ENGINEERING ANALYSIS

Source Name: Chaparral (Virginia) Inc. **Registration No.:** 51264

Source Location: Dinwiddie County **County-Plant No.:** 053-0104

Date: December 16, 2010

I. Introduction and Background

A. Company Background

Chaparral (Virginia) Inc. (CVI) owns and operates a steel recycling facility in Dinwiddie County, Virginia. The facility takes steel scrap, shreds it, melts the scrap in an electric arc furnace (EAF), and casts the molten steel into useable end products such as rebar and construction beams. The EAF is the primary source of air pollution at the facility. The facility has a Standard Industrial Classification Code of 3312. Dinwiddie County is currently considered to be in attainment for all criteria pollutants.

The company is located on a site which is suitable from an air pollution standpoint. Dinwiddie County has certified that the location and operation of the facility are consistent with all applicable ordinances adopted pursuant to Chapter 22 (§§15.2-2200 et seq.) of Title 15.2 of the Code of Virginia (see Local Governing Body Certification Form dated July 14, 2003 in application).

B. Permit History

The facility commenced operation in 1999 after the Virginia Department of Environmental Quality (DEQ) issued a Prevention of Significant Deterioration (PSD) permit on April 24, 1998. This initial permit was based on a PSD application dated September 2, 1997. At that time, the permittee was known as Chaparral Steel – East (the permittee subsequently notified DEQ that a change in ownership had occurred and that the facility was now operating as CVI). The original permit was amended on May 17, 2000 to make minor adjustments in the as-installed maximum heat input capacities of miscellaneous combustion equipment at the plant. The May 17, 2000 permit was amended on June 8, 2007 to reflect the permittee name change referenced above. The June 8, 2007 permit was amended on December 18, 2008 to correct the cooling towers' operating parameter recordkeeping requirement from total suspended solids to total dissolved solids.

As required by the PSD permit regulations, the April 24, 1998 PSD permit, as amended (henceforth the "current permit"), included Best Available Control Technology (BACT) requirements for the pollutants subject to PSD review. For the EAF, these pollutants included particulate matter (PM), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NO_x) and volatile organic compounds (VOC). For CO, the BACT requirements were incorporated into the permit in the form of hourly and annual CO emission limits (860 lbs/hr and 3400 tons/yr) and the requirement that CO emissions from the EAF be controlled by "the use of ducting to capture emissions and an external combustion chamber having a post combustion burner rated at 12×10^6 BTU/hour to provide the time, temperature, and mixing conditions necessary to maximize the conversion of CO to CO_2" (Condition #11 of the current permit). These CO emission limits were based on an emission factor, proposed by the permittee in their 1997 application, of 4.0 lbs of CO/ton of tapped steel calculated as a 24-hour average. Although DEQ determined that there were other EAFs in the country that were achieving a lower CO emission rate (some as low as 2.0 lbs/ton), Chaparral claimed that the new "shaft" design of their proposed EAF necessitated a higher CO emission rate since the technology was largely untested and theoretically could result in greater CO emission since some of the heat normally used to convert CO to CO_2 in the EAF evacuation system would instead be used to pre-heat the scrap in the shaft before charging the furnace. After investigating this claim, DEQ staff eventually accepted the permittee's argument.

The permit also required the permittee to conduct performance tests for CO and other pollutants to demonstrate compliance with the permit's emission limits. As a further BACT measure, the permit included a "ratchet" condition (Condition #13 of the current permit). This condition stipulated that if the performance test demonstrated that the actual EAF emissions for any permitted pollutant were sufficiently less than (17% or more) that pollutant's corresponding emission limit, the permitted emission limit would be reduced by an amount roughly equivalent to the ratio of the actual emissions to the emission limits. Through this mechanism, if the CO (and other pollutants) emissions from the EAF were lower (and more in line with traditional EAF designs) than the permitted levels, the BACT emission standards would be revised to reflect the EAF's actual emission performance. Condition #13 of the current permit appears below:

13. In the event that the actual hourly emission rates of CO, NO_x, SO_2, and VOC as determined by the stack testing required in Condition 27 are less than 83.3% of the emission limits stated in Condition 12, the permit shall be amended such that the hourly and annual emissions limits listed in Conditions 12 and 22 comply with the table below

CO	If the actual hourly emission rate is:	<139.8 lbs/hr	≥139.8 lbs/hr and <322.5 lbs/hr	≥322.5 lbs/hr and <713.8 lbs/hr
	The emission limitation becomes:	=195.7 lbs/hr	=1.4x(actual emissions)	=1.2x(actual emissions)
NO_x	If the actual hourly emission rate is:	<40.9 lbs/hr	≥40.9 lbs/hr and <76.5 lbs/hr	≥76.5 lbs/hr and <124.7 lbs/hr
	The emission limitation becomes:	=58.1 lbs/hr	=1.4x(actual emissions)	=1.2x(actual emissions)
SO_2	If the actual hourly emission rate is:	<15.4 lbs/hr	≥15.4 lbs/hr and <47.3 lbs/hr	≥47.3 lbs/hr and <124.7 lbs/hr
	The emission limitation becomes:	=21.5 lbs/hr	=1.4x(actual emissions)	=1.2x(actual emissions)
VOC	If the actual hourly emission rate is:	<19.4 lbs/hr	≥19.4 lbs/hr and <36.6 lbs/hr	≥36.6 lbs/hr and <62.4 lbs/hr
	The emission limitation becomes:	=28.0 lbs/hr	=1.4x(actual emissions)	=1.2x(actual emissions)

(9 VAC 5-80-1800 of State Regulations)

One important aspect of the current permit's Condition #13 is that it is based on hourly emission rates instead of emission factors/standards. DEQ originally drafted the condition based on emission standards (lbs/ton) instead of hourly emissions (lbs/hr), but the permittee objected to that structure and DEQ agreed to revise the condition into the format shown above. The permittee commenced operation in 1999 and conducted their initial performance test in May 2000. The CO emissions during May 2000 performance test were measured at an emission factor (5.47 lbs/ton) even higher than the agreed upon BACT levels (4.0 lbs/ton). A second performance test conducted in December 2001 yielded similar results.

