OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

MEMORANDUM **September 8, 2008**

TO: Phillip Fielder, P.E., Permits and Engineering Group Manager, Air Quality Division

THROUGH: Kendal Stegmann, Senior Environmental Manager, Compliance and Enforcement

THROUGH: Phil Martin, P.E., Engineering Section

THROUGH: Peer Review

FROM: David Schutz, P.E., New Source Permit Section

SUBJECT: Evaluation of Permit Application No. **2003-106-C (M-1)(PSD)**
Mid American Steel & Wire LLC.
Steel Rolling Operation
Sec. 35 – 5S – 5E
Madill, Marshall County, Oklahoma
1327 Smiley Road
Latitude: 34.071°, Longitude -96.762°

SECTION I. INTRODUCTION

Mid American Steel & Wire (Mid American) has submitted an application to construct a major modification to their existing Madill wire plant (SIC 3312). The facility was constructed under Permit No. 2003-106-C issued March 25, 2003, and is currently operated under Permit No. 2003-106-O issued January 3, 2005. The facility currently operates a single 74 MMBTUH gas-fired furnace for softening steel billets so that they can be drawn in to wire.

Mid American proposes to install two electric arc steel melting furnaces. The furnaces were fabricated in 2000 for installation at another company site that was not constructed, the proposed Griffin Wheel plant at Tulsa. The proposed furnaces will be capable of producing a total of approximately 80 tons/hr (640,000 tons per year) of “billet” ” (bar-shaped ingots) steel. The steel may be used on-site in the existing wire production unit or sold to other mills.

Since the modification will add emissions above PSD levels of significance, the application has been determined to require full PSD review. Full PSD review consists of the following:

A. Determination of Best Available Control Technology (BACT).
B. Evaluation of existing air quality and determination of monitoring requirements.
C. Analysis of compliance with National Ambient Air Quality Standards (NAAQS).
D. Evaluation of PSD increment consumption.
E. Evaluation of source-related impacts on growth, soils, vegetation, and visibility.
F. Evaluation of Class I area impacts.

SECTION II. PROCESS DESCRIPTIONS

(a) Existing Rod Mill Billet Reheat Furnace (EUG-10)

The facility receives steel "billets" (bar-shaped ingots) and heats the steel to 2,200^{o}F so that it is soft enough to roll to a smaller diameter into wire. The facility processes up to 65 TPH of steel in a natural gas fired furnace rated at 74 MMBTUH.

(b) Existing Rod Mill Cooling Towers (EUG-11)

The facility currently operates six cooling towers for the existing operations. Since cooling towers are listed "trivial activities," they were not listed in the current facility permit. All cooling towers utilize drift eliminators.

(c) Existing Rod Mill Fuel Storage Tanks (EUG-12)

Two fuel tanks are existing, one 2,000-gallon tank for diesel fuel and one 300-gallon tank for gasoline. The fuels are used for on-site equipment and vehicles.

(d) Proposed New Melt Shop (EUG-01)

The manufacturing process begins at the steel meltshop where scrap steel, carbon, and lime are charged into two 50-ton capacity electric arc furnaces (EAF). Each 50-ton EAF can process a heat in about 68 minutes for an individual production capacity of 44 tons per hour. Leaving a liquid steel heal in the furnace to assist the melt down of the following charge and operating in alternating sequence with the second furnace, the two EAFs together have a nominal continuous steel production capacity of 80 tons of liquid steel per hour.

Scrap steel is purchased from outside suppliers and transported to the facility by truck and rail. The scrap arrives pre-processed and suitable for immediate melting. (The scrap will be inspected for plastics, lead, and free organic materials.) Scrap, flux (mostly lime), and reducing agent (carbon) will be loaded using charge buckets which are moved by overhead crane to each EAF. The EAFs are refractory-lined water-cooled vessels with retractable roofs. Graphite electrodes are inserted through the roofs, and an electric current is passed between the electrodes, creating the "arc" which creates the heat for melting. Each furnace also includes oxy-fuel burners and injection ports for oxygen and carbon. The steel melts and a layer of slag floats to the surface. Carbon is lanced into the slag layer, causing a foam of slag with carbon monoxide. The slag is first poured off, then the molten steel is poured into a ladle for the next process step. The pouring of molten steel is referred to as "tapping." In the ladle, additional refining is conducted to produce the desired metallurgy and final properties.

Emissions from the EAFs occur during charging, melting, and tapping; most emissions are produced in the melting stage. Each furnace will have a direct-shell evacuation control (DEC) and canopy hood. The DEC exhausts the EAF through a “fourth hole” in the furnace roof to maintain a negative pressure on the furnace. Both the canopy and DEC are vented to baghouses, processing discharges from the furnaces and other activities in the vicinity of the furnaces.

(e) Proposed Melt Ladle Metallurgical Furnace Refining (EUG-02)

Final metallurgy adjustments are made in the ladle metallurgy furnace (LMF). Lime, synthetic slag, and alloying materials are added at this furnace. The melt is stirred by argon gases, while oxygen and hydrogen are removed. The correct temperature is achieved here for subsequent operations.

The LMF also utilizes electric heating. Electrodes penetrate a close-fitting roof into the molten steel. Discharges from the furnace proceed to the LMF baghouse at a rate of approximately 35,000 ACFM.

(f) Proposed Melt Shop Billet Casting (EUG-03)

When ladle furnace operations are complete, the ladle is moved by overhead crane to the continuous casting machine. The caster is capable of casting three strands simultaneously, but normal operations will cast two strands. A bottom slide-gate in the ladle is opened to allow a controlled flow of steel into water-cooled molds. (A small amount of mineral or vegetable oil is used for mold lubrication.) The billet shape is normally a 6-inch square cross-section. Partially-hardened steel is formed into billets, then cooled by water sprays. The steel is still soft and straightened on a horizontal run. Natural gas torches are used to cut the billets to length, then the billets are allowed to cool.

Capture hoods are used at the caster and cutting torches to collect PM and gaseous emissions. The hoods vent to a baghouse at a rate of approximately 40,000 ACFM.

(g) Proposed Melt Shop Natural Gas Burners (EUG-04)

A total of five 3.8-MMBTUH burners are used. Three burners pre-heat ladles so that they are hot when steel is received. The refractory lining requires ongoing repair, so the other two heaters cure the refractory repairs and replacements. Emissions from these heaters are captured by the EAF canopy hoods and discharged from the EAF baghouses.

(h) Proposed Melt Shop Storage Silos (EUG-05)

Two silos will be installed, one for lime and one for carbon. Each silo will have a dust filter. The anticipated flow is 600 ACFM during filling, but continuous operation will be assumed for emissions calculations purposes.

(i) Proposed Melt Dust Storage Silo (EUG-06)

PM captured in the two EAF baghouses is conveyed pneumatically to the dust storage silo. The anticipated flow from each silo is 600 ACFM with continuous operation assumed for emissions calculations purposes.

(j) Proposed Melt Shop Cooling Towers (EUG-07)

The EAFs, LMF, and caster are water-cooled. In addition, the caster uses a water spray on the ingots. Three cooling towers will be constructed to supply cooling water to these operations. Cooling tower design is normally in modules, each 2,000 gpm. A total capacity of 24,000 gpm will be installed. Drift eliminators will be used to reduce PM emissions.

(k) Fugitive Dust Sources (EUG-08)

There are two primary fugitive dust sources: unpaved roads and slag processing. Road will be treated with water or chemicals to minimize dust due to vehicle traffic.

The slag is comprised mostly of lime, and phosphorus and sulfur compounds (impurities in steel). Slag processing takes EAF and LMF slag from concrete pits under the furnaces and removes steel so that the slag may be used as an aggregate byproduct. After steel is removed, the residual solids are crushed, screened, and conveyed to storage prior to shipment. A typical operation has the capacity of up to 300 TPH but is operated only 6 hours per week.

(l) Proposed Melt Shop Emergency Generator (EUG-09)

Mid American contemplates installation of an emergency generator. A unit has not yet been selected, but used units are readily available with capacities below 1,000 kW (1,200-HP). A unit will be selected which pre-dates NSPS Subpart IIII.

SECTION III. EQUIPMENT

EUG 01 Melt Shop

EU ID#	Point ID#	EU Name/Model	Construction Date
MEAF-1	EAFBH1	Electric Arc Furnace (EAF) No. 1	2008
MEAF-2	EAFBH2	Electric Arc Furnace (EAF) No. 2	2008
MFUG	MFUG	Melt Shop Uncaptured EAF emissions	2008

EUG 02 LMF Refining

EU ID#	Point ID#	EU Name/Model	Construction Date
MLMF	LMFBH	Ladle Metallurgy Furnace	2008

EUG 03 Billet Casting

EU ID#	Point ID#	EU Name/Model	Construction Date
MCAS	CASBH	Continuous Caster & Cut-off Torch	2008

EUG 04 Melt Shop Gas Burners

EU ID#	Point ID#	EU Name/Model	Construction Date
MLHTR	EAFBH1/2	Ladle Preheaters (Three 3.8 MMBTUH gas-fired)	2008
MLDRY	EAFBH1/2	Ladle Preheaters (Two 3.8 MMBTUH gas-fired)	2008

These units discharge through the EAF baghouses.

EUG 05 Melt Shop Materials Storage

EU ID#	Point ID#	EU Name/Model	Construction Date
MLSILO	SILO1	Lime Silo	2008
MCSILO	SILO2	Carbon Silo	2008

EUG 06 Melt Shop Dust Storage

EU ID#	Point ID#	EU Name/Model	Construction Date
MDSILO	SILO3	EAF Dust Silo	2008

EUG 07 Melt Shop Cooling Towers

EU ID#	Point ID#	EU Name/Model	Construction Date
MNCT-1	MCT1	EAF/LMF Cooling Tower (18,000 gpm)	2008
MNCT-2	MCT2	Caster Cooling Tower (4,000 gpm)	2008
MCCT-3	MCT3	Caster Spray Water Cooling Tower (2,000 gpm)	

EUG 08 Melt Shop Fugitive Dust

EU ID#	Point ID#	EU Name/Model	Construction Date
MURD-A	--	Unpaved Roads, Scrap Trucks	2008
MURD-B	--	Unpaved Roads, Commodity and Billet Trucks	2008
MURD-C	--	Unpaved Roads, Slag Haulers	2008
SLAG	--	Slag Processing	2008

EUG 09 Melt Shop Emergency Generator

EU ID#	Point ID#	EU Name/Model	Construction Date
EG-1	EG-1	1,200-hp Emergency Generator	2008

EUG 10 Rod Mill Billet Reheat Furnace

EU ID#	Point ID#	EU Name/Model	Construction Date
RBRF	BRF	Rod Mill Billet Reheat Furnace (74 MMBTUH)	2003

EUG 11 Rod Mill Cooling Towers

EU ID#	Point ID#	EU Name/Model	Construction Date
RCCT-1	RCT-1	Rolling Mill Contact Water Cooling Tower (3,200 gpm)	2003
RNCT-2	RCT-2	Stelmor Conveyor Noncontact Water Cooling Tower (1,600 gpm)	2003
RNCT-3	RCT-3	Billet Reheat Furnace Cooling Tower (800 gpm)	2003
RNCT-4	RCT-4	Chiller Cooling Tower (800 gpm)	2003
RNCT-5	RCT-5	#1 Hydraulic Pump Cooling Tower (50 gpm)	2003
RNCT-6	RCT-6	Compactor Cooling Tower (90 gpm)	2003

EUG 12 Fuel Storage Tanks

EU ID#	Point ID#	EU Name/Model	Construction Date
T01-D	T01-D	Diesel Fuel Tank, 2000-gallons	2003
T02-G	T02-G	Gasoline Fuel Tank, 300-gallons	2003

SECTION IV. EMISSIONS

Emissions from the new and existing equipment were calculated using the following factors:

EUG 01 Melt Shop

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
EAFBH-1 EAFBH-2	Electric Arc Furnaces (40 TPH per furnace, 238,483 DSCF per baghouse)	PM_{10}	0.0018 gr/DSCF	BACT
		CO	3.0 lb/ton	Emissions data from other mills and BACT determinations
		NOx	0.3 lb/ton	
		SO_2	0.3 lb/ton	
		VOC	0.3 lb/ton	
		Pb	2% of PM	
	Uncaptured PM	PM_{10}	1.4 lb/ton (0.5% uncaptured)	AP-42 (10/86) Section 12.5
		Pb	2% of PM	

EUG 02 LMF Refining

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
LMFBH	Ladle Metallurgical Furnace (80 TPH, 27,176 DSCFM)	PM_{10}	0.002 gr/DSCF	BACT
		CO	0.10 lb/ton	Emissions data from other mills and BACT determinations
		NOx	0.05 lb/ton	
		SO_2	0.05 lb/ton	
		VOC	0.035 lb/ton	
		Pb	0.5% of PM	

EUG 03 Billet Casting

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
CASBH	Caster & Cut-off Baghouse, Cut-off Torch (80 TPH, 33,000 DSCFM, 1.47 MMBTUH)	PM_{10}	0.002 gr/DSCF	PM_{10}: baghouse manufacturer; combustion from AP-42 (7/00), Section 1.4, VOC from lubricant usage
		CO	0.084 lb/MMBTU	
		NOx	0.10 lb/MMBTU	
		SO_2	0.0006 lb/MMBTU	
		VOC	0.0055 lb/MMBTU 0.046 lb/ton	
		Pb	0.5% of PM	

EUG 04 Melt Shop Gas Burners

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
EAFBH-1 EAFBH-2	Ladle Pre-Heaters (3 Heaters, Each 3.8 MMBTUH)	PM_{10}	0.0076 lb/MMBTU	AP-42 (7/00), Section 1.4
		CO	0.084 lb/MMBTU	
		NOx	0.10 lb/MMBTU	
		SO_2	0.0006 lb/MMBTU	
		VOC	0.0055 lb/MMBTU	
EAFBH-1 EAFBH-2	Ladle Refractory Drying (2 Heaters, Each 3.8 MMBTUH)	PM_{10}	0.0076 lb/MMBTU	AP-42 (7/00), Section 1.4
		CO	0.084 lb/MMBTU	
		NOx	0.10 lb/MMBTU	
		SO_2	0.0006 lb/MMBTU	
		VOC	0.0055 lb/MMBTU	

EUG 05 Melt Shop Materials Storage

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
SILO1	Lime Silo (600 SCFM)	PM_{10}	0.005 gr/DSCF	Bin vent guarantee
SILO2	Carbon Silo (600 SCFM)	PM_{10}	0.005 gr/DSCF	Bin vent guarantee

EUG 06 Melt Shop Dust Storage

Emission Point	Operation	Pollutant	Emission Factor	Factor Reference
SILO3	EAF Dust Silo (600 SCFM)	PM_{10}	0.005 gr/DSCF	Bin vent guarantee

EUG 07 Melt Shop Cooling Towers

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
MCT1	EAF/LMF Cooling Tower (18,000 gpm)	PM_{10}	0.005% drift, 1,000 ppm TDS	Drift eliminator performance
MCT2	Caster Cooling Tower (4,000 gpm)	PM_{10}	0.005% drift, 1,000 ppm TDS	Drift eliminator performance
MCT3	Caster Spray Water Cooling Tower (2,000 gpm)	PM_{10}	0.005% drift, 1,000 ppm TDS	Drift eliminator performance

EUG 08 Melt Shop Fugitive Dust

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
Unpaved Roads	Scrap Trucks (56 tips per day, 0.45 mile/trip)	PM_{10}	0.436 lb/mile	AP-42 (11/06), Section 13.2.2
	Commodity & Billet Trucks (15 tips per day, 0.62 mile/trip)	PM_{10}	0.429 lb/mile	
	Slag Haulers (14 tips per day, 0.20 mile/trip)	PM_{10}	0.520 lb/mile	
Slag Processing	250 TPH, 312 hours per year	PM_{10}	0.0013 lb/ton	AP-42 (1/95), Section 11.19.2

EUG 09 Melt Shop Emergency Generator

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
EG-1	1,250-hp Diesel Engine (500 hours per year)	PM_{10}	0.0007 lb/hp-hr	AP-42 (190/96), Section 3.4
		CO	0.0055 lb/ hp-hr	
		NOx	0.013 lb/ hp-hr	
		SO_2 *	0.00809 lb/ hp-hr	
		VOC	0.00064 lb/ hp-hr	

* based on 0.05% sulfur in fuel.

