

SIP CONSTRUCTION & OPERATING PERMIT AND TITLE V 502(b)(10) CHANGE APPLICATION REVIEW

Facility Name: **CE Minerals Plant 2**

City: Andersonville

County: Sumter

AIRS #: 04-13-261-00047

Application #: 15414

Date SIP Application Received: June 9, 2004 Revised on 7/28/2004 and 11/23/2004

Permit No: 3255-261-0047-V-04-3

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Introduction

This narrative is being provided to assist the reader in understanding the content of the referenced SIP permit to construct and operate and Section 502(b)(10) change to the Part 70 source. Complex issues and unusual items are explained in simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being issued pursuant to: (1) Sections 391-3-1-.03(1), 391-3-1-.03(2), and 391-3-1-.03(10). of the Georgia Rules for Air Quality Control, (2) Part 70 of Chapter I of Title 40 of the Code of Federal Regulations, and (3) Title V of the Clean Air Act Amendments of 1990. The following narrative is designed to accompany the permit and is presented in the same general order as the permit amendment. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

I. Facility Description

A. Existing Permits

Table 1 below lists the current Title V permit, all administrative amendments and minor and significant modifications to that permit, and any 502(b)(10) changes. Comments are listed in Table 2 below.

Table 1: Current Title V Permit and Amendments

Permit/Amendment Number	Date of Issuance	Comments	
		Yes	No
3255-261-0047-V-04-0	December 19, 2002	✓	
3255-261-0047-V-04-1	October 20, 2004	✓	
3255-261-0047-V-04-2 (Draft)	PSD Going through a 30 day public participation	✓	

Table 2: Comments on Specific Permits

Permit Number	Comments
3255-261-0047-V-04-0	Initial Title V permit
3255-261-0047-V-04-1	Amendment to resolve appeal.
3255-261-0047-V-04-2	Amendment for PSD review of Emission Unit ID Nos. BC13, BG29, IC40, and IC43

B. Regulatory Status

1. PSD/NSR/RACT

Plant 1, Plant 2 and Plant 6 are considered to be part of the same site, which is a major source under PSD because its potential emissions of PM, PM₁₀, NO_x, and SO₂ are greater than 250 tpy (it is not one of the 28 named source categories under PSD). Plant 2 was issued a PSD permit in October 1980. Plant 2 has taken several PSD avoidance limits on new and existing emission units (see narrative for Plant 2 initial TV permit, No. TV-9372). In the permit issued March 6, 1990, the facility took limits on operating hours for the Barmac Crushers (BC13 and IC40) and the casting system (IC43) to avoid PSD review. The BC13 Barmac Crusher has been limited to 2,000 hours of operation during any twelve consecutive months. The IC40 Barmac Crusher and Casting System (IC43) had been each limited to 5,200 hours of operation during any twelve consecutive months.

The facility has submitted a PSD application for Emission Unit ID Nos. BC13, BG29, IC40, and IC43. These emission units have PSD avoidance limits in the form of restrictions on the hours of operation. The facility has requested that these operational restrictions be removed by submitting a PSD application. A draft permit 3255-261-0047-V-04-2 has been proposed as part of removing the PSD avoidance limits.

2. Title V Major Source Status by Pollutant

Table 3: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility’s Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	Yes	✓		
PM ₁₀	Yes	✓		
SO ₂	Yes	✓		
VOC	Yes			✓
NO _x	Yes			✓
CO	Yes			✓
TRS	No			✓
H ₂ S	No			✓
Individual HAP	No			✓
Total HAPs	No			✓

