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February 25, 2005

Florida Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RECEIVED 0437536

FEB 28 2005

BUREAU OF AIR REGULATION

Attention: Ms. Trina L. Vielhauer, Chief, Bureau of Air Regulations

RE: GERDAU AMERISTEEL – REQUEST FOR ADDITIONAL INFORMATION FOR THE
JACKSONVILLE STEEL MILL PREVENTION OF SIGNIFICANT DETERIORATION
ANALYSIS – PROJECT NO.: 0310157-007-AC/PSD-FL-349

Dear Ms. Vielhauer:

This correspondence provides the additional information requested by the Florida Department of Environmental Protection (Department or FDEP) concerning the PSD Application that was submitted by Gerdau Ameristeel in October of 2004. This information is presented in the same sequence as the requested information in the Department's letters dated January 21, 2004, respectively.

Comment 1: Regarding Table 5-12. Cost Effectiveness of SCR, Billet Reheat Furnace.

- a. Provide the detailed vendor quote from CSM Industries (2002), including the catalyst cost as listed under the headers "DIRECT CAPITAL COSTS (DCC), SCR Basic Process" and referred to in Footnote "b". Please provide a more updated vendor quote, preferably from some timeframe in late 2004.
- b. Provide the detailed CSM Industries catalyst quote as listed under the headers "DIRECT OPERATING COSTS (DOC), (6) Catalyst Replacement and disposal" and referred to in Footnote "d".
- c. Show documentation where you got the removal efficiency of "30 percent", as listed under the header "MAXIMUM NO_x EMISSIONS (TPY)".
- d. Show documentation where you got the information to state that the "proven achievable control rate" is essentially "10%", as referred to under the header "MAXIMUM NO_x EMISSIONS (TPY)". In addition, why did you claim that the "projected achievable control rate" is three (3) times (30%) the proven achievable control rate?
- e. What removal efficiency did the vendor claim that can be achieved? Please provide this document.

Response:

- a) The CSM Industries 2002 vendor quote is included in Attachment A. This quote was for SCR applied to a package boiler of similar heat input. As requested an updated vendor SCR quote has been obtained from Haldor Topsoe and is also included in Attachment A. Based on this new quote, a new cost analysis is provided



and included in Attachment A. For this analysis the uncontrolled NO_x emissions are based on an annual average heat input rate of 90 MMBtu/hr, based on past actual operating experience (AOR data). The previously submitted cost analysis assumed the maximum short term heat input of 222 MMBtu/hr, which is not appropriate for an annual average due to the reheat furnace cyclic operation. The cost analysis also assumes 40% reduction of NO_x as guaranteed by Haldor Topsoe. The resulting capital and annual costs and cost effectiveness of SCR applied to the reheat furnace are as follows:

- Capital Cost - \$940,000
- Annual Cost - \$155,900
- Cost Effectiveness - \$12,700 per ton of NO_x removed.

In addition the storage of ammonia for the SCR would trigger the requirement of a Risk Management Plan (RMP). Implementation of RMP would incur additional annual costs not included in above cost analysis.

b) The CSM Industries 2002 vendor quote is included in Attachment A.

c) The only installation of SCR on a reheat furnace is, as mentioned in the application at Beta Steel, Portage Indiana. The actual NO_x removal efficiency that Beta Steel is achieving by SCR is unavailable. Beta Steel was unable to meet its original NO_x permit limit of 0.014 lb/MMBtu with SCR and applied for and was given a revised permit limit equal to 0.077 lb/MMBtu. This revision is equivalent to an 82-percent increase in the emission limit. This was a result of a combination of factors including the inability of the SCR system to maintain NO_x control with the non-steady state nature (temperature and flow) of the reheat furnace as well as catalyst plugging from PM from the furnace.

Based on the permit revision, it can only be assumed that the SCR is capable of reducing emission by approximately 10 percent. As a conservative approach a factor of 3 was applied to the estimate of 10 percent to produce the 30-percent efficiency. This estimate is not too far from the 40-percent guarantee provided by Haldor Topsoe in Attachment A. It should be noted that Haldor Topsoe is the catalyst provider for the Beta Steel SCR system.

d) SCR is typically assumed to have a reduction efficiency of 80 to 90 percent with ideal conditions for boilers, combustion turbines, etc. 10-percent SCR control efficiency was estimated by back calculating Beta Steel's emissions as follows and assuming that the original estimated SCR control efficiency was equal to 90 percent:

Original Permit Limit (lb NO _x /MMBtu)	Revised Permit Limit (lb NO _x /MMBtu)	Increase in Permit Limit (%)	Decrease in SCR Eff. (%)	Estimated Remaining SCR Control (%)
0.014	0.077	82	82	8

In conclusion, while Beta Steel operates SCR on their reheat furnace, the NO_x BACT permit limit of 0.077 lb/MMBtu is not based on SCR technology, but is consistent with low NO_x burners and good combustion practice that have been proposed for the Gerdau Project.

e) Haldor Topsoe is only guaranteeing 40-percent removal efficiency in their SCR quote provided in Attachment A.

Comment 2: In the EPA article provided titled **"EPA's Air Pollution Control Technology Fact Sheet: Paper/Nonwoven Filter"**, EPA-452/F-03-023, there is a reference made regarding "condensables" as it relates to particulate matter (PM) in the flue gas stream. In the original application, I did not see any reference of "condensable" when addressing both PM and lead (Pb; includes Pb compounds). Does the proposed BACT limit of PM of 0.0018 gr/dscf include both filterable PM and condensable PM? If not, then how much potential condensable PM and total PM is expected/projected from the proposed new EAF and Meltshop operations? Since it appears that a precedent has been established for BACT for limiting "total PM" from a new EAF and Melt Shop Operation by Indiana's Department of Environmental Management in a PSD permit for Steel Dynamics, Inc., then please submit a BACT determination for the "total PM", which includes both filterable PM and condensable PM. Also, submit a BACT determination for the total Pb", which includes both filterable Pb and condensable Pb and should be in the terms of "gr/dscf".

Response: The proposed BACT limit of 0.0018 gr/dscf is filterable PM as defined by FDEP rules and testing procedures. This is also consistent with the NSPS requirements and BACT decisions for PM by the Department.

Condensable PM emissions from an EAF are variable. As an example, the following table presents some test data from EAF facilities similar to Geradaw Jacksonville:

Test #	PM Filterable (lb/hr)	PM Condensable (lb/hr)	Ratio of Condensable to Filterable
1	7.8	19.9	2.5
2	11.9	15.9	1.3
3	1.9	7.6	4.0
4	3.5	6.7	1.9
5	1.5	2.4	1.6
		Average	2.3

In addition, the Draft AP-42 Section 12.5.1 Minimills, lists filterable PM emissions from EAF/LMF operations equal to 0.059 lb per ton of steel and condensable PM emissions equal to 0.11 lb per ton of steel. Therefore, EPA's AP-42 suggests that condensable PM emissions are 1.9 times PM emissions. However, as shown above the amount of condensable can be variable.