EUG 10 Rod Mill Billet Reheat Furnace

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
BRF	Reheat Furnace (74 MMBTUH)	PM_{10}	0.0076 lb/MMBTU	AP-42 (7/00), Section 1.4 for all but NOx; NOx from Subch. 33 limit
		CO	0.084 lb/MMBTU	
		NOx	0.20 lb/MMBTU	
		SO_2	0.0006 lb/MMBTU	
		VOC	0.0055 lb/MMBTU	

EUG 11 Rod Mill Cooling Towers

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
RCT1	Rolling Mill Contact Water Cooling Tower (3,200 gpm)	PM_{10}	0.005% drift, 1,500 ppm TDS	Drift eliminator performance
RCT2	Stelmor Conveyor Noncontact Water Cooling Tower (1,600 gpm)	PM_{10}	0.005% drift, 1,000 ppm TDS	Drift eliminator performance
RCT3	Billet Reheat Furnace Cooling Tower (800 gpm)	PM_{10}	0.005% drift, 1,000 ppm TDS	Drift eliminator performance
RCT4	Chiller Cooling Tower (800 gpm)	PM_{10}	0.005% drift, 1,000 ppm TDS	Drift eliminator performance
RCT5	#1 Hydraulic Pump Cooling Tower (50 gpm)	PM_{10}	0.005% drift, 1,000 ppm TDS	Drift eliminator performance
RCT6	Compactor Cooling Tower (90 gpm)	PM_{10}	0.005% drift, 1,000 ppm TDS	Drift eliminator performance

EUG 12 Fuel Storage Tanks

Emission Point	Operation	Pollutant	Emission Factors	Factor Reference
T01-D	Diesel Fuel Tank, 2000-gallons	VOC	TANKS4.0	TANKS4.0
T02-G	Gasoline Fuel Tank, 300-gallons	VOC	TANKS4.0	TANKS4.0

<u>Significant Discharge Points</u>

Stack ID	Unit ID	Description	Height feet	Diameter inches	Flow ACFM	Temp ^oF
EAFBH1	MEAF-1	No. 1 electric arc furnace / ladle preheaters, dryers	87	287	331,979	275
EAFBH2	MEAF-2	No. 2 electric arc furnace / ladle preheaters, dryers	87	287	331,979	275
LMFBH	MLMF	Ladle metallurgical furnace	40	42	35,000	220
CASBH	MCAS	Caster & cut-off torch baghouse	40	44	40,000	180
SILO1	MLSILO	Lime silo	80	12	608	75
SILO2	MCSILO	Carbon silo	80	12	608	75
SILO3	MDSILO	EAF dust silo	80	12	636	100
MCT1	MNCT-1	EAF/LMF cooling tower	13	120	1,187,523	103
MCT2	MNCT-2	Caster cooling tower	13	120	263,894	103
MCT3	MCCT-3	Caster spray water cooling tower	13	120	131,947	103
BRF	RBRF	Billet reheat furnace	50	54	37,500	700

SUMMARY OF CRITERIA EMISSIONS BY UNIT

Emission Unit	PM_{10}		SO_2		NOx		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EAF No. 1	3.68	16.12	12.0	48.0	12.0	48.0	12.0	48.0	120.0	480.0
EAF No. 2	3.68	16.12	12.0	48.0	12.0	48.0	12.0	48.0	120.0	480.0
Uncaptured Meltshop PM	0.43	1.70	--	--	--	--	--	--	--	--
Ladle Metallurgical Furnace	0.47	2.04	4.0	16.0	4.0	16.0	2.8	11.2	8.0	32.0
Caster & Cut-off Torch	0.57	2.48	0.01	0.01	0.15	0.64	3.71	14.76	0.12	0.54
Ladle Pre-heaters	0.08	0.37	0.01	0.03	1.12	4.90	0.06	0.27	0.94	4.11
Ladle Refractory Drying	0.06	0.25	0.01	0.02	0.75	3.26	0.04	0.18	0.63	2.74
Lime Silo	0.03	0.11	--	--	--	--	--	--	--	--
Carbon Silo	0.03	0.11	--	--	--	--	--	--	--	--
EAF Dust Silo	0.03	0.11	--	--	--	--	--	--	--	--
EAF Cooling Tower	0.45	1.97	--	--	--	--	--	--	--	--
Caster Cooling Tower	0.10	0.44	--	--	--	--	--	--	--	--
Caster Spray Cooling Tower	0.05	0.22	--	--	--	--	--	--	--	--
Unpaved Roads	0.69	2.99	--	--	--	--	--	--	--	--
Slag Processing	0.32	0.05	--	--	--	--	--	--	--	--
Emergency Generator	0.84	0.21	0.49	0.12	15.60	3.90	0.77	0.19	6.60	1.65
Billet Reheat Furnace	0.55	2.42	0.04	0.19	16.06	64.8	0.40	1.75	6.09	26.69
Rolling Mill Cooling Tower	0.12	0.53	--	--	--	--	--	--	--	--
Stelmor Conveyor Cooling Tower	0.04	0.18	--	--	--	--	--	--	--	--
Billet Reheat Furnace Cooling Tower	0.02	0.07	--	--	--	--	--	--	--	--
Chiller Cooling Tower	0.02	0.05	--	--	--	--	--	--	--	--
Hydraulic Pump Cooling Tower	0.01	0.05	--	--	--	--	--	--	--	--
Compactor Cooling Tower	0.01	0.01	--	--	--	--	--	--	--	--
Fuel Storage	0.01	0.01								
TOTALS	**12.29**	**48.61**	**28.56**	**112.37**	**61.68**	**189.5**	**31.78**	**124.35**	**262.38**	**1027.72**

SUMMARY OF EMISSIONS BY DISCHARGE POINT

Point ID	PM_{10}		SO_2		NOx		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EAFBH-1	3.75	16.43	12.01	48.03	12.94	52.08	12.05	48.23	120.79	484.43
EAFBH-2	3.75	16.43	12.01	48.03	12.94	52.08	12.05	48.23	120.79	484.43
MFUG	0.43	1.70	--	--	--	--	--	--	--	--
LMFBH	0.47	2.04	4.0	16.0	4.0	16.0	2.8	11.2	8.0	32.0
CASBH	0.57	2.48	0.01	0.01	0.15	0.64	3.71	14.76	0.12	0.54
SILO1	0.03	0.11	--	--	--	--	--	--	--	--
SILO2	0.03	0.11	--	--	--	--	--	--	--	--
SILO3	0.03	0.11	--	--	--	--	--	--	--	--
MCT1	0.45	1.97	--	--	--	--	--	--	--	--
MCT2	0.10	0.44	--	--	--	--	--	--	--	--
MCT3	0.05	0.22	--	--	--	--	--	--	--	--
MURD	0.69	2.99	--	--	--	--	--	--	--	--
SLAG	0.32	0.05	--	--	--	--	--	--	--	--
EG-1	0.84	0.21	0.49	0.12	15.60	3.90	0.77	0.19	6.60	1.65
BRF	0.55	2.42	0.04	0.19	16.06	64.80	0.40	1.75	6.09	26.69
RCT1	0.12	0.53	--	--	--	--	--	--	--	--
RCT2	0.04	0.18	--	--	--	--	--	--	--	--
RCT3	0.02	0.07	--	--	--	--	--	--	--	--
RCT4	0.02	0.05	--	--	--	--	--	--	--	--
RCT5	0.02	0.05	--	--	--	--	--	--	--	--
RCT6	0.01	0.01	--	--	--	--	--	--	--	--
T01-D	--	--	--	--	--	--	--	--	--	--
T02-G	--	--	--	--	--	--	0.01	0.01	--	--
TOTALS	**12.29**	**48.60**	**28.56**	**112.38**	**61.69**	**189.50**	**31.78**	**124.37**	**262.39**	**1027.74**

Hazardous Air Pollutants

Since steel is cast into billets without sand molds, HAP emissions are minimal. Assuming a worst-case of 2% HAP in metal processed, 2% of the 35 TPY PM emissions from the metal furnaces would be HAP, or 0.7 TPY. This is less than the major source threshold of 10 TPY of any one HAP.

Total VOC emissions from the emergency generator are 0.19 TPY, which also is less than the major source threshold for formaldehyde of 10 TPY.

The permit will require testing of formaldehyde emissions from the metallurgical furnaces to ensure that formaldehyde emissions from those furnaces are also less than major source thresholds.

SECTION V. INSIGNIFICANT ACTIVITIES

Insignificant activities are listed in OAC 252:100-8, Appendix I. Insignificant activities identified and justified in the application are listed below.

- * Stationary reciprocating engines burning natural gas, gasoline, aircraft fuels, or diesel fuel which are either used exclusively for emergency power generation or for peaking power service not exceeding 500 hours/year. The facility will include a diesel-engine powered emergency generator rated at 1,000 kW (1,200-hp). However, since this unit is subject to BACT, it will not be among the "insignificant activities."
- Space heaters, boilers, process heaters and emergency flares less than or equal to 5 MMBTU/hr heat input (commercial natural gas). The facility includes numerous gas-fired heaters which are smaller than 5 MMBTUH. However, since these units are subject to BACT, they will not be among the "insignificant activities."
- * Emissions from fuel storage/dispensing equipment operated solely for facility owned vehicles if fuel throughput is not more than 2,175 gallons/day, averaged over a 30-day period. The plant has equipment for dispensing gasoline and diesel. The facility operates diesel and gasoline storage tanks used to fuel plant vehicles/equipment.
- * Storage tanks with less than or equal to 10,000 gallons capacity that store volatile organic liquids with a true vapor pressure less than or equal to 1.0 psia at maximum storage temperature. The facility includes a small diesel storage tank for the emergency generator.
- Bulk gasoline or other fuel distribution with a daily average throughput less than 2,175 gallons per day, including dispensing, averaged over a 30-day period. This item re-states the gasoline and diesel fueling operation for company vehicles.
- * Emissions from storage tanks constructed with a capacity less than 39,894 gallons which store VOC with a vapor pressure less than 1.5 psia at maximum storage temperature . This category repeats the diesel storage storage tank.
- Cold degreasing operations utilizing solvents that are denser than air. However, degreasing is conducted as a part of routine maintenance and is considered a trivial activity and recordkeeping will not be required in the Specific Conditions.
- Welding and soldering operations utilizing less than 100 pounds of solder and 53 tons per year of electrodes. However, welding is conducted as a part of routine maintenance and is considered a trivial activity and recordkeeping will not be required in the Specific Conditions.
- Hazardous waste and hazardous materials drum staging areas. The facility includes a hazardous waste staging area for drummed waste.
- Sanitary sewage collection and treatment facilities other than incinerators and Publicly Owned Treatment Works (POTW). Stacks or vents for sanitary sewer plumbing traps are also included (i.e., lift station).
- Hand wiping and spraying of solvents from containers with less than or equal to 1 liter capacity used for spot cleaning and/or degreasing in ozone attainment areas. Spot cleaning is conducted as a part of routine maintenance and is considered a trivial activity and recordkeeping will not be required in the Specific Conditions.
- * Activities having the potential to emit no more than 5 TPY (actual emissions) of any criteria pollutant. None additional listed but may be used in the future.

SECTION V. BEST AVAILABLE CONTROL TECHNOLOGY REVIEW

OAC 252:100-8-31 states that BACT "*means an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the Director, on a case-by-case basis, taking into account energy, environmental, and economic impacts or other costs, determines is achievable for such source or modification….*"

A BACT analysis is required to assess the appropriate level of control for each new or physically modified emissions unit for each pollutant that exceeds the applicable PSD Significant Emissions Rate (SER). As shown in Table V.I, emissions of NO_X, CO, VOC, SO_2, lead, and PM_{10} exceed the applicable SER.

In addition, the applicant determined that HAP emissions of lead also exceed the SER. However, under the NSR Reform rules adopted by DEQ (OAC 252:100-8 Part 7), the definition of "Regulated NSR Pollutant" does not include HAP:

> "(B) Regulated NSR pollutant does not include:
>
> (i) any or all HAP either listed in section 112 of the Act or added to the list pursuant to section 112(b) of the Act, which have not been delisted pursuant to section 112(b) (3) of the Act, unless the listed HAP is also regulated as a constituent or precursor of a general pollutant listed under section 108 of the Act; or
>
> (ii) any pollutant that is regulated under section 112(r) of the Act, provided that such pollutant is not otherwise regulated under the Act."

Therefore, under PSD regulations, a BACT review for control of HAP emissions is not required.

Table V.I PSD Significance Levels

EUG Description	**NO_X**	**CO**	**SO_2**	**VOC**	**PM_{10}**	**Pb**
EUG 1. Meltshop	48.0	960	96.0	96.0	32.24	0.64
EUG 2. Ladle furnace	16.0	32.0	16.0	11.2	2.04	0.01
EUG 3. Caster & Cut-off Torch	0.64	0.54	0.01	14.76	2.48	--
EUG 4. Ladle pre-heaters & refractory drying	8.16	6.85	0.05	0.45	0.62	--
EUG 5. Raw materials silos	--	--	--	--	0.22	--
EUG 6. EAF dust silo	--	--	--	--	0.11	--
EUG 7. New cooling towers	--	--	--	--	2.63	--
EUG 8. Unpaved Roads	--	--	--	--	2.99	--
EUG 9. Emergency Generator	0.77	1.65	0.12	0.19	0.21	--
Total Added Emissions	73.57	1001.0	112.18	122.6	43.54	0.65
PSD Significance Level	40	100	40	40	15	0.6
PSD Review Required?	Yes	Yes	Yes	Yes	Yes	Yes

Other pollutants for which PSD significance levels are established are not expected to be emitted in other than negligible amounts from this type of facility.

The U.S. EPA has stated its preference for a "top-down" approach for determining BACT and that is the methodology used for this permit review. After determining whether any New Source Performance Standard (NSPS) is applicable, the first step in this approach is to determine, for the emission unit in question, the available control technologies, including the most stringent control technology, for a similar or identical source or source category. If the proposed BACT is equivalent to the most stringent emission limit, no further analysis is necessary.

If the most stringent emission limit is not selected, further analyses are required. Once the most stringent emission control technology has been identified, its technical feasibility must be determined; this leads to the reason for the term "available" in Best Available Control Technology. A technology that is available and is applicable to the source under review is considered technically feasible. A control technology is considered available if it has reached the licensing and commercial sales stage of development. In general, a control option is considered applicable if it has been, or is soon to be, developed on the same or similar source type. If the control technology is feasible, that control is considered to be BACT unless economic, energy, or environmental impacts preclude its use. This process defines the "best" term in Best Available Control Technology. If any of the control technologies are technically infeasible for the emission unit in question, that control technology is eliminated from consideration.

The remaining control technologies are then ranked by effectiveness and evaluated based on energy, environmental, and economic impacts beginning with the most stringent remaining technology. If it can be shown that this level of control should not be selected based on energy, environmental, or economic impacts, then the next most stringent level of control is evaluated. This process continues until the BACT level under consideration cannot be eliminated by any energy, environmental, or economic concerns.

The five basic steps of a top-down BACT review are summarized as follows:

- Step 1. Identify Available Control Technologies
- Step 2. Eliminate Technically Infeasible Options
- Step 3. Rank Remaining Control Technologies by Control Effectiveness
- Step 4. Evaluate Most Effective Controls Based on Energy, Environmental, and Economic impacts
- Step 5. Select BACT and Document the Selection as BACT

In addition, in accordance with EPA guidance, the BACT analysis will address emissions from startup, shutdown, and malfunction as they pertain to the proposed BACT limits.

Technologies and emissions limit data were identified by the applicant and by AQD through a review of EPA's RACT/BACT/LAER Clearinghouse (RBLC) as well as EPA's New Source Review (NSR) and Clean Air Technology Center (CATC) websites, recent state BACT determinations for similar facilities, and vendor-supplied information. Other sources of information include state agency contacts, recent articles, and contacts with vendors to help identify emission rates that have not yet been added to the RBLC.

The BACT analysis involving VOC, SO_2, CO, PM_{10}, and NOx will be performed using all emission sources. Each source BACT analysis will address each pollutant separately i.e., SO_2, VOC, CO, PM_{10}, and NOx. However, the BACT analysis will be abbreviated for units with low emission rates (e.g., ladle pre-heaters).

BACT determinations listed on the RBLC were fairly limited for the types of operations proposed. Most of the determinations listed emission rates but not control technologies. Since the potential controls for these operations are not "demonstrated," they cannot be required from a PSD BACT determination.

A. Electric Arc Furnaces

(1) PM_{10} / Lead

The entire facility emits a total of 48.6 TPY of total particulate matter (PM), of which 2/3 is generated by the EAFs. BACT for the PM emissions from the melting of the steel in an EAF involve two basic parts i.e., capture of the fugitives and control of the primary emissions. The facility proposes baghouses to achieve 0.0018 gr/DSCF PM emissions, front-half.

Emissions controls may be accomplished by fabric filters, electrostatic precipitator, high-energy wet scrubbers, or high efficiency cyclones. ESPs and baghouses are normally considered equivalent, and are both the most effective controls. (Wet controls make processing of the captured dust difficult for zinc reclamation.) NSPS Subpart AAa mandates control to at least 0.0052 gr/DSCF, while recent PSD permits are in the range of 0.0018 to 0.0032 gr/DSCF. The proposed BACT for the EAFs is equal to the most stringent, therefore is accepted without further analysis. The proposed level of control is approximately 99.7% reduction from uncontrolled emissions.

A further consideration is in capture efficiency. The proposed system utilizes both a direct evacuation control (DEC) and an overhead hood. The DEC captures essentially all emissions when the furnace roof is closed, and the overhead hood captures most of the remainder when the roof must be opened for charging, tapping, etc.

Recent PM_{10} BACT Determinations For Electric Arc Furnaces

State	Company/Facility	BACT Level (gr/DSCF)
Alabama	Corus Tuscaloosa	0.0035
Alabama	Ipsco	0.0033
Alabama	Nucor	0.0032
Alabama	Nucor Tuscaloosa	0.0018
Arkansas	MacSteel	0.0018
Colorado	CF&I	0.0018
Indiana	Beta Steel	0.0052
Indiana	Qualitech	0.0032
Indiana	Nucor	0.0018
Michigan	MacSteel	0.0018
North Carolina	Nucor	0.0018
Ohio	Republic Technologies	0.0032

(2) CO

Carbon monoxide emissions are generated in an EAF/LMF process by three ways:

(1) Incomplete combustion of organic contaminant materials on the surfaces of the furnace steel feed stock which is driven off by the heat of the melting process.
(2) Oxygen combining with the carbon from the degeneration of the furnace electric carbon rods.
(3) Metallurgical reaction of the carbon and oxygen in the molten steel itself.

The facility proposes a CO emission limit of 3.0 lb/ton as BACT.

There are two potential emissions control technologies: thermal and catalytic oxidizers. The process itself cannot be altered to reduce CO formation except by utilizing pre-cleaned scrap, and such is already required by NESHAP Subpart YYYYY. The design of the DEC system has built-in CO emission control. There is air intake into the EAF furnaces, resulting in the CO being mixed with air in the vicinity of molten steel; the mix should be well above the autoignition temperature of CO of 1,300^{o}F.

Recent CO BACT Determinations For Electric Arc Furnaces

State	Company/Facility	BACT Level (lb/ton)
Alabama	Nucor Tuscaloosa	2.2
Arkansas	MacSteel	4.9
Colorado	CF&I	2.0
Indiana	Beta Steel	5.4
Indiana	Qualitech	4.7
Indiana	Nucor	2.0
Michigan	MacSteel	5.0
Nebraska	Nucor	4.7
New Jersey	Gerdau Armisteel	3.4
North Carolina	Nucor	2.3
Ohio	Republic Technologies	4.0
Ohio	North Sart Bluescope	3.0
Pennsylvania	Koppel Steel	4.5
Tennessee	Gerdau Ameristeel	6.0
Tennessee	Hoeganaes	5.0
Tennessee	Nucor	4.0
Texas	Nucor	2.24

All emissions levels are in the range of 2.0 to 6.0 lb/ton. The proposed BACT level, 3.0, is toward the low end of the national range.

The most efficient type of thermal oxidizer is a regenerative thermal oxidizer (RTO). However, contacts with vendors did not find any unit had ever been constructed of the size which is contemplated. The DEC flow is five times a high as the capacity of the largest current RTO in Oklahoma at Pan-Pacific Industries in Broken Bow. A check of EPA's RBLC did not show that any add-on controls have been required for EAFs. Therefore, RTOs cannot be considered "demonstrated technologies."

Using thermal incineration causes heat problems and associated costs are prohibitive. Downstream of the baghouse, the relatively cool temperatures required (the baghouse gas temperature should not exceed 275°F to avoid damaging the polyester bags) would necessitate an undue amount of fuel to raise the gas temperature to the high value required. At the calculated baghouse exhaust rate of 664,000 acfm at approximately 275°F, it is calculated that approximately 600 MMBTUH of heat would be required to raise the temperature to 1600°F. Heat recovery to lower the required heat input could be used, but a regenerative heat recovery system is infeasible due to the particulate loading (even after baghouse control).

Catalytic oxidation is similar to thermal oxidation in that CO is oxidized to CO_2. The difference between the two control technologies is that the presence of the catalyst promotes this reaction to be initiated and to progress at much lower temperatures. Due to this lower initiation temperature, less auxiliary fuel is required to bring the gas stream up to oxidation temperatures. Typically, catalysts are metals of the platinum families, or base metal oxides that are thinly coated on an inert support material. The catalyst bed may be a metal mesh mat, ceramic honeycomb, or other configurations designed to maximize surface area. Precious metal catalysts have been used to demonstrate control efficiencies of greater than 80% for CO emissions from natural gas-fired combustion turbines but are not demonstrated for EAFs. One problem with catalysts is their loss of activity over time. This loss is usually caused by a variety of factors, which include thermal aging, fouling, erosion of the surfaces, and catalyst poisoning. Fouling and erosion of the catalyst surface is caused by particulate matter in the gas stream. Poisoning of the catalyst occurs when certain materials (usually Group IVA to VIA elements such as sulfur, phosphorus, antimony, arsenic, and lead, all of which are present in the EAF exhaust) irreversibly react on the catalyst surface rendering the catalyst site inactive. This poisoning potential precludes the use of catalytic oxidation as BACT for CO on the EAF/LMF exhaust.

