to verify the acid mist mitigation algorithm (AMMA).

**SPECIAL CONDITIONS, MONITORING, LIMITS**

With the removal of the synthetic minor limits for sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) emissions established in PSD CP-0420-0030.CI.R1, Boiler 1 will have the previous SAM limit of 0.04 lb/million Btu from PSD CP 0420-0030.CA reinstated. A one-time performance test will be required to be conducted to demonstrate compliance with this limit.

The facility will use an acid mist mitigation algorithm (AMMA) to determine the amount of hydrated lime to be injected for boiler loads greater than or equal to 450 MWg. A minimum amount of hydrated lime for boiler loads less than 450 MWg is required in the permit. The facility will be required to monitor boiler load, net power generated, inlet SO<sub>2</sub> emissions of the desulfurization scrubber and the amount of actual hydrated lime injected, as well as the minimum amount of hydrated lime derived from the AMMA for each boiler. The permit contains language allowing the BAQ to approve modifications to the minimum amount of hydrated lime required (minimum amount for low load and the AMMA for higher loads) when the facility demonstrates that actual SAM emissions will not increase as a result of the request.

**REGULATIONS**

Only regulations implicated by the change in sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) emissions from the boilers and particulate emissions from the hydrated lime handling systems are addressed below. The PSD regulations address emissions of H<sub>2</sub>SO<sub>4</sub> as sulfuric acid mist (SAM). In the original PSD permitting process, the limits and discussions referred to SAM as H<sub>2</sub>SO<sub>4</sub>. The two references should be read as interchangeable. However, to ensure consistency with the PSD regulations, sulfuric acid mist or SAM will be used in the new PSD permit unless referring to the historical synthetic minor limits.

**Not Applicable - Section II(E) (Synthetic Minor)**

This revision removes the synthetic minor limits for Boilers 1-4 for H<sub>2</sub>SO<sub>4</sub>. All other synthetic minor limits remain.

**Applicable - Standard No. 4 (Emissions from Process Industries)**

Each hydrated lime system will be subject to 20% opacity limits and the PM limits from this standard.



**STATEMENT OF BASIS**  
**Page 6 of 10**  
 BAQ Air Permitting Division

<b>Company Name:</b>	Santee Cooper Cross Generating Station	<b>Permit Writer:</b>	Denise H. Hall
<b>Agency Air Number:</b>	0420-0030	<b>Date:</b>	March 5, 2025
<b>Permit Number:</b>	PSD-50000004 v1.0		

Process	Max Process Weight Rate (tons/hr)	PM Allowable at Max (lb/hr)	Uncontrolled Emissions PM (lb/hr)	Controlled Emissions PM (lb/hr)	Opacity Limit (%)	Monitoring
HL-HAND 3	260.4	61.4	0.03	0.03	20	Semiannual Inspections
HL-HAND 4	260.4	61.4	0.03	0.03	20	Semiannual Inspections

**Applicable - Standard No. 7 (Prevention of Significant Deterioration)**

This permit establishes SAM BACT limits for Boiler 3 and Boiler 4 and reinstates the previous BACT limit for Boiler 1. See detailed explanation below. The original construction involved significant emissions of PM and PM<sub>10</sub> and required a BACT analysis. Since this permit includes the addition of particulate matter sources, PM and PM<sub>10</sub> limits are being established for those sources, the Hydrated Lime Handling System 3 and 4, which includes the loading, unloading, storage, and transfer equipment for hydrated lime. These sources are being handled consistent with the way the minor sources of PM and PM<sub>10</sub> were handled in the original construction permit.

Standard No. 7 Review			
Pollutant	Project emissions (TPY)	PSD Significant Increase Level (TPY)	Significant Increase?
sulfuric acid mist (SAM)	426 <sup>1</sup>	7	Yes
PM	0.24 (HLIS 3 & 4)	25	Yes <sup>2</sup>
PM <sub>10</sub>	0.08 (HLIS 3 & 4)	15	Yes <sup>2</sup>

Note 1: The SAM project emissions listed above replace those permitted in the original PSD construction permit.