In discussions with the permittee following the May 2000 performance test, it became apparent to DEQ staff (and was confirmed by the permittee) that the post-combustion chamber burners required by Condition #11 had not been operated during the test and were, in fact, not being operated at any time. This revelation eventually resulted in DEQ issuing the permittee a Notice of Violation (NOV) on March 24, 2003. An air compliance consent order (ACO) addressing this NOV was agreed to by the permittee and DEQ on January 13, 2004. The ACO required the permittee to submit a permit application to address the discrepancies between the operation of and emission from the source as it was constructed and the operation and emissions from the source as represented in the 1997 permit application and resulting April 24, 1998 PSD permit. The ACO also required the application to include an updated PSD BACT analysis for any pollutant for which the permittee proposed to implement a control strategy different than that required by their current permit.

The permittee submitted this application to DEQ on September 5, 2003 and DEQ considered the application active on February 17, 2004 (the date the ACO compliance operating plan was signed).

C. Proposed Project Summary

The September 5, 2003 application included the following proposals by CVI:

- Increase the NO_x emission limits to 258 lbs/hr and 1020 tons/yr based on an emission factor of 1.2 lb/ton;
- Increase the CO emission limits to 1075 lbs/hr and 4250 tons/yr based on an emission factor of 5.0 lbs/ton;
- Include the lbs/ton emission factors in the permit as enforceable limits;
- Control CO emission through intermittent use of post-EAF burners (shaft and/or post-combustion chamber burners) to maintain compliance with both the NO_x and CO emission standards/limits;
- Install and use NO_x and CO continuous emission rate monitoring systems (CERMS) to demonstrate compliance;
- Change basis of ratchet condition from lbs/hr to lbs/ton;
- Add #2 fuel oil as an approved fuel for the preheat and reheat furnaces; and
- Add a small natural gas fired ladle dryer.

Since their original proposal, CVI has amended their application numerous times. The table below provides a summarized version of the facility background and of various documents submitted to support/revise the original application:

Action	Date
Original PSD application	9/2/1997
Original PSD permit issued by DEQ-PRO	4/24/1998
Facility constructed and commenced operation	1999
Performance test #1	5/15-20/2000
Performance test #2	12/2-9/2001
Notice of Violation issued by DEQ-PRO	3/24/2003
PSD modification application submitted	9/5/2003
Consent order signed	1/13/2004
Compliance operating plan signed	2/17/2004
(End of consent order process – application considered active)	
Initial letter of determination	2/19/2004
CVI public notice	3/19/2004
Received preliminary modeling inventory from Central Office	4/12/2004
DEQ information request letter #1 – NO_x/CO BACT	5/7/2004
CVI informational briefing	5/19/2004
DEQ information request letter #2 – mercury emissions	8/25/2004
CVI response – DEQ should not regulate mercury	12/16/2004
DEQ information request letter #3 – mercury emissions	2/24/2005
DEQ information request letter #4 – specify schedule for submission of mercury and NO_x/CO information	8/8/2005
CVI response – agrees to submit all information by	8/30/2005
CVI response – submits NO_x information	10/31/2005
CVI response – submits CO information	12/29/2005
CVI response – declines to submit mercury information	5/22/2006
DEQ information request letter #5 – mercury Information	8/1/2006
CVI response – mercury emissions	9/29/2006
DEQ information request letter #6 – additional NO_x, CO details	10/6/2006
CVI response (NO_x, CO) to 10/6/2006 DEQ letter	11/30/2006
CVI mercury permit condition proposal	2/20/2007
CVI request application amendment re: no sig increase of SO_2	3/28/2007
CVI request to revise requested EAF hourly NO_x limit	6/5/2007
CVI request to drop fuel change from application	5/12/2008
CVI PM/PM10/VOC NEI demonstration + CO BACT supplement	8/4/2009
CVI request for CO emissions trial	12/22/2009
CVI PM2.5 NEI demonstration	3/1/2010
CVI ladle dryer BACT supplement	4/1/2010
CVI CO emissions trial results	5/27/2010
CVI request to retain current EAF NO_x emission limits	8/3/2010
CVI NO_x NEI demonstration	9/3/2010

Modeling Revisions

Initial protocol	9/4/2003
Revision to protocol	10/31/2005
Initial report	4/30/2007
Revision to report	4/7/2008
Revision to report	5/16/2008
Revision to report	6/4/2008
Revision to report	7/28/2008
Final report	9/10/2008
DEQ-CO approval of final report	10/23/2008

Based upon CVI's most recent application revisions, the proposed project now includes:

- Retain current hourly and annual NO_x emission limits;
- Increase the CO emission limits to 2580 lbs/hr (based upon a maximum short-term emission rate of 12.0 lbs/ton) and 7140 tons/yr based on a maximum 12-month rolling emission standard of 8.4 lbs/ton;
- Include the lbs/ton emission factors in the permit as enforceable limits;
- Control CO emission through intermittent use of post-EAF burners (shaft and/or post-combustion chamber burners) to maintain compliance with both the NO_x and CO emission standards/limits;
- Install and use NO_x and CO CERMS to demonstrate compliance;
- Change basis of ratchet condition from lbs/hr to lbs/ton; and
- Add a small natural gas fired ladle dryer.

In a separate submittal, dated June 23, 2000, the permittee requested that one carbon storage silo and two lime storage silos be added to the approved equipment list in their permit. This application was put on the hold until the compliance issues (and any resulting permit amendment resulting from them) with the facility were resolved. The permittee has also updated this portion of their application on several occasions. In the most recent update, May 21, 2010, the permittee clarified that the permit recognize three lime storage silos, one carbon storage silo with a back-up transfer vessel (essentially an expansion of the carbon silo's volumetric capacity) and an alloy unloading and alloy/lime/carbon transfer system (alloy UTS). Accordingly, the proposed permit and this evaluation will also address these emission units.