The DEC system is accepted as BACT for CO emissions from the EAF to a level of 3.0 lb/ton.

(3) NOx

The USEPA document "Alternative Control Techniques Document – NOx emissions from Iron and Steel Mills" (EPA 453/R-94-065) states:

> "The use of electricity to melt steel scrap in an electric arc furnace transfers NOx generation from the steel mill to a utility power plant [which supplies the electricity to the mill]. There is no information that NOx emissions controls have been installed on EAFs or that suitable controls are available."

The application identified three control technologies as being potentially applicable: flue gas recirculation (FGR), selective catalytic reduction (SCR), and selective non-catalytic reduction (SNCR). None of these technologies have been identified in EPA's RBLC as having been implemented in the United States. While flue gas treatment techniques have been used for NOx reduction at fossil fuel fired equipment, they have never been applied to EAF off-gases due to the wide temperature fluctuation, and the high particulate and metals content of the off-gas.

Recent NOx BACT Determinations For Electric Arc Furnaces

State	Company/Facility	BACT Level (lb/ton)
Alabama	Ipsco	0.40
Alabama	Nucor	0.40
Alabama	Corus	0.35
Indiana	Beta Steel	0.45
Indiana	Qualitech	0.50
Indiana	Steel Dynamics	0.51
Indiana	Nucor	0.51
Kentucky	Newport Steel	0.51
Kentucky	Gallatin Steel	0.51
Michigan	Gerdau Ameristeel	0.54
North Carolina	Nucor	0.51
Pennsylvania	Koppel Steel	0.55
Tennessee	Nucor	0.7
Tennessee	Ameristeel (Knoxville)	0.42
Texas	Nucor	0.90
Texas	Nucor	0.3
Virginia	Chaparral Dinwiddle	0.7

All emissions levels are in the range of 0.3 to 0.9 lb/ton. The proposed BACT level, 0.3 lb/ton, is at the low end of the national range.

Newer designed EAFs incorporate oxy-fuel burners. This design is not an emissions control, per se, but reduces NOx emissions by reducing nitrogen concentrations in the furnaces.

Since no feasible add-on controls are shown by EPA, and no process modifications are listed, BACT is accepted as EAF design to achieve NOx emissions of 0.3 lb/ton.

(4) SO_2

The facility proposes an SO_2 emission limit of 0.3 lb/ton as BACT.

Sulfur enters the process as a component of the scrap, as part of the scrap contaminants (grease, oil, etc.), and in the carbon used to treat the steel. As lower-grade ores are used in primary steel making, the amount of residual sulfur in scrap is gradually increasing. Similarly, the carbon used to treat steel is largely petroleum cokes; as higher-sulfur crude oils are processed, the sulfur concentration of commercially-available coke is also increasing. Treatment of the molten steel with lime (CaO) or magnesite (MgO) liberates most sulfur from the steel as calcium and magnesium sulfides, which become a component of the slag floating on top of the molten steel. Although approximately 90% of the sulfur remains in the slag, the balance becomes SO_2 emissions.

The application identified four potential methods for reducing SO_2 emissions, two which reduce the amount of emissions created and two "tailpipe" controls.

1. Scrap management (higher-grade scrap)
2. Low-sulfur coke
3. Wet scrubbing
4. Spray dryer absorber

There are no BACT determinations on RBLC for add-on controls on an EAF. However, costs have been analyzed for several proposed projects, all approximately \$15,000 per ton SO_2. These costs are excessive. In addition, since the costs preclude installation of add-on controls, such controls are not demonstrated technologies. The application noted that SO_2 concentrations in the exhausts from the EAFs are already somewhat lower than the "cleaned" discharges from coal-fired power plants, therefore, the ability to achieve additional reductions has not been demonstrated.

There is no practical way of ensuring that the sulfur content of scrap is at or below any specified level until that scrap is actually melted. At that point, lower-grade scrap requires more flux (lime or magnesite) to clean, and the same activities which enhance the quality of the steel by sulfur removal also prevent SO_2 emissions. Although scrap management is part of normal operations, it is difficult to specify as an air emissions control technology.

Low-sulfur petroleum coke is currently available from a single petroleum refinery in California at a premium price. Some eastern and Chinese anthracite coals can be used, also at a premium price. In either case, the added cost is approximately \$70 per ton of coke to achieve an estimated SO_2 emission reduction of 0.05 lbs SO_2 per ton of steel, or approximately \$28,000 per ton of SO_2 controlled. While the control appears technologically feasible, its result is limited and costs are excessive.

Recent SO_2 BACT Determinations For Electric Arc Furnaces

State	Company/Facility	BACT Level (lb/ton)
Alabama	Ipsco	0.70
Alabama	Corus	0.62
Alabama	Nucor	0.50
Arkansas	Quanex	1.05
Arkansas	Arkansas Steel	0.70
Arkansas	Nucor (Hickman)	0.20
Indiana	Beta Steel	0.33
Indiana	Steel Dynamics (Butler)	0.25
Indiana	Steel Dynamics (Columbia)	0.20
North Carolina	Nucor (Hertford City)	0.35
Ohio	Republic Engineered Steels	0.25
South Carolina	Nucor (Berkley)	0.25
Tennessee	Nucor	0.16
Virginia	Chaparral East	0.70

The proposed BACT limit for SO_2 of 0.3 lb/ton is consistent with other determinations nationally, and is accepted as BACT.

(5) VOC

The analysis of VOC emissions is similar to the preceding pollutants' BACT reviews. The application identified scrap management and combustion control as the only feasible VOC emissions controls. The proposed BACT limit is 0.3 lb/ton VOC.

Similarly to the BACT analysis for CO, add-on controls could include thermal or catalytic oxidation. However, these control are rejected on the same grounds: they have not been demonstrated for this type of industry and have a significant likelihood of failure.

Recent VOC BACT Determinations For Electric Arc Furnaces

State	Company/Facility	BACT Level (lb/ton)
Alabama	Ipsco	0.35
Alabama	Corus	0.13
Arkansas	Arkansas Steel	0.35
Arkansas	Nucor Yamato	0.13
Arizona	North Star	0.352
North Carolina	Nucor (Hertford City)	0.13
North Carolina	Gerdau Ameristeel	0.5
Ohio	Charter Steel	0.2
Ohio	Wheeling Pitt	0.35
South Carolina	Nucor (Berkley)	0.35
Tennessee	Gerdau Ameristeel	0.3

Recent VOC BACT Determinations For Electric Arc Furnaces - Continued

State	Company/Facility	BACT Level (lb/ton)
Tennessee	Nucor	0.26
Texas	Nucor	0.43
Virginia	Chaparral	0.35
Virginia	Roanoke Electric	0.30

The proposed BACT limit is consistent with other determinations nationally, and is accepted as BACT.

B. Ladle Metallurgy Furnace

(1) PM_{10}

BACT for the PM emissions from the processing of the steel in an LMF involve two basic parts i.e., capture of the fugitives and control of the primary emissions.

Emissions controls may be accomplished by fabric filters, electrostatic precipitator, high-energy wet scrubbers, or high efficiency cyclones. ESPs and baghouses are normally considered equivalent, and are both the most effective controls. The facility proposed a baghouse achieving 0.002 gr/DSCF PM emissions, front half. Recent PSD permits are in the range of 0.0018 to 0.0052 gr/DSCF. The proposed BACT for the LMF is nominally equal to the most stringent, therefore is acceptable without further analysis. The proposed level of control is approximately 99.7% reduction from uncontrolled emissions.

A further consideration is in capture efficiency. The proposed system utilizes a close fitting hood around the electrode ports in the ladle cover. Since scrap charging and tapping do not occur at the LMF as at the EAF, no canopy hood is needed..

Recent PM_{10} BACT Determinations For Ladle Metallurgy Furnaces

State	Company/Facility	BACT Level (gr/DSCF)
Arkansas	Nucor Yamato	0.0052
Arkansas	Arkansas Steel	0.0052
Arkansas	MacSteel	0.0018
Arkansas	Steelcorr-Bluewater	0.0018
Indiana	Nucor	0.0018
Indiana	Nucor	0.0052
Ohio	Wheeling Pitt	0.0032
Texas	Nucor	0.0052
Virginia	Roanoke Steel	0.0052

The proposed PM control level, 0.002 gr/DSCF, is comparable to the most stringent control required for any facility nationally.

(2) CO

Carbon monoxide emissions are generated in an LMF process by two ways:

(1) Oxygen combining with the carbon from the degeneration of the furnace electric carbon rods.
(2) Metallurgical reaction of the carbon and oxygen in the molten steel itself.

The facility proposes a CO emission limit of 0.1 lb/ton as BACT.

There are two potential emissions control technologies: thermal and catalytic oxidizers. The process itself cannot be altered to reduce CO formation.

Recent CO BACT Determinations For Ladle Metallurgy Furnaces

State	Company/Facility	BACT Level (lb/ton)
Alabama	Corus Tuscaloosa	0.2
Arkansas	Nucor Yamato	0.28
Arkansas	Steecorr-Bluewater	0.05
Indiana	Nucor	0.07
Ohio	Charter Steel	0.3
Virginia	Roanoke Steel	0.48

All emissions levels are in the range of 0.07 to 0.48 lb/ton. The proposed BACT level, 0.1 lb/ton, is toward the low end of the national range.

The most efficient type of thermal oxidizer is a regenerative thermal oxidizer (RTO). However, a check of EPA's RBLC did not show that any add-on controls have been required for LMFs. Therefore, RTOs cannot be considered "demonstrated technologies."

Using thermal incineration causes heat problems and associated costs are prohibitive. Downstream of the baghouse, the relatively cool temperatures required (the baghouse gas temperature should not exceed 275°F to avoid damaging the polyester bags) would necessitate an undue amount of fuel to raise the gas temperature to the high value required. At the calculated baghouse exhaust rate of 35,000 acfm at approximately 275°F, it is calculated that approximately 32 MMBTUH of heat would be required to raise the temperature to 1600°F. Heat recovery to lower the required heat input could be used, but a regenerative heat recovery system is infeasible due to the particulate loading (even after baghouse control).

Catalytic oxidation is similar to thermal oxidation in that CO is oxidized to CO_2. The difference between the two control technologies is that the presence of the catalyst promotes this reaction to be initiated and to progress at much lower temperatures. Due to this lower initiation temperature, less auxiliary fuel is required to bring the gas stream up to oxidation temperatures. Typically, catalysts are metals of the platinum families, or base metal oxides that are thinly coated on an inert support material. The catalyst bed may be a metal mesh mat, ceramic honeycomb, or other configurations designed to maximize surface area. Precious metal catalysts have been used to demonstrate control efficiencies of greater than 80% for CO emissions from natural gas-fired combustion turbines but are not demonstrated for LMFs. One problem with catalysts is their loss of activity over time. This loss is usually caused by a variety of factors, which include thermal aging, fouling, erosion of the surfaces, and catalyst poisoning. Fouling and erosion of the catalyst surface is caused by particulate matter in the gas stream. Poisoning of the catalyst occurs when certain materials (usually Group IVA to VIA elements such as sulfur, phosphorus, antimony, arsenic, and lead, all of which are present in the LMF off-gas) irreversibly react on the catalyst surface rendering the catalyst site inactive. This poisoning potential precludes the use of catalytic oxidation as BACT for CO on the LMF exhaust.

The BACT for CO emissions from the LMF to a level of 0.10 lb/ton is accepted as BACT.

(3) NOx

Since there is some air infiltration into the LMF, some NOx formation will occur when that air is heated to the temperatures of molten steel. The facility proposes a NOx emission limit of 0.05 lb/ton as BACT.

The application identified only “good furnace operation” as control technology as being potentially applicable. Similarly to the electric arc furnaces, flue gas recirculation (FGR), selective catalytic reduction (SCR), and selective non-catalytic reduction (SNCR) have not been demonstrated for this type of source or identified in EPA’s RBLC as having been implemented in the United States. While flue gas treatment techniques have been used for NOx reduction at fossil fuel fired equipment, they have never been applied to EAF off-gases due to the wide temperature fluctuation, and the high particulate and metals content of the off-gas.

“Good furnace operation” entails keeping the roof on the LMF closed except when materials are being added. This operation not only minimizes air infiltration (and resultant NOx formation) but enhances product quality and reduces operating costs.

Recent NOx BACT Determinations For Ladle Metallurgy Furnaces

State	Company/Facility	BACT Level (lb/ton)
Arkansas	Nucor Yamato	0.02
Arkansas	Steelcorr-Bluewater	0.02
Indiana	Nucor	0.02
Ohio	Charter	0.015
Virginia	Roanoke Steel	0.06

All emissions levels are in the range of 0.015 to 0.06 lb/ton. The proposed BACT level, 0.05 lb/ton, is at the middle of the national range.

Since no feasible add-on controls are shown by EPA, and no process modifications are listed, BACT is accepted as LMF design to achieve NOx emissions of 0.05 lb/ton.

(4) SO_2

The facility proposes an SO_2 emission limit of 0.05 lb/ton as BACT.

Sulfur enters the process as a component of the carbon used to treat steel, which is largely petroleum coke. Most of the sulfur becomes part of the slag, but a concentration of around 15 ppm SO_2 is expected. That concentration is already very much lower than the expected concentrations of SO_2 from coal-fired boilers' flue gas desulfurization systems (approximately 100-200 ppm). There is no available data for effectiveness of add-on controls (such as wet scrubbing or milk-of-lime spray dryers) for SO_2 at these low concentrations.

A small amount of coke may be used in the LMF. Low-sulfur petroleum coke and carbon products are available, but at a premium of $70 or more per ton of coke. There is no confirmed LMF emission benefit associated with coke modification, and based on the EAF coke analysis the cost effectiveness would be expected to be excessive, especially considering the already small SO_2 emission estimate, 4 lb/hour. While the control appears technologically feasible, its result is limited and costs are excessive.

Recent SO_2 BACT Determinations For Electric Arc Furnaces

State	Company/Facility	BACT Level (lb/ton)
Arkansas	Steelcorr-Bluewater	0.08
Arkansas	Nucor Yamato	0.076
Indiana	Nucor	0.185
Virginia	Roanoke Steel	0.05

Since there are no demonstrated control technologies for SO_2 emissions from an LMF, and the proposed BACT limit for SO_2 of 0.05 lb/ton is lower than any other recent determinations nationally, BACT is accepted as LMF design to achieve SO_2 emissions of 0.05 lb/ton.

(5) VOC

The analysis of VOC emissions is similar to the preceding pollutants' BACT reviews. The application identified good process operation as the only feasible VOC emissions controls. The proposed BACT limit is 0.035 lb/ton VOC.

Similarly to the BACT analysis for CO, add-on controls could include thermal or catalytic oxidation. However, these control are rejected on the same grounds: they have not been demonstrated for this type of industry and have a significant likelihood of failure.

Recent VOC BACT Determinations For Ladle Metallurgy Furnaces

State	Company/Facility	BACT Level (lb/ton)
Arkansas	Steelcorr-Bluewater	0.005
Indiana	Nucor	0.009
Ohio	Wheeling Pitt	0.035

The proposed limit is consistent with other determinations nationally, although at the high end of the range, and is accepted as BACT.

C. Continuous Caster

(1) PM_{10}

Pouring steel from the ladle metallurgy furnace into the continuous caster creates some small but finite PM emissions, as does torch cutting of steel “ribbons” to desired length. It is impractical to try to enclose the operation given size, equipment arrangement, and necessity to have access for the ladle movement to the caster, therefore, PM controls must rely on hoods and other ventilation systems.

BACT for the PM emissions from the continuous caster has been proposed as baghouses to control PM emissions to 0.002 gr/DSCF. Given the large ventilation rate of the EAF baghouses, any uncaptured PM from casting/cutting operations is likely to be processed by the EAF baghouses.

There are no recent BACT determinations nationally for continuous casters. However, the proposed limit (0.002 gr/DSCF) is comparable to the other baghouses (0.0018 gr/DSCF). Since baghouses constitute the most effective PM controls available, the proposed BACT is accepted.

(2) CO

Carbon monoxide emissions are generated from the torch cutting operation. The application proposes BACT for CO as a limit of 0.084 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

There are no BACT determinations for small gas-fired heaters on RBLC. Therefore, no add-on controls are deemed to be demonstrated for this type of operation. Further, since total CO emission from this operation are estimated at 0.54 TPY, or 0.05% of total facility emissions, no emission control system could have any significant reduction.

BACT is accepted as no add-on controls.

(3) NOx

NOx emissions are generated from the torch cutting operation. The application proposes BACT for NOx as a limit of 0.10 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

There are no BACT determinations for small gas-fired heaters on RBLC. Therefore, no add-on controls are deemed to be demonstrated for this type of operation. Further, since total NOx emission from this operation are estimated at 0.64 TPY, or 1.9% of total facility emissions, no emission control system could have any significant reduction.

BACT is accepted as no add-on controls.

(4) SO_2

SO_2 emissions are generated from the torch cutting operation. The application proposes BACT for SO_2 as a limit of 0.0006 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

There are no BACT determinations for small gas-fired heaters on RBLC. Therefore, no add-on controls are deemed to be demonstrated for this type of operation. Further, since total SO_2 emission from this operation are estimated at 0.01 TPY, or 0.019% of total facility emissions, no emission control system could have any significant reduction.

BACT is accepted as pipeline-grade natural gas fuel with no add-on controls.

(5) VOC

Some mineral or vegetable oil is used as a mold lubricant. The application conservatively assumed 50% of oil used becomes VOC emissions. In reality, once the organic material has been exposed to the temperatures of molten steel, most of it will either burn immediately or become coke on the surface of the billets. The estimated VOC emissions would result in VOC concentrations which are below 20 ppm, the lowest level of control required by any MACT. Therefore, no controls are demonstrated or appropriate for this type of operation.

BACT is accepted as no add-on controls.

D. Ladle Pre-heaters and Refractory Drying

A total of five 3.8-MMBTUH gas-fired heaters are proposed.

(1) PM_{10}

There are no recent BACT determinations nationally for small gas-fired heaters. Given the low emission rate (0.0076 lb/MMBTU) and high flows, PM control costs are expected to be exorbitant. For the heaters, use of natural gas fuel is accepted as BACT for PM.

(2) CO

The application proposes BACT for CO as a limit of 0.084 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

There are no BACT determinations for small gas-fired heaters on RBLC. Therefore, no add-on controls are deemed to be demonstrated for this type of operation. Further, since total CO emission from these operations are estimated at 6.7 TPY, or 0.2% of total facility emissions, no emission control system could have any significant reduction.

BACT is accepted as natural gas fuel.