In the 2004 stack test data provided in Attachment B, condensable Pb emissions make-up only 0.8 percent of the total Pb emissions. Since 99+ percent of Pb emissions from the EAF and Meltshop operations are contained in the filterable PM a revised BACT analysis for Pb is not necessary. In addition, since the amount of condensable Pb in the EAF is relatively low, the BACT analysis using filterable PM is appropriate and consistent with the FDEP rules.

Comment 3: For purpose of reducing Pb emissions from the proposed new EAF and Meltshop Operations, please submit at least two separate bids from different companies for the installation of a HEPA Filter System that would be placed in series and after the associated baghouse systems.

Response: HEPA filters have not been installed or demonstrated on an EAF and have significant cost and technological consequences that make this technology inappropriate as BACT for Pb. Attachment C to this response includes two separate bids for HEPA filter systems. Also included is a quote for disposal cost for the HEPA filters. In addition a cost analysis has been provided and is attached. The capital cost and annual operating costs are estimated at \$1,270,000 and \$982,000, respectively. The annual costs assume that the HEPA filters would be replaced once per year and result in additional pressure drop of 4.2 inches across the system. This pressure drop is significant and would require larger fans and increased annual energy cost of over \$400,000 per year based on 1,000,000 acfm. Assuming that the HEPA filters can remove 99.99 percent of the Pb, the cost effectiveness is estimated at \$327,500 per ton of Pb removed.

The annual cost presented above is conservatively low given the likelihood for more frequent HEPA filter replacement and increased pressure drop. HEPA filters would have to be replaced more frequently if any of the upstream bags were broken during operation. Over the course of a year there may be several instances of broken bags and if a broken bag is not detected in sufficient time, the HEPA filter system may become plugged and require replacement. The costs associated with a HEPA filter system for control of Pb as unreasonable for the project. Moreover there has been no installation of such a system on an EAF Meltshop operation or on the volume of gas flow proposed for the Project; this technology is not considered demonstrated for additional control as BACT for Pb.

Comment 4: What is the percentage, by weight of the filterable Pb (including lead compounds) in the existing baghouse dust?

Response: The maximum measured percentage by weight of the filterable Pb, i.e. dust captured by the baghouse, in the existing baghouse for the last three years is as follows:

- 2002 - 2.02-percent Pb by weight;
- 2003 - 1.93-percent Pb by weight; and
- 2004 - 2.03-percent Pb by weight.

Comment 5: How much of the condensable PM is Pb (including lead compounds), by weight, from the existing EAF and Meltshop Operations? What is the potential-to-emit from the new EAF and Meltshop Operations for "condensable Pb, including Pb compounds" in terms of gr/dscf, lbs/hr, and TPY

Response: As provided in the response to Comment 2 above, the condensable Pb emission makeup only 0.8 percent of the total Pb emissions based on tests performed in 2004. Therefore 99+ percent of lead emissions are contained in the filterable portion of the particulate matter, which is controlled by the baghouse. Given that the 3.0 TPY lead emissions reported in the application are filterable, then there is an additional 0.03 TPY in condensable form.

The potential-to-emit for the new EAF and Meltshop Operations for condensable Pb, including Pb compounds, is as follows:

Pb Condensable (TPY)	Pb Condensable (lb/hr)	Pb Condensable (gr/hr)	Flow Rate (dscf/hr)	Pb Condensable (gr/dscf)
0.03	0.007	49	44,556,962.	1.1E-6
Based on 1,000,000 acfm @ 230°F, and 3-percent Moisture; 8,500 hr/yr.				

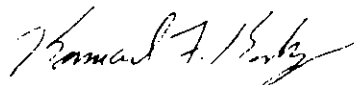
Comment 6: In Comment 15 of the RAI, it was noted that St. John's River Power Park was an SO2 increment-consuming source with emissions of 1,858 grams per second, and that these emissions were not included in the PSD increment analyses included with the original application submitted. A remodeling PSD Class II SO2 analysis was included with this submittal; however, the PSD Class I SO2 analysis within 50 km of the facility was not included. Please provide this information.

Response: Remodeling of the Class I area within 50 km of the facility has been completed and submitted electronically to Mr. Cleve Holiday on January 24, 2005.

Gerdau Ameristeel wishes to resolve all of the Department's questions as expeditiously as possible so that they may move forward with the proposed project in a timely manner. Please call me or Kennard Kosky at (352) 336-5600 if you need any additional information.

Sincerely,

GOLDER ASSOCIATES INC.



Kennard F. Kosky, P.E.
Principal



David T. Larocca
Project Engineer

DTL/dmw

Enclosures

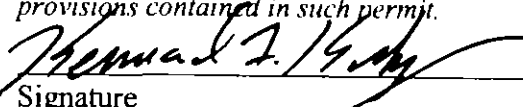
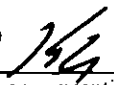
cc: Donald R. Shumake, Vice President/General Manager
James P. Wold, Environmental Specialist, Gerdau

B. Mitchell
Y:\Projects\2004\0437536 Gerdau-Ameristeel PSD-4\4.1\RAI022505\R022505-536.doc

C. Holladay
C. Kirk, NED
B. Worley, EPA
Q. Bump, NPS

FACILITY INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Kennard F. Kosky Registration Number: 14996
2. Professional Engineer Mailing Address... Organization/Firm: Golder Associates Inc.** Street Address: 6241 NW 23rd Street, Suite 500 City: Gainesville State: FL Zip Code: 32653
3. Professional Engineer Telephone Numbers... Telephone: (352) 336-5600 ext. 545 Fax: (352) 336-6603
4. Professional Engineer Email Address: kkosky@golder.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(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</i> <i>(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.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, 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.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, 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 <input type="checkbox"/>, 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.</i> <i>(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 <input type="checkbox"/>, 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.</i> <div style="display: flex; justify-content: space-between;"><div>Signature </div><div>Date <u>2/24/05</u></div></div> <div>(seal) </div>

* Attach any exception to certification statement.

** Board of Professional Engineers Certificate of Authorization #00001670

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :

Donald R. Shumake, Vice President/General Manager

2. Owner/Authorized Representative Mailing Address...

Organization/Firm: **Gerdau Ameristeel**

Street Address: **16770 Rebar Road**

City: **Baldwin**

State: **Florida**

Zip Code: **32234**

3. Owner/Authorized Representative Telephone Numbers...

Telephone: **(904) 226-4261**

ext.100 Fax: **(904) 266-4244**

4. Owner/Authorized Representative Email Address: **shumake@gerdauameristeel.com**

5. Owner/Authorized Representative Statement:

I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.

Donald R. Shumake

Signature

2-24-05

Date

ATTACHMENT A

-----Original Message-----

From: Don Ciccolella [mailto:dciccolella@csmworlwide.com]

Sent: Saturday, September 21, 2002 10:37 PM

To: LaRocca, David

Subject: Re: SCR Package Boiler Quote

David,

This application is to treat approx. 53,800 SCFM of boiler exhaust at a temperature of 410 F.

Standard SCR catalyst (the preferred and most cost effective choice) has a minimum operating temp of 475 F and really prefers to operate above 500 F.

So, we need the stream to be hotter.

Can you get the exhaust to the SCR at a slightly hotter temperature?