The potential to emit (PTE) of the facility, as proposed by the permittee, will be:

PM	PM10	SO_2	NO_x	CO	VOC	Lead
134.7 tpy	123.0 tpy	595.8 tpy	827.1 tpy	7,349.2 tpy	304.1 tpy	1.49 tpy

Most of these emissions will be generated, captured and emitted by the EAF/LRF/meltshop system:

PM	PM10	SO_2	NO_x	CO	VOC	Lead
74.3 tpy	74.3 tpy	595.0 tpy	595.0 tpy	7120.0 tpy	297.5 tpy	1.49 tpy

D. Process and Equipment Description

The facility includes the following listing of equipment as permitted emission units:

- One Fuchs single shaft electric arc furnace rated at 215 tons of molten steel/hour (ES1);
- One ladle refining furnace rated at 215 tons of molten steel/hour (ES2);
- One preheat furnace rated at 109 x 10^6 Btu/hour heat input (ES3);
- One reheat furnace rated at 186 x 10^6 Btu/hour heat input (ES4);
- One scrap shredder with a cascade separator rated at 235 tons of scrap input/hour (ES5);
- One contact cooling tower rated at 8,900 gallons/minute (ES15);
- One non-contact cooling tower rated at 44,463 gallons/minute (ES16);
- Miscellaneous meltshop operations consisting of ladle preheaters, ladle dryers, tundish preheaters, and tundish dryers, the combined total rated at 81.1 x 10^6 Btu/hr heat input (ES8);

- Three lime silos with a combined maximum rated loading capacity of 20 tons/hr (ES17);

- One carbon silo (including supplemental transfer vessel) with a maximum rated loading capacity of 20 tons/hr (ES18);
- One alloy unloading and alloy/lime/carbon transfer system with a maximum rated loading capacity of 100 tons/hr (ES19); and
- Unpaved roads, storage piles, and material transfer operations.

The facility receives scrap by rail and truck. The scrap is inspected according to the facility's scrap management plan. The purpose of the inspection is to minimize the amount of scrap which is contaminated with volatile organic compounds and other undesirable compounds. Minimizing the intake of these compounds is a pollution prevention method since these compounds, if they are not destroyed in the furnace, may be emitted into the air. The shredding operation is capable of processing 235 tons per hour and about 1,000,000 tons per year of ferrous scrap. The scrap is loaded onto conveyors and transferred to the shredder. Hammers within the shredder tear the feed material into fist sized pieces. The shredder is equipped with a water deluge system to control fugitive dust.

The wet, shredded material leaves the shredder and enters into a cascade cleaning system. The purpose of the cascade cleaning system is to separate the metal from the other components of the scrap. The clean heavy fraction discharges at the bottom of the system while the light fraction is discharged through a rotary valve and is hauled away as a waste product. The shredder operation has minimal emissions since so much water is used. The cascade separator has a pressure relief, which would only be activated during a malfunction. CVI transports extra shred into the facility by rail as needed.

Steel is produced by melting the scrap with coke in the electric arc furnace, which produces heat by running a high voltage alternating current between graphite electrodes. The facility installed a Fuchs single shaft electric arc furnace. This furnace design is significantly different than other types of furnaces currently in operation in the U.S. Most furnaces transfer the cold scrap via buckets directly in the electric arc furnace which creates much dust and fume during the loading process. Some furnaces have been designed with the “Consteel” preheating system. This system delivers scrap to the furnace via conveyors which preheat the scrap to some extent. The single shaft furnace at the facility is equipped with a shaft which exits directly into the furnace. The scrap is loaded into the shaft and held in the shaft by "fingers" (retractable metal obstructions which arrest the progress of the scrap through the shaft towards the furnace). The exhaust gases from the furnace enter the shaft and preheat the scrap before it enters the furnace. The facility estimates that this preheating method allows a 40% recovery of the heat coming out of the furnace. Fuchs furnaces have been built in several European countries. These processes show that the steel in the preheat shaft is almost molten before it is allowed into the furnace. This shaft furnace allows the facility to be more energy efficient than the conventional furnace design, requiring about 40-80 kW/ton of molten steel less than a conventional facility. Since the facility is a large user of electrical power, energy efficiency prevents emissions to the atmosphere from the power supplier.

The furnace has a nominal size of 120 tons. The maximum heat is 150 tons, but a 30 ton liquid steel heal is typically retained within the shell. The maximum production rate of the furnace is 215 tons of molten steel per hour.

The furnace shell is a refractory lined cylindrical vessel made of steel plate with a dish shaped hearth and a dome shaped roof. Water-cooled panels are used for the shell, preheater shaft, and roof to reduce refractory use. Three carbon electrodes, powered by a transformer, are mounted on a superstructure above the furnace and are lowered and raised through ports in the furnace roof. Supplemental energy is provided by injecting oxygen into the furnace via a water cooled lance and by oxyfuel burners mounted in the shell circumference and in the preheater shaft.

The furnace melting cycle, or "heat", consists of three phases, charging, melting, and tapping. Scrap metal is charged into the shaft of the furnace. Since the metal is not charged directly into the heart of the furnace, emissions during this phase are much less than would be expected from a conventional furnace.

Melting comprises the period from charging the scrap to the complete melting of the solid

material. The heat for melting is supplied by the direct radiation from the arcs formed between the electrodes and scrap, by direct radiation from the furnace lining, and by electrical resistance of the metal between arc paths. Oxygen is injected into the furnace via lances, and oxyfuel burners provide supplemental chemical oxidation energy input.

During melting, metallic and metallic oxide particulate emissions are generated, and phosphorus, silicon, carbon and other elements in the scrap metal and additives are oxidized. Most of these elements are absorbed in the slag and are chemically bound when the slag solidifies. Carbon (coke) is also injected in the furnace above the molten steel bath to oxidize the CO and return the heat of the exothermic reaction back into the molten steel. Sulfur liberated from the coke or scrap in the molten steel is typically absorbed by the slag. However, sulfur from the coke injected into the furnace above the bath typically escapes as sulfur dioxide.

During tapping, the furnace is tilted back and the slag is poured out of the slag door. Furnace slag is a co-product used as an aggregate and base material in road construction. It also has several other uses. Once the slag has been removed, the molten steel is poured into a transfer ladle. The furnace is equipped with a bottom tapping system to minimize splashing. Emissions during this process are captured by the building evacuation system.

On a regular basis, the refractory of the electric arc furnace (EAF) must be replaced. During this time, the furnace is out of service while the inner lining of the furnace is rebuilt.

Molten steel from the electric arc furnace is tapped into refractory lined ladles and taken to the ladle refining furnace. The ladles must be preheated so that the molten steel will not cause the ladles to crack from thermal shock. Preheating is accomplished with ladle preheaters, which use natural gas as a fuel and employ low NO_x burners.

At the ladle refining furnace (LRF), the facility analyzes the molten steel and determines the right amount of heat and alloy materials needed to adjust the steel chemistry and temperature for casting. Generally carbon, lime, and other fluxing agents are added, depending on the grade of steel to be produced. Alloying materials may also be added to the ladle at the EAF. The alloy unloading and transfer system receives, conveys, stores, weighs, and delivers batches of alloying materials to the tapping station and the ladle furnace. This same system is also used to transfer lime and carbon from their respective silos to either the EAF or the LRF. The alloy materials are received by dump truck and unloaded into a receiving hopper. From the receiving hopper the alloys are directed to storage bins. The lime and carbon are received in their respective silos via a pneumatic truck unloading system.