(3) NOx

The application proposes BACT for NOx as a limit of 0.10 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

There are no BACT determinations for small gas-fired heaters on RBLC. Therefore, no add-on controls are deemed to be demonstrated for this type of operation. Further, since total NOx emission from this operation are estimated at 8.16 TPY, or 3.7% of total facility emissions, no emission control system could have any significant reduction.

BACT is accepted as natural gas fuel.

(4) SO_2

The application proposes BACT for SO_2 as a limit of 0.0006 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

There are no BACT determinations for small gas-fired heaters on RBLC. Therefore, no add-on controls are deemed to be demonstrated for this type of operation. Further, since total SO_2 emission from these operations are estimated at 0.04 TPY, or 0.04% of total facility emissions, no emission control system could have any significant reduction.

BACT is accepted as natural gas fuel.

(5) VOC

The application proposes BACT for VOC as a limit of 0.0055 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

The estimated VOC emissions would result in VOC concentrations which are below 20 ppm, the lowest level of control required by any MACT. Therefore, no controls are demonstrated or appropriate for this type of operation.

BACT is accepted as natural gas fuel.

E. Silos

(1) PM_{10}

The facility will include three silos, two for raw materials and one for baghouse dust. BACT for these silos is acceptable as bin vent filters achieving 0.005 gr/DSCF. Since these filters are equivalent to the most efficient controls available for PM, no further BACT analysis is warranted.

F. Cooling Towers

(1) PM_{10}

Particulate emissions occur from the cooling tower as a result of the total solids (suspended and dissolved metals and minerals) in the water being entrained in the air stream. Mist eliminators prevent most of the water from escaping out the top of the tower; however, some water droplets (with dissolved and suspended particulate) do escape the cooling tower and are referred to as “drift”. For this analysis, as a simplifying conservative assumption, all of the particulate resulting from the drift is considered to be PM_{10}.

There are several ways to reduce drift (and resulting PM and PM_{10}) emissions from cooling towers. Process modifications could be considered, including elimination of a cooling tower by using an available water source such as a stream or nearby water reservoir or lake to provide enough water to use “once through” cooling. A standard cooling tower is similar to a once through system except the water is recycled in the tower. Another alternative is the use of air fin cooling. A third alternative is to use a hybrid system that combines some aspects of a wet and a dry system. A fourth option is the installation of modern high efficiency drift eliminators on the cooling tower.

The only feasible option at this location is a wet cooling tower with high efficiency drift eliminators. The temperatures achievable by air-cooled systems are limited to ambient temperatures.

The applicant proposed that high efficiency drift eliminators, with the capability to reduce the potential drift to a maximum of 0.005% of the circulating water flow rate, is BACT for PM_{10} control at the cooling tower. This emission rate is somewhat higher than many cooling towers, but the sizes proposed are very much smaller than the cooling towers that are installed at power plants, refineries, etc. The proposed control technology is accepted as BACT. Compliance will be demonstrated by vendor guarantees.

G. Emergency Diesel Engine

A review of the RBLC does not indicate any controls that have been identified as BACT for similar emergency engines with limited annual hours of operation. A review of available technology identified low sulfur fuel for the control of SO_2, catalytic controls for NO_X, and the use of an oxidation catalyst for the control of VOC and CO emissions. The NO_X catalyst system and the oxidation catalyst system are add-on controls that convert NO_X to nitrogen and oxygen, convert the CO to CO_2, and oxidize some of the VOC. The catalyst material is similar to the catalytic converters used on automobiles and is typically metal based and become potential hazardous wastes. All add-on controls are considered as economically infeasible for this type of installation due to the minimum hours of operation. Therefore, add-on catalytic controls have been eliminated as a possible emission reduction strategy.

The applicant has proposed BACT for the control of SO_2, NO_X, PM_{10}, VOC, and CO emissions resulting from the combustion of fuel oil for the emergency generator as the use of low sulfur No. 2 fuel oil combined with good combustion practices and limited annual operation. The proposed control is accepted as BACT. Operation of these emergency units will be limited to 500 hours each annually, unless due to emergency circumstances.

H. Unpaved Roads

(1) PM_{10}

Other than paving roads, the only controls for unpaved roads are application of water or low-volatility organic chemicals. The permit will require roads to be watered to suppress fugitive dust.

The effectiveness of paving roads is actually minimal. In fact, the latest AP-42 factors show higher PM_{10} emissions from paved roads than unpaved roads. While this conclusion seems likely to be the result of errors in AP-42, it does reaffirm that watering is an acceptable control for PM emissions.

I. Slag Processing

(1) PM_{10}

Slag is processed to remove steel, then graded to become fill material. With a mill capacity of 640,000 tons per year, approximately 78,000 tons per year slag is anticipated. Since the slag is normally water-wetted in processing, negligible PM emissions result from the processing. Full BACT review of this operation is not warranted. The permit will specify an overall emission level for PM.

SECTION VI. AIR QUALITY IMPACTS

Net emission increases of SO_2, CO, NO_X, and PM_{10} are greater than the significant emission rate threshold of PSD, and emissions of VOC are greater than 100 TPY. Therefore, an ambient air impact analysis is required for each of these pollutants. First, air dispersion modeling is performed to determine if any air impacts will exceed a significant ambient impact level (SAIL) or monitoring exemption level. If a SAIL is exceeded, then a full impact analysis (consisting of compliance with the NAAQS and with PSD increment consumption) is required for that pollutant. If a SAIL is not exceeded, then no further air quality analysis is required for that pollutant.

A. Description of Air Quality Dispersion Model and Procedures

Dispersion Model and Inputs

The air quality modeling analyses employed the latest versions of EPA's AERMOD dispersion model to determine ambient concentrations of SO_2, NO_X, CO, and PM_{10} at and beyond the facility fence line. The AERMOD model was used to determine impacts at a discrete set of off-site receptors and to identify the worst-case (highest impact) load scenarios for the AERMOD modeling. The models and associated input options are presented in the following sections.

Model Input Options

1. The regulatory default options:
   a) Stack-tip downwash (except for Schulman-Scire downwash).
   b) Buoyancy-induced dispersion (except for Schulman-Scire downwash).
   c) No gradual plume rise.
   d) Calms processing routine.
   e) Default wind speed profile exponents.
   f) Default vertical potential temperature gradients.
   g) Upper-bound concentration estimates for sources influenced by building downwash from super-squat buildings.
2. Rural dispersion parameters (see below).
3. Building downwash parameters (see following).

Land Classification

The population density in the vicinity of Madill is less than 750 persons per square kilometer, therefore, the land is classified as “rural” and rural coefficients are used.

Building Downwash

EPA’s Building Profile Input Program (BPIP-Prime) was used to compute Good Engineering Practice (GEP) stack heights for each emission source (see “GEP Stack Height and Plume Downwash” following). The program then computed direction-specific building dimensions (height and projected width) for each non-GEP stack to be modeled. These dimensions were used by the AERMOD model to simulate downwash effects for each point source exhausting at heights less than GEP stack height.

Receptors

Receptors were modeled along the facility fence line and at off-site locations within a ten-by-ten kilometer Cartesian grid to determine the significant impact area for each pollutant. The receptors along the facility fence line were placed at 100 meter intervals. The grid incorporates the following spacing between receptors: 100 meters out to three kilometers, and 1,000 meters out to ten kilometers from the fenceline. The significant impact area did not exceed 10 kilometers from the fenceline; therefore, it was not necessary to extend the grid.

The SIAs for NO_2, PM_{10} and SO_2 were within the twenty-by-twenty kilometer grid. For the PSD increment and NAAQS modeling, maximum impacts were determined within the SIA for each pollutant.

Receptor elevations along the fence line and at the grid locations were obtained from the 7.5-minute USGS topographic maps and 7.5-minute USGS Digital Elevation Models (DEM) for the area.

Meteorology

Meteorological data representative of the site is required as an input to the AERMOD dispersion model to estimate ambient impacts. In lieu of an on-site data set, dispersion modeling with five years of meteorological data is required. The meteorological data was processed using AERMOD Version 06341 and Integrated Surface Hourly (ISH) data from Ardmore, OK (K1F0), upper air (UA) data from Norman, OK (OUN - 3948), and Mesonet data from Madill, OK for the years 2001-2005. These data were processed using AERMET into an AERMOD-ready format and include wind speed and direction, stability, temperature, and mixing heights.

GEP Stack Height and Plume Downwash

The stack height regulations, promulgated by EPA on July 8, 1985 (50 CFR 27892), established a stack height limitation to assure that stack height increases and other plume dispersion techniques would not be used in lieu of constant emission controls. The regulations specify that GEP stack height is the maximum creditable stack height which a source may use in establishing its applicable State Implementation Plan (SIP) emission limitation. For stacks uninfluenced by terrain features, the determination of a GEP stack height for a source is based on the following empirical equation:

$$H_g = H + 1.5L_b$$

where:

H_g = GEP stack height;
H = Height of the controlling structure on which the source is located, or nearby structure; and
L_b = Lesser dimension (height or width) of the controlling structure on which the source is located, or nearby structure.

Both the height and width of the structure are determined from the frontal area of the structure projected onto a plane perpendicular to the direction of the wind. The area in which a nearby structure can have a significant influence on a source is limited to five times the lesser dimension (height or width) of that structure, or within 0.5 miles (0.8 kilometers) of the source, whichever is less. The methods for determining GEP stack height for various building configurations have been described in EPA's technical support document (EPA, 1985).

Since the heights of exhaust stacks at the facility are less than the respective GEP stack heights, a dispersion model to account for aerodynamic plume downwash was necessary in performing the air quality impact analyses.

Since downwash is a function of projected building width and height, it is necessary to account for the changes in building projection as they relate to changes in wind direction. Once these projected dimensions are determined, they can be used as inputs to the AERMOD model.

Downwash was accounted for in the ambient air quality modeling by entering all building locations and dimensions into the Building Profile Input Program – Prime (BPIP-PRIME) developed by the United States Environmental Protection Agency (USEPA). BPIP-PRIME calculates all direction specific building data required by the air dispersion model to enable it to include the appropriate building downwash algorithm into the calculations. The BPIP-PRIME output used in the analysis is from the most recent version of BPIP-PRIME dated 04274.

Modeled Emission Rates and Stack Parameters

The modeled stack point source parameters and emission rates for the Mid American facility are shown below. Emission rates modeled for new units were based on BACT rates originally submitted in the application. Fugitive sources that were modeled are not listed; however, that information is listed in the permit application.

Parameters for Point Sources

Stack ID	Unit ID	Description	Height feet	Diameter inches	Flow ACFM	Temp ^{o}F
EAFBH1	MEAF-1	No. 1 electric arc furnace / ladle preheaters, dryers	87	287	331,979	275
EAFBH2	MEAF-1	No. 2 electric arc furnace / ladle preheaters, dryers	87	287	331,979	275
LMFBH	MLMF	Ladle metallurgical furnace	40	42	35,000	220
CASBH	MCAS	Caster & cut-off torch baghouse	40	44	40,000	180
SILO1	MLSILO	Lime silo	80	12	608	75
SILO2	MCSILO	Carbon silo	80	12	608	75
SILO3	MDSILO	EAF dust silo	80	12	636	100
BRF	RBRF	Billet reheat furnace	50	54	37,500	700

Stack Emission Rates

Stack ID	Description	NO_X (lb/hr)	CO (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)
EAFBH1	No. 1 electric arc furnace / ladle preheaters, dryers	12.94	120.79	3.75	12.01
EAFBH2	No. 2 electric arc furnace / ladle preheaters, dryers	12.94	120.79	3.75	12.01
MLMF	Ladle metallurgical furnace	4.00	8.00	0.47	4.00
MCAS	Caster & cut-off torch baghouse	0.15	0.12	0.57	0.01
MLSILO	Lime silo	--	--	0.03	--
MCSILO	Carbon silo	--	--	0.03	--
MDSILO	EAF dust silo	--	--	0.03	--
MNCT-1	EAF/LMF cooling tower	--	--	0.45	--
MNCT-2	Caster cooling tower	--	--	0.10	--
MCCT-3	Caster spray water cooling tower	--	--	0.05	--
EG-1	Diesel generator	3.90	1.65	0.21	0.12

B. Significant Impact Analysis

An analysis was conducted to determine if SO_2, NO_2, CO, or PM_{10} emissions from the proposed modification would result in off-site ambient impacts at levels greater than the significant ambient impact levels (SAIL) and/or the monitoring significance levels. The SAIL and monitoring significance levels for these pollutants are presented following.

Ambient Air Modeled Impacts

Pollutant	Averaging Period	Maximum Impacts (ug/m^3)	Significant Ambient Impact Level (ug/m^3)	Monitoring Significance Level (ug/m^3)	Radius of Impact (km)
NO_2	annual	12.8	1	14	1.3
CO	1-hour	873	2,000	-	-
	8-hour	717	500	575	-
PM_{10}	24-hour	8.34	5	10	1.3
	annual	25.1	1	-	0.8
SO_2	3-hour	100	25	-	2.8
	24-hour	71.3	5	13	2.7
	Annual	16.3	1	-	1.6

Modeled impacts of SO_2 (3-hour, 24-hour, and annual average), CO (8-hour), PM_{10} (24-hour and annual average) and NO_2 (annual average) emission increases associated with the new furnaces exceed the SAIL; therefore, a full impact analyses for these pollutants was required. Also, since VOC emissions exceed 100 TPY, a full impact analysis for ozone was required.

Ozone was previously analyzed using the "Scheffe Tables" which were prepared for 1-hour average impacts or calculated using a regional model such as CAM-X. However, EPA has recently promulgated an 8-hour standard. The increase in VOC emissions of 129 TPY should not result in any significant ozone impacts.

C. Ambient Monitoring

CO and SO_2

The ambient impact "monitoring de minimis level" for CO is 575 $\mu g/m^3$ (8-hour average) and the de minimis level for SO_2 is 13 $\mu g/m^3$ (24-hour average). Since the highest modeled impacts from this modification for CO (717 $\mu g/m^3$) and SO_2 (71.3 $\mu g/m^3$) exceed the monitoring de minimis levels, the need for ambient monitoring data is indicated.

Based on the *Ambient Monitoring Guidelines for PSD* (EPA-450/4-87-007, May 1987), if the proposed source will be constructed in an area that is generally free from the impact of other point sources and area sources associated with human activities, monitoring data from a "regional" site may be used as representative data. Such a site could be out of the maximum impact area, but must be similar in nature to the impact area. This site would be characteristic of air quality across a broad region including that in which the proposed source or modification is located.

The Mid American facility is located in a relatively remote area that is generally free from the impact of other point sources and area sources associated with human activities. The nearest major source is 10 km north of the facility (W-W Trailers). There are two major source gas pipeline facilities in the north Madill area (Madill Gas Processing North Madill Station and Madill Gas Processing Madill Plant). There are two major sources in the Ardmore area (Valero Refinery and Michelin North America), approximately 35 km to the west, at a right angle to the prevailing winds. The nearest city is Madill (population 3,069), which is approximately 2 km north of the facility. The terrain in the region surrounding the Mid American facility and considered in the modeling domain is not considered complex terrain and is relatively flat.

The background concentration used to determine compliance with the NAAQS were taken from a monitor located in McAlester, Oklahoma (population 17,800) which is larger and has more sources impacting the monitor then the area where Mid American is located. This monitor was considered representative to conservative monitoring data of the air quality across the southeast portion of Oklahoma.

For CO, the maximum ambient impact from the NAAQS modeling of 717 $\mu g/m^3$, plus the background concentration from a regional monitor, the highest-second-high concentration at the McAlester monitor over the last three years (2005-2003) of 2,280 $\mu g/m^3$ gives a final concentration of 2,997 $\mu g/m^3$, which is less than 30% of the NAAQS (10,000 $\mu g/m^3$).

For SO_2, the H2H ambient impact from the NAAQS modeling of 66 μg/m^3, plus the background concentration from a regional monitor, the highest-second-high concentration at the McAlester monitor over the last three years (2005-2003) of 7.8 μg/m^3 gives a final concentration of 73.8 μg/m^3, which is less than 22% of the NAAQS (365 μg/m^3).

To summarize, preconstruction monitoring will not be required, because (1) the Mid American facility is located in a relatively remote area that is not considered an area of multi-source emissions or an area of complex terrain, and a regional monitor was approved for use in determining a conservative background concentration; (2) the area in which the monitoring de minimis level was exceeded is relatively small and, if monitoring was required, the frequency of the monitoring would be the minimum amount of monitoring required; and (3) any monitoring would be relatively close to the facility fenceline.

Ozone

Pre-construction monitoring for ozone is required for any new source or modified existing source located in an unclassified or attainment area with greater than 100 tons per year of VOC emissions. Continuous ozone monitoring data must be used to establish existing air quality concentrations in the vicinity of the proposed source or modification.

In accordance with the "Ambient Monitoring Guidelines for Prevention of Significant Deterioration", EPA-450/4-87-007, existing monitoring data can be used to meet this requirement. The existing monitoring data should be representative of three types of areas: (l) the location(s) of maximum concentration increase from the proposed source or modification, (2) the location(s) of the maximum air pollutant concentration from existing sources, and (3) the location(s) of the maximum impact area, i.e., where the maximum pollutant concentration would hypothetically occur based on the combined effect of existing sources and the proposed new source or modification.

The locations and size of the three types of areas are determined through the application of air quality models. The areas of maximum concentration or maximum combined impact vary in size and are influenced by factors such as the size and relative distribution of ground level and elevated sources, the averaging times of concern, and the distances between impact areas and contributing sources. In situations where there is no existing monitor in the modeled areas, monitors located outside these three types of areas may be used. Each determination must be made on a case-by-case basis. The EPA guidance on this issue is not designed for the evaluation of a secondary pollutant like ozone and the guidance document clearly discusses the evaluation of the impact of primary pollutants. However, a demonstration that existing monitoring data for ozone is representative of the three areas listed above can be made.

The facility is located in Marshall County and 69-km east-southeast of the Healdton monitor (ID 40-019-0297-44201-1) in Carter County. This is a special purpose monitor that is moved periodically to provide broader coverage over Oklahoma's southern border. In 2004 and 2007 the monitor was located in Healdton. Through the ozone season and particularly on high ozone days, winds are generally from the south and the air mass of greatest concern for Marshall County originates in Dallas, Texas. The monitoring in Carter County provides representative data for Marshall and Johnston Counties which would comprise the areas of maximum impact for the proposed facility.

The design value is defined as the three year average of the 4th highest 8-hour concentrations. Three consecutive years do not exist for the Healdton monitor. The 2007 4th highest monitored 8-hour concentration was 0.078 ppm. The 2004 4th highest concentration was 0.077 ppm. All of Oklahoma is currently classified as in attainment with the 8-hour ozone standard.