There is an SCR catalyst alternative that can operate at lower temperature, but is much more expensive and may not be economical. Also, there is a potential technical obstacle.

With the presence of sulfur from the oil fuel in the boiler exhaust, there is the real problem of formation of ammonium bisulfate by the chemical reaction of ammonia (SCR Reductant - Required) with sulfur. At low temperature, the ammonium bisulfate will condense out as a particulate and plug up the catalyst!

So, depending upon the actual concentration of sulfur, which defines the dew point for ammonium bisulfate, we may not be permitted to operate at the reduced temperature between 410 and 500 F.

The minimum temperature allowable will need to be calculated, and for that I need to rely on my chemical engineers and catalyst experts.

So, it is even more beneficial if I can get the exhaust from the boiler at an elevated temperature.

I await your response.

Don

Budget price for an SCR for this application for performance level of 90% reduction of NOx and Ammonia Slip of < 10 ppmv is \$ 500,000. FOB, CSM Facility. This is a flange to flange cost and includes:

Housing, Ammonia Injection Grid, Ammonia Control System, Aqueous Ammonia Vaporization Skid, SCR Catalyst, and NOx Analyzer

Regards,

Don

----- Original Message -----

From: LaRocca, David

To: dciccolella@csmworlwide.com
Sent: Thursday, September 19, 2002 5:26 PM
Subject: FW: SCR Package Boiler Quote

-----Original Message-----

From: LaRocca, David
Sent: Thursday, September 19, 2002 5:32 PM
To: 'dciccolella@csmworlwide.com'
Subject: FW: SCR Package Boiler Quote

Don,

Per our conversation the following is the information you requested to produce a cost quote for a package boiler SCR system.

Package Boiler:

Fuel: natural gas and fuel oil
Maximum heat input rate: 211 MMBtu/hr (when burning natural gas)
NOx emission rate: 0.10 lb/MMBtu (Natural Gas), 0.20 lb/MMBtu (Fuel Oil)
Removal efficiency required: 90-95%
Ammonia slip level: < 5 ppm
Economizer: No
Outlet Temp. from boiler: 410 oF
Outlet Flow rate from boiler: 88,200 acfm
2 Fuel Oil Sulfur content = 0.05%

Thank you

David T. Larocca
Project Engineer
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HTI QUOTATION FOR SCR Catalyst:
HALDOR TOPSOE QUOTATION NUMBER:
Golder Associates Billet Reheat Furnace
05 - 6016 January 28, 2005
Table 1: Scope of Supply

Equipment			
Catalyst Cassettes in modules	X	X	X
Set of Sample Catalyst and Holder per unit @ \$2,000 per set	1	1	1
Lifting Yoke @ \$2,000 each	1	1	1
Deliverables			
Catalyst design documentation	X	X	X
O & M Manuals 1 Free Copy, Additional B&W Copies at \$20 each	1 Copy	1 Copy	1 Copy
Technical Assistance			
Travel, installation, start-up support per unit	0 days included	0 days included	0 days included
\$1,100 per day plus Travel & Living Expenses at Cost	additional days	additional days	additional days

Table 2: Terms

Catalyst Payment Terms and Schedule			
Price of catalyst, \$ / cubic meter	\$10,000	\$10,000	\$10,000
Extended Price of Catalyst for 1 units FCA Pasadena, TX, US Dollars	\$104,200	\$78,200	\$104,200
- Net 30 Days upon placement of Purchase Order	20%	20%	20%
- Net 30 Days from date of Goods Delivery	80%	80%	80%
Quote Validity Date	March 31, 2005	March 31, 2005	March 31, 2005
Total Goods Delivery Date	Before December 31, 2005	Before December 31, 2005	Before December 31, 2005
Freight Payment Terms	FT to Prepay & Add	FT to Prepay & Add	FT to Prepay & Add
Goods Title Transfer Terms	FCA Pasadena TX	FCA Pasadena TX	FCA Pasadena TX

Table 3: Product Specifications

Catalyst type	DNX - 340	DNX - 640	DNX - 940
Physical properties			
- Hydraulic diameter, mm	4.3	4.3	4.3
- Wall thickness, mm	0.6	0.6	0.6
- Corresponding pitch, mm	4.9	4.9	4.9
- Void, %	77	77	77
- Specific area, sq. meter/cubic meter	740	740	740
Chemical composition			
- Tungsten oxide, % by weight	5-10	5-10	5-10
- Vanadium pentoxide, % by weight	0-4	0-4	0-4
- Titanium dioxide, % by weight	80-90	80-90	80-90

Table 4: SCR Reactor Design

Case	900 deg F	850 Deg F	800 Deg F
Catalyst type	DNX - 340	DNX - 640	DNX - 940
Volume per Unit, cubic meter	10.42	7.82	10.42
Number of Units	1	1	1
Flow Direction	Horizontal	Horizontal	Horizontal
Number of Layers	1	1	1
Number of Modules per Layer	6	6	8
Module Size, mm, H x W x D	948 x 1887 x 1143	948 x 1882 x 893	948 x 1882 x 893
Module Arrangement, W x H	3 x 2	3 x 2	4 x 2
Required reactor dimensions, ft, H x W	9'5" x 12'5"	9'5" x 12'5"	12'5" x 12'5"
Total Number of Modules	6	6	8
Weight of Modules, lbs	1,820	1,300	1,400
Total weight of all Modules, lb	10,920	7,800	11,200
Catalyst depth, meter	1.00	0.75	0.75

Table 5: Expected and Guaranteed Performance

Case	900 deg F	850 Deg F	800 Deg F
Calculation Number	522720	522703	522755
Expected NOx Outlet, ppmvd @ 15 % O2	< or = 17	< or = 17	< or = 17
Expected NOx Removal, %	44.5%	44.5%	44.5%
Expected NH3 slip, ppmvd @ 15 % O2	< or = 10	< or = 10	< or = 10
Expected SO2 oxidation, %	later	later	later
Expected flue gas pressure drop, inches WC	< or = 3.6	< or = 3.0	< or = 2.1
Expected Ammonia Consumption as 100 % NH3 Solution, lb/hr	< or = 7.1	< or = 7.1	< or = 8.6
Expected Service Life to meet Guaranteed Conversion	25,500 +	25,500 +	25,500 +
Calculation Number	522755	522750	522755
Guaranteed NOx Outlet, ppmvd @ 15 % O2	18	18	18
Guaranteed NOx Removal, %	40%	40%	40%
Guaranteed NH3 slip, ppmvd @ 15 % O2	10	10	10
Guaranteed SO2 Oxidation, %	later	later	later
Guaranteed flue gas pressure drop, inches WC	3.9	3.3	2.4
Guaranteed Ammonia Consumption as 100 % NH3 Solution, lb/hr	< or = 7.1	< or = 7.1	< or = 8.6
Guaranteed Service Life	25,500 hrs. or 3 years after delivery whichever comes first	25,500 hrs. or 3 years after delivery whichever comes first	25,500 hrs. or 3 years after delivery whichever comes first
Minimum Operating Temperature, °F	Depends on SO3	Depends on SO3	Depends on SO3
Maximum Operating Temperature, °F	920	870	820