A water cooled roof, which fits tightly on top of the ladle, has electrodes inserted through it to the steel bath so that extra heat may be added. The facility refines the temperature and chemistry during this phase. Emissions from this phase of the operation are much lower than emissions from the EAF since there is no sulfur added or nitrogen added to create either SO_2 or NO_x. There should be almost no VOC or lead emitted from this process since the principal source of these pollutants is scrap.

After approximately 50 heats, the refractory in the ladle must be replaced. The new refractory is dried using a ladle dryer. The ladle dryer is fueled by natural gas and employs low NO_x burners.

After the molten steel chemistry and temperature have been refined, the molten steel is poured into a tundish, a refractory lined container which distributes the liquid steel into several water cooled copper molds in the two continuous casters. The steel is cooled by spraying water as it leaves the bottom of the mold. After leaving the caster, the near net shape solidifies completely and is cut to length with a torch. The near net shapes are either stored or sent to the reheat furnace. The term “near net shape” refers to the fact that CVI has designed a system which casts beam blanks much closer to their required final shape than conventional casting techniques. This technique produces beams which require significantly fewer passes through the rolling mill for the beams to reach final specifications. Since the rolling mills operate using electrical power, this technique results in energy savings.

The brick work in the tundish must be preheated to avoid thermal shock. This is accomplished

with the tundish preheaters. They are fueled by natural gas and employ low NO_x burners. The brick work also needs to be replaced after a period of use. A tundish dryer is used to dry the new brick work before the tundish is placed into service. The tundish dryers use natural gas and employ low NO_x burners.

The near net shapes are stored or enter a walking beam preheat furnace. The purpose of the preheat furnace is to raise and equalize the temperature of the steel to the level required to enter the reheat furnace. The preheat furnace has a rating of 109×10^6 BTU per hour and is fired by natural gas. The emissions from this furnace are only from the firing of the natural gas. The steel has no emissions. The preheat furnace is equipped with low NO_x burners.

After being heated by the preheat furnace, the steel is transferred to the reheat furnace. The reheat furnace uniformly heats the near net shapes and holds the steel at a specific temperature for a set length of time to prepare the steel for hot rolling. The reheat furnace is of the walking beam, recuperative type, and it uses a heat exchanger in the exhaust to preheat the combustion air. The maximum firing rate is 186×10^6 BTU per hour, and it fires only natural gas in low NO_x burners. The emissions from the furnace are only from the firing of natural gas. There will be no emissions from the heated steel.

From the reheat furnace, the steel goes to the rolling mill where the near net shapes pass through a de-scaler. The de-scaler uses high pressure water to remove any scale from the beam. From the de-scaler, the steel passes through a hot saw and a tandem mill group, a finishing mill group, another hot saw, and onto a cooling bed. After cooling, the steel is processed by a horizontal straightener, a collecting bed, and tandem cold saws. After this, the finished steel is piled and bound and transferred to storage. This steel process following the reheat furnace has little or no emissions since the process uses a large volume of cooling water.

E. Project Schedule

Date permit application received in region: September 5, 2003
Date application was deemed complete: December 2, 2010
Proposed construction commencement/start-up date: upon permit issuance

II. Emissions Calculations

Worst case EAF/LRF emission rates are calculated using the maximum throughput of 215 tons per hour of liquid steel for the hourly calculations and 1,700,000 tons of liquid steel for the annual basis. Only the CO emission limits are being revised; all other pollutants' emission limitations will remain unchanged. It should also be noted that the EAF annual CO emissions discussed in this section are lower than the EAF annual CO emission discussed in Section I.C. The Section I.C emissions represent the maximum EAF CO emissions as proposed by the applicant (8.4 lbs/ton). However, the emissions in this section are based on EAF CO BACT determination (7.6 lbs/ton) discussed in Section III.C. The facility total emissions are the sum of the individual emission units. The new ladle dryer, carbon/lime silos and alloy UTS emission calculations are detailed in the attached spreadsheets.

Emissions from the meltshop (ES1 and ES2) exiting the common positive pressure baghouse (CD1):

Pollutant	Emission Factor	Hourly Basis	Annual Basis	lbs/hr	tons/yr	Comments
CO	12.0 lbs/ton @24-hr average 7.6 lbs/ton @12-month average	215 tons/hr	1,700,000 tons/yr	2580.0	6,460.0	Facility estimates a split of 75% lbs/ton for the EAF and 25% lbs/ton for the LRF.

Facility total emissions (Note that entries in **bold** signify emission limits for new/modified units):

	PM		PM10		SO_2		NO_x		CO		VOC		Lead	
	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
Common positive pressure baghouse (CD1)	17.0	74.3	17.0	74.3	150.5	595.0	150.0	595.0	**2580.0**	**6460.0**	75.3	297.5	0.34	1.49
Roof Monitor	7.3	28.9	5.6	22.0										
Current Miscellaneous Dryers and Preheaters Combined Limit	0.8	3.5	0.8	3.5	0.1	0.2	6.6	29.0	1.4	6.1	0.4	1.5		
New Ladle Dryer	**0.1**	**0.5**	**0.1**	**0.5**	**0.0**	**0.0**	**1.2**	**5.3**	**0.6**	**2.6**	**0.1**	**0.4**		
Proposed Miscellaneous Dryers and Preheaters Combined Limit	0.9	4.0	0.9	4.0	0.1	0.2	7.8	34.3	2.0	8.7	0.5	1.9		
Preheat Furnace /Reheat Furnace	3.0	9.7	3.0	9.7	0.2	0.6	62.0	203.1	22.1	72.4	1.6	5.1		
Unpaved Roads	10.0	5.5	2.0	1.1										
Shredding	0.9	3.6	0.7	3.2										
Non Contact Cooling Tower	1.1	4.9	1.1	4.9										
Contact Cooling Tower	0.9	3.9	0.9	3.9										
Lime/Carbon Silos	**0.3**	**0.4**	**0.2**	**0.3**										
Alloy UTS	**2.5**	**1.6**	**1.2**	**0.8**										
Article 6 Total	2.8	2.0	1.4	1.1										
Article 8 Total	41.1	134.8	31.2	123.1	150.8	595.8	219.8	832.4	2604.1	6541.1	77.4	304.5	0.34	1.49
Facility Total	44.1	137.0	33.2	124.1	150.8	595.8	219.8	832.4	2604.1	6541.1	77.4	304.5	0.34	1.49

