



STATEMENT OF BASIS

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BAQ Engineering Services Division
 2600 Bull Street, Columbia, SC 29201
 Phone: 803-898-4123 Fax: 803-898-4079

Company Name:	Specialty Minerals Inc.	Permit Writer:	James M. Myers
Permit Number:	TV-1900-0145	Date:	May 28, 2009

DATE APPLICATION RECEIVED: March 30, 2006

DATE OF LAST INSPECTION: No violations of permit requirements or applicable regulations were observed during this inspection.

FACILITY DESCRIPTION

Specialty Minerals Inc. (SMI) operates a precipitated calcium carbonate (PCC) satellite plant within the boundaries of the International Paper (IP) Eastover Mill near the town of Eastover, Richland County. The primary activity at SMI is the manufacture of PCC slurry to be used in the paper industry. Principal operations at the plant include lime receiver, lime silos, carbonators, and activities and equipment necessary to support these operations. This facility is co-located major source, as defined under the Title V permitting program.

PROJECT DESCRIPTION

This project is for the renewal of the facility's TV operating permit.

CHANGES SINCE LAST TV ISSUANCE

Date	Type of Change	Specific Changes to Permit
10/17/01	AA	Attachment A has been altered to include up-to-date modeling; Attachment D has been added to indicate that emission limits listed in Attachment A are not considered federally enforceable emission limitations. Added Attachment D to table of contents, page 4.
10/17/01	AA	Altered condition 4.B.9 to remove the reference "International Paper-SMI". Condition now indicated facility name as "SMI."
10/17/01	AA	page numbers have changed: re-issue permit, including Attachment A and Attachment D and excluding Attachments B and C
6/17/05	AA	Correct Error in CO, SO ₂ , and NO _x Synthetic Minor limits for No. 3 Carbonator in Table 5.6, Condition 5.E.3, and Table 6.1
6/17/05	AA	Revised Condition 4.B.6 to reflect changes made to the emissions inventory reporting regulations.

CHANGES INCORPORATED INTO TV ISSUANCE

1. The facility submitted a minor modification request on January 26, 2006 to incorporate construction permit CB. Since the renewal application had already been submitted. These changes will be incorporated into this renewal. The following changes were made with the incorporation of this construction:

Permission is hereby granted to increase the capacity of the precipitated calcium carbonate (PCC) plant to 150,000 tons per year. This capacity increase will be accomplished through the following equipment upgrades and efficiency improvements:

- Replacing one of the two existing M-60 (60 Tons per hour) slakers (currently listed as an Insignificant Activity under the Title V operating permit) with one larger capacity M-90 (approximately a 90 Tons per hour capacity) slaker
- Replacement of blowers to increase carbonator stack gas flow
- Replacement of pumps moving raw material to and product from the carbonators
- Replacement of agitators in the carbonators and
- Other ancillary equipment additions/replacements/modifications such as piping, pumps and instrumentation modifications in the PCC plant.

*These changes were accounted for in the TV applications.

2. The SMI Eastover facility expanded the PCC plant in 1993 with the installation of the second lime silo and the third carbonator. In addition, operating rates for existing equipment were increased resulting in an overall production increase from approximately 60,000 tons/year to 120,000 tons/year.

As described above, the Eastover PCC plant utilizes lime kiln stack gas as the primary source of CO₂. The lime kiln exhaust gas passes through a scrubber and cooler to prepare it for the PCC reaction process. This gas conditioning is necessary to achieve the desired product yield and minimize byproduct formation. Testing at other PCC facilities has shown that the gas conditioning and PCC processes remove over 80% of the inlet SO₂ and reduced sulfur compounds and essentially 100% of the PM from the lime



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kiln exhaust. In addition, the PCC reaction process removes approximately 80% of the CO₂ from the lime kiln exhaust. Other pollutants present in the lime kiln exhaust (e.g., NO_x, CO, VOCs, organic HAPs) are not affected by the gas conditioning system or the PCC reaction process and simply “pass through.”

EPA policy requires that, where a physical or operational change can logically be expected to cause increases in actual emissions from an existing unmodified emission unit (as in the case of a change which could result in increased utilization of the unmodified unit), these increases must be included in the PSD applicability assessment. However, where the physical or operational change will have no effect on the normal operation of existing units (such as is the case with the lime kilns in this instance), such changes cannot logically “result in” an actual emissions increase at these units. Thus, the PSD emissions calculations need not address emissions from unmodified units that are unaffected by physical or operational changes occurring elsewhere at the source.

Although the proposed modifications will result in increased emissions of several pollutants from the PCC carbonator exhaust, all of these pollutants are simply being transferred from one stack to another (PCC plant vs. lime kiln) with the exception of the PM/PM₁₀ generated as carbonator carryover. These emission calculations are shown in Appendix I of the TV permit renewal application.