Table 6: SCR Flue Gas Design Parameters

Case Number	900 deg F	850 Deg F	800 Deg F
Flow, lb/hr	351,391	376,698	405,502
Temperature, °F	900	850	800
Pressure, in WG	0	0	0
NOx, ppmvd @ 15% O2	30.65	30.62	30.61
SOx, ppmvd @ 15% O2	later	later	later
H2O, % vol	10.10	9.61	9.12
O2, % vol	12.23	12.76	13.29
CO2, % vol	3.73	3.48	3.24
N2, % vol	73.94	74.15	74.35
Ar, % vol	0	0	0
Particulate, lb/hr	0	0	0
Flue gas maldistribution, + / - % RMS Deviation	15	15	15
Ammonia to NOx maldistribution, + / - % RMS Deviation	5	5	5
Temperature maldistribution, + / - °F	20	20	20

The flue gas and ammonia to NOx maldistributions stated above are meant to be standard deviations

HTI QUOTATION FOR SCR Catalyst:
HALDOR TOPSOE QUOTATION NUMBER:

Golder Associates Billet Reheat Furnace
05 - 6016
January 28, 2005

CASE	900 deg F	850 Deg F	800 Deg F
Units	SI	SI	SI
Temp.	C 482.2	C 454.4	C 426.7
Pressure	mmH2O 0	mmH2O 0	mmH2O 0
MW	28.09	28.12	28.15
Flow	Nm3/hr 127,200	Nm3/hr 136,215	Nm3/hr 146,465
Act Flow	m3/hr 351,761	m3/hr 362,838	m3/hr 375,247
Number of cassettes	48	48	48
Void	77	77	77
Number of layers	(of 0.5 m) 2	(of 0.5 m) 1	(of 0.5 m) 1.5
Total Volume	m3 10.42	m3 5.21	m3 7.82
Total Exp. Surf.	m2 7,713	m2 3,857	m2 5,785
Specific Surf	m2/m3 740	m2/m3 740	m2/m3 740
Norm.Space Vel	Nm3/m3/hr 12,203	Nm3/m3/hr 26,136	Nm3/m3/hr 18,735
Act. Space Vel	m3/m3/hr 33,747	m3/m3/hr 69,619	m3/m3/hr 48,000
Cat Surf Area velo.	Nm/hr 16.49	Nm/hr 35.32	Nm/hr 25.32
Cat Surf Area velo.	m/hr 45.60	m/hr 94.08	m/hr 64.87
Superficial Vel at inlet	m/sec 9.37	m/sec 9.67	m/sec 10.00
Linear Velocity	m/sec 13.23	m/sec 13.65	m/sec 14.12
Linear velocity empty	Nm/sec 3.39	Nm/sec 3.63	Nm/sec 3.90
	Volume Check OK	Error on Volume	Error on Volume

	US	US	US
Temp.	F 900	F 850	F 800
Pressure	in WG 0	in WG 0	in WG 0
MW			
Flow	MSCFH 4,748	MSCFH 5,084	MSCFH 5,467
Act Flow	MCFH 12,422	MCFH 12,814	MCFH 13,252
Number of cassettes			
Void			
Number of layers			
Total Volume	Cuft 368	Cuft 184	Cuft 276
Total Exp. Surf.	sq.ft 83,026	sq.ft 41,513	sq.ft 62,270
Specific Surf	sq.ft/cu.ft 225.55	sq.ft/cu.ft 225.55	sq.ft/cu.ft 225.55
Norm.Space Vel	SCFH/Cuft 12,898	SCFH/Cuft 27,624	SCFH/Cuft 19,802
Act. Space Vel	cuf/cuft/hr 33,747	cuf/cuft/hr 69,619	cuf/cuft/hr 48,000
Cat Surf Area velo.	Sft/hr 57.18	Sft/hr 122.48	Sft/hr 87.79
Cat Surf Area velo.	ft/hr 149.62	ft/hr 308.66	ft/hr 212.81
Superficial Vel at inlet	ft/min 1,845	ft/min 1,903	ft/min 1,969
Linear Velocity	ft/min 2,605	ft/min 2,687	ft/min 2,779
Linear velocity empty	Sft/sec 11.75	Sft/sec 12.59	Sft/sec 13.53

Cat Surf Area velo.	ft/min 0.95	ft/min 2.04	ft/min 1.46
Cat Surf Area velo.	ft/min 2.49	ft/min 5.14	ft/min 3.55
Superficial Vel at inlet	ft/sec 30.76	ft/sec 31.72	ft/sec 32.81
Linear Velocity	ft/sec 43.41	ft/sec 44.78	ft/sec 46.31

Table 5-12 Cost Effectiveness of SCR, Billet Reheat Furnace

Cost Items	Cost Factors ^a	Cost (\$)
DIRECT CAPITAL COSTS (DCC).		
SCR Installed System - Catalyst Cost	Based on Vendor quote ^b	703,800
Emission Monitoring	15% of SCR equipment cost	105,570
Ammonia Storage System	included	included
Foundation and Structure Support	8% of equipment cost	included
Control Room and Enclosures	4% of equipment cost, engineering estimate	included
Transition Ducts to and from SCR	4% of equipment cost, engineering estimate	included
Piping and Conduit	2% of equipment cost, engineering estimate	included
Insulation	2% of equipment cost, engineering estimate	included
Motor Control and Motor Starters	4% of equipment cost, engineering estimate	included
SCR Bypass Duct	\$127 per MMBtu/hr	included
Induced Draft Fan	5% of SCR equipment cost, engineering estimate	included
Taxes	Florida sales tax, 6%	included
Total DCC		809,370
INDIRECT CAPITAL COSTS (ICC).		
General Facilities	5% of DCC	included
Engineering Fees	10% of DCC	included
Performance test	1% of DCC	8,094
Total ICC		8,094
Project Contingencies	15% of DCC and ICC	122,620
TOTAL CAPITAL INVESTMENT OF SCR (ICI):	DCC + ICC + Project Contingencies	940,083
TOTAL CAPITAL INVESTMENT		940,083
DIRECT OPERATING COSTS (DOC):		
(1) Operating Labor		
Operator	24 hrs/wk, \$16/hr, 26 wks/yr	9,984
Supervisor	15% of operator cost	1,498
(2) Maintenance	Engineering estimate, 5% of catalyst replacement cost	1,303
(3) SCR Energy Requirement	163 Hp Blower, 16 Hp Ammonia Pump, 82kW/h for SCR @ \$0.04/kWh	12,595
(4) Ammonia Cost	\$600/ton NH ₃ 19% Aqueous (Tanner,05)	15,713
(6) Catalyst Replacement and disposal	\$78,200 per catalyst ^c , 25,500 hrs or every 3 years	26,067
Total DOC		67,160
CAPITAL RECOVERY COSTS (CRC):	CRF of 0.0944 times ICI (20 yrs @ 7%)	88,744
ANNUALIZED COSTS OF SCR (ACR):	DCC + CRC	155,904
TOTAL ANNUALIZED COST		155,904
BASELINE NO _x EMISSIONS (TPY):	Annual Avg. = 90 MMBtu/hr, 8500 hr/yr, 0.08 lb NO _x /MMBtu	30.6
MAXIMUM NO _x EMISSIONS (TPY)	40% Control, Halder Topsoe Quote	18.4
REDUCTION IN NO _x EMISSIONS (TPY)		12.2
COST EFFECTIVENESS	\$ per ton of NO _x Removed	12,737

