

TITLE V APPLICATION REVIEW

Facility Name: J. M. Huber, Wrens Calcine Plant

City: Wrens

County: Jefferson

AIRS #: 04-13-163-00026

Application #: TV- 9337

Date Application Received: October 24, 1996

Date Application Deemed

Administratively Complete: April 22, 1997

Date of Draft Permit:

Permit No: 3295-163-0026-V-01-0

Program	Review Engineers	Review Managers
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Introduction

This narrative is being provided to assist the reader in understanding the content of the attached draft Title V operating permit. 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 proposed pursuant to: (1) Section 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 primary purpose of this permit is to consolidate and identify existing state and federal air requirements applicable to **J. M. Huber, Wrens Calcine Plant** and to provide practical methods for determining compliance with these requirements. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. It initially describes the facility receiving the permit, then the applicable requirements and their significance, and finally the methods for determining compliance with those applicable requirements. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Any revisions made to the permit in response to comments received during the public participation process will be described in an addendum to this narrative.

I. Facility Description

A. Facility Identification

1. Facility Name: J. M. Huber, Wrens Calcine Plant
2. Parent/Holding Company Name: J. M. Huber Corporation
3. Previous and/or Other Name(s)

The facility was originally permitted as Anglo American Clays Corporation on May 21, 1995. On May 22, 1996, Air Quality Permit No. 3295-081-11975 was issued changing the name to ECC International, Wrens Plant.

Application No. 11846 dated November 12, 1999 included notification J. M. Huber Corporation is the new owner of this plant. J. M. Huber Corporation indicated the newly acquired plant will now be designated J. M. Huber, Wrens Calcine Plant.

4. Facility Location

1601 Cedar Grove Road
Wrens, Georgia 30833 (Jefferson County)

5. Attainment or Non-attainment Area Location

The facility is not located inside the Atlanta Non-attainment Area.

6. Class I Area Impacts

The facility is not located within 100 km of a Class I area.

B. Site Determination

None.

C. Existing Permits

Table 1: List of Current Permits, as Amended

Permit Number and/or Purpose of Issuance	Date of Issuance and Date of Amendments (if any)	Comments	
		Yes	No
Pending	Pending	U	
3295-081-11975	July 9, 1998 (Amendment)		U
3295-081-11975	May 7, 1997 (Amendment)		U

Table 1: List of Current Permits, as Amended

Permit Number and/or Purpose of Issuance	Date of Issuance and Date of Amendments (if any)	Comments	
		Yes	No
3295-081-11975	January 22, 1997 (Amendment)		U
3295-081-11975	May 22, 1996 (Permit)		U

Table 2: Comments on Specific Permits

Permit Number	Comments
3295-081-11975	Ownership change from ECC International to J. M. Huber Corporation

D. Process Description

- 1. SIC Code(s) Major - 3295
 Other - 1455

2. Description of Product(s)

The facility processes kaolin.

3. Overall Facility Process Description

The product lines are distinguished by the primary process route: Hydrous - all of the final product property development is done in an aqueous slurry form, and Calcined - the structure of the mineral is fundamentally changed at high heat. All of the plants follow the same basic process of mining, blunging, processing, and packaging.

Initial kaolin ore quality is appraised on the basis of intensive lab testing of widely spaced 400 ft. centers) drill cores. If the deposit shows promise, it is re-drilled and tested on smaller bore hole spacing (typically 100-200 ft centers). This information is then used to create an overburden removal plan. Overburden is the material lying on top of the usable deposit. It is often quoted in terms of a ratio of how many vertical feet of material must be removed to get one vertical foot of clay. The overburden is stored/used for reclamation of exhausted mines. Once the clay is exposed, it is re-drilled on closely spacing (50' centers) for mine planning purposes. Mining is the physical extraction of the crude clay from its natural state (typically via backhoe or dragline) and delivery to a blunger (typically by large dump truck). Blungers can be located either in the pit or at the plants.

Blunging is the first and most critical step in the product development process. Proper feed preparation determines much of the subsequent process efficiencies. Crude kaolin in its natural state is a solid material having nominal water and residue contents of 20% and 10% respectively. At a micro level the clay is composed of discrete stacks, plates, and blocks. The purpose of blunging is to liberate the usable clay from the undesired residue and produce dispersed slurry for further processing. The delivered crude is crushed to a small size and fed to a high energy/intensity mixer. Additional water is added to reach the desired solids. A dispersant is also added to keep the individual clay particles in suspension. The separation of the crude into proper dispersed slurry of individual particles is critical to the proper operation of subsequent processes. The residue is separated from desirable clay through gravity settling and/or flow/pressure assisted G-force

processes. Dispersed, de-gritted slip is delivered to the following process via pipelines.