D. Full Impact Analysis (NAAQS and PSD Increment)

Ozone

OAC 252:100-8-35 requires an air quality impact evaluation for each regulated pollutant for which a major modification would result in a significant net emissions increase. No de minimis air quality level is provided for ozone. However, any net increase of 100 tons per year or more of volatile organic compounds subject to PSD is required to perform an ambient impact analysis. Methods for evaluating single source impacts on ozone concentrations are not consistent, due to the lack of data at a refined level, readily available tools and EPA guidance. DEQ has evaluated the impact of the proposed modification to the Mid American Steel Rolling Mill emissions in the context of previous evaluations of larger new sources of VOC and NOx, which utilized existing air quality databases generated for SIP evaluations and the CAMx photochemical modeling system.

Oklahoma entered into Early Action Compact (EAC) agreements with EPA for the Tulsa and Oklahoma City metropolitan areas. Photochemical modeling evaluations were prepared in support of the agreements. These evaluations were conducted in accordance with EPA guidance and underwent an extensive public comment process and EPA review. The modeling was based on a two week episode beginning in Mid-August of 1999 and extending through the first week of September 1999. This episode was chosen both by virtue of being a prolonged period of high ozone concentrations and a reflection of the most common meteorological conditions that spawn high concentrations for Tulsa and Oklahoma City.

Photochemical modeling conducted by the department using the EAC databases has shown a lack of sensitivity to VOC and NOx increases of less than 300 tons per year outside of the Oklahoma City and Tulsa metropolitan statistical areas. Through experience in previous modeling studies NOx increases in the vicinity of the facility are expected to result in scavenging of ozone rather than significant increases. VOC emissions are expected to result in negligible impacts (less than 0.001ppb). Given the level of the proposed emission increases, no further review is necessary.

CO, SO_2, PM_{10} and NO_2

A full impact analysis requires the development of emission inventories of nearby sources. Nearby sources are defined as any point source expected to cause a significant concentration gradient within the significant impact area (SIA). This includes sources in adjacent states (Texas).

The region in which all sources were classified as “nearby sources” was defined as the region that extends to 50 kilometers beyond the largest pollutant-specific SIA. A pollutant-specific SIA is the region within which the pollutant impacts are expected to exceed the SAIL. In this case, the PM_{10} SIA extends approximately 1.3 kilometers from the center of the facility, the SO_2 SIA extends approximately 2.8 kilometers from the center of the facility, and NO_2 SIA extends 1.3 kilometers from the center of the facility (values determined from dispersion modeling). All facilities that emit the pollutant for which the full analysis is being performed and that fall within a 50 kilometer radius of the pollutant-specific SIA were included in the modeling analysis. Therefore, for this analysis, all sources of PM_{10} within 61 kilometers of the facility, SO_2 sources within 63 kilometers of the facility, and NO_2 sources within 61 kilometers are to be considered nearby sources.

The second step in determining nearby sources requires calculating a ratio of the total facility emissions to the distance from the proposed facility. AQD has issued guidance stating that use of the "10-D Rule" is acceptable for eliminating nearby sources. According to the guidance document, "when a nearby source's emissions (TPY) are less than 10 times the distance between the nearby source and the source in question (in kilometers), that source may be designated a background source and not modeled." Potential nearby sources from Oklahoma and Texas were evaluated.

Nearby Significant Sources

Facility	Unit	UTM Coordinates		Stack Height ft	Stack Diam. ft	Stack Temp ^oF	Stack Flow ACFM
		Northing km	Easting km				
W-W Trailer Mfg	Primer Booth	705.490	3774.410	20.0	3.0	80	18000
Madill Gas Processing North Madill Station	Compressor No. 2	706.728	3777.584	20.0	0.6	700	1628
	Compressor No. 3	706.728	3777.584	24.0	1.0	700	3540
	Compressor No. 4	706.728	3777.584	21.0	0.6	700	1628
	Compressor No. 5	706.728	3777.584	21.0	0.6	700	1628
	Compressor No. 6	706.728	3777.584	28.0	1.5	730	8000
	Compressor No. 7	706.728	3777.584	17.5	0.8	801	4260
Madill Gas Processing	Generator No. 1	722.321	3774.151	18.0	0.7	780	1819
	Generator No. 2	722.321	3774.151	18.0	0.7	780	1819
	Acid Gas Flare	722.321	3774.151	92.0	0.3	1300	162
	Compressor C-1	722.321	3774.151	35.0	1.0	980	5486
	Compressor C-2	722.321	3774.151	35.0	1.0	980	5486
	Compressor C-3	722.321	3774.151	35.0	1.0	980	4252
	Compressor C-6	722.321	3774.151	20.0	1.0	855	7651
	Cummins 1710	722.321	3774.151	18.0	0.7	780	1819
	White-Superior 16SGTB	722.321	3774.151	26.0	1.5	775	19796
Atlas Pipeline Madill Compressor	Ajax DPC-600	709.505	3774.057	28.0	1.6	704	6785
Valero Refinery Ardmore	Crude Tower Heater	674.876	3786.447	130.0	6.5	680	42343
	Crude Tower Heater	674.891	3786.447	130.0	6.5	686	53496
	Platformer Charge Heater	674.699	3786.441	154.0	6.9	500	27753
	Platformer Interheater	674.719	3786.437	75.0	5.0	581	18481
	DHDS Heater H-601	674.881	3786.508	100.0	4.9	609	8910
	Isostripper Heater H-901	674.724	3786.525	75.0	4.0	451	10722
	SRU SCOT	674.945	3786.446	100.0	2.6	1103	2653
	Blowstill HI-801	675.000	3786.253	75.0	3.7	1303	17337
	Crude Vacuum Heater H-101	674.866	3786.428	130.0	6.2	861	28509
	FCC Heater H-201	674.797	3786.604	100.0	6.8	450	51107

Facility	Unit	UTM Coordinates		Stack Height ft	Stack Diam. ft	Stack Temp °F	Stack Flow ACFM
		Northing km	Easting km				
Valero Refinery Ardmore	Boiler B-801	674.960	3786.467	50.0	3.5	434	7063
	Boiler B-802	674.960	3786.473	60.0	4.0	407	3970
	Boiler B-803	674.960	3786.481	100.0	4.0	415	10211
	Product Loading Rack	674.276	3786.267	45.0	4.2	1400	52000
	DHDS Heater H-603	674.862	3786.511	120.0	7.0	767	17361
	CFHT Heater H-6501	674.776	3786.768	86.0	4.8	678	23935
	CFHT Heater H-6502	674.776	3786.753	90.0	3.8	607	14937
	H_2 Plant Heater H-15001	674.767	3786.644	125.0	7.5	381	39696
	C-80018	674.791	3786.521	10.0	1.0	691	2015
	WWTP Flare	674.000	3786.000	25.0	3.3	193	6308
	FCCU Scrubber	674.803	3786.504	200.0	3.7	136	155169
	HI-5602	674.904	3786.383	175.0	5.6	1402	22432

Background concentrations for PM_{10} were taken from a monitoring station in McAlester, Oklahoma. Background concentrations for NO_2 were taken from a monitoring station in Muskogee, Oklahoma. These stations are considered to provide conservative background concentrations for the proposed project.

The *Guideline on Air Quality Models* (GAQM, Table 9.2, Attachment W to 40 CFR Part 51) requires that short-term impacts from combustion sources subject to the PSD regulations be evaluated for maximum design capacity as well as for any normal operating condition that can lead to higher ambient impacts due to changes in source parameters. The GAQM also requires that annual impacts for these sources be evaluated at maximum design capacity. Modeling runs were conducted at full load and partial loads to confirm that operation of the proposed furnaces will not result in impacts greater than the NAAQS or PSD Class II Increments.

Modeling Results

The maximum predicted impacts for PM_{10} (24-hour and annual average), SO_2 (3-hour, 24-hour and annual averages), CO (1-hour and 8-hour averages), and NO_2 (annual average) for the NAAQS modeling are summarized in the following table. The highest 6^{th}-high (Pre-1997 Method) over five years of data was used for the 24-hr averaging period analysis for PM_{10}. The highest mean value was used for the NO_2 analysis and the highest five year average was used for the PM_{10} annual standards. As shown, the sum of the predicted impacts and background concentrations are less than the corresponding NAAQS. Therefore, the proposed modification, in conjunction with existing sources, will not cause or contribute to a violation of the NAAQS standard for PM_{10}, SO_2, CO, and NO_2 (all averaging times).

NAAQS Model Results

Pollutant	Averaging Time	Impact (ug/m^3)	Background (ug/m^3)	Background + Impact (ug/m^3)	NAAQS (ug/m^3)
PM_{10}	24-hour [A]	24.5	46	70	150
	Annual [B]	9.2	21.3	30	50
NO_2	Annual	23.7	18.8	42	100
SO_2	3-hour	268	13.1	281	1300
	24-hour	66.0	7.8	74	365
	Annual	17.2	2.6	20	80
CO	1-hour	873	3534	4407	40000
	8-hour	717	2280	2997	10000

A. Values are highest 6th-high
B. Values are the highest 5-year average

The increment modeling results for PM_{10} (24-hour and annual average), SO_2 (3-hour, 24-hour, and annual), and NO_2 (annual) impacts are summarized in the following table. The PSD increment analysis compares all increment consuming emission increases in the area of impact since the baseline date against the available increment. The amount of available increment is based on other sources constructed within the area of impact since the baseline date. The minor source baseline date was triggered for all counties within the radius of impact by an earlier project. Minor increases and decreases at existing major facilities may impact the increment consumption prior to the minor source baseline date. The high was used for the annual averaging period analysis for NO_2, and the highest 2nd-high (Pre-1997 Method) over five years of data was used for the 24-hr averaging period analysis for PM_{10}. The highest mean value was used for the NO_2 analysis and the highest five year average was used for the PM_{10} annual standards. As shown in Table VI-5, the predicted impacts are less than the corresponding available PSD Class II increment. Therefore, the proposed facility, in conjunction with existing sources, will not cause or contribute to a violation of any PSD increment standard for PM_{10} and NO_2 (all averaging times). Adequate increment is available for the proposed modification and other nearby increment consumers.

Increment Modeling Results

Pollutant	Averaging Time	Impact (ug/m^3)	Available PSD Class II Increment (ug/m^3)
PM_{10}	24-hour [A]	24.5	30
	Annual [B]	9.2	17
SO_2	Annual [B]	17.2	20
	24-hour	66	91
	3-hour	268	512
NOx	Annual [B]	17.2	25

A. Values are highest 2nd-high.
B. Values are the highest 5-year average

SECTION VII. ADDITIONAL PSD IMPACTS ANALYSES

Additional impact analyses were conducted to assess the impairment to Class I areas, visibility, soils, and vegetation that would occur as a result of the modification and any commercial, residential, industrial, and other growth associated with the facility. These analyses are discussed in the following sections.

Class I Area Impacts Analysis

An air quality analysis was performed on the proposed meltshop to demonstrate that the proposed expansion will comply with PSD permitting requirements for Class I areas. The modeling analysis evaluated air quality and air quality related value (AQRV) impacts at the Wichita Mountains Wildlife Refuge, located approximately 160 kilometers or approximately 100 miles to the west-northwest of the Mid American facility. A Class I area is an area of the country with special national or regional value from a natural, scenic, recreational, or historic perspective. These Class I areas are afforded special protection to minimize the impacts of new sources on their air quality.

A Class I area impact analysis consists of two parts:

1. PSD Class I Increment Analysis. Increment is the maximum increase in ambient pollutant concentrations allowed over baseline concentrations. SO_2, NO_2, and PM_{10} were the pollutants analyzed.
2. AQRV Analysis. AQRVs are special attributes of a Class I area that deterioration of air quality may adversely affect. These attributes often include flora and fauna, water, visibility, cultural/archaeological sites, and natural fragrances. Not all attributes are present at all Class I areas.

Class I area impacts were determined using the AERMOD model. The nearest Class I area is 175 km distant from the Mid America facility. The distance to the extent of significant impacts was less than this distance.

Pollutant	Averaging Period	SIL, ug/m^3	Impacts, ug/m^3	Distance, km
NOx	Annual	0.1	0.035	11
PM_{10}	24-hour	0.3	0.2	11
	Annual	0.2	0.02	11
SO_2	3-hour	1.0	0.70	35
	24-hour	0.2	0.16	35
	Annual	0.1	0.04	11

Visibility Analysis

The project is not expected to produce any perceptible visibility impacts in the vicinity of the facility. EPA computer software for visibility impacts analyses, intended to predict distant impacts, terminates prematurely when attempts are made to determine close-in impacts. It is concluded that there will be no or minimal impairment of visibility resulting from the facility's emissions. Given the limitation of 20 percent opacity of emissions, and a reasonable expectation that normal operation will result in less than 20 percent opacity, no local visibility impairment is anticipated.

Growth Analysis

A growth analysis is intended to quantify the amount of new growth that is likely to occur in support of the facility and to estimate emissions resulting from that associated growth. Associated growth includes residential and commercial/industrial growth resulting from the modification to the facility. Residential growth depends on the number of new employees and the availability of housing in the area, while associated commercial and industrial growth consists of new sources providing services to the new employees and the facility. The new furnaces are expected to increase employment in the area. The building phase will last approximately one year. Projected employment, reflecting full-time jobs directly tied to the operation of the new furnaces, is estimated at 85 additional people at the facility. This will result in moderate amounts of secondary employment created by the economic activity of the facility.

Ambient Air Quality Analysis

The additional impacts analysis requires that all regulated pollutants be included in an ambient air quality analysis. The preceding sections describe the ambient air quality analysis conducted to demonstrate that emissions of SO_2, NO_X, CO, and PM_{10} from the new furnaces will result in ambient impacts less than the applicable NAAQS and PSD increments.

Soils & Vegetation Analyses

The potential effects of SO_2, NO_2, CO, and PM_{10} produced by the installation of the new furnaces on the nearby vegetation and soil were examined. The potential effects of the air emissions to vegetation within the immediate vicinity of Mid American were compared to scientific research examining the effects of pollution on vegetation. Damage to vegetation often results from acute exposure to pollution, but may also occur after prolonged or chronic exposures. Acute exposures are typically manifested by internal physical damage to leaf tissues, while chronic exposures are more associated with the inhibition of physiological processes such as photosynthesis, carbon allocation, and stomatal functioning.

Short- and long-term exposure to sulfur dioxide has been shown to have detrimental effects on many plant species. Symptoms of SO_2 injury in leaves manifest as interveinal necrotic blotches in angiosperms (plants having seeds enclosed within an ovary - flowering plants) and red brown banding in gymnosperms (plants having seeds not enclosed in an ovary). A number of the plant species studied occur in southeastern Oklahoma. These include red cedar (*Juniperus virginiana*), white oak (*Quercus alba*), sumac (*Rhus spp*.), white ash (*Fraxinus americana*), blackberry (*Rubus sp*.), American elm (*Ulmus americana*), soybean (*Glycine max*), corn (*Zea mays*), black willow (*Salix nigra*), and bracken fern (*Pteridium aquilinum*). Injury threshold concentrations varied by species and dose (131-5,240 $\mu g/m^3$ for 8 hours, 393-3,930 $\mu g/m^3$ for 2 hours, and 1,310 $\mu g/m^3$ for 4 hours). These concentrations are significantly higher than those expected to result from the new furnace emissions. Even lichens and bryophytes, which are pollution bio-indicators due to their well-documented sensitivity to air pollution, would not be expected to be affected by long-term exposure to SO_2 emissions from the proposed new furnaces. They do not experience injury, decreased abundance, or lowered CO_2 uptake until SO_2 concentrations reach 5 to 40 $\mu g/m^3$ SO_2 annually, 13 to 26 $\mu g/m^3$ SO_2 for 8 hours, and 400 $\mu g/m^3$ SO_2 for 2 hours, respectively.

As with SO_2 emission research, NO_2 has been shown to deleteriously impact vegetation. Typical leaf injury responses include interveinal necrotic blotches similar to SO_2 injury for angiosperms and red-brown distal necrosis in gymnosperms. Injury threshold concentrations vary by species and dose, but are much higher than that of SO_2 as described above. In general, short-term high concentrations of NO_2 are required for deleterious impacts on plants. For example, a common, weedy plant found in Oklahoma, lamb's quarters (*Chenopodium album*), was not injured for two hours at concentrations 1.9 ug/m3 NO_2. Furthermore, short-term fumigations of approximately 1 hour, 20 hours, and 48 hours at NO_2 concentrations of 940 to 38,000 $\mu g/m^3$, 470 $\mu g/m^3$, and 3,000 to 5,000 $\mu g/m^3$, respectively, have been shown to deter photosynthesis in a number of herbaceous [tomato, oats (*Avena sativa*), alfalfa (*Medicago sativa*)] and woody plants. Moreover, in a review of NO_2 effects on vegetation, it was noted that long-term exposures of phytotoxic doses of NO_2 ranged from 280 to 560 $\mu g/m^3$. All the above concentrations are much greater than the average annual (46 $\mu g/m^3$) NO_2 emissions modeled to occur in the vicinity of the Mid American facility.

Particulates may contain trace elements and heavy metals such as arsenic, boron, beryllium, copper, fluoride, nickel, lead, mercury, manganese, and cobalt. These compounds have been shown to be detrimental to vegetation typically within the immediate vicinity of the source. The most obvious effect of particle deposition on vegetation is a physical smothering of the leaf surface. This will reduce light transmission to the plant, in turn causing a decrease in photosynthesis. Modeling results have shown that PM_{10} increment is still available after the construction of the new furnaces, and modeled values are almost one half less than the NAAQS level for 24-hour impacts including background. These levels are considered low, so it is highly unlikely that particulate matter emissions will impact vegetation adjacent to the facility.

CO is not known to injure plants nor has it been shown to be taken up by plants. Consequently, no adverse impacts to vegetation at or near the facilty are expected from CO stack emissions.

Sulfates and nitrates caused by SO_2 and NO_2 deposition on soil can be beneficial and detrimental to soils depending on their composition. However, given the low expected deposition, the operation of the new furnaces should not significantly affect the soils on-site or in the immediate vicinity.

Based upon the results, it is concluded that the construction of new furnaces will not have a significant adverse impact on the surrounding soil and vegetation.

SECTION VIII. FEDERAL REGULATIONS

PSD, 40 CFR Part 52 [Applicable]
Potential emissions for NO_X, CO, VOC, and PM_{10}, are greater than the level of significant emission rates for this source category. Full PSD review was conducted in accordance with Part 7 of OAC 252:100-8.

NSPS, 40 CFR Part 60 [Applicable]
Subpart AAa applies to Electric Arc Furnaces (EAF) in the Steel Industry which are installed or modified after September 17, 1983. Discharges from EAFs are limited to 0.0052 gr/DSCF and 3% opacity. Shops containing affected facilities are limited to 6% opacity, and dust-handling systems are limited to 10% opacity. A COMS is required on the baghouse unless the operator (1) conducts daily Method 9 VE readings, or (2) installs bag leak detectors.

Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, affects stationary compression ignition (CI) internal combustion engines (ICE) based on power and displacement ratings, depending on date of construction, beginning with those constructed after July 11, 2005. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator. An emergency engine will be acquired which pre-dates this regulation.

The facility is also not an affected source under the following NSPS subparts for surface coating and metallurgical operations since it does not fall into one of the affected categories.