III. Regulatory Review

Based upon the revised application, the EAF will be the only existing emission unit experiencing a physical change or a change in the method of operation. In addition, the ladle dryer, lime/carbon silos and alloy UTS system will be evaluated as new emission units associated with the proposed project. The PTE of the facility, as established in the current permit, is:

PM	PM10	SO_2	NO_x	CO	VOC	Lead
134.3 tpy	122.6 tpy	595.8 tpy	827.1 tpy	3,478.5 tpy	304.1 tpy	1.49 tpy

During the original 1997 permit application evaluation process, the facility was considered to be a green field source. Because the facility has now been constructed and has been operating, the facility is no longer considered to be a green field source. Since the facility is a steel mill, the threshold for determining major stationary source applicability is 100 tons per year (9 VAC 5-80-1615). The potential to emit of the facility exceeds 100 tpy for all criteria pollutants except lead, and the facility is therefore an existing major stationary source for the purposes of the new source review (NSR) program. Since Dinwiddie County is currently classified as attainment for all criteria pollutants, the applicable major NSR permitting program is the Prevention of Significant Deterioration (PSD) regulations, 9 VAC 5 Chapter 80 Article 8. To trigger PSD permitting requirements, a proposed project must result in an emission increase and a net emission increase that are greater than the PSD significance levels. The emission increase for a proposed project is determined by comparing the baseline actual emissions (BAE) from any modified emission units to the projected actual emissions (PAE) of the modified emission units. For new emission units included in the proposed project, the emission increase is calculated based on the potential to emit of the new units (the baseline emissions of new

emission units is zero and there is no basis to project their future actual emissions). If an applicant so desires, the PTE of the modified units may be used instead of the PAE as well. After the emission increase is determined, the net emission increase is determined by accounting for any changes in emissions that have occurred during a five year period contemporaneous to the propose projects. In this case, there are no contemporaneous increases or decreases, so the net emission increase will be equivalent to the emission increase. As allowed by PSD regulations, the permittee chose calendar years 2005 and 2006 as their baseline emission years for the one modified emission unit, the EAF. The BAE thus become the average annual emissions during the 24-month baseline period as shown below.

Table 1: EAF Baseline Actual Emissions

Pollutant (tons/yr):	PM	PM10	CO	NO_x	SO_2	VOC	Lead
2005 Emissions	4.9	4.9	2791.7	398.2	100.9	159.5	0.004
2006 Emissions	4.9	4.9	3229.6	461.4	108.3	184.5	0.004
Baseline Actual Emissions	4.9	4.9	3010.7	429.8	104.6	172.0	0.004

When the BAE in the above table are subtracted from the EAF's proposed potential emissions, the resulting emissions increase/net emission increase is as follows:

Table 2: Unadjusted EAF EI/NEI

Pollutant (tons/yr):	PM	PM10	CO	NO_x	SO_2	VOC	Lead
BAE	4.9	4.9	3010.7	429.8	104.6	172.0	0.004
PTE/PAE	74.3	74.3	6460.0	595.0	595.0	297.5	0.004
Emissions Increase/Net Emissions Increase	69.4	69.4	3449.3	165.2	490.4	125.5	0.0
PSD Significance Level	25 tpy	15 tpy	100 tpy	40 tpy	40 tpy	40 tpy	0.6 tpy

For each pollutant where the NEI exceeds the PSD significance level, PSD review is required. As seen in Table 2, the proposed project triggers PSD review for CO, and it also appears to trigger PSD review for PM, PM10, NO_x, SO_2 and VOC. However, for PM, PM10, NO_x, SO_2 and VOC, the permittee has submitted an analysis demonstrating that the increases in the emissions of these pollutants do not result from or relate to the proposed project and could have been legally and physically accommodated by the facility during the baseline period. For the EAF, the proposed project is simply intended to (1) recognize the greater than originally anticipated (and therefore permitted) CO emission rate and (2) reevaluate BACT for CO accordingly. Neither of these actions is anticipated to have any impact on the hourly emission rates of any other pollutant or the annual utilization of the EAF or facility as a whole. This means that these emission increases can be excluded from the NEI calculation for the purposes of determining PSD applicability. The emission increases from the ladle dryer, the storage silos and the alloy UTS, however, must be included in the NEI calculation since they are directly related to the proposed project.

Table 3: EAF EI/NEI adjusted for Excluded Emissions

Pollutant (tons/yr):	PM	PM10	CO	NO_x	SO_2	VOC	Lead
PTE/PAE	74.3	74.3	6460.0	595.0	595.0	297.5	0.004
Excluded Emissions	74.3	74.3	N/A*	595.0	595.0	297.5	0.004
BAE	4.9	4.9	3010.7	429.8	104.6	172.0	0.004
**Emissions Increase/Net Emissions Increase	0.0	0.0	3449.3	0.0	0.0	0.0	0.0

* The permittee did not provide an excluded emissions analysis for CO.
**The emission increase/NEI is the greater of the differences between the PTE/PAE and the Excluded Emissions or the PTE/PAE and the BAE.

Table 4: PTE of Silos/Alloy UTS/Ladle Dryer

Pollutant (tons/yr):	PM	PM10	CO	NO_x	SO_2	VOC	Lead
Lime Silos	0.3	0.2	0.0	0.0	0.0	0.0	0.0
Carbon Silo	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Alloy UTS	1.6	0.8	0.0	0.0	0.0	0.0	0.0
Ladle Dryer	0.5	0.5	2.6	5.3	0.01	0.1	0.0
Total PTE	2.5	1.6	2.6	5.3	0.01	0.1	0.0

Table 5: Total Emission Increase from Project

Pollutant: (tons/yr):	PM	PM10	CO	NO_x	SO_2	VOC	Lead
NEI from Modified Units	0.0	0.0	3449.3	0.0	0.0	0.0	0.0
Total PTE from new units	2.5	1.6	2.6	5.3	0.01	0.1	0.0
Total Emission Increase from Project	2.5	1.6	3451.9	5.3	0.01	0.1	0.0
PSD Significance Level	25 tpy	15 tpy	100 tpy	40 tpy	40 tpy	40 tpy	0.6 tpy
PSD Review Triggered?	No	No	Yes	No	No	No	No

Major NSR - 9 VAC 5 Chapter 80, Article 8

As seen in Table 5, the proposed project is a major modification which triggers PSD review for CO. There are also emission increases in PM/PM10, NO_x, SO_2 and VOC resulting from the ladle dryer, storage silos and alloy UTS, but these increases are below the PSD significance level and therefore do not trigger PSD review. The permittee is required to complete BACT and air quality analyses for CO. These analyses are discussed in more detail below. Note that since the new ladle dryer will be grouped with the current dryers and preheaters emission unit group (ES8), it will be included in the Article 8 section of the proposed permit.