The 1993 PCC plant expansion did not affect operation of the IP lime kilns in any way. The modifications neither changed the character of the emissions from the lime kilns nor increased utilization of the lime kilns. Therefore, emissions from the lime kilns, whether emitted from the lime kiln stacks or carbonator stacks, did not need to be considered in determining PSD applicability for this project.

The PCC production process results in emissions of PM/PM₁₀. The facility’s existing permit (prior to the 1993 expansion) required PM controls on the railcar unloading system (GRC fabric filter, with Stoddard in-line filter), the existing lime silo (bin vent fabric filter), and the two existing PCC reactors (multi-stage chevron mist eliminator and mesh pad demister). The controlled potential to emit for PM/PM₁₀ of the PCC plant is 12.87 tons/year, based on the facility’s current capacity and control devices. Uncontrolled potential emissions from the 1993 facility expansion are greater than the 25/15 ton/year PSD significant emission rate for PM/PM₁₀. The 1993 application included plans to install controls on the new sources of PM/PM₁₀. Therefore, the 1993 expansion was synthetic minor for PSD, with the requirement to install and operate PM/PM₁₀ controls on the lime silo and third carbonator in place to avoid applicability of PSD. No other operational restrictions are required to avoid PSD.

- Pressure drop monitoring for the two baghouses on the lime silos, the railcar receiving baghouse, and the railcar receiving filter was added. The process only runs periodically so the gauges are normally reading zero (0). The facility will be required to develop a monitoring range while the loading of lime is in process. Pressure drop readings for the demisters were determined not to be necessary because of the low pressure differential.
- Standard 4 limits were based on individual processes rather than a single facility-wide process that was in the previous permit. See the CAM discussion for further detail.

PUBLIC NOTICE

This project is a renewal of the facility’s TV operating permit. The Draft permit, greensheet, and application will receive a 30 day public notice.

EMISSIONS

UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)					
ID	Equip. ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
01	LR1	PM/PM ₁₀	59.4	99.0*	AP-42 Table 11.17-4
02	LS1, LS2	PM/PM ₁₀	59.4	99.0*	AP-42 Table 11.17-4
03	C1	PM/PM ₁₀	19.29	84.47	Based on 0.015 Gr/SDCF at each carbonator stack based on testing performed at other PCC plant sites.
03	C2	PM/PM ₁₀	19.29	84.47	
03	C3	PM/PM ₁₀	19.29	84.47	
IA	ROAD	PM	0.38	1.68	AP-42 Table 13.2.1
IA	ROAD	PM ₁₀	0.07	0.33	AP-42 Table 13.2.1

*Based on maximum lime processing capacity of 90,000 TPY, as limited by the PCC reactors.



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CONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)					
ID	Equip. ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
01	LR1	PM/PM ₁₀	0.000594	0.00099*	Baghouse and Fabric Filter 100% Capture and Combined Efficiency 99.99%
02	LS1, LS2	PM/PM ₁₀	0.00594	0.0099*	
03	C1	PM/PM ₁₀	0.964	4.22	Multistage Demisters - 100% Capture 95% Control
03	C2	PM/PM ₁₀	0.964	4.22	
03	C3	PM/PM ₁₀	0.964	4.22	

*Based on maximum lime processing capacity of 90,000 TPY, as limited by the PCC reactors.