II. Proposed Modification

A. Description of Modification

C-E Minerals Plant 2 is planning on installing a Continental Rollo-Mixer (Emission Unit ID No. B2) that will have a process input rate of 10 tons per batch (40 tons per hour), a rotary dryer (Emission Unit ID No. BD09) that will have a maximum heat input rating of 1.0 MMBtu/hr, a crusher (Emission Unit ID No. BC14) that will have a process input rate of 0.25 tons per hour, and use a silane solution at the previously permitted Lancaster mixer (Emission Unit ID No. A1M) and use of this solution at the Rollo-Mixer B2. The rotary dryer will process non-metallic minerals in the same manner as the rotary dryer BD2. This newly installed rotary dryer is replacing the old material rotary dryer (Emission Unit ID No. BD2) which will be permanently shut down. The facility currently does not use silane solution at the facility. The new equipment will emit particulate matter from mineral processing and VOC and hazardous air pollutants (HAPs) emissions from silane solution application.

B. Emissions Change

Table 4: Emissions Increases Due to Modification

Pollutant	Is the Pollutant Emitted?	Actual Emissions Increase (tpy)	Potential Emissions Increase (tpy)
PM ¹	Yes	2.38	5.21
PM ₁₀	Yes	2.38	5.21
SO ₂	Yes	0.0004	0.0009
VOC	Yes	25.64	39.0 ²
NO _x	Yes	0.31	0.67
CO	Yes	0.04	0.09
TRS	N/A	N/A	N/A
H ₂ S	N/A	N/A	N/A
Individual HAP	Yes	7.47	<10
Total HAPs	Yes	7.37	<25

1 All of the particulate matter emitted by the new boiler is considered to be PM-10 and PM-2.5.

2 The Silane process associated with Emission Unit ID Nos. B2 and A1M will have an emissions limitation of 39 tpy for VOC.

C. Title I Modification

- **PSD**

The installation of the Continental Rollo-Mixer (Emission Unit ID No. B2), a rotary dryer (Emission Unit ID No. BD09), a crusher (Emission Unit ID No. BC14), and the use of the silane solution in Emission Units A1M and B2 will not be considered a significant modification with respect to PSD because the potential emissions increase of VOC will be limited to below 40 tpy via federally enforceable permit conditions. All the other increases for the other criteria pollutants (SO₂, CO, VOC, and PM) will be well below their respective significant modification thresholds. The installation of the new equipment will not result in increased down stream emissions or results in any debottle necking of the facility. The facility is also decommissioning the older Rotary Dryer (Emission Unit ID No. BD2), which could be used in a netting analysis if the project in and of itself was significant.

- **NSPS**

The facility is installing new NSPS sources but is not modifying any existing facilities as defined in the 40 CFR 60.

- **NESHAPS**

The equipment associated with this change is not subject to any Part 61 NESHAPs so the addition of these new operations to the facility could never trigger a modification under Part 61.

III. Facility Wide Requirements

A. Emission and Operating Caps

No facility wide emission caps are being modified or added due to the new operations (the new crusher, rotary dryer, Rollo-Mixer, and silane solution addition) at the facility.

B. Applicable Rules and Regulations

No new facility wide regulations are triggered or modified due to the new operations.

C. Compliance Status

The facility is in compliance per a review of the Division's files.

D. Operational Flexibility

Operational flexibility has not been requested by the facility.

E. Permit Conditions

No facility wide permit conditions are being added due to this Section 502(b)(10) change.

IV. Regulated Equipment Requirements

A. Brief Process Description

C-E Minerals Plant 2 is planning on installing a Continental Rollo-Mixer (Emission Unit ID No. B2) that will have a process input rate of 10 tons per batch (40 tons per hour), a rotary dryer (Emission Unit ID No. BD09) that will have a maximum heat input rating of 1.0 MMBtu/hr, a crusher (Emission Unit ID No. BC14) that will have a process input rate of 0.25 tons per hour, and use a silane solution at the previously permitted Lancaster mixer (Emission Unit ID No. A1M) and use of this solution at the Rollo-Mixer B2. The rotary dryer will process non-metallic minerals in the same manner as the rotary dryer BD2. This newly installed rotary dryer is replacing the old material rotary dryer (Emission Unit ID No. BD2) which will be permanently shut down. The facility currently does not use silane solution at the facility. The new equipment will emit particulate matter from mineral processing and VOC and hazardous air pollutant (HAP) emissions from the silane solution application.