In addition to the pollutants evaluated above, PM2.5 is also considered a new source review regulated pollutant that must be evaluated for PSD applicability. PM2.5 means particulate matter with an aerodynamic

diameter less than or equal to a nominal 2.5 micrometers. As with all of the other pollutants except CO, the PM2.5 emissions from the EAF will not be affected by the proposed project. The PM2.5 short-term emission rate will not be increased and any annual PM2.5 emissions could have been accommodated during the baseline period. As previously described, for the EAF, the proposed project is simply intended to (1) recognize the greater than originally anticipated (and therefore permitted) CO emission rate and (2) reevaluate BACT for CO. Neither of these actions is anticipated to have any impact on the hourly emission rates of any other pollutant or the annual utilization of the facility as a whole. In any case, the PM10 applicability analysis presented above can also be considered conservatively representative of PM2.5 for the proposed project. This is because the emission factors used for the PM10 emission estimates should be inclusive of any PM2.5 emitted from any of the new/modified emission units. Since the Article 8 PM2.5 significance level is 10 tons/yr, this means that the Table 5 total emission increase for PM10 (1.6 tons/yr) does not trigger PSD review for PM2.5. The 3/1/2010 PM2.5 analysis submitted by CVI confirms this determination.

Because the PSD regulations did not address PM2.5 at the time the current permit was issued, there are no existing PM2.5 emission limits or other requirements in the current permit. Since the proposed project will not result in a significant net emission increase of PM2.5, the proposed permit will also not include any PM2.5 emission limits or other requirements. The exception to this statement is that, to the extent PM10 is inclusive of PM2.5, PM2.5 emissions will be indirectly regulated by the PM10 requirements included in the proposed permit.

Minor NSR – 9 VAC 5 Chapter 80, Article 6

Even though the increases in PM/PM10 emissions from the storage silos and the alloy UTS do not trigger PSD review, the increase in uncontrolled PM10 emissions from these units does trigger Article 6 applicability. This is because the proposed increase in uncontrolled PM10 emissions exceeds (91.1 tons/yr from attached spreadsheet) exceeds the Article 6 PM10 exemption level for modified sources (10 tons/yr). Since PM10 emissions from the affected emission units can be determined, Article 6 applicability is based on PM10 emissions as opposed to PM emissions. Accordingly, the storage silos, the alloy UTS and their control technology/emission limits will be included in the proposed permit. The regulatory citations for these requirements will specify Article 6 instead of Article 8. As of the date of this permit, Article 6 does not address PM2.5 emissions.

NSPS Subpart AAa (Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983.)

As determined for the current permit, the facility has as an applicable requirement NSPS Subpart AAa. Applicability for Subpart AAa is determined by source type and date of construction or modification. Since an affected facility is defined in 60.270a(a) as an electric arc furnace in a steel plant and a dust handling system in a steel plant, these operations are affected facilities. The construction, modification, or reconstruction date is after August 17, 1983 (60.270a(b)). The current permit incorporates all the requirements of this regulation. These include:

- 3% opacity limitation for the common positive pressure baghouse;
- daily opacity monitoring requirements;
- fan motor ampere and damper position monitoring requirements;
- 6% opacity limit for meltshop roof emissions from the EAF;
- 10% opacity requirement for the dust handling system;
- monthly operational status inspections; and
- PM Method 5 performance test requirement.

Although the EAF is being modified, and Subpart AAa applicability can be triggered by modification, there are no new Subpart AAa requirements (repeat of PM performance test) triggered by the proposed project. This is because the proposed project will not result in an increase in the hourly emission rate of a pollutant for which Subpart AAa has an emission standard (40 CFR 60.18). The only increase in hourly emissions from the EAF is for CO, and the only pollutant with a standard in Subpart AAa is PM. All of the other Subpart AAa requirements will be retained in the proposed permit.

A. Criteria Pollutants

Modeling for CO was conducted to assure compliance with the national ambient air quality standards (NAAQS), and no unacceptable ambient air impacts were discovered. The maximum predicted 1-hour concentration of CO (10,464.16 micrograms per cubic meter) is less than the 1-hour CO NAAQS of 40,000 micrograms per cubic meter, and the maximum predicted 8-hour concentration of CO (4,222.71 micrograms per cubic meter) is less than the 8-hour CO NAAQS of 10,000 micrograms per cubic meter. There is no PSD increment for CO emissions, so no increment analysis was performed. See modeling results in the permit application for more details. The modeling protocols and data were approved by Central Office modeling staff. See the attached memorandum from the Modeling Section of Central Office. There is no net emission increase of any other pollutant that triggers any Article 6 or 8 modeling requirement.

B. Toxic Pollutants/Hazardous Air Pollutants (HAP)

The HAP emissions from the EAF are now regulated by 40 CFR 63 Subpart YYYYY – National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities, the area source MACT standard for steel manufacturing facilities. In accordance with 9 VAC 5-60-300 C4, facilities which are subject to emission standards promulgated under the authority of Section 112 of the CAA (such as 40 CFR 63 Subpart YYYYY) are exempt from the provisions of the Virginia's state toxic rule, Rule 6-5. Accordingly, the provisions of Subpart YYYYY have been included in the proposed permit and the Rule 6-5 requirements for the EAF that were included in the original 1998 PSD permit have been removed. The Alloy UTS and lime/carbon silos are not expected to have any toxic pollutant emissions. Calculations in DEQ's natural gas/distillate oil permit boilerplate procedures demonstrate that emissions from natural gas fired external combustion equipment with maximum rated heat input capacities less than 100 MMBtu/hr (such as the 15 MMBtu/hr ladle dryer) are exempt from Rule 6-5 in accordance with 9 VAC 5-60-300 C1.

