AMBIENT AIR SERVICES, INC.

106 Ambient Air Way • Starke, FL 32091 • (904)964-8440 • Fax (904)964-6675

FAX TRANSMITTAL COVER SHEET

TO: Mr. Cleve Holladay
Florida Department of Environmental Regulation

RE:

FAX NO: (850) 922-6979

FROM: Robert S. Sholtes

DATE: November 12, 1998

NO. OF PAGES BEING FAXED 12 (Including this page)

NOTES:

PLEASE CONTACT Janene Generazio AT (904) 964-8440 IF YOU HAVE ANY QUESTIONS CONCERNING THIS FAX TRANSMISSION.

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November 12, 1998

Mr. Cleve Holladay
Florida Department of Environmental Regulation
Tallahassee, FL

FAX #: (850) 922-6979

RE: AmeriSteel, Baldwin Mill

Dear Sir:

The attached document "PSD Dispersion Model Protocol" outlines the plan under which we propose to proceed with the modeling aspects of the new Baldwin Mill PSD application. I would ask that you review this material at your earliest convenience and convey any comments and/or requested modifications as you deem necessary.

Sincerely,

for

Robert S. Sholtes, Ph.D., P.E.

RSS:jkg

cc: Bob Geddis
ATRregs

PSD DISPERSION MODEL PROTOCOL

AMERISTEEL CORPORATION
BALDWIN MILL
BALDWIN, FLORIDA

The following text is the proposed plan for the PSD related dispersion modeling of criteria air pollutants for AmeriSteel, located in Baldwin, Florida. This existing plant is permitted under Permit AC16-259246. The plant is located at UTM coordinates 3350148 North and 405780 East at an elevation of 85 feet above mean sea level.

SECTION I - POLLUTANT CHARACTERISTICS AND LOCATIONS

The AmeriSteel facility is in the business of converting scrap steel into merchantable products. The emission increments for the criteria pollutants will be quantified and compared to the published PSD Significant increase quantities to establish whether dispersion modeling is required. The appropriate significant increase levels are presented in Table 1

TABLE I

PSD SIGNIFICANT EMISSIONS INCREASES	
PM	25 tons/yr.
PM-10	15 tons/yr.
CO	100 tons/year
NO_x (as NO_2)	40 tons/year
SO_2	40 tons/year
VOC	40 tons/year
Lead	0.6 tons/year

Table 2 summarizes the emission source parameters for the emission stacks. All stack parameters will be fully documented in the final report.

Conversion of pollutants to other species, depletion and deposition will not be considered in the dispersion modeling.

SECTION II - OVERVIEW OF THE MODELING PLAN

To demonstrate compliance with applicable PSD increments and AAQS standards, a two-tiered modeling plan is proposed. This consists of one tier of screening modeling and one tier of refined modeling.

Reduced load modeling is not proposed. The EAF process (a batch process) is not typical of a process capable of being "throttled back". For the most part the melting and refining proceeds at full speed with variations in hourly or daily production being caused by delays (no operation) due to things like crane problems, electrode changes, ladle availability and water jacket leaks. The pollution collection and control system, including the baghouses operate at full flow at all times.

Section II.1 - Good Engineering Practice Stack Height (GEP) Analysis

First a GEP analysis will be conducted. GEP is calculated using the following equation:

$$H_g = H + 1.5\,L$$

where

H_g = good engineering practice stack height,
H = height of the structure or nearby structure,
L = lesser dimension (height or projected width of the structure or nearby building).

A GEP analysis will be conducted for all structures (including complex terrain) within ½ mile of each stack. Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulation[3] will be followed for determining the GEP for each stack modeled. The structure resulting in the largest GEP for each stack will be identified as the critical building for that stack. The initial GEP analysis results are presented in Table 3. The actual GEP calculations will be included with the final analysis.

A review has been made of off-site structures within one-half mile to examine their potential to have an influence on AmeriSteel emissions. None of these structures is tall enough to fall within the area of influence.

TABLE 3

INITIAL GEP ANALYSIS

Structure	Height	Width	Length	L	5L	What Sources w/in 5L?	GEP Height
BH 1-2	492 ft.	22.5 ft.	175 ft.	49.2 ft.	246 ft.	BH 1-2, BH 3-4	123 ft.
BH 3-4	45 ft.	49.4 ft.	63.3 ft.	45 ft.	225 ft.	BH 1-2, BH 3-4	112.5 ft.
Melt Shop	75 ft.	86 ft.	515 ft.	75 ft.	375 ft.	BH 1-2, BH 3-4, Reheat	187.5 ft.
Roll Mill	50 ft.	149 ft.	1214 ft.	50 ft.	250 ft.	Reheat	125 ft.

II.2 First Level Analysis

The ISCST3 (version 96113) dispersion model will be used for the criteria pollutants which trigger PSD Significant Emission increases with the increment emission rates associated with this application and 1987 meteorological data to evaluate the maximum off-site impact. These maxima will in turn be compared to the following PSD Significant Impact and DeMinimis magnitudes.