Footnotes

^a Unless otherwise specified, factors and cost estimates reflect OAQPS Cost Manual, Section 3, Sixth edition^b 2005 Halder Topsoe SCR Catalyst Quote. Catalyst estimated to be 10% of the total installed cost of the SCR^c SCR catalyst replacement based on Halder Topsoe catalyst quote and 3 year guarantee

Source: Golder, 2005

ATTACHMENT B

Table B-1. Gerdau Ameristeel Lead Emissions, EAF/Baghouse

Run ID	Lead (Pb) Emissions						
	Back Half	Probe Wash	Filter	Front Half	Total	% Front	% Back
	ug	ug	ug	ug	ug		
W1	4.41	64	990	1054	1058.4	99.6	0.4
W2	16.065	310	340	650	666.1	97.6	2.4
W3	4.144	180	230	410	414.1	99.0	1.0
E1	2.3584	99	190	289	291.4	99.2	0.8
E2	1.148	140	250	390	391.1	99.7	0.3
E3	0.4352	85	230	315	315.4	99.9	0.1
					Average	99.2	0.8

ATTACHMENT C

Larocca, David

From: Gerald Parks [gwp@airflowengineeredsystems.com]
Sent: Tuesday, February 08, 2005 11:17 AM
To: James P. Wold
Cc: Ted Metz
Subject: AAF HEPA Quote



GERDAU
RISTEEL HEPA.doc (

Dear Jim,

Pursuant to our meeting last week, please note the attached AAF proposal covering the HEPA filters as requested.

- * Weight of access housings, less filters ~ 2,415 lbs. / each
- * Weight of AmAir HT's per housing ~ 240 lbs. / each
- * Weight of HEPA's per housing ~ 1,512 lbs. / each
- * Initial pressure drop of AmAir's ~ 0.4"
- * Pressure drop of dirty AmAir's ~ 1.2"
- * Initial pressure drop across HEPA's ~ 1.44"
- * Pressure drop of dirty HEPA's ~ 3.0"

All pressure drops are in inches of water gauge

The attached pricing is for budget purposes

We appreciate the opportunity of bidding this project as well as the Wheelabrator Baghouse System and look forward to earning your business.

Best regards / Jerry

G.W. Parks
General Manager
Airflow Engineered Systems, Inc.
727.441.3400
Fax 442.2324
Cell 946.4276
www.airflowengineeredsystems.com



Quotation #
Date: February 4, 2005

To: James P. Wold
Environmental Specialist
Gerdau Ameristeel
16770 Rebar Road
Baldwin, FL 32234

Page 1 of 5

Goods are to be used for: Wheelabrator EAF Baghouse System

**TERMS: NET 30 DAYS FROM DATE
OF INVOICE ON APPROVED
CREDIT. 1.5% PER MONTH (18%
ANNUAL RATE) MAY BE CHARGED
ON PAST DUE ACCOUNTS WHERE
PERMITTED BY APPLICABLE LAW.**

Your offer to purchase must be received within thirty (30) days of this quotation. Your offer to purchase constitutes acceptance of this quotation and your agreement to purchase the goods and/or products described below. Upon acceptance at its office in Louisville, Kentucky by AAF International (hereinafter referred to as the "Company") this shall become a valid and binding contract and the Company will supply the goods described below subject only to the TERMS AND CONDITIONS attached hereto unless otherwise indicated on the face of this quotation. Prices quoted are subject to escalation at time of shipment to those prices in effect at that time unless modified on the face below. Terms of sale. All sales will be made under AAF INTERNATIONAL'S standard terms and conditions of sale. In no event will AAF INTERNATIONAL be liable for special, indirect or consequential damages.

QUANTITY	DESCRIPTION	PRICE
11	<p>AAF™ AstroSeal Type S Size 6H x 6W HEPA Filter Housings – each housing is designed to hold (36) 24" x 24" x 11.5" AstroCel High Temp. HCX HEPA filters & (24) 24" x 24" x 4" Am Air HT pre-filters. The filter system is sized for 72,728 ACFM at a face velocity of 505 FPM. The AstroSeal Type S housing is constructed of 14 Ga. galvanized steel with 11 Ga. structural components. All other welded components, including fittings, hardware and filter locking mechanism are fabricated from galvanized steel or plated steel.</p> <p>The housing is designed for operating pressures of $\pm 10"$ W.G. and all pressure boundary weld joints and seams are intermittently welded and caulked. Weld joints and seams are to be visually inspected to ensure that they are smooth, free of defects and</p>	

PURCHASERS ACCEPTANCE

The foregoing is hereby accepted.

(Name of Purchaser)

By: _____
Title: _____
Date: _____

AAF INTERNATIONAL

Airflow Engineered Systems, Inc.
1433 South FT. Harrison Ave.
Clearwater, FL 33756
727 441.3400
Fax 442.2324

GW Parks

This is a continuation sheet and all TERMS AND CONDITIONS apply to the entries hereon as fully as to the entries on Page 1.

QUANTITY**DESCRIPTION****PRICE**

contain no burrs or sharp edges and all welding procedures and operators are qualified in accordance with ASME Boiler and Pressure Vessel Code, Section IX.

The housing has a smooth inlet and outlet design to minimize turbulent airflow and to minimize particulate deposition surfaces. Inlet and outlet flanges of the housing are accessible to facilitate connection to adjoining components

One access door is furnished for housings up to and including three filters wide and two doors for units above three filters wide. Access doors are formed with 2" wide flanges for rigidity and are sealed to the housing by means of large screw type locking knobs and 1 1/4" wide neoprene rubber gasket integral to the doors. Each door is supported by welded pin type hinges which allow the door to be "plane positioned" prior to closing to prevent uneven gasket pressure. Doors are removable if desired and include welded "D" type handles.

The standard HEPA filter gasket sealing mechanism utilizes a rugged crank lock to deliver over 1400 pounds of force on each filter cartridge. This manual mechanism is actuated from the side of the unit permitting visual observation of gasket compression as pressure is applied. The crank mechanism is removable to facilitate decontamination procedures.

Each 6H x 6W unit will consist of (2) 3H x 6W housing that will be assembled in the field to form the 6H x 6W unit. The top unit of each assembly will include a weather cover, (2) pair of static taps, (4)-lifting lugs, and (2) factory installed weather proof Magnehelic gages. The bottom unit will include (4) removable lifting lugs and will be mounted on a 4" channel base.

Both 3H x 6W units will be seal welded for high temperature operation and all access doors will include high temperature silicon gaskets.

Price does not include filters (see add), tax or freight, FOB Factory, Lead-Time 4-6 weeks A.R.O.

List Price for each 6H x 6w Housing \$26,958.00

List Price for (11) 6H x 6W Housings \$296,538.00

396 AstroCel 1 High Temperature HEPA filters, HCX, 99.97% DOP efficiency, 24" x 24" x 11.5" deep, AAF Part Number 557-406-102

List Price Each \$480.39

List Price for (396) filters \$190,234.44

This is a continuation sheet and all TERMS AND CONDITIONS apply to the entries hereon as fully as to the entries on Page 1.