C. Control Technology – Article 8 (PSD) Applicable Emission Units

<u>EAF/LRF - Carbon Monoxide</u>
Out of 6541 tons/yr of CO emissions, the meltshop operations of the EAF and LRF account for 6460 tons/yr. The CO BACT analysis for the EAF from the 1998 permit concluded that BACT for the EAF was shaft evacuation into water or air cooled ducts and an external combustion chamber containing a post combustion burner rated at 12×10^6 BTU per hour to provide the time, temperature, and mixing conditions necessary to maximize CO combustion. The CO emissions from this level of control technology were then based on an emission factor of 4.0 lbs/ton. However, as described in Section I.B, this external combustion chamber post combustion burner was never operated. CVI submitted a revised CO BACT analysis for the EAF with their new application. They have supplemented their original submittal multiple times. CVI is now proposing the optimization of the operation of the EAF to minimize CO formation and post-combustion shaft burners with a combined maximum rated heat input capacity of at least 20.5×10^6 BTU/hour to provide the time, temperature, and mixing conditions necessary to maximize the conversion of CO to CO_2. CVI proposed that emission rates reflective of this control strategy be based on 12.0 lbs/ton on a short-term (24-hour) basis and 8.4 lbs/ton on a long term (12-month) basis. CVI's application materials state that CO emissions from the EAF are highly variable on both a short term and long term basis. CVI claims that the use of post combustion burners in the furnace shaft is inherently safer than post combustion burners located in the external combustion chamber since their operation (flame presence) can be more readily monitored.

The top ranked CO control strategy identified in the applicant's BACT analysis was regenerative thermal incineration (RTO) with an emission rate of 1.8 lbs/ton. The average cost effectiveness of a RTO is estimated to be $5866 per ton of pollutant removed, which exceeds the cost effectiveness for a BACT determination for CO emissions from sources of this type. In addition, this control option would result in adverse impacts from increased NO_x and greenhouse gas emissions. This option was therefore eliminated from consideration.

The next highest ranked control strategy was the use of shaft burners (20.4 MMBtu/hr) and process optimization with an emission rate of 7.6 lbs/ton. This option was selected as BACT, so no evaluation of the remaining control options was conducted.

Since there is much uncertainty and variability associated with emissions from the meltshop, DEQ has included conditions in the proposed permit that will adjust the EAF CO emission limits either down (Condition #16) or up (Condition #32) based on the results of 24 months of certified CERMS data. The upward adjustment is limited to maximum of 8.4 lbs/ton since this is the emission value that was used in the air quality analysis.

Comparable BACT Determinations:
Shaft Furnace: A few of the shops use the Consteel process of preheating the scrap with the EAF off gases while the scrap sits on a conveyor. However, none of these meltshops were designed with a Fuchs shaft furnace. The shaft furnace is a relatively new technology, and there is little U.S. data revealing emissions from this type of furnace. The facility has expressed concerns that the design of the shaft, which is much more energy efficient than either the Consteel process or a conventional meltshop, may not be as efficient in oxidizing air pollutants such as CO.

A review of prior BACT determinations (the RBLC) revealed only one recent BACT determination for a shaft type EAF. This was for the North Star Steel Fulton, Ohio facility. The permitted BACT CO emission rate is listed as 7.5 lbs of CO per ton steel produced. The control method for this facility was described as "direct evacuation control system with air gap and cooled post combustion chamber with burners". No facility with any kind of EAF was identified that used thermal incineration or any other type of add-on technology for CO control. Therefore, the CO BACT determination discussed below is consistent with the most recently issued PSD permits and the most recent top down BACT determinations for this type of facility.

Ladle Dryer – Carbon Monoxide
The CO emissions from the combustion of natural gas in the ladle dryer account for a very small percentage of the facility's CO emissions; (2.6 tons/yr / 6541.1 tons/yr =) 0.04%. Given this small magnitude of emissions, CVI has proposed the use of natural gas as fuel and good combustion practices as BACT for the ladle dryer. The use of natural gas and good operating practices were established as CO BACT for the miscellaneous meltshop combustion operations in the current permit. DEQ is not aware of any BACT determination other than good operating practices for natural gas external combustion equipment of this size and type. Therefore, the applicant's proposed BACT is accepted.

The proposed control strategies are tentatively considered to be BACT for these source types, pending outcome of the public comment period. The United States Environmental Protection Agency's (EPA) draft 1990 new source review manual makes clear that the final determination of BACT cannot be made until all citizens have a chance to comment and present more data for consideration.

D. Control Technology – Article 6 (minor NSR) Applicable Emission Units

Lime/Carbon Silos
BACT for PM/PM10 emissions from the lime and carbon silos is determined to be bin vent filters such that visible emissions from the silo loading operations do not exceed 5% opacity. This control technology is estimated to achieve a control efficiency of 99% and is representative of BACT for emission units of this size and type.

Alloy UTS
BACT for PM/PM10 emissions from the alloy UTS is determined to be the use of fabric filters, partial enclosures or equivalent. This control technology is estimated to achieve a control efficiency of at least 50% and is representative of BACT for emission units of this size and type.

IV. Initial Compliance Determination

A. Stack Testing

The proposed permit requires CVI to conduct a performance test on the common positive pressure baghouse (CD1) exhaust for VOC, SO_2, lead and mercury. Although the proposed project does not result in a net emission increase for any of these pollutants, the current permit required initial performance testing for these pollutants. This testing was completed in May 2000, but due to the elapsed interval, DEQ is requiring that the performance testing for these pollutants be repeated to show continuing compliance with the current VOC, SO_2 and lead emission limits. The performance test for mercury is being required for emission inventory purposes and to monitor/evaluate the effectiveness of the 40 CFR 63 Subpart YYYYY to address mercury emissions from the EAF. The proposed permit does not require that the particulate matter initial performance test be repeated since CVI recently (April 2008) completed a successful (actual measured emissions = 0.0008 grains per dry standard cubic foot; current/proposed permit limit = 0.0018 grains per dry standard cubic foot) PM performance test on the EAF for MACT purposes.

Section I.B discusses the ratchet condition (Condition #13 of the current permit; Condition #15 of the proposed permit) that requires that the permit limits be amended if the actual emission rates of SO_2 and VOC are less than 83.3% of the stated emission limits. This condition was included in the original permit and retained in the proposed permit because there is much uncertainty in the emission factors used to develop these limits. Therefore, if the facility has overestimated the emissions from the meltshop to the atmosphere by more than 20%, this condition will correct this overestimation. This condition has been amended in the proposed permit to a production-neutral lbs/ton basis.