Surface Coating
- Subpart EE: metal furniture
- Subpart MM: automobiles and light-duty trucks
- Subpart QQ: graphic arts (rotogravure)
- Subpart RR: pressure-sensitive tape and labels
- Subpart SS: large appliances
- Subpart TT: metal coil
- Subpart WW: beverage cans
- Subpart FFF: flexible vinyl and urethane

Metallurgical Operations
- Subpart L: secondary lead operations
- Subpart N: basic oxygen furnaces
- Subpart Na: basic oxygen furnaces
- Subpart Q: secondary zinc operations
- Subpart P: secondary copper operations.
- Subpart R: primary lead operations
- Subpart S: aluminum reduction
- Subpart Z: ferroalloy production
- Subpart KK: lead-acid batteries

NESHAP, 40 CFR Part 61 [Not Applicable]
There are no emissions of any of the regulated pollutants: arsenic, asbestos, beryllium, coke oven emissions, radionuclides or vinyl chloride. The facility emits mercury and benzene but it is not one of the applicable sources and is, therefore, exempt from this part.

NESHAP,40 CFR Part 63 [Subpart YYYYY Is Applicable]
Subpart XXX (Ferromanganese and Silicomanganese Alloys). This facility will not produce products with this composition.
Subpart ZZZZ, Reciprocating Internal Combustion Engines (RICE). This subpart previously affected only RICE with a site-rating greater than 500 brake horsepower that are located at a major source of HAP emissions. On January 18, 2008, the EPA published a final rule that promulgates standards for new and reconstructed engines (after June 12, 2006) with a site rating less than or equal to 500 HP located at major sources, and for new and reconstructed engines (after June 12, 2006) located at area sources. Owners and operators of new or reconstructed engines at area sources and of new or reconstructed engines with a site rating equal to or less than 500 HP located at a major source (except new or reconstructed 4-stroke lean-burn engines with a site rating greater than

or equal to 250 HP and less than or equal to 500 HP located at a major source) must meet the requirements of Subpart ZZZZ by complying with either 40 CFR Part 60 Subpart IIII (for CI engines) or 40 CFR Part 60 Subpart JJJJ (for SI engines). Owners and operators of new or reconstructed 4SLB engines with a site rating greater than or equal to 250 HP and less than or equal to 500 HP located at a major source are subject to the same MACT standards previously established for 4SLB engines above 500 HP at a major source, and must also meet the requirements of 40 CFR Part 60 Subpart JJJJ, except for the emissions standards for CO. The facility will acquire an emergency generator which pre-dates this regulation.

<u>Subpart EEEEE</u> (Iron and Steel Foundries). This subpart was promulgated on April 22, 2004. Subpart EEEEE affects only foundry operations at major sources of HAPs; the Mid American facility is not a foundry or major HAPs source, and is an "area" source.

<u>Subpart YYYYY</u> (Electric Arc Furnaces: Area Sources). This subpart was promulgated on December 28, 2007. The operator is required to follow a pollution prevention plan to inspect scrap, removing chlorinated plastics, free organic materials, and lead; alternatively, the facility must not charge scrap from motor vehicle bodies, engine blocks, oil filters, oily turnings, machine shop borings, transformers or capacitors containing PCBs, lead-containing components, chlorinated plastics, or free organic liquids. Mercury switches must be removed from scrap before charging to the EAFs. Electric arc furnaces and argon-oxygen decarburation vessels are limited to 0.0052 gr/DSCF PM and 6% opacity. The BACT requirements are more stringent than these area source MACT standards.

Compliance Assurance Monitoring, 40 CFR Part 64 [Applicable]

Compliance Assurance Monitoring, as published in the Federal Register on October 22, 1997, applies to any pollutant specific emission unit at a major source, that is required to obtain a Title V permit, if it meets all the following criteria:

- It is subject to an emission limit or standard for an applicable regulated air pollutant.
- It uses a control device to achieve compliance with the applicable emission limit or standard.
- It has potential emissions, prior to the control device, of the applicable regulated air pollutant greater than major source thresholds.

Baghouse particulate control devices are used on the EAFs, LMF, and Continuous Caster. The baghouse on the LMF is subject to this part. CAM plans are required at operating permit renewal. The two EAF baghouses are on units which are subject to a MACT, therefore are not subject to CAM, and the potential uncontrolled emission from the caster operations does not exceed the applicability threshold.

Chemical Accident Prevention Provisions, 40 CFR Part 68 [Not Applicable]

This facility does not store any regulated substance above the applicable threshold limits. More information on this federal program is available at the web site: *http://www.epa.gov/ceppo/*. An analysis will be done after the design of the new furnaces is finalized to determine if the Mid American facility will store any of the listed chemicals or substances at quantities near or above the threshold levels.

Stratospheric Ozone Protection, 40 CFR Part 82 [Subpart A and F Applicable]
These standards require phase out of Class I & II substances, reductions of emissions of Class I & II substances to the lowest achievable level in all use sectors, and banning use of nonessential products containing ozone-depleting substances (Subparts A & C); control servicing of motor vehicle air conditioners (Subpart B); require Federal agencies to adopt procurement regulations which meet phase out requirements and which maximize the substitution of safe alternatives to Class I and Class II substances (Subpart D); require warning labels on products made with or containing Class I or II substances (Subpart E); maximize the use of recycling and recovery upon disposal (Subpart F); require producers to identify substitutes for ozone-depleting compounds under the Significant New Alternatives Program (Subpart G); and reduce the emissions of halons (Subpart H).

Subpart A identifies ozone-depleting substances and divides them into two classes. Class I controlled substances are divided into seven groups; the chemicals typically used by the manufacturing industry include carbon tetrachloride (Class I, Group IV) and methyl chloroform (Class I, Group V). A complete phase-out of production of Class I substances is required by January 1, 2000 (January 1, 2002, for methyl chloroform). Class II chemicals, which are hydrochlorofluorocarbons (HCFCs), are generally seen as interim substitutes for Class I CFCs. Class II substances consist of 33 HCFCs. A complete phase-out of Class II substances, scheduled in phases starting by 2002, is required by January 1, 2030.

This facility does not utilize any Class I & II substances.

SECTION IX. OKLAHOMA AIR POLLUTION CONTROL RULES

OAC 252:100-1 (General Provisions) [Applicable]
Subchapter 1 includes definitions but there are no regulatory requirements.

OAC 252:100-2 (Incorporation by Reference) [Applicable]
This subchapter incorporates by reference applicable provisions of Title 40 of the Code of Federal Regulations. These requirements are addressed in the “Federal Regulations” section.

OAC 252:100-3 (Air Quality Standards and Increments) [Applicable]
Subchapter 3 enumerates the primary and secondary ambient air quality standards and the significant deterioration increments. The primary standards are enumerated in Appendix E and the secondary standards are enumerated in Appendix F of the Air Pollution Control Rules (OAC 252:100). National Ambient Air Quality Standards (NAAQS) are established by the U.S. EPA. The actual ambient air concentration of criteria pollutants are monitored within the State of Oklahoma by ODEQ's Air Quality Division. At this time, all of Oklahoma is in "attainment" of these standards. Also, the above analysis indicates that the added emissions from the facility will not cause an exceedance of these standards

OAC 252:100-5 (Registration, Emission Inventory, and Annual Fees) [Applicable]
The owner or operator of any facility that is a source of air emissions shall submit a complete emission inventory annually on forms obtained from the AQD. Emission inventories were submitted and fees paid for previous years as required.

OAC 252:100-8 (Permits for Part 70 Sources) [Applicable]
Part 7 includes the requirements for PSD Requirements for Attainment Areas. The furnace project is considered a "Major Modification" since the net emissions increase of criteria pollutants exceeds the significance thresholds. Part 7 is applicable to CO, NO_X, VOC, and PM_{10}. As such, a BACT analysis (252:100-8-34), air quality impact analysis (252:100-8-35), and Class I area impact analysis (252:100-8-36) were required.
Part 5 includes the general administrative requirements for Part 70 permits. Any planned changes in the operation of the facility which result in emissions not authorized in the permit and which exceed the "Insignificant Activities" or "Trivial Activities" thresholds require prior notification to AQD and may require a permit modification. Insignificant activities mean individual emission units that either are on the list in Appendix I (OAC 252:100) or whose actual calendar year emissions do not exceed the following limits:

- 5 TPY of any one criteria pollutant, or
- 2 TPY of any one HAP or 5 TPY of multiple HAP or 20 percent of any threshold less than 10 TPY for single HAP that the EPA may establish by rule.

This facility meets the definition of a major source since it has the potential to emit regulated pollutants in excess of 100 TPY. As such, a Title V operating permit is required. Emission limitations for all the sources are taken from the permit application and previous permit.

OAC 252:100-9 (Excess Emission Reporting Requirements) [Applicable]
In the event of any release which results in excess emissions, the owner or operator of such facility shall notify the Air Quality Division as soon as the owner or operator of the facility has knowledge of such emissions, but no later than 4:30 p.m. the next working day. Within ten (10) working days after the immediate notice is given, the owner or operator shall submit a written report describing the extent of the excess emissions and response actions taken by the facility. In addition, if the owner or operator wishes to be considered for the exemption established in 252:100-9-3.3, a Demonstration of Cause must be submitted within 30 calendar days after the occurrence has ended.

OAC 252:100-19 (Particulate Matter) [Applicable]
This subchapter specifies maximum allowable emissions of particulate matter (PM) based on rated heat input. All fuel-burning units are in compliance with their applicable limits.

Unit ID	Description	Equipment Capacity MMBTU/hr	Allowable Emission Rate lb/MMBTU	Emission Rate lb/MMBTU
MLHTR	Ladle pre-heaters	3.8	0.6	0.0076
MLDRY	Ladle refractory drying	3.8	0.6	0.0076
BRF	Billet reheat furnace	74	0.38	0.0076
EG-1	Emergency generator	9.6	0.6	0.0875

This subchapter also specifies the allowable rates of emissions from industrial processes based on process rate. The following table lists the applicable processes, their process weight rate, and allowable emissions rate. As shown, all units are in compliance with their applicable emission limits.

Unit ID	Process	Process Rate (TPH)	Allowable Emission Rate (lb/hr)	Controlled Emission Rate (lb/hr)
MEAF-1	No. 1 electric arc furnace	40	42.53	3.68
MEAF-2	No. 2 electric arc furnace	40	42.53	3.68
MLMF	Ladle metallurgical furnace	80	49.06	0.47
MCAS	Caster & Cut-off baghouse	80	49.06	0.57
SLAG	Slag processing	250	60.96	0.32

OAC 252:100-25 (Visible Emissions and Particulates) [Applicable]
No discharge of greater than 20 percent opacity is allowed except for short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60 percent opacity. Units subject to an opacity standard under NSPS or NESHAP are exempt from this subchapter, including the two EAFs and the LMF.

OAC 252:100-29 (Fugitive Dust) [Applicable]
No person shall cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. The primary sources of fugitive dust are unpaved roads and slag processing. This permit also requires that reasonable precautions be taken to minimize fugitive dust.

OAC 252:100-31 (Sulfur Compounds) [Applicable]
Part 5 limits sulfur dioxide emissions from new fuel-burning equipment (constructed after July 1, 1972). For gaseous fuels the limit is 0.2 lb/MMBTU heat input averaged over 3 hours. For fuel gas having a gross calorific value of 1,000 BTU/SCF, this limit corresponds to fuel sulfur content of 1,203 ppmv. The permit requires the use of gaseous fuel with sulfur content less than 343 ppmv to ensure compliance with Subchapter 31. For liquid fuels for the emergency generator, Part 5 limits SO_2 emissions to 0.8 lb/MMBTU. Using diesel fuel with 0.05% by weight sulfur, SO_2 emissions will be 0.05 lb/MMBTU. This emission rate is in compliance with Subchapter 31.

OAC 252:100-33 (Nitrogen Oxides) [Applicable]
The rule affects NOx emissions from new fuel-burning equipment with a rated heat input of 50 MMBTUH or more. This facility has several fuel-burning units, but only one of which exceeds the threshold: the Billet Reheat Furnace at 74 MMBTUH. The calculated NOx emissions from this furnace are 0.20 pounds per MMBTU which is in compliance with the standard of 0.20 pounds per MMBTU.

OAC 252:100-35 (Carbon Monoxide) [Not Applicable]
This subchapter affects the following processes: foundry cupola, blast furnace, basic oxygen furnace, and catalytic cracking unit. The EAF and LMF furnaces are not among the types of equipment regulated by Subchapter 35.

OAC 252:100-37 (Volatile Organic Compounds) [Applicable]
Part 3 requires new (constructed after December 28, 1974) storage tanks with a capacity between 400 and 40,000 gallons holding an organic liquid with a true vapor pressure greater than 1.5 psia to be operated with a submerged fill pipe. This requirement does not affect the 300 gallon gasoline tank which is smaller than the 400 gallon threshold. The diesel tank has a vapor pressure below the 1.5 psia threshold.
Part 5 limits the VOC content of paints and coatings. There are no coating lines at this facility.
Part 7 requires fuel-burning equipment to be operated and maintained so as to minimize emissions. Temperature and available air must be sufficient to provide essentially complete combustion. The permit will require compliance.

OAC 252:100-42 (Toxic Air Contaminants (TAC)) [Applicable]
This subchapter regulates toxic air contaminants (TAC) that are emitted into the ambient air in areas of concern (AOC). Any work practice, material substitution, or control equipment required by the Department prior to June 11, 2004, to control a TAC, shall be retained, unless a modification is approved by the Director. Since no AOC has been designated there are no specific requirements for this facility at this time.

OAC 252:100-43 (Testing, Monitoring, and Recordkeeping) [Applicable]
This subchapter provides general requirements for testing, monitoring and recordkeeping and applies to any testing, monitoring or recordkeeping activity conducted at any stationary source. To determine compliance with emissions limitations or standards, the Air Quality Director may require the owner or operator of any source in the state of Oklahoma to install, maintain and operate monitoring equipment or to conduct tests, including stack tests, of the air contaminant source. All required testing must be conducted by methods approved by the Air Quality Director and under the direction of qualified personnel. A notice-of-intent to test and a testing protocol shall be submitted to Air Quality at least 30 days prior to any EPA Reference Method stack tests. Emissions and other data required to demonstrate compliance with any federal or state emission limit or standard, or any requirement set forth in a valid permit shall be recorded, maintained, and submitted as required by this subchapter, an applicable rule, or permit requirement. Data from any required testing or monitoring not conducted in accordance with the provisions of this subchapter shall be considered invalid. Nothing shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

The following Oklahoma Air Pollution Control Rules are not applicable to this facility:

OAC 252:100-8 Part 9	Major Sources Affecting Nonattainment Areas	not in area category
OAC 252:100-15	Mobile Sources	not in source category
OAC 252:100-17	Incinerators	not type of emission unit
OAC 252:100-23	Cotton Gins	not type of emission unit
OAC 252:100-24	Grain Elevators	not in source category
OAC 252:100-29-2	Fugitive Dust/Nonattainment Areas	not in area category
OAC 252:100-39	Nonattainment Areas	not in area category
OAC 252:100-47	Landfills	not in source category

SECTION X. TIER CLASSIFICATION & PUBLIC REVIEW

This application has been determined to be a Tier III based on the request for a PSD construction permit for a new major source.

The applicant published the "Notice of Filing a Tier III Application" in the *Madill Record* on April 16, 2008, a daily newspaper of general circulation in Marshall County. The notice said that the application was available for public review at the Madill Public Library or at the AQD office in Oklahoma City. A draft of this permit was also made available for public review for a period of thirty days as stated in another published announcement on June 5, 2008, in the *Madill Record*. The facility is located within 50 miles of the Oklahoma border with Texas; the state of Texas was notified of the draft permit. The permit was approved for concurrent public and EPA review with EPA review commencing May 29, 2008. In addition, a public meeting was held in Madill on July 10, 2008, at the Fred Stanley Center, 408 Overton, Madill. No adverse comments were received from the public or the state of Texas.

EPA provided four sets of comments on the draft permit, date July 11, 2008; July 31, 2008; August 6, 2008; and August 25, 2008.

A. <u>JULY 11, 2008 COMMENTS / RESPONSES</u>

<u>EPA Comments</u>

<u>BACT Determinations for Electric Arc Furnaces (EAF):</u>

1. The determination of BACT for sulfur dioxide (SO_2) for the proposed EAF is less stringent than the 0.15 lb/ton emission rate contained in the Minnesota Steel Industry, LLC permit (RBLC ID: MN-0070). Please provide the State's rationale for why, after analyzing the technical and economic feasibility of available control technologies, a 0.15 lb/ton SO_2 limit cannot be achieved by this facility.

2. The determination of BACT for carbon monoxide (CO) for the proposed EAF is less stringent than the 2.0 lb/ton emission rate contained in the Minnesota Steel Industry, LLC permit, cited above. Please provide the State's rationale for why, after analyzing the technical and economic feasibility of available control technologies, a 2.0 lb/ton CO limit cannot be achieved by this facility.

3. The determination of BACT for volatile organic compounds (VOC) for the proposed EAF is less stringent than the 0.13 lb/ton emission rate contained in the Minnesota Steel Industry, LLC permit, cited above. Please provide the State's rationale for why, after analyzing the technical and economic feasibility of available control technologies, a 0.13 lb/ton CO limit cannot be achieved by this facility.

<u>BACT Determinations for Ladle Metallurgy Furnaces (LMF):</u>

4. The determination of BACT for nitrogen oxide (NOx) for the proposed LMF is less stringent than the 0.02 lb/ton emission rate contained in the Nucor Yamato (RBLC ID: AR-0055), Steelcorr-Bluewater, and Nucor Indiana permits. Please provide the State's rationale for why, after analyzing the technical and economic feasibility of available control technologies, a 0.02 lb/ton NOx limit cannot be achieved by this facility.

5. The determination of BACT for carbon monoxide (CO) for the proposed LMF is less stringent than the 0.05 lb/ton emission rate contained in the Steelcorr-Bluewater permit and 0.07 lb/ton emission rate contained in the Nucor Indiana. Please provide the State's rationale for why, after analyzing the technical and economic feasibility of available control technologies, a 0.05 lb/ton or 0.07 lb/ton CO limit cannot be achieved by this facility.

6. The determination of BACT for volatile organic compounds (VOC) for the proposed LMF is less stringent than the 0.005 lb/ton emission rate contained in the Steelcorr-Bluewater permit and 0.009 lb/ton emission rate contained in the Nucor Indiana. Please provide the State's rationale for why, after analyzing the technical and economic feasibility of available control technologies, a 0.005 lb/ton or 0.009 lb/ ton CO limit cannot be achieved by this facility.

<u>PSD air dispersion modeling:</u>

7. The EPA did not receive a copy of the PSD air dispersion modeling performed by the applicant (EPA Region 6, Air Permits office received a CD of Dispersion Modeling Files on July 5, 2008), and is therefore unable to review NAAQS impacts associated with the proposed project at this time.

<u>Response</u>

EPA had several comments regarding the level of emissions controls from the electric arc furnaces and the ladle metallurgy furnaces. The comments from EPA were primarily why the EAF emissions were higher than an EAF in Minnesota, and why LMF emissions were higher than an LMF in Indiana.