The next step in the process is impurity removal and particle size/shape development. These processes are typically impurity specific, and are not required for all products, and are not required in any particular order; however, they are usually conducted in a sequence to deliver maximum cost effectiveness. Flotation/flocculation are usually the first steps in the process. These processes are typically targeted to remove low amounts of titanium based impurities. The titanium compound is "collected" with various organic compounds and separated from the desired kaolin using by gravity. Classification uses high g-force centrifuges to control the particle size of the final products. Typical control points are at the size of 2.0 and 0.25 microns. The rejected oversize material is processed in high intensity in sand-assisted grinders to liberate the plates/stacks for use in specific products and applications. Ozone is used to remove trace organic impurities. High gradient magnetic separation is used reduce trace iron impurities, The final step is typically a reductive "bleaching" to convert residual iron to a colorless form. This step is typically carried out in conjunction with an acid flocculation/vacuum filtration step. The filtration is needed to remove salts added in prior process steps and it is a cost effective way to increase the solids prior to drying.

At his point the Hydrous and Calcine flow sheets diverge. Hydrous clays are typically spray died and/or evaporated for final product packaging. Calcine clays are spray dried, pulverized, and fed to the calciner. The calciner imparts unique performance properties through the high temperature alteration of the kaolin crystalline structure. Calcine product is re-pulverized to break up soft agglomerates and stored in silos.

Kaolin is sold to various customers/markets in many forms. High solids clay slurries are produced by evaporative concentration of filter products. An alternative route is to backmix spray dried/calcined clay with water to reach the desired solids. Specific additives are used to prevent solids settling and bacteria growth. Slurry can be delivered via rail or truck. Both products are also offered in dry bulk (rail and truck), dry big bags (500-1,000 kgs, and dry small bags (40-55 lbs)).

4. Overall Process Flow Diagram (optional)

The process and flow diagrams are included in the application.

E. Regulatory Status

1. PSD/NSR

The facility is not subject to PSD/NSR review.

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	X	X		
PM ₁₀	X	X		
SO ₂	X			X
VOC	X			X
NO _x	X			X
CO	X			X
TRS				
H ₂ S				
Individual HAP	X			X
Total HAPs	X			X

3. MACT Standards

The facility is not subject to any MACT standards.

4. Program Applicability

Program Code	Applicable (Yes/No)
Program Code 6 - PSD	No
Program Code 8 - Part 61 NESHAP	No
Program Code 9 - NSPS	Yes
Program Code M - Part 63 NESHAP	No
Program Code V - Title V	Yes

Regulatory Analysis

II. Facility Wide Requirements

A. Emission and Operating Caps

The facility wide firing of fuel oil will limited emissions of sulfur dioxide to 40 tons during any 12 consecutive months. The sulfur content of No. 2 fuel oil will not exceed 0.5% weight percent and the consumption does not exceed 2,500,000 gallons during any 12 consecutive month period.

TITLE V APPLICATION REVIEW

B. Applicable Rules and Regulations

! Rules and Regulations Assessment

None.

! Emission and Operating Standards

None.

C. Compliance Status

The facility is operating in compliance.

D. Operational Flexibility

Not applicable.

E. Permit Conditions

None.

III. Regulated Equipment Requirements

A. Brief Process Description

The facility processes kaolin.

B. Equipment List for the Process

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Corresponding Permit Conditions	Applicable Requirements / Standards	ID No.	Description
H1	Horizontal Mill	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	P7C	Baghouse
H2	Horizontal Mill	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	P7C	Baghouse
M34	“CMT” Pre-Mill	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	M34 C	Baghouse
M35	“CMT” Pre-Mill	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	M35 C	Baghouse

TITLE V APPLICATION REVIEW

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Corresponding Permit Conditions	Applicable Requirements / Standards	ID No.	Description
M36	“CMT” Post-Mill	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	M36 C	Baghouse
M37	“CMT” Post-Mill	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	M37 C	Baghouse
D6	Spray Dryer No. 6	3.3.2 3.4.1	391-3-1-.02(2)(p) NSPS UUU	D6C	Baghouse
C6	Calciner No. 6	3.3.2 3.4.1	391-3-1-.02(2)(p) NSPS UUU	D6C	Baghouse
K6	Cooler/Horizontal Mill Feed	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	K6C	Baghouse
B1	Feed Silo (Steel Bin)	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	B1C	Bin Vent
R1	Railcar/Truck Loading System	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	R1C	Baghouse
R2	Railcar/Truck Loading System	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	R2C	Baghouse
R3	Railcar/Truck Loading System	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	R2C	Baghouse
S1	Silo 1 (Calcined Product)	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	---	None
S2	Silo 2 (Calcined Product)	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	---	None
CB1	Belt Conveyor 1	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	---	None
CB2	Belt Conveyor 2	3.3.1 3.4.1	391-3-1-.02(2)(p) NSPS OOO	---	None

C. Equipment & Rule Applicability

! Emission and Operating Caps

None.

