Golder Associates Inc.

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July 20, 2007

063-7645

Florida Department of Environmental Protection
Bureau of Air Regulation
Northwest District
2600 Blair Stone Road
Tallahassee, Florida 32399

Attention: Jeffery F. Koerner, P.E., Air Permitting North

RE: SMURFIT-STONE CONTAINER ENTERPRISES, INC.
PROJECT NO. 0050009-028-AC (PSD-FL-388)
PETCOKE FIRING IN LIME KILN
REVISIONS TO APPLICATION

Dear Mr. Koerner:

Based on our recent discussions, on behalf of Smurfit-Stone Container Enterprises, Inc. (SSCE), we are submitting additional information regarding the sulfur content of petroleum coke to be fired in the Lime Kiln. Discussions with suppliers indicate that the petcoke could contain up to 8 percent sulfur (compared to the previous estimate of 7 percent). Although the maximum petcoke sulfur content for the project is increasing, we are not revising the maximum SO_2 emissions, since we believe the SO_2 removal efficiencies we have used for the Lime Kiln and wet scrubber are conservatively low. The overall control efficiency previously used was 98 percent. This has now been revised to 98.3 percent. This revised efficiency, coupled with the higher petcoke sulfur content, actually yields maximum SO_2 emissions slightly lower than previously estimated.

Revised application pages and tables from the PSD report that reflect these changes are attached. Also attached is the Professional Engineer certification statement. Thank you for consideration of this information. If you have any questions, please do not hesitate to call me at (352) 336-5600.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff

David A. Buff, P.E., Q.E.P.
Principal Engineer

DB/all

Enclosures

cc: T. Clements

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APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **David A. Buff**
   Registration Number: **19011**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **6241 N.W. 23rd Street, Suite 500**
   City: **Gainesville** State: **Florida** Zip Code: **32653**
3. Professional Engineer Telephone Numbers...
   Telephone: **(352) 336-5600** ext.**545** Fax: **(352) 336-6603**
4. Professional Engineer Email Address: **dbuff@golder.com**
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

David A. Buff
Signature

7/24/07
Date

(seal)

* Attach any exception to certification statement.
**** Board of Professional Engineers Certificate of Authorization #00001670**

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 3 of 5

1. Segment Description (Process/Fuel Type): **In-process Fuel Use; Natural Gas: Lime Kiln**		
2. Source Classification Code (SCC): **3-90-006-03**	3. SCC Units: **Million Cubic Feet Burned**	
4. Maximum Hourly Rate: **0.180**	5. Maximum Annual Rate: **1,576.8**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1,000**
10. Segment Comment: **Maximum hourly rate based on 180 MMBtu/hr (daily average) and 1,000 Btu/ft^3.**		

Segment Description and Rate: Segment 4 of 5

1. Segment Description (Process/Fuel Type): **In-process Fuel Use; Petroleum Coke: Lime Kiln**		
2. Source Classification Code (SCC): **3-90-008-99**	3. SCC Units: **Tons Petcoke Burned**	
4. Maximum Hourly Rate: **5.88**	5. Maximum Annual Rate: **51,529.4**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **8.0**	8. Maximum % Ash: **1.5**	9. Million Btu per SCC Unit: **30.6**
10. Segment Comment: **Maximum annual rate is based on maximum heat input of 180 MMBtu/hr and 15,300 Btu/lb heating value. Maximum percent sulfur ranges from 5 to 8 percent, and percent ash is very low, ranging from 0 percent to 1.5 percent.**		

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **SO_2**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **32.0** lb/hour **140.16** tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **8 percent maximum Sulfur content in petcoke, 98.3% removal** Reference: **Supplier guarantee**	7. Emissions Method Code: **3**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

Hourly:

0.08 lb S/lb petcoke x 2 lb SO_2/lb S x 1 lb petcoke/15,300 Btu x 10^6 Btu/MMBtu x 180 MMBtu/hr x (1 - 0.983) = 32.0 lb/hr

Annual:

32.0 lb/hr SO_2 x 8,760 hr/yr x 1 ton/2,000 lb = 140.2 TPY

11. Potential Fugitive and Actual Emissions Comment:

The Lime Kiln scrubber system has an overall SO_2 removal efficiency of at least 98.3 percent. The Lime Kiln has a 83 percent inherent SO_2 removal efficiency, and the scrubber has a 90 percent SO_2 removal efficiency. The petroleum coke has a maximum 8 percent sulfur content and all calculations assume burning 100 percent petcoke.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **32 lb/hr**	4. Equivalent Allowable Emissions: **32** lb/hour **140.2** tons/year
5. Method of Compliance: **EPA Method 8**	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

ATTACHMENT SSCE-EU1-I2

FUEL ANALYSIS

LIME KILN

Fuel	Density (lb/gal)	Weight % Sulfur	Weight % Nitrogen	Weight % Ash	Heat Capacity
No. 6 Fuel Oil	8.33	2.5	0.08	0.067	145,000 – 150,000 Btu/gal 18,500 Btu/lb
Natural Gas	--	0.1	--	--	1,000 Btu/scf
Petroleum Coke	--	5 - 8	1.3 – 1.9	0 – 1.5	15,300 Btu/lb

Note: scf = standard cubic foot.