QUANTITY	DESCRIPTION	PRICE
396	AmAir HT Pre-filters, 25-30% avg. ASHRAE efficiency, 24"x 24" x 4" deep, AAF Part Number 147-004-863.	
		List Price Each \$64.06
		List Price for (396) filters \$25,367.76

TERMS & CONDITIONS

1. **COMPANY:** The Company as used herein shall mean AAF International or one of its subsidiaries or affiliates.
2. **PRICE POLICY:** Prices of the product(s) may be increased depending on the date of release and/or shipment of the order, announced increases in the Company's list prices, or increases in labor and material Cost.
3. **TERMS OF PAYMENT:** Terms of payment are subject at all times to prior approval of the Company's credit department. Terms of payment are net 30 days from date of invoice unless previously agreed in writing. If at any time the financial condition of the Purchaser or other circumstance affecting the credit decision, in the Company's opinion, does not justify continuance of production of products or shipment of products on the terms of payment specified, the Company may require full or partial payment in advance, or may at its sole discretion stop or delay production or shipment of products. In the event of default in payment, Purchaser agrees to pay all costs of collection incurred by Company including but not limited to collection agency fees, attorney fees and court costs. All past due amounts shall bear interest at the highest rate allowed by law.
4. **SHIPPING TERMS:** All shipments will be made F.O.B. factory with freight as quoted. All shipments will be made via a low cost common carrier and charges for special carrier services requested by the Purchaser shall be paid by the Purchaser. The Company may ship the product(s) in one or more lots. Shipment dates are only estimates. No contract has been made to ship in a specified time unless in writing, and signed by two officers of the Company. Timely performance by the Company is contingent upon Purchaser's supplying to Company, when needed, all required technical information, including drawing approval and all required commercial documentation.
5. **CLAIMS:** The responsibility of the Company for all shipments ceases upon delivery of products in good order to the carrier. Since all products are shipped at Purchaser's risk, any claims for damage or shortage in transit must be filed by Purchaser against the carrier. Claims for factory shortages will not be considered unless made in writing to the Company within ten (10) days after receipt of the products and accompanied by reference to the Company's bill of lading and factory order numbers.
6. **PATENTS:** Company shall assume the defense of any suit for infringement of patents brought against Purchaser or its vendors to the extent based upon a finding that the design or construction of the product(s) as furnished infringes a United States patent, provided that Purchaser promptly notifies Company of any charge of such infringement, and Company is given the right at its expense to settle such charge and to defend or control the defense of any suit based upon such charge. Purchaser shall indemnify Company to the same extent and in the same manner as set forth above, in the event that the products are supplied according to Purchaser's designs or in the event that the infringement occurs as a result of incorporating a design or modification at Purchaser's request into the product(s), or which results from modification or alteration of the product(s) by Purchaser.
THE PARAGRAPH SETS FORTH COMPANY'S EXCLUSIVE LIABILITY WITH RESPECT TO PATENTS.
7. **NUCLEAR** Unless otherwise specifically agreed to and clearly defined in the contract documents between Company and Purchaser, Purchaser represents and warrants that the product(s) covered hereby shall not be used in, or in connection with, a nuclear facility or application. Company shall in no event or circumstance whatsoever be responsible for, or incur liability in connection with, any losses, damages, claims, penalties, fines or expenses resulting from the hazardous properties of nuclear material, a nuclear incident or a nuclear energy hazard.
In the event that the product(s) sold hereunder will be used directly or indirectly at a nuclear facility or in connection with a nuclear application, Purchaser shall be solely responsible for and shall indemnify and hold Company, together with its employees, agents, representatives and suppliers of any tier, harmless from any and all loss, liability, damages, claims, penalties, fines and expenses of every kind and nature (including reasonable attorneys' fees) for personal injuries (including death) or damage to property including but not limited to, damage to, or loss of use of the product(s), the unit, the equipment, the nuclear facility, or any part thereof, or any property (at or surrounding the site), whether or not such incident or hazard is based upon or due to anyone's fault or negligence, including the fault or negligence of the Company or any other indemnitee. In addition, Purchaser shall obtain and maintain an agreement of indemnification as contemplated by Section 170 of the United States Atomic Energy Act, and/or, if applicable, the Canadian Nuclear Liability Act or any similar act or law (hereinafter collectively, the "Acts");
Purchaser shall also obtain all-risk nuclear liability insurance to the extent available in such form and amount as will meet the financial protection requirements imposed by the Acts. Purchaser shall continue to carry and maintain such insurance and indemnities against the foregoing risks with such coverage and limits as required by the Acts until decommissioning of the facility or cessation of the regulated activity.
8. **DELAYS:** If Company suffers delay in performance due to any cause beyond its control, including but not limited to acts of God, war, act or failure to act of government, act or omission of Purchaser, fire, flood, strike or labor trouble, sabotage, or delay in obtaining from others

This is a continuation sheet and all TERMS AND CONDITIONS apply to the entries hereon as fully as to the entries on Page 1.