The VOC and HAP emitted from the process as a result of volatilization and chemical reaction of the Silane solution. Ethanol and methanol will be the primary VOC and/or HAP resulting from the Silane process.

B. Equipment List for this 502(b)(10) change:

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Applicable Requirements/Standards	Corresponding Permit Conditions	ID No.	Description
BD09	Rotary Dryer	391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(p)	3.4.1, 3.4.2, 3.4.3, 6.1.8, 6.2.9	BD3	Baghouse
B2	Rollo-Mixer	391-3-1-.02(2)(b) 391-3-1-.02(2)(p) 40 CFR 63 Subpart OOO	3.2.7, 3.2.8, 3.3.1, 3.4.1, 3.4.2, 5.2.12, 5.2.13, 5.2.14, 5.3.2, 6.1.8, 6.2.10, 6.2.11, 6.2.12, 6.2.13, 6.2.14, 6.2.15	DCB2	Dust Collector
BC14	Crusher	391-3-1-.02(2)(b) 391-3-1-.02(2)(p) 40 CFR 63 Subpart OOO	3.3.1, 3.4.1, 3.4.2	B6	Baghouse (vents inside building)
A1M	Lancaster Mixer	391-3-1-.02(2)(b) 391-3-1-.02(2)(p)	3.2.7, 3.2.8, 3.4.1, 3.4.2, 6.1.8, 6.2.10, 6.2.11, 6.2.12, 6.2.13, 6.2.14, 6.2.15	A9	Baghouse (vents inside of building)

C. Equipment & Rule Applicability

- **Emission and Operating Caps:**

VOC emissions result from volatilization and chemical reaction between the Silane solution and mineral surface. The majority of VOC emissions will be in the form of ethanol and methanol. The Silane process associated with emission units listed in table 3.1.1 will have an emissions limitation of 39 tons per year (tpy) for VOC. These emission limitations will ensure that the use of the silane solution at these emission units does not trigger a PSD review since the potential emissions increase from the use of the silane solution will be below the significance thresholds for VOC (40 tpy). The facility will keep track of the amount of silane solution used, the VOC content of the solution and the maximum amount of VOC that could result from chemical reaction in order to calculate emissions on a monthly basis to determine the 12-month rolling total.

The methanol emissions result from a chemical reaction between the silane solution and mineral surface. This major Part 70 source (i.e., Plant 1, 2 and 6) will have an emissions limitation of below 10 tpy for any individual HAP and below 25 tpy for combined HAPs. Therefore, the Source will not be a major source for HAPs as defined in 40 CFR 63.2 and will not be subject to the 40 CFR 63 Subpart B (i.e., 112(g)). The facility will keep track of the amount of silane solution used, the HAP content of the solution and the maximum amount of HAPs that could result from chemical reaction in order to calculate emissions on a monthly basis to determine the 12-month rolling total

- **Applicable Rules and Regulations:**

Rules and Regulations Assessment:

State Rules and Standards [Georgia Rules 391-3-1-.02(2)]

The equipment associated with this modification will be subject to the following Georgia Rules:

Georgia Rule 391-3-1-.02(2)(b)	“Visible Emissions”
Georgia Rule 391-3-1-.02(2)(g)	“Sulfur Dioxide”
Georgia Rule 391-3-1-.02(2)(p)	“Particulate Emissions from Kaolin and Fuller’s Earth Processing”

Rule (b) “Visible Emissions”

Emission Unit ID Nos. A1M, B2, BC14, and BD09 are subject to Georgia Rule 391-3-1-.02(2)(b)1 because these emission units are subject to other rules specified in section 391-3-1-.02(2). Georgia Rule (b) limits the opacity from these emission units to no more than 40 percent unless these emission units are subject to a more stringent opacity limit. The use of the equipment’s respective baghouses and dust collectors will ensure compliance with Georgia Rule (b).