TABLE 2-2
PROJECTED ACTUAL EMISSIONS FOR THE LIME KILN, SSCE PANAMA CITY
(revised 7-19-07)

Pollutant	Emission Factor	Ref.	Activity Factor[a]	Annual Emissions (TPY)
SO_2	0.178 lb/MMBtu	1	1,126,050 MMBtu/yr	100.1
NO_x	0.57 lb/MMBtu	2	1,126,050 MMBtu/yr	320.9
CO	0.181 lb/ton CaO	3	159,099 ton CaO/yr	14.4
PM	26.49 lb/hr	4	8,408 hr/yr	111.4
PM_{10}	22.44 lb/hr	5	8,408 hr/yr	94.3
VOC	0.046 lb/ton CaO	3	159,099 ton CaO/yr	3.7
TRS	10.56 ppm @ 10% O_2	6	66,284 dscfm @ 10% O_2 8,408 hr/yr	15.6
SAM	0.0924 lb/ton CaO	7	159,099 ton CaO/yr	7.35
Lead	0.0032 lb/ton CaO	3	159,099 ton CaO/yr	0.25
Mercury	6.20E-07 lb/ton CaO	3	159,099 ton CaO/yr	4.93E-05

[a] Activity factors based on actual maximum 2-year average heat input, hours of operation, lime production in AORs, as well as stack testing. See Tables A-5 through A-7.

References:

1 Based on 8% S in petcoke, 15,300 Btu/lb of petcoke, and overall SO_2 removal efficiency 98.3%.
2 Based on vendor maximum emissions estimate of 185 ppm when firing 20/80 mix of fuel oil/petcoke.
3 See Table A-2 for past actual emission factors.
4 Maximum reported rates from stack testing. See Table A-5.
5 Emission factor is 84.7% of PM, obtained from NCASI "Particulate Emission Data for Pulp and Paper Industry-Specific Sources" (August 25, 2006)
6 Maximum reported rates from stack testing. See Table A-6.
7 Based on emission factor from Table A-2 multiplied by the ratio of the projected actual SO_2 annual emissions and the baseline actual annual emissions, because the increase in SAM emissions is directly correlated to the increase in SO_2 emissions.

TABLE 2-3
FUTURE POTENTIAL EMISSIONS FOR THE LIME KILN, SSCE PANAMA CITY
(revised 7-19-07)

Pollutant	Emission Factor	Ref.	Short-Term		Annual Average	
			Activity Factor	Emissions (lb/hr)	Activity Factor	Emissions (TPY)
SO_2	0.178 lb/MMBtu	1	180 MMBtu/hr	32.0	1,576,800 MMBtu/yr	140.2
NO_x	0.57 lb/MMBtu	2	180 MMBtu/hr	102.6	1,576,800 MMBtu/yr	449.4
CO	0.181 lb/ton CaO	3	18.35 ton CaO/hr	3.3	160,746 ton CaO/yr	14.5
PM	29.83 lb/hr	4	1 hr	29.83	8,760 hr/yr	130.7
PM_{10}	25.27 lb/hr	5	1 hr	25.27	8,760 hr/yr	110.7
VOC	0.046 lb/ton CaO	3	18.35 ton CaO/hr	0.84	160,746 ton CaO/yr	3.7
TRS	20 ppm @ 10% O_2 (12-hr avg)	4	81,400 dscfm @ 10% O_2	8.6	8,760 hr/yr	37.7
SAM	0.0924 lb/ton CaO	6	18.35 ton CaO/hr	1.70	160,746 ton CaO/yr	7.43
Lead	0.0032 lb/ton CaO	3	18.35 ton CaO/hr	0.059	160,746 ton CaO/yr	0.26
Mercury	6.2E-07 lb/ton CaO	3	18.35 ton CaO/hr	1.14E-05	160,746 ton CaO/yr	4.98E-05

References:

1 Based on 8% S in petcoke, 15,300 Btu/lb of petcoke, and overall SO_2 removal efficiency 98.3%.
2 Based on vendor maximum emissions estimate of 185 ppm when firing 20/80 mix of fuel oil/petcoke.
3 See Table A-2 for past actual emission factors.
4 Based on maximum emission limit defined in Permit No. 0050009-020-AV.
5 Emission factor is 84.7% of PM, obtained from NCASI "Particulate Emission Data for Pulp and Paper Industry-Specific Sources" (August 25, 2006)
6 Based on emission factor from Table A-2 multiplied by the ratio of the projected actual SO_2 annualemissions and the baseline actual annual emissions, because the increase in SAM emissions is directly correlated to the increase in SO_2 emissions.