There is no evidence that operating conditions would vary between secondary steel furnaces that would cause variations in emissions. Variations in emission rates are primarily a function of impurities in the scrap available.

The vast majority of steel produced in the United States is produced in the Great Lakes region between Minnesota and Pennsylvania, the so-called “Rust Belt.” Steel received in the southern Central Plains states is a composite of various sources of steel. Steel furnaces within the “Rust Belt” would have a more consistent source of raw materials which would be weighted toward local sources, a luxury not available in Oklahoma. Therefore, the ranges of compositions (and resultant air emissions) from two mills located at Minnesota and Indiana, respectively, should be narrower than in regions which are far remote from the primary operations.

The Minnesota facility in question produces a blend of recycled steel and “direct reduced iron” (DRI) which is produced from iron ore. The DRI has not had the chance to become contaminated with organic materials such as grease or paint, therefore, emissions resulting from oxidation of contaminants will be present at a much lower amount. This operation is not comparable to a unit which utilizes 100% scrap. The Indiana operation is much larger than the proposed Madill operation and produces a somewhat higher grade product, therefore, must start with a higher-grade scrap. Its steel end uses are not fencing or rebar, so emissions are not directly comparable to a facility which produces low-end products.

BACT is not the same as MACT, where any determination nationally must be consistent with the best-controlled similar unit anywhere in the US. As the application showed, there are ranges in BACT determinations nationally. For each pollutant and each type of emission unit, one BACT determination is most stringent and all others are less stringent. However, the purpose of the BACT analysis is not to ensure that each new BACT proposal is at least as stringent as the most stringent BACT determination which preceded it, but to ensure that a new proposed BACT analysis is consistent with other determinations nationally. The determinations for Mid America are consistent with other determinations nationally.

Further, the primary usage for emissions data is to assess the appropriateness of add-on controls. Ordinarily, higher uncontrolled emission rates point more strongly to requiring add-on controls. However, in the case of NOx, SO_2, VOC, and CO from these furnaces, no add-on controls are demonstrated. In other words, regardless of the estimated uncontrolled emission rates between Oklahoma, Indiana, and Minnesota, the conclusion remains unchanged: no add-on controls are warranted.

In conclusion, although it is true that proposed emissions levels are higher than some other similar facilities, there does not appear to be adequate basis to determine that the proposed emission rates for the Madill facility would be excessive.

B. JULY 31, 2008 COMMENTS / RESPONSES

EPA Comments

Thank you for your response to EPA's comments on Mid American Steel and Wire draft permit.

Each BACT analysis is done on a case-by-case basis to determine the maximum achievable degree of reduction for each compound subject to PSD. The BACT evaluation considers the energy, environmental, economic, and other costs associated with each alternative technology, and the benefit of reduced emissions that the technology would bring.

The top-down process ranks all potentially available control technologies in descending order of control effectiveness. The most stringent or "top" alternative is always evaluated first. That alternative is proposed as BACT unless the most stringent technology is not "achievable" in that case due to technical, energy, environmental, or economic considerations.

Please review BACT limits in the recently approved (July 2008) permit for ECO Steel Recycling, LLC attached with this email. This facility is located in Armory, Mississippi and its similar in size and operation compare to Mid American Steel and Wire. The EPA believes that Mid American's EAF and LMF can achieve lower emissions limits then what's proposed in current draft permit as we stated in our comments earlier.

BACT Summary for EAF:

Pollutant	lb/ton limit in Mid American Permit	lb/ton limit in ECO Steel Recycling
CO	3.0	2.0
VOC	0.3	0.13

BACT Summary for LMF:

Pollutant	lb/ton limit in Mid American Permit	lb/ton limit in ECO Steel Recycling
NOx	0.05	0.02
CO	0.10	0.05
VOC	0.05	0.005

Response

While it is true that some proposed limits are less stringent than the Mississippi facility not all of them are. Note that NOx emissions are higher from ECO than Mid America for the EAF, and SO_2 emissions from ECO are higher for the LMF. These differences highlight that when case-by-case determinations are made, there will be a range of results. NOx is routinely controlled by limiting excess air, an activity which results in increased CO and VOC emissions. Additionally, BACT is evaluated case-by-case and does not always result in equivalent or lower limits; therefore, ODEQ has determined that the proposed limits are acceptable as BACT.

Pollutant	EAF		LMF	
	Mid America	ECO	Mid America	ECO
NOx	0.30 lb/ton	0.35 lb/ton	0.05 lb/ton	0.02 lb/ton
CO	3.0 lb/ton	2.0 lb/ton	0.1 lb/ton	0.5 lb/ton
VOC	0.3 lb/ton	0.13 lb/ton	0.05 lb/ton	0.005 lb/ton
PM_{10}	0.0018 gr/dscf	0.0018 gr/dscf	0.002 gr/dscf	0.0018 gr/dscf
SO_2	0.3 lb/ton	Not stated	0.05 lb/ton	0.52 lb/ton

C. AUGUST 6, 2008 COMMENTS / RESPONSES

EPA Comments

The Class I Air Quality Impact Analysis submitted by the applicant stated that the Wichita Mountain Class I area is approximately 160 km east of the facility. The EPA has not approved the use of the Q/D screening technique as a method for determining whether Class I increment needs to be evaluated. Therefore, the applicant must conduct a Class I increment analysis and demonstrate that the proposed source does not cause or contribute to a NOx, SO_2, or PM_{10} Class I increment violation.

Response

Since EPA will not accept the Q/D screening method, air dispersion modeling was conducted to determine the radius of significant impact of the proposed modification. Those radii are listed following; all CO impacts were below the levels of significance, therefore, no radius of impact is defined for CO.

Class I area impacts were determined using the AERMOD model. The nearest Class I area is 175 km distant from the Mid America facility. The distance to the extent of significant impacts was less than this distance.

Pollutant	Averaging Period	Class I Area SIL, ug/m^3	Impacts, ug/m^3	Distance, km
NOx	Annual	0.1	0.035	11
PM_{10}	24-hour	0.3	0.2	11
	Annual	0.2	0.02	11
SO_2	3-hour	1.0	0.70	35
	24-hour	0.2	0.16	35
	Annual	0.1	0.04	11

D. AUGUST 28, 2008 COMMENTS / RESPONSES

EPA Comments

The EPA does not agree exclusively that the consideration of lower BACT limits (proposed in earlier comments) is inconsistent with the project design proposed for Mid American Steel & Wire Co. Please explain how Mid American Steel & Wire and ECO Steel Recycling designs are different. It appears to EPA that the designs are significantly similar. In addition, although ODEQ has concluded the lower BACT limits are infeasible, we did not see specific cost effectiveness estimates for Mid American Steel & Wire project in ODEQ's response. The EPA still believes that Mid American's EAF and LMF can achieve lower emissions limits then what's proposed in current draft permit as we stated in our comments earlier.

We would like to continue to work with ODEQ to ensure that a permit meeting the requirements of the Clean Air Act and associated rules and regulations is issued. Please let me know if you have any questions or concerns.

Response

The following is to supplement the earlier submittal in response to the BACT questions.

Since EPA maintains that Mid America should meet the limits of the ECO facility, the following differences in mill operations are provided to substantiate that sufficient differences in processes and/or unknowns exists, such that, it is not necessary that emissions rates be equal or better.

We know little about the specific ECO LMF design or operation as it might relate to emissions, but it is our understanding that the ECO steel plant is to be constructed for production of rebar. Rebar chemistry is perhaps the most liberal chemistry of all steel products. The LMF in a rebar operation is primarily for temperature control of the steel in the ladle while awaiting transport to the caster. The rebar products are all hot formed, compared to cold drawing of rod to wire, which requires more precise chemical composition. As a consequence, the LMF in the case of a rebar process does not experience the slag disturbance expected from metallurgy refining for wire rod products in the Mid American LMF.

The Mid American LMF design utilizes a ladle cover that incorporates a close fitting capture hood surrounding the electrode ports and creating a negative draft in the ladle. The electrode arc maintains the steel temperature near 3,000°F, and the negative draft induces air that mixes with the hot furnace gases generating an unpredictable quantity of NOx. As stated, Mid American will manufacture a variety of steel grades and wire rod products. Rod products requiring carbon adjustment and other refining activities results in oxidation of carbon with oxygen to CO, which is then removed with the LMF exhaust. The organic binder in the electrodes generates a small but unpredictable quantity of VOC emissions, which has often been ignored in permits and for which we have no test results.

The Mid American EAF and LMF may operate below some of the more stringent limits. But we cannot predict it, and it would be irresponsible of Mid American Steel to accept low limits which are below the range of most comparable mill permits, and which have not been demonstrated in practice.

Direct efforts to lower one pollutant to meet a stringent target performance can have an adverse impact on other pollutants. For CO and VOC it is recognized that adjusting furnace practices to lower emissions can result in increased NOx emissions, which is a more critical pollutant relative to overall ambient air quality. Should the CO limit be lowered, Mid American believes it may be necessary to increase the NOx limit.

Considering the items detailed above, Mid America and ODEQ discussed all BACT determinations and concluded there is sufficient data/flexibility to reduce the VOC BACT for the LMF from 0.05 lb/ton to 0.035 lb/ton.

Below is a comparison between the proposed Mid America facility (including the LMF adjustment) and proposed rates in the recently issued Mississippi permit. It should be noted that the Mississippi facility permit was issued July 2008; therefore, the emission rates proposed by this permit have not been confirmed. The bolded items detail the remaining EPA questions.

Pollutant	**EAF**		**LMF**	
	Mid America	**ECO**	**Mid America**	**ECO**
NOx	0.30 lb/ton	0.35 lb/ton	**0.05 lb/ton**	**0.02 lb/ton**
CO	**3.0 lb/ton**	**2.0 lb/ton**	**0.1 lb/ton**	**0.5 lb/ton**
VOC	**0.3 lb/ton**	**0.13 lb/ton**	**0.035 lb/ton**	**0.005 lb/ton**
PM_{10}	0.0018 gr/dscf	0.0018 gr/dscf	0.002 gr/dscf	0.0018 gr/dscf
SO_2	0.3 lb/ton	Not stated	0.05 lb/ton	0.52 lb/ton

In addition to the process differences previously indicated, ODEQ proposes the following items be considered relative to the BACT determination considering the fact that the BACT review resulted in no add-on control.

ODEQ has determined that the significant pollutants of concern are NOx and VOC as a result of possible ozone formation.

Since Oklahoma has not had any monitored CO concentrations close to the NAAQS levels, modeled impact levels were well below any NAAQS, and the proposed BACT levels of 3.0 lb/ton and 0.1 lb/ton are at the low end of the national range of recently issued permits, the permit has adequately addressed CO BACT.

Unlike CO, ozone is an issue for Oklahoma. The proposed VOC BACT levels of 0.3 lb/ton and 0.035 lb/ton are at the low end for the EAF and the upper end for the LMF of the national range of recently issued permits and at the proposed VOC emission level of 129 TPY CAMx has indicated an ozone impact less than 1 ppb, the permit has adequately addressed VOC BACT.

Based on emission levels, NOx is the main pollutant of concern. Mid America has proposed a limit that is lower than the ECO permit for the EAF furnaces. This limit is equivalent to the most stringent limit of recently issued permits. The LMF limit, while higher than the ECO permit limit, is in the middle range of other national determinations. Additionally, requiring the facility to meet the 0.02 lb/ton level for the LMF would result in 9.6 TPY of NOx reductions. Modeled impacts are less than 50% of the NAAQS threshold.

Based on process differences, expected ambient impacts, proposed BACT limits within emission ranges accepted nationally, the ECO facility having untested permitted levels, and the differences in the comparable limits for the pollutants (VOC and NOx) of concern, ODEQ feels BACT has been adequately addressed.

CONCLUSIONS

We believe all EPA comments have been adequately addressed, and the construction permit is ready to be issued.

Information on all permit actions is available for review by the public in the Air Quality section of the DEQ Web page:*http://www.deq.state.ok.us.*

The applicant has submitted an affidavit that they are not seeking a permit for land use or for any operation upon land owned by others without their knowledge. The affidavit certifies that the applicant owns the real property.

SECTION XI. FEES PAID

Major source construction fee of $2000.

SECTION XII. SUMMARY

The applicant has demonstrated the ability to comply with applicable state and federal ambient air quality standards and air pollution control rules and regulations. There are no active Compliance or Enforcement air quality issues concerning this facility. Issuance of the permit is recommended.

PERMIT TO CONSTRUCT
AIR POLLUTION CONTROL FACILITY
SPECIFIC CONDITIONS

Mid American Steel & Wire Company **Permit No. 2003-106-C (M-1)(PSD)**
Madill Steel Mill

The permittee is authorized to construct in conformity with the specifications submitted to Air Quality on March 26, 2008, with additional information on April 15, 2008. The Evaluation Memorandum, dated September 8, 2008, explains the derivation of applicable permit requirements and estimates of emissions; however, it does not contain operating limitations or permit requirements. Continuing construction and/or operations under this permit constitutes acceptance of, and consent to, the conditions contained herein:

1. Point of emissions and applicable emissions limitations. [OAC 252:100-8-6(a)(1)]

A. EUG 01 Melt Shop and EUG 04 Melt Shop Gas Burners

EU ID#	Point ID#	EU Name/Model	Construction Date
MEAF-1	EAFBH1	Electric Arc Furnace (EAF) No. 1	2008
MEAF-2	EAFBH2	Electric Arc Furnace (EAF) No. 2	2008
MFUG	MFUG	Melt Shop Uncaptured EAF emissions	2008
MLHTR	EAFBH1/2	Ladle Preheaters (Three 3.8 MMBTUH gas-fired)	2008
MLDRY	EAFBH1/2	Ladle Preheaters (Two 3.8 MMBTUH gas-fired)	2008

Point ID	PM_{10}		SO_2		NOx		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EAFBH-1	3.75	16.43	12.01	48.03	12.94	52.08	12.05	48.23	120.79	484.43
EAFBH-2	3.75	16.43	12.01	48.03	12.94	52.08	12.05	48.23	120.79	484.43
MFUG	0.43	1.70	--	--	--	--	--	--	--	--

1. Discharges from these units shall be processed by a fabric filter or equivalent system which achieves 0.0018 gr/DSCF PM emissions.
2. The two electric arc furnaces are subject to 40 CFR Part 60, Subpart AAa, and shall comply with all applicable provisions
   a. Applicability and designation of affected facility. [40 CFR Part 60.270a]
   b. Definitions [40 CFR Part 60.271a]
   c. Standard for particulate matter [40 CFR Part 60.272a]
   d. Emissions monitoring [40 CFR Part 60.273a]
   e. Monitoring of operations [40 CFR Part 60.274a]
   f. Test methods and procedures [40 CFR Part 60.270a]
   g. Recordkeeping and reporting requirements [40 CFR Part 60.270a]

B. EUG 02 LMF Refining

EU ID#	Point ID#	EU Name/Model	Construction Date
MLMF	LMFBH	Ladle Metallurgy Furnace	2008

Point ID	PM_{10}		SO_2		NOx		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
LMFBH	0.47	2.04	4.0	16.0	4.0	16.0	2.8	11.2	8.0	32.0

1. Discharges from this unit shall be processed by a fabric filter or equivalent system which achieves 0.002 gr/DSCF PM emissions.

C. EUG 03 Billet Casting

EU ID#	Point ID#	EU Name/Model	Construction Date
MCAS	CASBH	Continuous Caster & Cut-off Torch	2008

Point ID	PM_{10}		SO_2		NOx		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
CASBH	0.57	2.48	0.01	0.01	0.15	0.64	3.71	14.76	0.12	0.54

1. Discharges from these units shall be processed by a fabric filter or equivalent system which achieves 0.002 gr/DSCF PM emissions.

D. EUG 05 Melt Shop Materials Storage

EU ID#	Point ID#	EU Name/Model	PM_{10}	
			lb/hr	TPY
MLSILO	SILO1	Lime Silo	0.03	0.11
MCSILO	SILO2	Carbon Silo	0.03	0.11

1. Discharges from these units shall be processed by a fabric filter or equivalent system which achieves 0.005 gr/DSCF PM emissions.

E. EUG 06 Melt Shop Dust Storage

EU ID#	Point ID#	EU Name/Model	PM_{10}	
			lb/hr	TPY
MDSILO	SILO3	EAF Dust Silo	0.03	0.11

1. Discharges from these units shall be processed by a fabric filter or equivalent system which achieves 0.005 gr/DSCF PM emissions.
2. The EAF dust storage baghouse is subject to 40 CFR Part 60, Subpart AAa, and shall comply with all applicable provisions

a. Applicability and designation of affected facility. [40 CFR Part 60.270a]
b. Definitions [40 CFR Part 60.271a]
c. Standard for particulate matter [40 CFR Part 60.272a]
d. Emissions monitoring [40 CFR Part 60.273a]
e. Monitoring of operations [40 CFR Part 60.274a]
f. Test methods and procedures [40 CFR Part 60.270a]
g. Recordkeeping and reporting requirements [40 CFR Part 60.270a]

F. EUG 07 Melt Shop Cooling Towers

EU ID#	Point ID#	EU Name/Model	PM_{10}	
			lb/hr	TPY
MNCT-1	MCT1	EAF/LMF Cooling Tower (18,000 gpm)	0.45	1.97
MNCT-2	MCT2	Caster Cooling Tower (4,000 gpm)	0.10	0.44
MCCT-3	MCT3	Caster Spray Water Cooling Tower (2,000 gpm)	0.05	0.22

1. The above units shall be constructed with drift eliminators designed to achieve 0.005% or better.

G. EUG 08 Melt Shop Fugitive Dust

EU ID#	Point ID#	EU Name/Model	Construction Date
MURD-A	--	Unpaved Roads, Scrap Trucks	2008
MURD-B	--	Unpaved Roads, Commodity and Billet Trucks	2008
MURD-C	--	Unpaved Roads, Slag Haulers	2008
SLAG	--	Slag Processing	2008

1. The permittee shall water haul roads when necessary to control emissions of fugitive dust.
2. Slag processing operations shall be conducted with wet materials.

H. EUG 09 Melt Shop Emergency Generator

EU ID#	Point ID#	EU Name/Model	Construction Date
EG-1	EG-1	1,200-hp Emergency Generator	2008

Point ID	PM_{10}		SO_2		NOx		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EG-1	0.84	0.21	0.49	0.12	15.60	3.90	0.77	0.19	6.60	1.65

1. The emergency generator shall be fueled with No. 2 diesel with a maximum of 0.05% by weight sulfur.
2. The permittee shall install a unit which pre-dates NSPS Subpart IIII.