Pass Through Emissions*					
ID	Equip. ID	Pollutant	lb/hr	TPY	
03	C1, C2, C3	SO ₂	1.06	4.64	
03	C1, C2, C3	NO _x	17.08	74.81	
03	C1, C2, C3	CO	1.51	6.61	
03	C1, C2, C3	VOCs	0.03	0.15	
03	C1, C2, C3	H ₂ S	0.09	0.38	
03	C1, C2, C3	1, 2, 4-Trichlorobenzene	2.12E-03	9.30E-03	
03	C1, C2, C3	Acetaldehyde	1.13E-02	4.94E-02	
03	C1, C2, C3	Acrolein	3.44E-04	1.51E-03	
03	C1, C2, C3	Benzene	5.40E-03	2.36E-02	
03	C1, C2, C3	Carbon Disulfide	4.75E-03	2.08E-02	
03	C1, C2, C3	Chlorobenzene	1.80E-04	7.87E-04	
03	C1, C2, C3	Chloroform	5.88E-05	2.57E-04	
03	C1, C2, C3	Dioxins	2.24E-08	9.82E-08	
03	C1, C2, C3	Formaldehyde	2.61E-05	1.14E-04	
03	C1, C2, C3	n-Hexane	3.44E-04	1.51E-03	
03	C1, C2, C3	Hydrogen Chloride	3.44E-03	1.51E-02	
03	C1, C2, C3	Hydrogen Sulfide	8.16E-01	3.58E+00	
03	C1, C2, C3	Methanol	1.31E-01	5.72E-01	
03	C1, C2, C3	Methyl Bromide	2.61E-03	1.14E-02	
03	C1, C2, C3	Methyl Chloride	2.79E-02	1.22E-01	
03	C1, C2, C3	MEK	7.03E-04	3.08E-03	
03	C1, C2, C3	Methylene Chloride	6.86E-05	3.00E-04	
03	C1, C2, C3	MIBK	3.27E-03	1.43E-02	
03	C1, C2, C3	Methyl Mercaptan	3.92E-04	1.72E-03	
03	C1, C2, C3	Naphthalene	2.12E-01	9.30E-01	
03	C1, C2, C3	Phenol	4.42E-03	1.94E-02	
03	C1, C2, C3	Phosphorus	1.57E-02	6.90E-02	
03	C1, C2, C3	POM	7.73E-04	3.38E-03	
03	C1, C2, C3	Styrene	9.32E-04	4.08E-03	
03	C1, C2, C3	Sulfuric Acid	3.44E-01	1.51E+00	
03	C1, C2, C3	Tetrachloroethylene	4.24E-03	1.86E-02	
03	C1, C2, C3	Toluene	2.46E-04	1.08E-03	
03	C1, C2, C3	Xylenes (m-, p-)	6.05E-03	2.65E-02	
03	C1, C2, C3	Xylene (Mix)	1.11E-04	4.86E-04	
03	C1, C2, C3	Xylene (o-)	3.55E-03	1.55E-02	

* The SMI Eastover PCC plant utilizes lime kiln stack gas as the primary source of CO₂ (liquid CO₂ is available for backup purposes and/or to adjust the CO₂ content of the lime kiln exhaust). This approach has both economic and environmental benefits. By using lime kiln stack gas, the purchase of synthetic CO₂ can be minimized, thereby, reducing production costs. The lime kiln exhaust gas passes through a scrubber and cooler to prepare it for the PCC reaction process. This gas conditioning is necessary to achieve the desired product yield and minimize byproduct formation. Testing at other PCC facilities has shown that the gas conditioning process removes over 80% of the inlet



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SO₂ and reduced sulfur compounds and essentially 100% of the PM from the lime kiln exhaust. In addition, the PCC reaction process removes approximately 80% of the CO₂ from the lime kiln exhaust. Other pollutants present in the lime kiln exhaust (e.g., NO_x, CO, VOCs, organic HAP) are not affected by the gas conditioning system or the PCC reaction process and simply “pass through.” These emissions are already accounted for at the IP plant and are being provided for modeling purposes. The gas conditioning system is not considered a control device.

FACILITY WIDE EMISSIONS		
Pollutant	Uncontrolled Emissions	Controlled Emissions
	TPY	TPY
PM	453.1	14.4
PM ₁₀	451.7	13.0

PROJECT REGULATORY APPLICABILITY REVIEW			
Regulation	Applicable		Comments
	Yes	No	
South Carolina Regulation 61-62.1 through 62.99: Air Pollution Regulations (PROJECT ONLY)			
Section II(E): Synthetic Minor	X		The facility contains federally enforceable requirements to operate PM/PM ₁₀ control devices to avoid the requirements of PSD.
Section II(G): Conditional Major		X	Although this facility has the controlled PTE of less than the major source threshold, it is collocated with a major source and is required to operate under a TV permit.
Standard 1: Fuel Burning Operations		X	The facility has no fuel burning operations
Standard 2: Ambient Air Quality Standards	X		The facility was modeled as a collocated facility with International Paper (1900-0046). See modeling summary dated 08/19/2005. There are no operational restrictions for this facility.
Standard 3: Waste Combustion/Reduction (state only)		X	This facility contains no sources of waste combustion or reduction.
Standard 3.1: HMI Waste Incinerators		X	This facility does no incinerate hospital or medical waste.
Standard 4: Emissions from Process Industries	X		See Table A at the bottom of the greensheet.
Standard 5: Volatile Organic Compounds		X	This facility has no sources of VOCs.
Standard 5.1: BACT/LAER For VOC (state only)		X	This facility is collocated with International Paper. However, the facility contains no sources subject to BACT/LAER at this time.
Standard 5.2: Control of Oxides of Nitrogen		X	This facility contains no sources of oxides of nitrogen.
Standard 7: Prevention of Significant Deterioration	X		This facility is collocated with International Paper. Any increase in emission above the major thresholds will have to be evaluated. The facility currently contains federally enforceable conditions requiring control device operation for PM and PM ₁₀ to avoid the requirements of PSD. See discussion in “CHANGES INCORPORATED INTO TV ISSUANCE” for further detail.
Standard 7(c): Ambient Air Increments	X		The facility was modeled as a collocated facility with International Paper (1900-0046). See modeling summary dated 08/19/2005. There are no operational restrictions for this facility.
Standard 7.1: Standards for Non Attainment Areas		X	This facility is not located in a nonattainment area.