TABLE 3-3
PSD CONTEMPORANEOUS AND PROJECT EMISSIONS NETTING ANALYSIS
LIME KILN PETCOKE PROJECT, SSCE PANAMA CITY

Source Description	Pollutant Emission Rate (TPY)									
	SO_2	NO_x	CO	PM	PM_{10}	VOC	TRS	SAM	Lead	Mercury	Fluorids
Projected Actual Emissions											
Lime Kiln Petcoke Project											
Lime kiln[a]	100 1	328 9	14 4	111 6	94 3	3 66	15 6	7 15	0 25	4 91E-05	--
Petcoke Storage Silo[b]	--	--	--	0 60	0 60	--	--	--	--	--	--
Petcoke Truck Traffic[c]	--	--	--	1 27	0 25	--	--	--	--	--	--
Total- Projected Actual	100 1	328 9	14 4	113 2	95 2	3 66	15 6	7 30	0 25	4 93E-05	--
Baseline Actual Emissions											
Lime kiln[d]	22 8	184 2	14 4	97 3	85 0	3 66	10 3	1 67	0 25	4 91E-05	--
Total - Past Actual	22 8	184 2	14 4	97 3	85 0	3 66	10 3	1 67	0 25	4 93E-05	--
Increase Due to Project	77 3	134 7	0 0	16 0	10 2	0 00	5 3	5 68	0 00	0 00E+00	0 00
PSD SIGNIFICANT EMISSION RATE	40	40	100	25	15	40	100	7	0 6	0 1	3
Netting Triggered?	Yes	Yes	No	No	No	No	No	No	No	No	No
CONTEMPORANEOUS EMISSION CHANGES[e]											
Pulp Production Increase (09/2002)											
(Permit No 0050009-005-AC)											
--Increase Due to Increased Pulp Production	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
--Decrease Due to Existing Pulp Production	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
- Net Change	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
Smelt Dissolving Tanks/MACT II (11/2001)											
(Permit No 0050009-007-AC)											
-Increase Due to Future MACT I Sources	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
- Decrease Due to Existing Sources	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
--Net Change	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
MACT I Compliance Update NOx Emissions (7/2002)											
(Permit Nos 0050009-008-AC and -010-AC)											
--Increase Due to Future MACT I Sources	0 0	118 3	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
- Decrease Due to Existing Sources	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
--Net Change	0 0	118 3 [f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
Methanol Storage Tank (4/2003)											
(Permit No 0050009-012-AC)	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
No 3-No 4 Comb Boiler Misc Amendments (6/2003)											
(Permit No 0050009-013-AC)	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
Woodyard Rule Correction (6/2003)											
(Permit No 0050009-014-AC)	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
Lime Kiln Fuel Modification (10/2003)											
(Permit No 0050009-015-AC)	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
Bleach Plant Softwood Increase (6/2004)											
(Permit No 0050009-018-AC)											
- Increase Due to Future Bleach Plant	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	
- Decrease Due to Existing Bleach Plant	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	-
- Net Change	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	=
Clean Condensate Alternative Project (6/2005)											
(Permit No 0050009-016-AC)											
--Increase Due to Future CCA Sources	1 976 6	184 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
--Decrease from Existing CCA Sources		86 9	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
--Net Change	1 976 6 [f]	97 1 [f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
No 4 Combination Boiler (11/2005)											
(Permit No 0050009-021, -022-AC)											
Increase Due to Future No 4 CB	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
- Decrease from Existing No 4 CB	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	
Net Change	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	--
No 3 Combination Boiler (5/2006)											
(Permit No 0050009-023-AC)											
Future Actuals	3,851 1	476 8	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	
--Past Actuals	3,851 1	458 9	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	
- Net Change	0 0	17 9	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	
Stripper Off Gas to No 4 CB (4/2006)											
(Permit No 0050009-024-AC)											
--Increase Due to Future No 3 No 4 CB	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	-
Decrease from Existing No 3 No 4 CB	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	-
Net Change	0 0	0 0	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	=
Total Contemporaneous Emission Changes		17 9	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	N/A
TOTAL NET CHANGE	77 3	154 6	0 0	16 0	10 2	0 00	5 3	5 68	0 00	0 00	0 00
PSD SIGNIFICANT EMISSION RATE	40	40	100	25	15	40	100	7	0 6	0 1	3
PSD REVIEW TRIGGERED[g]	Yes	Yes	No	No	No	No	No	No	No	No	No

Footnotes

[a] See Table 3-2 for projected actual emissions calculations for the Lime Kiln

[b] Based on 2,000 acfm, and 0 008 grains/dscf

[c] Based on calculations in AP 42, Section 13 2 1, for particulate emissions from paved roads December 2003

[d] See Table 3-1 for baseline actual emissions from the Lime Kiln

[e] Pollution Control Project (PCP) Pollutants which triggered PSD review were exempted under the PCP

[f] Denotes that PSD review was triggered for this pollutant, therefore this and any previous contemporaneous increases/decreases, are wiped clean

[g] Since project increase does not exceed PSD significant emission rate netting is not performed for this pollutant

[h] The contemporaneous period begins 5 years prior to the projected date of commencement of construction on the Lime Kiln project, which is fall of 2007