QUANTITY	DESCRIPTION	PRICE
	suitable services, materials, components, equipment or transportation. Company shall not be liable for any costs or expenses associated with such delay and the time of performance shall be extended a period of time equal to the period of the delay and its consequences. Company will give to Purchaser notice in writing within a reasonable time after Company becomes aware of any such delay.	
9.	TAXES: Any applicable duties or sales, use, excise, value added or similar taxes will be added to the price and paid by Purchaser, unless an acceptable exemption certificate is furnished	
10.	CANCELLATIONS: Accepted orders are not subject to cancellation without the Company being reimbursed by Purchaser for any and all expenses, costs, lost profit, overhead and similar costs and expenses of every kind associated therewith. In the event an accepted order is canceled, Company shall be indemnified by Purchaser against any and all such loss, costs and expenses. In the event that the product(s) is a standard stock item the Purchaser shall only be obligated to pay such standard cancellation and restocking charges as are in effect for the Company and which may be modified from time to time.	
11.	PRODUCT CHANGES: In the interest of continuous product improvements, the Company reserves the right to change specifications and/or design without incurring obligation.	
12.	RETURNED GOODS: Products may not be returned except by prior authorization from the Company's Customer Service Department, located in Louisville, KY. Unauthorized returns will be automatically refused. Products so returned must be shipped prepaid to the location designated by the authorization and are subject to certain handling and restocking fees, and are at all times governed by the Company's rules and policies regarding returned goods.	
13.	LIMITED WARRANTY: The Company warrants that it will provide free replacement parts in the event any product manufactured by the Company and used in the United States or Canada proves defective in material or workmanship for a period of twelve (12) months from initial start-up or eighteen (18) months from date of shipment, whichever expires sooner. Product(s) not manufactured by the Company but also sold under this agreement are warranted only to the extent that the manufacturer warranted them to the Company or directly to the Purchaser. The Company's liability to the Purchaser shall not exceed the lesser of the cost of correcting defects in the product(s) sold or the original purchase price of the product(s) and the Company shall in no event be liable to Purchaser or third parties for any delays. The Company's warranty does not apply to any product(s) or goods which: (1) have been opened, disassembled, repaired, or altered by anyone other than the Company or its authorized service representative; or, (2) which have been subjected to misuse, misapplication, negligence, accidents, damage, abuse, improper storage, or abnormal use or service; or, (3) have been operated or installed in a manner contrary to Company's printed instructions; or, (4) have been installed in an incorrect or improper application; or, (5) have become corroded or subjected to abrasion. The Company is not obligated to pay any costs or expenses in connection with the removal and reinstallation of such product(s) or goods, including but not limited to labor, service costs, and shipping charges. The same obligations and conditions shall extend to replacement parts furnished by the Company hereunder. This parts warranty and any optional extended warranties are granted only to the original user. Company's duty to perform under this or any warranty may be delayed, at Company's sole option, until Company has been paid in full for all products or goods purchased by Purchaser. No such delay shall extend the warranty period. To obtain assistance under this limited warranty please contact the selling agency. To obtain information or to gain factory assistance, contact AAF International, Warranty Claims Department, 10300 Ormsby Park Pl., Louisville, Kentucky 40223-6169: Telephone (502) 637-0011. FAX (502) 637-0236	
	THIS WARRANTY CONSTITUTES THE PURCHASER'S SOLE REMEDY. IT IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT AND UNDER NO CIRCUMSTANCES SHALL AAF INTERNATIONAL BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER THE THEORY BE BREACH OF THIS OR ANY OTHER WARRANTY, NEGLIGENCE, OR STRICT TORT.	
	No person (including any agent, salesman, dealer or distributor) has the authority to expand the Company's obligation beyond the terms of this express warranty, or to state that the performance of the product(s) is other than published by the Company.	
4.	TERMS OF SALE: Sale of product(s) covered hereby to Purchaser is made solely on the terms and conditions set forth herein, notwithstanding any additional or conflicting terms and conditions that may be contained in any purchase order or other form of purchase, all of which additional or conflicting terms and conditions are hereby rejected by the Company unless agreed upon in writing and signed by an officer of the Company. No waiver, alteration or modification of the foregoing terms and conditions shall be valid unless made in writing and signed by an authorized official of the Company. In particular and without limiting the foregoing, notwithstanding anything to the contrary in Purchaser's purchase order or any other documents, the Company does not accept any order subject to project design and specifications. Purchaser agrees to accept full and sole responsibility to determine whether the product(s) ordered by Purchaser meets the design and specification requirements of any project.	
5.	COMPLIANCE WITH LAWS: Compliance with OSHA, Environmental or similar federal, state or local laws during any operation or use of the product(s) is the sole responsibility of Purchaser; and, Purchaser shall pay any and all costs, penalties, damages and expenses	

This is a continuation sheet and all TERMS AND CONDITIONS apply to the entries hereon as fully as to the entries on Page 1.

QUANTITY**DESCRIPTION****PRICE**

related to or arising in connection with its failure to comply with such laws.

6. **APPLICABLE LAW:** The laws of the State of Kentucky shall govern the validity, interpretation and enforcement of any contract of which these provisions are a part.

17. **CANADA~** For additional Canadian terms and conditions, please refer to the Canadian terms and conditions on the Canadian quote form. Such Canadian terms are expressly incorporated herein for sales made in Canada.

FAX

Return fax (904) 287-0238 Office (904) 287-0189

Email apsjax@comcast.net

DATE

2/1/05

1 Page including cover sheet**FROM:**

Ralph Chappell c/o Air Pollution Systems

Fax (904) 287-0238

Office (904) 287-0189

TO: Jim Wold

Gerdau Ameristeel

FAX (904) 266-0053**RE: HEPA After filter housing for existing bag house**

Based on the information you gave me earlier I have put together budget figures for an after filter housing based on the 800,000 cfm minimum specification. Keep in mind that HEPA filters will cost about \$200 each. Each of those HEPA filters will require a less expensive 95% ASHRAE filter to extend the life of the HEPA. In a typical after filter housing you will have rows of 95% ASHRAE filters in the first track followed by 99.99% HEPA filters.

I have put together a budget based on high capacity 2000 cfm HEPA and 95% ASHRAE filters. A filter housing for such an application would require (400) 24" x 24" x 12" deep filters of each. For the initial start up you can budget \$150,000 for the first set of filters. A housing to support these filters would have to be built on site and custom ducted to the discharge of the existing bag house applications. Cost of such a housing could run as much as \$200,000 including labor. Depending on dust loading you can expect to change out two sets of 95% filters per year and one set of HEPA filters during that same time frame.

Filter housing with filters\$350,000.00

Yearly filter replacement cost based
on two sets of 95% filter and one set
of 99.99% filters (no labor included)..... \$150,000.00

Total cost for your first year.....\$500,000.00

One other factor that is not included is the fact that the existing blowers on the bag houses will need to be replaced with higher static fans to handle the external static pressure from the additional filters. We would need additional information to determine those requirements. Simply adding the after filters without changing the performance of the existing blowers will result in much less efficiency in your present dust collection system.

Please call me at 287-0189 if you have questions.

Best regards,

Ralph Chappell
President

Larocca, David

From: James Wold [Jwold@gerdauameristeel.com]
Sent: Wednesday, February 02, 2005 7:28 AM
To: Larocca, David
Subject: Fwd: Quote



Quote

David

Here is the disposal cost for the filters. The total cost based on the number of filters would be \$66,279 each time the filters would have to be replaced.

James P. Wold, CHMM
Environmental Specialist
Gerdau Ameristeel
P.O. Box 518
16770 Rebar Road
Baldwin, FL 32234
904-266-4261 Ext 133 Office
904-228-1962 Cell
904-266-0053 Fax

WM.
WASTE MANAGEMENT

February 2, 2005

Jim Wold
Gerdau Ameristeel
Hwy 217/Yellow Water Rd
Baldwin, FL

Reference: K061 filters for Microencapsulation

Dear Jim,

Waste Management is pleased to submit the following proposal for the disposal of your waste.
Based on the information you have provided, pricing is as follows:

Disposal Facility: Waste Management
Emelle, AL Facility
P.O. Box 55
Emelle, AL 35459

WASTE DESCRIPTION

K061 contaminated debris (filters) for Micoencapsulation

DISPOSAL PRICE

\$ 231.00 per cubic yard microencapsulation
Based on the rated capacity of the container
Price includes tax
10 cubic yard minimum per box
Size Requirements 3'x3'x3'

TRANSPORTATION PRICE

Baldwin, Florida to Emelle, Alabama – 503 miles
Roll-Off

\$ 1,695.00/Trip Roll-off Box plus fuel surcharge – Light boxes may be carried 2 per trip.
\$ 1,695.00/Trip Roll-off Box drop fee plus fuel surcharge– Light boxes may be carried 2 per trip.
\$ 55.00 per liner if needed
\$ 350.00/Month/Box/Roll-off Box Rental Charge- Roll-off
\$ 150.00/Week/Roll-Off Box/ Rental Minimum – Roll-off
\$ 60.00/Hour/Demurrage/after 2-hours
\$ 250.00/Box wash/tanker wash fee/ per box if needed

Terms and Conditions

Your waste may be subject to surcharges. Please refer to the attachment for surcharges/fees that may be applicable upon receipt at the TSDF.