Rule (g) “Sulfur Dioxide”

The Rotary Dryer (Emission Unit ID No. BD09) is subject to Rule (g) since it is considered a fuel-burning source. Georgia Rule 391-3-1-.02(2)(g)2 limits the Rotary Dyer BD09 to the use of fuel that has a sulfur content of no more than 2.5 percent sulfur, by weight (for sources with a maximum heat input of under 100 MMBTU/hr). The facility will be using propane, natural gas or No. 2 oil in rotary dryer to comply with this limitation.

Rule (p) “Particulate Emissions from Kaolin and Fuller’s Earth Processing”

Emission Unit ID Nos. A1M, B2, BD09, and BC14 are subject to Georgia Rule 391-3-1-.02(2)(p)1 because these emission units are engaged in kaolin processing. Georgia Rule (p) limits the particulate matter emissions from the process equipment. The PM emissions are limited per the following equations for Emission Unit ID Nos. A1M, BC14, BD09, and B2:

$$E = 3.5(P)^{0.62}, \text{ for Process Input Rates up to and including 30 tph}$$

$$E = 17.31(P)^{0.16}, \text{ for Process Input Rates in excess of 30 tph}$$

Where,

E = the maximum allowable PM emissions rate (lb/hr);

P = the process input rate (tph).

The above equations apply since all of the emission units were constructed after January 1, 1972. The PM emissions from the above emission units are controlled with baghouses and dust collector.

Georgia Toxic Guidelines

The facility has performed a toxic impact assessment using SCREEN 3 and has demonstrated that this

modification will not cause an unacceptable risk according to Georgia's Toxic Guidelines, Dated June 1998.

Federal Rules and Standards [40 CFR 60]

The equipment associated with this modification will be subject to the following Federal Standard:

40 CFR 60 Subpart OOO "Nonmetallic Mineral Processing Plants"

NSPS Subpart OOO "Standards of Performance for Nonmetallic Mineral Processing Plants"

The Rollo-Mixer (Emission Unit ID No. B2) and the new crusher (Emission Unit ID No. BC14) are both subject to NSPS Subpart OOO "Standards of Performance for Non-metallic Mineral Processing Plants." Condition 3.3.1 contain the applicable particulate and emission limits.

The Lancaster Mixer (Emission Unit ID No. A1M) was constructed before the NSPS OOO applicability date of August 31, 1983.

NSPS Subpart UUU "Standards of Performance for Calciners and Dryers in Mineral Industries"

The Rotary Dryer (Emission Unit ID No. BD09) was constructed before the NSPS Subpart UUU applicability date of April 23, 1986.

Proposed Rules and Regulations

The facility is a synthetic minor source for HAPs and will not be subject to any upcoming NESHAPs. Condition 3.2.8 is added to limit HAP emissions below 10 tpy for any individual HAP and below 25 tpy for combined HAPs. These emission limitations will ensure that the use of the silane solution does not trigger a case-by-case MACT review per 40 CFR 63 Subpart B (i.e., 112(g) of the Federal CAA) since the potential emissions increase from the use of the silane solution will be below the significance thresholds.

D. Compliance Status

The facility is in compliance per a review of the Division's files.

E. Operational Flexibility

Operational flexibility has not been requested by the facility.

F. Permit Conditions

These modifications can be processed as a Section 502(b)(10) change because no permit conditions contained in the initial TV permit or subsequent amendment are being modified. This 502(b)(10) permit and respective conditions do not:

- Change any existing federally enforceable monitoring, recordkeeping, reporting or compliance certification permit conditions
- Allow an exceed of any allowable limit in the permit
- Authorize a Title I Modification (PSD, NSPS, NESHAP)

New Permit Conditions

1. Permit Condition No. 3.2.7 limits the VOC emissions from the Lancaster mixer and the Roll-mixer (Emission Unit ID No. A1M and B2) to 39 tpy. This emission limit is a PSD avoidance limit that is in place to ensure that these additional operations are not considered a significant modification with respect to PSD.
2. Permit Condition No. 3.2.8 limits the HAP emissions from this major Part 70 source (i.e., Plants 1, 2 and 6) to below 10 tpy of any individual HAP and below 25 tpy for combined HAPs. This emission limit will ensure that the use of Silane solution in Lancaster mixer and the Roll-mixer will not be subject to the 40 CFR 63 Subpart B (i.e., 112(g) of the CAA).