Note 2: While the PM and PM<sub>10</sub> emissions from the hydrated lime handling systems do not themselves exceed the PSD significance level, they must be considered with the PM and PM<sub>10</sub> emissions permitted in the original PSD construction permit (0420-0030-CI). In the original PSD permit the project emissions increase for PM and PM<sub>10</sub> exceeded the 25/15 TPY significance level. PM<sub>2.5</sub> was not required to be quantified in 2004 when 0420-0030-CI was issued.

This project resulted in an increase of SAM, PM and PM<sub>10</sub> emissions. A PSD permit establishing BACT for SAM emissions from Boiler 3 and 4 and BACT for PM and PM<sub>10</sub> for the hydrated lime handling system is required.

Explanation of Synthetic Minor and PSD Limits Under 0420-0030-CI/CI.R1 and This Permit						
Permit ID	Equipment ID	Permit Issue Date	Pollutant	Emission Limit	Emission Limit (TPY)	Explanation
09	Boiler 3	With this permit	SAM	0.009 lbs/MMBtu	213	New BACT Limit
10	Boiler 4	With this permit	SAM	0.009 lbs/MMBtu	213	New BACT Limit
01	Boiler 1	Re-established From CP-CA	SAM	0.04 lbs/MMBtu	208	Re-established BACT



**STATEMENT OF BASIS**  
**Page 7 of 10**  
 BAQ Air Permitting Division

<b>Company Name:</b>	Santee Cooper Cross Generating Station	<b>Permit Writer:</b>	Denise H. Hall
<b>Agency Air Number:</b>	0420-0030	<b>Date:</b>	March 5, 2025
<b>Permit Number:</b>	PSD-50000004 v1.0		

<b>Explanation of Synthetic Minor and PSD Limits Under 0420-0030-CI/CI.R1 and This Permit</b>						
<b>Permit ID</b>	<b>Equipment ID</b>	<b>Permit Issue Date</b>	<b>Pollutant</b>	<b>Emission Limit</b>	<b>Emission Limit (TPY)</b>	<b>Explanation</b>
TBD	HL-HAND 3	With this permit	PM	0.03 lb/hr	0.12	New BACT Limit
TBD	HL-HAND 3	With this permit	PM <sub>10</sub>	0.01 lb/hr	0.04	New BACT Limit
TBD	HL-HAND 4	With this permit	PM	0.03 lb/hr	0.12	New BACT Limit
TBD	HL-HAND 4	With this permit	PM <sub>10</sub>	0.01 lb/hr	0.04	New BACT Limit
01	Boiler 1	CP-CI 02/02/2004	SAM (H <sub>2</sub> SO <sub>4</sub> )	0.0016 lbs/MMBtu	35.9	Synthetic minor limit being removed by this permit
02	Boiler 2	CP-CI 02/02/2004	SAM (H <sub>2</sub> SO <sub>4</sub> )	0.0028 lbs/MMBtu	64.0	Synthetic minor limit being removed by this permit
09	Boiler 3	CP-CI 02/02/2004	SAM (H <sub>2</sub> SO <sub>4</sub> )	0.0014 lbs/MMBtu	34.8	Synthetic minor limit being removed by this permit
10	Boiler 4	CP-CI 02/02/2004	SAM (H <sub>2</sub> SO <sub>4</sub> )	0.0014 lbs/MMBtu	34.8	Synthetic minor limit being removed by this permit

The table above summarizes the emissions limits being established, modified, or removed with this construction permit. It should be noted that upon establishment of the SAM BACT limits for Boilers 3 and 4, the synthetic minor limits that were established in the 2004 permit to avoid that SAM BACT analysis are being removed. The SAM BACT limits for Boilers 3 and 4 will replace the synthetic minor limits for those boilers. The SAM limits for Boilers 1 and 2 revert to those in existence prior to the establishment of the synthetic minor limits. See below for a more detailed analysis of the rationale used to support this table.

**SUPPORTING INFORMATION FOR REVERTING TO THE PREVIOUS/NON-EXISTING SAM LIMITS ON BOILERS 1 AND 2**

The SAM synthetic minor limits in the PSD permit issued on February 5, 2004 for the installation of Boilers 3 and Boiler 4 were established to ensure that emission reductions from Boilers 1 and 2 were creditable for purposes of the netting analysis that determined that Boilers 3 and 4 would not have to undergo a PSD/BACT review for SAM emissions. Since Boilers 3 and 4 are now undergoing PSD/BACT review as if construction on them had not commenced, the limits imposed for netting purposes on Boilers 1 and 2 are no longer appropriate, and previous/non-existing SAM limits for Boilers 1 and 2 may be reinstated.