The current permit contains a condition requiring that the facility retest the common positive pressure baghouse emissions for particulate matter, CO, NO_x, SO_2, VOC, and lead when the facility reaches the production rate of 1.3 million tons per year of steel or in two years, whichever is longer. This requirement stemmed from 40 CFR 60.8 and 9 VAC 5-50-30 C, and it was designed to insure that performance test data would be representative of the source's long term operations. This condition has been amended to specify that the retesting occur when the facility reaches the production rate of 1.3 million tons per year of steel or in two years, whichever is earlier. The condition was also amended to specify particulate matter, SO_2, VOC, lead and mercury as the pollutants to be tested. It is no longer necessary to stack test for CO or NO_x since these pollutants are now required to be measured by CERMS. Mercury was added as a pollutant for emission inventory purposes and to monitor/evaluate the effectiveness of the 40 CFR 63 Subpart YYYYY to address mercury emissions from the EAF.

B. Visible Emission Evaluations (VEE)

The proposed permit requires the facility to conduct daily visible emission observations on the common positive pressure baghouse (CD1) exhaust in accordance with NSPS Subpart AAa. The facility was required to perform VEE on the meltshop for 40 CFR 63 Subpart YYYYY compliance reasons. This test was completed in April 2008, and the opacity from the meltshop was measured as 0%.

V. Continuing Compliance Determination

A. CERMS

In accordance with the 1/13/2004 ACO discussed in Section I.B, the proposed permit requires the use of CERMS for CO and NO_x to demonstrate continuous compliance with their respective emission limits. The proposed permit (Conditions #47-49) requires these CERMS to be installed, maintained and operated in accordance with the applicable monitoring requirements of 40 CFR Part 60.

B. Monitoring

In addition to the daily Method 9 examination of the common positive pressure baghouse (CD1) exhaust, the facility has several other monitoring requirements imposed by the NSPS Subpart AAa. The facility is required to check the common positive pressure baghouse fan motor amperes and

the positions of the common positive pressure baghouse dampers once per shift. More than ±15% deviation from the amperes recorded during the initial performance test must be reported to DEQ during the semiannual excess emissions report. NSPS Subpart AAa states that operation at levels above or below 15% of the measured value may be considered times of unacceptable operation and maintenance of the facility.

The facility is also required to perform monthly operational status inspections of the equipment important to the total capture system. Deficiencies must be noted as well as maintenance performed.

C. Recordkeeping

The facility is required to keep records documenting the once-per-shift amperes and damper position checks, the once-per-day Method 9 observations, and the once-per-month operational status inspections. The facility must also keep track of the monthly steel production, summed as an annual limit, and their gas usage. The facility is limited by the proposed permit to 1,700,000 tons/year of steel. Lastly, they must keep records of the natural gas usage of the reheat and preheat furnaces. These furnaces are limited to a combined total of 1,934 million cubic feet of natural gas per year. The requirement to keep records will facilitate the calculation of annual emissions for inventory and Title V fee purposes.

VI. Public Participation

A. The proposed facility is subject to the following public participation requirements:

1. A public notice, which was published on March 19, 2004, in the Richmond Times-Dispatch, and informational brief, which was conducted on May 19, 2004, at the Eastside Community Enhancement Center. The purpose of this meeting was to allow CVI to explain to concerned citizens the type of facility they propose to modify and to allow the citizens to ask questions concerning the permitting process. (9 VAC 5-80-1775 A-C)

2. A 30 day public notice and a public briefing. The purpose of the public briefing is to present the draft determination to any concerned citizens before the public comment period begins (9 VAC 5-80-1775 J). A copy of the draft determination and all information relevant to it was made available at the DEQ Piedmont Regional Office and by request. The public briefing was advertised in the September 18, 2010, edition of the Progress Index (Petersburg). The public briefing was held on October 18, 2010, at the Eastside Community Enhancement Center.

3. A 45 day public comment period and a public hearing. A copy of the notice of public comment was sent to the applicant, the administrator, and to the chief elected officials and chief administrative officer of Dinwiddie County and all other localities particularly affected. These are Chesterfield County, the City of Colonial Heights, the City of Petersburg, and Prince George County. During the public hearing, interested persons can appear and submit written or oral comments on the air quality impact of the proposed source, the control technology required, and other appropriate considerations. All comments are open for public review. The public comment period and public hearing were advertised in the October 18, 2010, edition of The Progress Index (Petersburg). The hearing took place on November 17, 2010, at the Eastside Community Enhancement Center. The public comment period started on October 19, 2010, and ended on December 2, 2010.

Copies of all public notice advertisements will be attached to this analysis as will be the prepared statements made by DEQ staff at the public briefing and public hearing.

B. Public Comments Received/Comment Response

There was only one comment received during the public comment period. The comment was submitted by Mr. Mike Gordon of EPA Region III by email on November 12, 2010. This email has been included in the permit record. Mr. Gordon's comment stated that EPA believed that the 30-day rolling average CO emission standard (12.0 lbs/ton) in Condition #13 of the proposed permit was not

appropriate. Mr. Gordon's comment recommended either lowering the lbs/ton standard or shortening the standard's averaging time. DEQ staff notified CVI of EPA's comment by email on November 15, 2010. On December 2, 2010, CVI submitted by email a proposal to revise the Condition #13 30-day rolling CO emission standard to 10.5 lbs/ton. To support this proposal, the submittal included CO CERMS data demonstrating that CO emissions from the meltshop have been measured as high as 9.8 lbs/ton as a 30-day rolling average. DEQ staff evaluated this proposal and agreed that the proposed 10.5 lbs/ton emission standard is representative of the meltshop's CO emissions. The proposed revised emission standard was forwarded to Mr. Gordon by email on December 2, 2010. On December 8, 2010, Mr. Gordon replied by email that EPA had no objection to the proposed revised emission standard. The 30-day rolling average CO emission standard of Condition #13 of the proposed permit has therefore been revised from 12.0 lbs/ton to 10.5 lbs/ton. Since this revision increases the stringency of the proposed permit, there is no requirement to repeat any part of the pubic participation process.

VII. Other Considerations

A. PRO Policy Consistency Review - Since the EAF was the only existing emission unit proposed to be modified, many of the conditions from the current permit remained unchanged.

B. Confidentiality - The facility has not requested that any material be held confidential.

VIII. Recommendations

Based on the information submitted, it is recommended that this permit be issued.

Regional Engineer: _____ Date:

Reviewing Engineer: _____ Date:

Attachments: Modeling approval letter from OPATS
Emission calculation spreadsheets