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PROJECT REGULATORY APPLICABILITY REVIEW

Regulation	Applicable		Comments
	Yes	No	
Standard 8: Toxic Air Pollutants (state only)	X		The facility was modeled as a collocated facility with International Paper (1900-0046). See modeling summary dated 08/19/2005. There are no operational restrictions for this facility.
Regulation 61-62.6: Control of Fugitive Particulate Matter	X		The fugitive PM (Dust) emissions are controlled in a manner that should not produce undesirable levels of PM (Dust) emissions.
Regulation 61-62.60: SC Designated Facility Plan and NSPS		X	Subpart HH--Standards Of Performance For Lime Manufacturing Plants – This facility does not contain a rotary lime kiln. Subpart OOO--Standards Of Performance For Nonmetallic Mineral Processing Plants – This facility does not meet the definition of a nonmetallic mineral processing plant because it does not crush or grind the lime.
Regulation 61-62.61: NESHAP		X	This facility does not emit the pollutants subject to this standard (asbestos, benzene, beryllium, coke oven emissions, arsenic, mercury, radio nuclide, radon, or vinyl chloride).
Regulation 61-62.63: NESHAP For Source Categories		X	This facility does not emit any HAP emissions.
Regulation 61-62.68: Chemical Accident Prevention		X	This facility does not use any chemicals described by this regulation.
Regulation 61-62.70: Title V	X		The facility has controlled emissions less than the major source threshold. However, it is collocated with a major source and is required to operate under a TV permit.
Regulation 61-62.72: Acid Rain		X	This facility contains no emission units required to participate in the acid rain program.
Regulation 61-62.96: Nitrogen Oxides (NO_x) Budget Trading Program		X	This facility contains no emission units required to participate in the NO _x Budget Trading program.
Regulation 61-62.99: Nitrogen Oxides (NO_x) Budget Program Requirements for Stationary Sources Not In the Trading Program		X	This facility does not contain any kilns.
Federal Regulations (PROJECT ONLY)			
NSPS (Part 60) Subpart(s)		X	Subpart HH--Standards Of Performance For Lime Manufacturing Plants – This facility does not contain a rotary lime kiln. Subpart OOO--Standards Of Performance For Nonmetallic Mineral Processing Plants – This facility does not meet the definition of a nonmetallic mineral processing plant because it does not crush or grind the lime.
NESHAP (Part 61) Subpart(s)		X	This facility does not emit the pollutants subject to this standard (asbestos, benzene, beryllium, coke oven emissions, arsenic, mercury, radio nuclide, radon, or vinyl chloride).
MACT (Part 63) Subpart(s)		X	This facility does not emit any HAP emissions.
Area Source Standards (Part 63) Subpart(s)		X	This facility contains no area sources.



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Regulation	Applicable		Comments
	Yes	No	
Compliance Assurance Monitoring (CAM) (Part 64)		X	No individual emission unit at this facility has the PTE > the major source (TV definition) threshold for any pollutant. The Lime Silos, Lime Unloading, and three Carbonators were originally permitted as a single process in regards to Standard 4. This caused there uncontrolled emissions for PM/PM ₁₀ to be greater than 100 TPY. Since the process used control devices to comply with Standard 4, these would have been subject to CAM. According to "Guidance document for Standard 4, Section VIII - PM Emission Limitations dated June 15, 1999" pieces of equipment such as silos represent a break in the process. The guidance also recommends giving parallel processes like the two silos and three carbonators individual PM limits based on process weight rates. After dividing the processes up in accordance with the Standard 4 guidance, no piece of equipment was a major for PM/PM ₁₀ so CAM does not apply.

Table A

ID	Opacity (%)	PM Allowable (lb/hr)	Process Weight Rate (tons/hr)	Uncontrolled PM Emissions (lb/hr)	Controlled PM Emissions (lb/hr)	Monitoring
01	20%	37.3	27	59.4	0.000594	Baghouse, cartridge filter
02 (S1)	20%	37.3	27	59.4	0.00594	Baghouse
02 (S2)	20%	37.3	27	59.4	0.00594	Baghouse
03 (C1)	20%	13.2	5.71	19.29	0.964	Multistage Demister
03 (C2)	20%	13.2	5.71	19.29	0.964	Multistage Demister
03 (C3)	20%	13.2	5.71	19.29	0.964	Multistage Demister

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.