**Facility's Synthetic Minor Limits Were Established To Prevent Boilers 3 and 4 from Triggering NSR/PSD Permitting**

In accordance with 40 CFR 52.21(j)(3), the new source review program establishes the requirement for a major modification to apply BACT for each regulated NSR pollutant for which the major modification would result in a significant net emission increase at the source. The provision states that this requirement applies "to each proposed emissions unit at which a net emission increase in the pollutant would occur as a result of a physical change or change



**STATEMENT OF BASIS**  
**Page 8 of 10**  
BAQ Air Permitting Division

<b>Company Name:</b>	Santee Cooper Cross Generating Station	<b>Permit Writer:</b>	Denise H. Hall
<b>Agency Air Number:</b>	0420-0030	<b>Date:</b>	March 5, 2025
<b>Permit Number:</b>	PSD-50000004 v1.0		

in the method of operation in the unit." (Emphasis added). This indicates that BACT generally applies only to emission units at a PSD source that are part of the major modification triggering PSD and experiencing an emissions increase as a direct result of the modification. In this case, because Boilers 1 and 2 did not experience any net emissions increase as a result of the original modification project (i.e., the addition of Boilers 3 and 4), they would not have undergone a BACT analysis in the event that Boilers 3 and 4 had originally undergone BACT analysis for SAM in lieu of synthetic minor permitting. In other words, commencement of construction for Boilers 3 and 4 never made Boilers 1 or 2 subject to PSD or a need for PSD avoidance, and the limits placed on Boilers 1 and 2 were established only for netting purposes with respect to Boilers 3 and 4. Furthermore, at no time during or since the construction of Boilers 3 or 4 is the Department aware of Boilers 1 and 2 experiencing a major modification.

**Reinstatement of Previous Permitting for Boilers 1 and 2 Is Appropriate Upon Issuance of PSD/BACT Limits for Boilers 3 and 4**

Department review indicates that the retroactive application of PSD to Boilers 3 and 4 does not now subject Boilers 1 and 2 to a PSD review that would not previously have been required of them. The facility is appropriately applying 40 CFR 52.21(r)(4) and S.C. Regulation 61-62.5, Standard 7, Section (R)(4) to Boiler 3 and Boiler 4. Under this provision, when a "source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established ... on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements [for PSD review] shall apply to the source or modification as though construction had not yet commenced on the source or modification." (Emphasis added). This language and supporting guidance indicates that the required PSD review following relaxation of synthetic minor limits is specific to "the source or modification" that had previously avoided PSD and requires BACT analysis as though construction had not yet commenced on that source or modification. See EPA, New Source Review Workshop Manual, at A.55 (Draft Oct. 1990) (providing an example netting analysis in which the removal of restrictions on other units that had allowed "Unit G" to net out of PSD review would specifically require "Unit G" - and not other units - to undergo PSD review as though construction had not yet commenced).

Based on this analysis, the only sources requiring PSD reevaluation when relaxing synthetic minor limits established in the February 2004 permit would be Boilers 3 and 4, which must be evaluated as if construction had not yet commenced. Had construction not yet commenced on Boilers 3 and 4, Boilers 1 and 2 would have remained permitted as they had been prior to 2004. Therefore, the Department agrees the previously applicable SAM limit for Boiler 1 may be reinstated; Boiler 2 was not subject to any SAM limitation prior to imposition of the 2004 limits and thus will not be subject to any new SAM limit.

**Increase in Sulfur Content of Coal Does Not Prevent Removal of Synthetic Minor Limits**

Evaluation of historical SAM performance tests results indicate that prior adjustments in the level of sulfur in coal burned by the boilers were not directly responsible for the facility's inability to meet synthetic minor SAM limits and did not result in any major modifications at the facility. Likewise, Department review indicates that any burning of higher sulfur coal following removal of the synthetic minor limit does not constitute a major modification.