! Applicable Rules and Regulations

1. 40 CFR, Part 60, Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" is listed in the permit as Condition 3.3.1. Each listed piece of equipment in Table 3.1 subject to this requirement has 3.3.1 in the column, "Corresponding Permit Condition". This requirement applies to any crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station constructed, reconstructed, or modified after August 31, 1983. Emission requirements associated with this rule include no visible fugitive emissions greater than 10 percent opacity. Stack emissions will not contain particulate matter in excess of 0.05 g/dscm (0.02 grains/dscf) and exhibit greater than 7 percent opacity.
2. 40 CFR, Part 60, Subpart UUU, "Standards of Performance for Calciners and Dryers in Mineral Industries" is listed in the permit as Condition 3.3.2. Each listed piece of equipment in Table 3.1 subject to this requirement has 3.3.2 in the column, "Corresponding Permit Condition". This includes Spray Dryer No. 6 (S6) and Calciner No. 6 (C6). In order for 40 CFR, Part 60, Subpart UUU to be applicable, the emission sources have been constructed, reconstructed, or modified after April 23, 1986.

Emission requirements associated with this rule include any gases which contain particulate matter in excess of 0.04 grains/dscf (0.092 grams/dscm) for calciners and calciners and dryers installed in series. For dryers which stand alone, the emissions do not contain particulate matter in excess of 0.025 grains/dscf (0.057 grams/dscm). For both series and parallel operations, the opacity is limited not to exceed 10 percent opacity.

3. Georgia Rule 391-3-1-.02(2)(p) "Particulate Emissions from Kaolin and Fuller's Earth Processes" is listed in the permit as Condition 3.4.1. Each listed piece of equipment in Table 3.1 subject to this requirement is identified under the column listed, "Corresponding Permit Condition". The following equations are used to calculate the allowable rates of emission from kaolin and fuller's earth process equipment constructed or put in operation. Particulate matter emissions can not equal to or exceed the allowable rates specified in the below equations.
 - a. For equipment constructed or extensively modified after January 1, 1972, the following equations will be used to determine allowable emission rates:
 - i. $E = 3.59 P^{0.62}$, for process input weight rate up to and including 30 tons per hour;
 - ii. $E = 17.31 P^{0.16}$, for process input weight rates in excess of 30 tons per hour.
 - b. For equipment constructed or put in operation on or before January 1, 1972, the following equations will be used to determine allowable emission rates:
 - i. $E = 4.1 P^{0.67}$, for process input weight rate up to and including 30 tons per hour;
 - ii. $E = 55 P^{0.11} - 40$, for process input weight rates in excess of 30 tons per hour.

In the above equations E = allowable emission rate in pounds per hour; and
P = process input weight rate in tons per hour.

D. Compliance Status

The facility is in compliance at this time.

E. Operational Flexibility

Not applicable.

F. Permit Conditions

None.

IV. Testing Requirements (with Associated Record keeping and Reporting)

General Testing Requirements

This permit specifies that a performance test may be required to determine compliance with the emission limits in Part 3.0, and the test methods to be used to determine compliance are listed. A general condition to require notification of any test and for the submission of a test plan is included.

Specific Testing Requirements

The initial performance tests required by 40 CFR 60.8 and the current Air Quality Permit have been completed for all existing equipment. This permit allows certain changes to be made to the facility without permit revision. These changes may include installing new equipment and replacing existing equipment. If these changes are made, a condition is present to require the initial performance test be performed in accordance with 40 CFR 60.8 and the applicable subpart. This permit does not contain any conditions to require specific testing for any source.

V. Monitoring Requirements (with Associated Record keeping and Reporting)

General Monitoring Requirements

This permit specifies that any monitoring systems installed should be in continuous operation and that downtime due to maintenance should be minimized.