All pricing is contingent upon the review of the generator's waste profile sheet and analysis.
All documents must be completed and signed by an authorizing signatory of the generator.

Upon acceptance of this proposal, please contact me at your earliest convenience for the paperwork required to begin the approval process.

This quotation is firm for thirty (30) days. If not accepted in the allotted time, all pricing will expire.

Thank you for this opportunity to be of service to you. If you should have any questions, please do not hesitate to call.

Sincerely,

Jennifer Sweeney
Industrial Sales
Waste Management

Table C Cost Effectiveness of HEPA Filter for EAF Pb Control, Gerdau Ameristeel

Cost Items	Cost Factors ^a	Cost (\$)
DIRECT CAPITAL COSTS (DCC)		
Purchased Equipment Cost (PEC)		
Filter Housings	Vendor Quote ^b	323,496
HEPA Filter	Vendor Quote ^b ; 396 filters @ \$480.39 each	190,234
Ductwork to HEPA filter inlet and outlet	10% of Housing and Filters, Engineering Estimate	51,373
Instruments and Controls	10% Housing and Filters	51,373
Freight	5% Housing and Filters	25,687
Taxes	6% Sales Tax	30,824
Total PEC		672,987
Direct Installation Costs		
Foundation and Structure Support	4% of PEC	26,919
Handling & Erection	50% of PEC	336,493
Electrical	8% of PEC	53,839
Piping	1% of PEC	6,730
Insulation for ductwork	7% of PEC	47,109
Painting	4% of PEC	26,919
Total Direct Installation Costs		498,010
Total DCC		1,170,997
INDIRECT CAPITAL COSTS (ICC)		
Contractor Fees +	10% of PEC	67,299
Performance test +	1% of PEC	6,730
Contingencies	3% of PEC	20,190
Total ICC		94,218
TOTAL CAPITAL INVESTMENT (TCI)	DCC + ICC	1,265,215
DIRECT OPERATING COSTS (DOC)		
Operating Labor		
Operator	2 persons full time, 16\$ hr, 52 weeks yr	66,560
Supervisor	15% of operator cost	9,984
Electricity	4.2" pressure drop, 8,500 hrs/yr, 0.0671 \$/kwh; 1,000,000 ACFM	433,580
Filter Disposal Cost	Vendor Quote, Waste Management	66,279
Filter Replacement	Vendor Quote; once per year filter replacement	190,234
Total DOC:		766,638
INDIRECT OPERATING COSTS (IOC)		
Overhead	60% of oper labor & maintenance	45,926
Property Taxes	1% of total capital investment	12,652
Insurance	1% of total capital investment	12,652
Administration	2% of total capital investment	25,304
Total IOC:		96,535
CAPITAL RECOVERY COSTS (CRC):	CRF of 0.0944 times TCI (20 yrs @ 7%)	119,436
ANNUALIZED COSTS (AC):	DOC + IOC + CRC	982,609
BASELINE Pb EMISSIONS (TPY):	3.0 TPY Pb Emissions	3.0
MAXIMUM PM EMISSIONS (TPY):	99.99 % Control	0.0003
REDUCTION IN PM EMISSIONS (TPY):		3.0
COST EFFECTIVENESS:	\$ per ton of PM Removed	327,569

Footnotes:

^a Unless otherwise specified, factors and cost estimates reflect OAQPS Cost Manual, Section 3, Sixth edition^b 2005 American Air Filter Cost Quote

ATTACHMENT- Emelle, AL

SURCHARGES: (If Applicable) page 1 of 2 (Emelle, Alabama Facility)

Drums are based on 55 gallon drum size

Drums greater than 55 gallons will be charged at 1.5 times the drum price.

Drums less than 55 gallons will be charged .75 times the drum price.

Drum solids for direct landfill less than 90% full will be charged additional \$25/drum.

Drums requiring overpacking will be charged additional \$100/drum.

Empty drums are considered to have a weight of 1.5/Ton for tax purposes

Transship fee - \$125/drum (as required).

Drums/small containers on pallets will be charged at 4 times the 55 gallon drum price.

Pallet price is based on a 4x4x4 size container; larger containers will be priced at actual measurement of container received times cubic yard price.

Drum shredding charge prior to treatment - \$100/drum.

Empty drums - \$40/drum.

Crane rental - \$100/hour w/30 ton limit, plus \$200/hour for two-man crew. Crane rental jobs 30 tons and greater will be quoted on a case-by-case basis.

Bulk solid density assumes 2,000 pounds = one cubic yard. (Direct landfill/stabilization only.)

Cubic yard price for box/bag based on actual measurement of container received.

Direct landfill bulk minimum - \$1,000 per load (excludes tax)

Stabilization/Solidification (sludge box) bulk minimum – 10 times the bulk price (excludes tax)

Solidification/Stabilization bulk liquid minimum – 2,000 gallons per shipment

Stabilization bulk minimum - 10 times bulk price. (Excludes tax.)

- A 2-quart sample is required on all bulk stabilization wastestreams prior to profile approval
- Stabilization pricing is based upon a standard stabilization recipe
- The first bulk load will need to pass treatment standard testing before any other load can be scheduled. (contact customer service for additional explanation if necessary)

Microencapsulation bulk minimum - 10 times the cubic yard price.

-microencapsulation disposal price is based on the rated capacity of the container received

Macroencapsulation bulk minimum - 20 times the cubic yard price.

-macroencapsulation disposal price is based on the rated capacity of the container received.

Size requirement is 3x3x3

Incineration bulk solid minimum - \$3,000/load.

Incineration bulk liquid minimum - \$2,000/load.

Incineration direct inject bulk liquid minimum - \$4,500/load.

Incineration direct inject bulk liquid (hard to handle) minimum - \$8,000/load.

Incineration bulk liquid tanker rinse out - \$1,100 minimum charge.

PCB transformer carcass for direct landfill or service \$150/unit minimum charge

Incidental liquids in bulk solid loads for direct landfill - \$800 per load.

Leaking bulk loads - \$200/load.

Routine Tanker, truck, or box washouts (RCRA empty) - \$250/load minimum or cost plus 10%.

WM monthly fuel surcharge – Will vary based on current fuel prices.

ADEM Approval Fees:(ALL LANDFILL MATERIAL)

\$125.00/Profile - 2 Year Initial Approval

\$125.00/Profile - 2 Year Renewal

\$125.00/Profile - Amendments

Alabama Taxes: \$51.00/Ton F-Codes,PCB,K-Codes,Macro-D,F,K-Codes

\$76.00/Ton U-Codes

\$113.00/Ton P-Codes

\$ 21.00/Ton Non-Hazardous

\$ 21.00/Ton D-Codes for Decharacterization/Microencapsulation

Demurrage \$85.00/Hour after 2-hours

Waste stream evaluation fee (outside lab) – Cost plus 10%. (if required)

(NOTE: Waste Stream Evaluation fees will no longer be billed unless a sample has to be sent by the Emelle Facility to an outside lab for analysis.)