According to Santee Cooper, the facility transitioned from burning lower sulfur to higher sulfur coal many years after the issuance of the 2004 permit for construction of Boilers 3 and 4. Santee Cooper states that Boilers 3 and 4 began





**STATEMENT OF BASIS**  
**Page 9 of 10**  
BAQ Air Permitting Division

<b>Company Name:</b> Santee Cooper Cross Generating Station	<b>Permit Writer:</b> Denise H. Hall
<b>Agency Air Number:</b> 0420-0030	<b>Date:</b> March 5, 2025
<b>Permit Number:</b> PSD-50000004 v1.0	

burning higher sulfur coal in 2010, and Boilers 1 and 2 began burning higher sulfur coal in 2014-2015. On the permit application submitted in June 2003, the facility indicated an intent to use coal with 3.76% sulfur content for both Boilers 3 and 4. No permit condition restricts the fuel sulfur content for any of the boilers.

There is no indication that the previous increase in fuel sulfur content was the basis for the facility's challenges in complying with its SAM synthetic minor limits. Prior to the facility's switch to higher sulfur coal, Boiler 1 had three performance tests (7/1/08, 10/15/08, 8/1/10) for SAM that failed to demonstrate compliance, and Boiler 2 had two (7/1/08, 8/1/10). The sulfur content for the 2010 tests was reported as 1.85 % and 1.78 % for Boilers 1 and 2, respectively. Therefore, SAM compliance issues existed prior to and irrespective of the sulfur content change that occurred in 2014-2015 for Boilers 1 and 2. The establishment and subsequent removal of the facility's synthetic minor SAM limits as no longer applicable thus is a matter distinct from Boiler 1 and 2's ability to burn higher sulfur coal.

Department review also indicates that any increase in emissions related to the switch to higher sulfur coal has not triggered a major modification under NSR, as this switch is not on its own a change in the method of operation under NSR. In this case, the applicable PSD permits do not restrict the burning of higher sulfur coal. Because the facility is approved to use the higher sulfur coal under its PSD permits, the fuel switch does not constitute a physical change or change in the method of operation. 40 CFR 52.21(b)(2)(iii)(e)(2).

**AMBIENT AIR STANDARDS REVIEW**

**Applicable - Standard No. 2 (Ambient Air Quality Standards)**

Std 2 does not have established ambient concentration standards for SAM. The emissions of PM and PM<sub>10</sub> from the hydrated lime handling system are insignificant and were not required to be modeled for this project. Other existing sources of PM and PM<sub>10</sub> associated with the original PSD construction permit 0420-0030-CI were modeled to demonstrate compliance during the original permitting of Boilers 3 and 4.

**Applicable - Standard No. 7(C)**

Std. 7(C) does not establish ambient air increment levels for SAM. The emissions of PM<sub>10</sub> from the hydrated lime handling system are insignificant and were not required to be modeled for this project. Other existing sources of PM<sub>10</sub> associated with the original PSD construction permit 0420-0030-CI were modeled to demonstrate compliance during the original permitting of Boilers 3 and 4.

**Not Applicable - Standard No. 8 (state only) (Toxic Air Pollutants)**

The boilers burn virgin fuel and thus SAM emissions are exempt from a compliance demonstration for Standard 8.

**PUBLIC NOTICE**

This construction permit has undergone a 30-day public notice period in accordance with SC Regulation 61-62.1, Section II(N) and SC Regulation 61-62.5, Standard 7(q) to establish PSD BACT limits for sulfuric acid mist (SAM) for Boilers 3 and Boiler 4 and PM and PM<sub>10</sub> BACT limits for the hydrated lime handling system. The comment period was open from December 10, 2024 to January 8, 2025 and the draft permit was placed on the BAQ website. No comments from the public were received during that time period, however comments were received from the Environmental Protection Agency (EPA).



<b>Company Name:</b> Santee Cooper Cross Generating Station	<b>Permit Writer:</b> Denise H. Hall
<b>Agency Air Number:</b> 0420-0030	<b>Date:</b> March 5, 2025
<b>Permit Number:</b> PSD-50000004 v1.0	

**SUMMARY AND CONCLUSIONS**

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.