TABLE 4

Pollutant	PSD Significant Impact, $\mu g/m^3$	DeMinimus/ Monitoring, $\mu g/m^3$
CO	500 (8 hour) 2000 (1 hour)	575 (8 hour)
SO_2	25 (3 hour) 5 (24 hour)	13 (24 hour)
VOC	No Criteria	No Criteria
NO_x	1 (Annual)	14 (Annual)
PM	5 (24 hour) 1 (Annual)	10 (24 hour)

If the maxima are less than the PSD Significant Impact level, no further dispersion modeling will be pursued. If any maximum exceeds the DeMinimus, consideration will be given to local monitoring or utilization of existing ambient air quality data..

It should be noted that the applicant will be proposing a short term steel production rate of 100 tons/hour averaged over 24 hours and an annual limit of 720,000 tons. PSD triggering occurs on an annual limit basis. In an effort to establish that no ambient air problems result from this permit revision, short term impacts based on 100 tons per hour production will be examined for those pollutants with 24 hour or less Significant Impact factors or AAQS. Where significant impact or DeMinimus magnitudes for comparison exist on a short term basis (PM, CO, SO_2) a dual set of model runs will be executed, one for short term factors, reflecting 100 tph production, and a second for annual factors, reflecting the annualized production rate of 720,000 tons. This procedure will establish that there will be no significant impact from these pollutants due to the change in the short term production rate. To the extent possible quantifiable fugitive emission increments will be included in this First Level Analysis.

For gaseous criteria pollutants, the modeled concentrations used to determine compliance with NAAQS or PSD criteria will be based on the following:

CO	-	HFH (1 hr and 8 hr) NAAQS
SO_2	-	HSH (3 hr and 24 hr) NAAQS
	-	HFH (3 hr and 24 hr) PSD Increment Consumption
PM	-	H6H (24 hr) AAQS
	-	HFH (24 hr) PSD Increment Consumption

- HFH - Highst First Highest
- HSH - Highest Second Highest
- H6H - Highest Sixth Highest

All annual AAQS or emission increment impacts will be based on HFH.

Section II.2.1 - Meteorological Data

For first level analysis, the ISCST3 model will be executed with one year of meteorological data (1987 Jacksonville surface data and 1987 Waycross upper air data). Where refined modeling is required, the five year data set of 1984-1988 will be used. The meteorological data will be submitted with the modeling analysis.

Section II.2.2 - Coarse Grid Receptor Array

The first receptor ring in the coarse grid receptor array will be 150 meters, a distance just in excess of the nearest fence line receptor which is located 116 meters from the grid origin. Six more distances will be used as follows: 300, 400, 600, 1,000, 1,500 and 2,000 meters. Thirty-six receptors will be placed along each receptor ring at 10° intervals. Additional receptors will be placed at the fence line boundary along each 10° arc supplemented as necessary to ensure that boundary receptors are separated by no more than 100 meters. An examination of the surrounding terrain has established the fact that there are no locations within a three mile radius which have an elevation at or above 50% of the stack height of BH 1-2 which is the shortest stack among those being examined.

Section II.2.3 - Refined Receptor Grid

Once the ISCST3 model has been run with the coarse receptor grid, the results will be examined to determine whether a refined receptor grid needs to be modeled in order to attain a 100 meter spacing around the highest coarse grid receptor. The criteria for this need will be an event where the predicted impact exceeds 70 percent of the standard or increment apropos to the evaluation underway.

Section II.2.4 - Model Options

Table 5 shows the option settings for the ISCST3 model. Source locations will be input to the ISCST3 model as reflected in Table 2.

Section II.3 - Second Level Analysis

In the event the predicted off-site impact for any pollutant exceeds the PSD Significant Impact Level, further analysis will be performed for that pollutant. A full five year analysis will be conducted to establish the magnitude or dimensions of the area of significant impact. Using this dimensional data another set of five year analyses will be conducted to examine AAQS status including the entire AmeriSteel facility emissions (at the appropriate rates) along with emissions from other sources within the area of significant impact or 50 km, whichever is less. Sources within the screening area (impact +50 km) will be evaluated for inclusion. Normally, a corollary set of analyses would be conducted to evaluate PSD increment consumption. Quantifiable fugitive emissions will be included in these second level analyses.

SECTION III - OUTPUT OPTIONS AVAILABLE TO MCDEP

ISCST3 inputs and outputs will be furnished in the [illegible] supplied in hard copy. Hard copy and disk files will be furnished of SCREEN 3 & 2C outputs, and BPIP (Breezewake).

TABLE 5

ISCST3 OPTIONS

Pathway	Keyword	Option
CO	MODELOPT	CONC, RURAL, DFAULT
	AVERTIME	As appropriate
	FLAGPOLE	
SO	LOCATION	Per Table 2
	SRCPARAM	metric units
	BUILDHGT/WID	from Breezewake
	EMISUNIT	0.1000 E+7
	SRCGROUP	All
RE		Receptors at ground level.
ME		As described in text
OU	MAXTABLE	ALLAVE First Second

AMERICTEEL
BALDWIN MILL

Summary of Assumed Future
Operational Changes for Permit Application of 11/98

With regard to Project Significant Impact

EAF

720,000 tpy billets
100 tph billets
CO Factor 4.2 lb/ton billet

Reheat

720,000 tpy billet thruput
777 tph billet thruput
NO_x factor 0.25 lb. NO/1000 cu.ft. gas

Slag Operations

84,240 tpy processed
No change in wind erosion emissions
Increment to emission from traffic

Shredder

Air Emissions eliminated