Specific Monitoring Requirements

Most sources at the facility have baghouses for control of Particulate Matter (PM) emissions and are subject to the PM and Visible emissions (opacity) limitations of Georgia Rules (p) and/or 40 CFR Part 60 Subpart OOO. The processes that are substantial sources of PM emissions are controlled by the larger baghouses installed at the facility and are subject to the monitoring requirements of Condition 5.2.4 to reasonably assure compliance with applicable emissions limitations. To reasonably assure compliance with applicable PM limitations, a Visible Emissions (VE) check is required each day of operation of the emissions units controlled by the baghouses. Corrective actions are required for visible emissions or for visible emissions which exceed a specified opacity action level. In addition, a Preventive Maintenance Program is required on these baghouses. The program requires weekly monitoring of baghouse pressure drop and the performance of operation and maintenance checks on the baghouses. All VE and Preventative Maintenance Program information is retained by the Permittee and submitted to the Division upon request. Excursions, to be reported semiannually, are specified.

Spray Dryer No. 6 (D6) and Calciner 6 (C6) are subject to 40 CFR 60 Subpart UUU and Georgia Rule (p) for limitations of particulate matter (PM) and visible emissions (opacity). Particulate matter emissions are controlled by a baghouse. Subpart UUU requires that a Spray Dryer equipped with a dry control device, such as a baghouse, install a Continuous Opacity Monitoring System (COMS). The COMS was determined to be sufficient monitoring to assure compliance with the PM and opacity limitations and no other monitoring is required. Exceedances are as defined in Subpart UUU.

Silos 1 & 2 and Belt Conveyors 1 & 2 (Emission Units S1, S2, CB1 and CB2) are subject to the Georgia Rule (p) and NSPS OOO for PM and opacity. Emissions are uncontrolled and a daily check is required to reasonably assure compliance with applicable limitations. Corrective actions are required for visible emissions that are present.

Dust collectors, bin vents and filter receivers controlling emissions from individual bins, wet screening operations, bucket elevators, belt and pneumatic conveyances, and bagging operations are exempted from detailed monitoring provisions due to little likelihood of significant Particulate Matter emissions. Additionally, the Horizontal Mill, Feed Silo, and the three Railcar/Truck Loading System Baghouses are also exempt due to the likelihood of Particulate Matter emissions.

All fuel burning sources (dryers and calciners) are subject to Georgia Rule (g) for sulfur dioxide emissions. Spray Dryer No. 6 (D6) burns natural gas with fuel oil as backup fuel; Calciner No. 6 (C6) also burns natural gas with no backup. This limitation is more stringent than the Rule (g) sulfur limit and will be monitored by fuel supplier certifications. The Permittee is required to obtain from the fuel oil supplier, a certification that the oil is 0.5 percent sulfur by weight or less. Natural gas is processed fuels (cleaned) which have negligible amounts of sulfur; therefore no monitoring is required.

Baghouse D6C, which receive gases from combustion sources, is required to monitor (not record) temperature continuously and to record all incidents when the temperature exceeds a temperature based on the maximum temperature that the bags can withstand.

The permit requires all uncontrolled sources be checked daily for obvious mechanical failure and all uncontrolled sources be checked the presence of Visible Emissions. The permit includes a requirements to take corrective action and keep records. If problems are revealed during the daily check, they must be reported in the semiannual report if not corrected within 24 hours.

Record keeping and Reporting Requirements:

Records, including identification of exceedances and excursions, the cause of such occurrence, and the corrective action taken, are required to be kept by the Permittee. Reporting is required on a semiannual basis.

VI. Other Record keeping and Reporting Requirements

General Record keeping and Reporting Requirements:

The Permit contains general requirements for the maintenance of all records for a period of five years following the date of entry and requires the prompt reporting of all related information to deviations from applicable requirements.

VII. Specific Requirements

A. Operational Flexibility

 C Not applicable.

B. Alternative Requirements

 C Not applicable.

C. Insignificant Activities

 C refer to §4.10 of the Title V permit application

D. Temporary Sources

 C Not applicable.

E. Short-Term Activities

 C Not applicable.

F. Compliance Schedule/Progress Reports

 C Not applicable.

G. Emissions Trading

C Not applicable.

H. Acid Rain Requirements

C Not applicable.

I. Prevention of Accidental Releases

C Not applicable.

J. Stratospheric Ozone Protection Requirements

C Not applicable.

K. Pollution Prevention

C Not applicable.

L. Specific Conditions

C Not applicable.

VIII. General Provisions

Generic provisions have been included in this permit to address the requirements in 40 CFR Part 70 that apply to all Title V sources, and the requirements in Chapter 391-3-1 of the Georgia Rules for Air Quality Control that apply to all stationary sources of air pollution.

Closing Block: We have reviewed and recommend issuance of draft Permit No. 1455-163-0026-V-01-0

Program	Review Engineers	Dates	Review Managers	Dates
SSPP/ASU				
SSCP/ASU				
ISMP				
TOXICS				

Stationary Source Permitting Program Manager

Date