V. Testing Requirements (with Associated Record Keeping and Reporting)

Condition No. 4.1.3 of the facility's Title V operating permit contains all of the applicable test methods that would be applicable for this Section 502(b)(10) change. Any applicable testing would be covered by Condition No. 4.2.1 of the facility's Title V permit, which requires NSPS testing for the Roller Mixer (Emission Unit ID No. B2) and the new crusher (Emission Unit ID No. BC14).

VI. Monitoring Requirements (with Associated Record Keeping and Reporting)

Condition No. 5.2.12 requires installation, calibration, maintenance and operation of a pressure drop gauge on the dust collector for the Rollo-Mixer (APCD ID NO. DCB2). Condition No. 5.2.13 requires a daily visible emissions check of the dust collector and a requirement to take action should visible emissions equal or exceed the opacity action level (5 percent since B2 is an NSPS Subpart OOO process unit). Condition No. 5.2.14 requires that the facility conduct a weekly inspection for proper operation of the dust collector and fix any problems when a malfunction is discovered. Condition Nos. 5.2.12 through 5.2.14 are similar to Condition Nos. 5.2.1, 5.2.2, and 5.2.3 which require baghouse monitoring.

Baghouses B6 and A9 are existing baghouses venting inside the building. The proposed changes will not have a consequential effect on emissions from these baghouses. In the initial title V permit, the Division exempted baghouses B6 and A9 from monitoring. This permit does not require new monitoring for these baghouses.

VII. Other Record Keeping and Reporting Requirements

Condition No. 6.1.8 specifies the exceedances and excursions for the new equipment and also includes a requirement to submit the 12-consecutive month totals for each month in the reporting period of the VOC and HAP emissions in the semiannual report.

Condition No. 6.2.9 requires records showing the type of fuel fired in the rotary dryer BD09. The facility is allowed to use propane, natural gas and No.2 fuel oil in the rotary dryer.

Condition Nos. 6.2.10 through 6.2.14 specify that the facility calculate the monthly VOC and HAP emissions and the 12-month rolling totals and notify the Division when the emission limitations could likely be exceeded in the future, or actually have been exceeded.

Condition No. 6.2.15 requires submittal of sample records within 60 days of this 502(b)(10) permit.

VIII. Specific Requirements

A. Operational Flexibility

Not applicable.

B. Alternative Requirements

Not Applicable

C. Insignificant Activities

No insignificant activities are being added as a result of this 502(b)(10) change.

D. Temporary Sources

No temporary sources are being added as a result of this 502(b)(10) change.

E. Short-Term Activities

No short-term activities are being added as a result of this 502(b)(10) change.

F. Compliance Schedule/Progress Reports

The facility is in compliance.

G. Emissions Trading

Not applicable.

H. Acid Rain Requirements

This modification does no change the facility's applicability.

I. Prevention of Accidental Releases

This modification does no change the facility's applicability.

J. Stratospheric Ozone Protection Requirements

This modification does no change the facility's applicability.

K. Pollution Prevention

Not applicable.

L. Specific Conditions

This permit is being issued in time to meet the company's deadline. However a consequence of this is that the Public Advisory is still open and that comments can be received by the Division through February 11, 2005.

Therefore, Condition 7.14.2 is included, which provides that EPD reserves the right to revise the permit based upon any relevant comments received by February 11, 2005, in response to the public advisory issued for Application No. 15414.