I. EUG 10 Rod Mill Billet Reheat Furnace

EU ID#	Point ID#	EU Name/Model	Construction Date
RBRF	BRF	Rod Mill Billet Reheat Furnace 74 MMBTUH	2003

Point ID	PM_{10}		SO_2		NOx		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
BRG	0.55	2.42	0.04	0.19	16.06	64.8	0.40	1.75	6.09	26.69

1. The Billet Reheat Furnace shall be fueled with pipeline-grade natural gas.

J. EUG 11 Rod Mill Cooling Towers The equipment items listed below are considered insignificant.

EU ID#	Point ID#	EU Name/Model	Construction Date
RCCT-1	RCT-1	Rolling Mill Contact Water Cooling Tower (3,200 gpm)	2003
RNCT-2	RCT-2	Stelmor Conveyor Noncontact Water Cooling Tower (1,600 gpm)	2003
RNCT-3	RCT-3	Billet Reheat Furnace Cooling Tower (800 gpm)	2003
RNCT-4	RCT-4	Chiller Cooling Tower (800 gpm)	2003
RNCT-5	RCT-5	#1 Hydraulic Pump Cooling Tower (50 gpm)	2003
RNCT-6	RCT-6	Compactor Cooling Tower (90 gpm)	2003

EUG 12 Fuel Storage Tanks The equipment items listed below are considered insignificant.

EU ID#	Point ID#	EU Name/Model	Construction Date
T01-D	T01-D	Diesel Fuel Tank, 2000-gallons	2003
T02-G	T02-G	Gasoline Fuel Tank, 300-gallons	2003

2. Upon issuance of an operating permit, the permittee shall be authorized to operate the two 50-ton, electric arc furnaces continuously (24 hours per day, every day of the year) up to a production rate of 640,000 tons/yr of steel produced, 12-month rolling total.
[OAC 252:100-8-6(a)]

3. As part of the operating permit application, the permittee shall specify the pressure differential range which indicate proper functioning of each baghouse. Each baghouse shall be monitored at least daily for pressure differential. Alternatively, the permittee may install and calibrate bag leak sensors. [OAC 252:100-43]

4. Except for units subject to opacity limitations of 40 CFR Part 60, Subpart AAa or 40 CFR Part 63, Subpart YYYYY, the opacity of any emission to the atmosphere shall not exceed 20% except for short-term occurrences not to exceed five minutes in any hour or 20 minutes in any 24-hour period; in no case shall opacity exceed 60%. [OAC 252:100-25]

5. The fuel-burning equipment shall be fired with pipeline grade natural gas or other gaseous fuel with a sulfur content less than 343 ppmv. Compliance can be shown by the following

methods: for pipeline grade natural gas, a current gas company bill; for other gaseous fuel, a current lab analysis, stain-tube analysis, gas contract, tariff sheet, or other approved methods. Compliance shall be demonstrated at least once annually. [OAC 252:100-31]

6. Pursuant to OAC 252:100-29, the permittee shall not cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originate in such a manner as to damage or interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. [OAC 252:100-29]

7. The following records of operations shall be maintained on site. All such records shall be made available to regulatory personnel upon request. These records shall be maintained for a period of at least five years after the time they are made.
   a. Amount of steel poured (monthly and cumulative annual).
   b. Pollution control device operating parameters (daily).
   c. For the fuel(s) burned, the appropriate document(s) as described in Specific Condition No. 5.
   d. Records as required by 40 CFR Part 63, Subpart YYYYY.
   e. Records as required by 40 CFR Part 60, Subpart AAa.

8. Within 180 days of commencement of operations of each furnace, and at other such times as directed by Air Quality, the permittee shall conduct performance testing as follows and furnish a written report to Air Quality. Each electric arc furnace, the ladle metallurgy furnace, and the caster and cut-off baghouse shall be tested. Testing shall be conducted while a process unit is being operated at least 90% of permitted hourly capacity. A sampling protocol and notification of testing date(s) shall be submitted at least 30 days in advance of commencement of testing. The following USEPA methods shall be used for testing of emissions, unless otherwise approved by Air Quality: [OAC 252:100-43]

Method 1:	Sample and Velocity Traverses for Stationary Sources.
Method 2:	Determination of Stack Gas Velocity and Volumetric Flow Rate.
Method 3:	Gas Analysis for Carbon Dioxide, Excess Air, and Dry Molecular Weight.
Method 4:	Moisture in Stack Gases.
Method 5:	PM Emissions from Stationary Sources
Method 6 or 6C:	Sulfur Dioxide Emissions from Stationary Sources (EAFs and LMF only)
Method 7E:	NOx Emissions from Stationary Sources (EAFs and LMF only)
Method 10:	CO Emissions from Stationary Sources (EAFs and LMF only)
Method 25A:	Non-Methane Organic Emissions from Stationary Sources (EAFs and LMF only)
Method 323:	Formaldehyde (EAFs only)

9. The facility is subject to 40 CFR Part 63, Subpart YYYYY, and shall comply with all requirements specified in the final standard. [40 CFR Part 63, Subpart YYYYY]

10. The permittee shall apply for a Part 70 operating permit within 180 days of start-up of melting operations. [OAC 252:100-8-4(b)]

PERMIT

AIR QUALITY DIVISION
STATE OF OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
707 NORTH ROBINSON, SUITE 4100
P.O. BOX 1677
OKLAHOMA CITY, OKLAHOMA 73101-1677

Permit No. 2003-106-C (M-1)(PSD)

Mid American Steel & Wire Company,

having complied with the requirements of the law, is hereby granted permission to construct two steel melting furnaces and associated equipment at their steel wire manufacturing facility at 1327 Smiley Road, Madill, Marshall County, subject to standard conditions dated January 24, 2008, and specific conditions, both attached.

In the absence of commencement of construction, this permit shall expire 18 months from the issuance date, except as authorized under Section VIII of the Standard Conditions.

Division Director, Air Quality Division

9-07-08

Date

DEQ Form #100-890 Revised 10/20/06

Mid American Steel & Wire
Attn: Mr. David Weinand
P. O. Box 296
Madill, OK 73446

Re: Permit Application No. 2003-106-C (M-1)(PSD)
Steel Melt Shop
Madill, Marshall County, Oklahoma

Dear Mr. Weinand:

Enclosed is the permit authorizing construction of the referenced facility. Please note that this permit is issued subject to standard and specific conditions, which are attached. These conditions must be carefully followed since they define the limits of the permit and will be confirmed by periodic inspections.

Also note that you are required to annually submit an emissions inventory for this facility. An emissions inventory must be completed on approved AQD forms and submitted (hardcopy or electronically) by April 1st of every year. Any questions concerning the form or submittal process should be referred to the Emissions Inventory Staff at 405-702-4100.

Thank you for your cooperation in this matter. If we may be of further service, please contact our office at (405)702-4100.

Sincerely,

David S. Schutz, P.E.
AIR QUALITY DIVISION
Enclosure

MAJOR SOURCE AIR QUALITY PERMIT
STANDARD CONDITIONS
(January 24, 2008)

SECTION I. DUTY TO COMPLY

A. This is a permit to operate / construct this specific facility in accordance with the federal Clean Air Act (42 U.S.C. 7401, et al.) and under the authority of the Oklahoma Clean Air Act and the rules promulgated there under. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

B. The issuing Authority for the permit is the Air Quality Division (AQD) of the Oklahoma Department of Environmental Quality (DEQ). The permit does not relieve the holder of the obligation to comply with other applicable federal, state, or local statutes, regulations, rules, or ordinances. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

C. The permittee shall comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of the Oklahoma Clean Air Act and shall be grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application. All terms and conditions are enforceable by the DEQ, by the Environmental Protection Agency (EPA), and by citizens under section 304 of the Federal Clean Air Act (excluding state-only requirements). This permit is valid for operations only at the specific location listed.
[40 C.F.R. §70.6(b), OAC 252:100-8-1.3 and OAC 252:100-8-6(a)(7)(A) and (b)(1)]

D. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations. [OAC 252:100-8-6(a)(7)(B)]

SECTION II. REPORTING OF DEVIATIONS FROM PERMIT TERMS

A. Any exceedance resulting from an emergency and/or posing an imminent and substantial danger to public health, safety, or the environment shall be reported in accordance with Section XIV (Emergencies). [OAC 252:100-8-6(a)(3)(C)(iii)(I) & (II)]

B. Deviations that result in emissions exceeding those allowed in this permit shall be reported consistent with the requirements of OAC 252:100-9, Excess Emission Reporting Requirements.
[OAC 252:100-8-6(a)(3)(C)(iv)]

C. Every written report submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F.
[OAC 252:100-8-6(a)(3)(C)(iv)]

SECTION III. MONITORING, TESTING, RECORDKEEPING & REPORTING

A. The permittee shall keep records as specified in this permit. These records, including monitoring data and necessary support information, shall be retained on-site or at a nearby field office for a period of at least five years from the date of the monitoring sample, measurement, report, or application, and shall be made available for inspection by regulatory personnel upon request. Support information includes all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Where appropriate, the permit may specify that records may be maintained in computerized form.

[OAC 252:100-8-6 (a)(3)(B)(ii), OAC 252:100-8-6(c)(1), and OAC 252:100-8-6(c)(2)(B)]

B. Records of required monitoring shall include:

(1) the date, place and time of sampling or measurement;
(2) the date or dates analyses were performed;
(3) the company or entity which performed the analyses;
(4) the analytical techniques or methods used;
(5) the results of such analyses; and
(6) the operating conditions existing at the time of sampling or measurement.

[OAC 252:100-8-6(a)(3)(B)(i)]

C. No later than 30 days after each six (6) month period, after the date of the issuance of the original Part 70 operating permit, the permittee shall submit to AQD a report of the results of any required monitoring. All instances of deviations from permit requirements since the previous report shall be clearly identified in the report. Submission of these periodic reports will satisfy any reporting requirement of Paragraph E below that is duplicative of the periodic reports, if so noted on the submitted report. [OAC 252:100-8-6(a)(3)(C)(i) and (ii)]

D. If any testing shows emissions in excess of limitations specified in this permit, the owner or operator shall comply with the provisions of Section II (Reporting Of Deviations From Permit Terms) of these standard conditions.

[OAC 252:100-8-6(a)(3)(C)(iii)]

E. In addition to any monitoring, recordkeeping or reporting requirement specified in this permit, monitoring and reporting may be required under the provisions of OAC 252:100-43, Testing, Monitoring, and Recordkeeping, or as required by any provision of the Federal Clean Air Act or Oklahoma Clean Air Act. [OAC 252:100-43]

F. Any document submitted in accordance with this permit shall be certified by a responsible official. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete." However, an exceedance report that must be submitted within ten days of the exceedance under Section II (Reporting Of Deviations From Permit Terms) or Section XIV (Emergencies) may be submitted without a certification, if an appropriate certification is provided within ten days thereafter, together with any corrected or supplemental information required concerning the exceedance.

[OAC 252:100-8-5(f), OAC 252:100-8-6(a)(3)(C)(iv), OAC 252:100-8-6(c)(1) and OAC 252:100-9-3.1(c)]

G. Any owner or operator subject to the provisions of New Source Performance Standards ("NSPS") under 40 CFR Part 60 or National Emission Standards for Hazardous Air Pollutants ("NESHAPs") under 40 CFR Parts 61 and 63 shall maintain a file of all measurements and other information required by the applicable general provisions and subpart(s). These records shall be maintained in a permanent file suitable for inspection, shall be retained for a period of at least five years as required by Paragraph A of this Section, and shall include records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of an affected facility, any malfunction of the air pollution control equipment; and any periods during which a continuous monitoring system or monitoring device is inoperative.

[40 C.F.R. §§60.7 and 63.10, 40 CFR Parts 61, Subpart A, and OAC 252:100, Appendix Q]

I. The permittee of a facility that is operating subject to a schedule of compliance shall submit to the DEQ a progress report at least semi-annually. The progress reports shall contain dates for achieving the activities, milestones or compliance required in the schedule of compliance and the dates when such activities, milestones or compliance was achieved. The progress reports shall also contain an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted. [OAC 252:100-8-6(c)(4)]

J. All testing must be conducted under the direction of qualified personnel by methods approved by the Division Director. All tests shall be made and the results calculated in accordance with standard test procedures. The use of alternative test procedures must be approved by EPA. When a portable analyzer is used to measure emissions it shall be setup, calibrated, and operated in accordance with the manufacturer's instructions and in accordance with a protocol meeting the requirements of the "AQD Portable Analyzer Guidance" document or an equivalent method approved by Air Quality.

[OAC 252:100-8-6(a)(3)(A)(iv), and OAC 252:100-43]

K. The reporting of total particulate matter emissions as required in Part 7 of OAC 252:100-8 (Permits for Part 70 Sources), OAC 252:100-19 (Control of Emission of Particulate Matter), and OAC 252:100-5 (Emission Inventory), shall be conducted in accordance with applicable testing or calculation procedures, modified to include back-half condensables, for the concentration of particulate matter less than 10 microns in diameter (PM_{10}). NSPS may allow reporting of only particulate matter emissions caught in the filter (obtained using Reference Method 5).

L. The permittee shall submit to the AQD a copy of all reports submitted to the EPA as required by 40 C.F.R. Part 60, 61, and 63, for all equipment constructed or operated under this permit subject to such standards. [OAC 252:100-8-6(c)(1) and OAC 252:100, Appendix Q]

SECTION IV. COMPLIANCE CERTIFICATIONS

A. No later than 30 days after each anniversary date of the issuance of the original Part 70 operating permit, the permittee shall submit to the AQD, with a copy to the US EPA, Region 6, a certification of compliance with the terms and conditions of this permit and of any other applicable requirements which have become effective since the issuance of this permit. The compliance certification shall also include such other facts as the permitting authority may require to determine the compliance status of the source.

[OAC 252:100-8-6(c)(5)(A), (C)(v), and (D)]

B. The compliance certification shall describe the operating permit term or condition that is the basis of the certification; the current compliance status; whether compliance was continuous or intermittent; the methods used for determining compliance, currently and over the reporting period; and a statement that the facility will continue to comply with all applicable requirements.

[OAC 252:100-8-6(c)(5)(C)(i)-(iv)]

C. The compliance certification shall contain a certification by a responsible official as to the results of the required monitoring. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete." [OAC 252:100-8-5(f) and OAC 252:100-8-6(c)(1)]

D. Any facility reporting noncompliance shall submit a schedule of compliance for emissions units or stationary sources that are not in compliance with all applicable requirements. This schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the emissions unit or stationary source is in noncompliance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the emissions unit or stationary source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based, except that a compliance plan shall not be required for any noncompliance condition which is corrected within 24 hours of discovery.

[OAC 252:100-8-5(e)(8)(B) and OAC 252:100-8-6(c)(3)]

SECTION V. REQUIREMENTS THAT BECOME APPLICABLE DURING THE PERMIT TERM

The permittee shall comply with any additional requirements that become effective during the permit term and that are applicable to the facility. Compliance with all new requirements shall be certified in the next annual certification. [OAC 252:100-8-6(c)(6)]

SECTION VI. PERMIT SHIELD

A. Compliance with the terms and conditions of this permit (including terms and conditions established for alternate operating scenarios, emissions trading, and emissions averaging, but excluding terms and conditions for which the permit shield is expressly prohibited under OAC 252:100-8) shall be deemed compliance with the applicable requirements identified and included in this permit. [OAC 252:100-8-6(d)(1)]

B. Those requirements that are applicable are listed in the Standard Conditions and the Specific Conditions of this permit. Those requirements that the applicant requested be determined as not applicable are summarized in the Specific Conditions of this permit. [OAC 252:100-8-6(d)(2)]

SECTION VII. ANNUAL EMISSIONS INVENTORY & FEE PAYMENT

The permittee shall file with the AQD an annual emission inventory and shall pay annual fees based on emissions inventories. The methods used to calculate emissions for inventory purposes shall be based on the best available information accepted by AQD.
[OAC 252:100-5-2.1, OAC 252:100-5-2.2, and OAC 252:100-8-6(a)(8)]

SECTION VIII. TERM OF PERMIT

A. Unless specified otherwise, the term of an operating permit shall be five years from the date of issuance. [OAC 252:100-8-6(a)(2)(A)]

B. A source's right to operate shall terminate upon the expiration of its permit unless a timely and complete renewal application has been submitted at least 180 days before the date of expiration. [OAC 252:100-8-7.1(d)(1)]

C. A duly issued construction permit or authorization to construct or modify will terminate and become null and void (unless extended as provided in OAC 252:100-8-1.4(b)) if the construction is not commenced within 18 months after the date the permit or authorization was issued, or if work is suspended for more than 18 months after it is commenced. [OAC 252:100-8-1.4(a)]

D. The recipient of a construction permit shall apply for a permit to operate (or modified operating permit) within 180 days following the first day of operation. [OAC 252:100-8-4(b)(5)]

SECTION IX. SEVERABILITY

The provisions of this permit are severable and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
[OAC 252:100-8-6 (a)(6)]

SECTION X. PROPERTY RIGHTS

A. This permit does not convey any property rights of any sort, or any exclusive privilege.
[OAC 252:100-8-6(a)(7)(D)]

B. This permit shall not be considered in any manner affecting the title of the premises upon which the equipment is located and does not release the permittee from any liability for damage to persons or property caused by or resulting from the maintenance or operation of the equipment for which the permit is issued. [OAC 252:100-8-6(c)(6)]

SECTION XI. DUTY TO PROVIDE INFORMATION

A. The permittee shall furnish to the DEQ, upon receipt of a written request and within sixty (60) days of the request unless the DEQ specifies another time period, any information that the DEQ may request to determine whether cause exists for modifying, reopening, revoking, reissuing, terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit.
[OAC 252:100-8-6(a)(7)(E)]

B. The permittee may make a claim of confidentiality for any information or records submitted pursuant to 27A O.S. § 2-5-105(18). Confidential information shall be clearly labeled as such and shall be separable from the main body of the document such as in an attachment.
[OAC 252:100-8-6(a)(7)(E)]

C. Notification to the AQD of the sale or transfer of ownership of this facility is required and shall be made in writing within thirty (30) days after such sale or transfer.
[Oklahoma Clean Air Act, 27A O.S. § 2-5-112(G)]

SECTION XII. REOPENING, MODIFICATION & REVOCATION

A. The permit may be modified, revoked, reopened and reissued, or terminated for cause. Except as provided for minor permit modifications, the filing of a request by the permittee for a permit modification, revocation and reissuance, termination, notification of planned changes, or anticipated noncompliance does not stay any permit condition.
[OAC 252:100-8-6(a)(7)(C) and OAC 252:100-8-7.2(b)]

B. The DEQ will reopen and revise or revoke this permit prior to the expiration date in the following circumstances:

(1) Additional requirements under the Clean Air Act become applicable to a major source category three or more years prior to the expiration date of this permit. No such reopening is required if the effective date of the requirement is later than the expiration date of this permit.
(2) The DEQ or the EPA determines that this permit contains a material mistake or that the permit must be revised or revoked to assure compliance with the applicable requirements.

(3) The DEQ or the EPA determines that inaccurate information was used in establishing the emission standards, limitations, or other conditions of this permit. The DEQ may revoke and not reissue this permit if it determines that the permittee has submitted false or misleading information to the DEQ.
(4) DEQ determines that the permit should be amended under the discretionary reopening provisions of OAC 252:100-8-7.3(b).

[OAC 252:100-8-7.3 and OAC 252:100-8-7.4(a)(2)]

C. The permit may be reopened for cause by EPA, pursuant to the provisions of OAC 100-8-7.3(d). [OAC 100-8-7.3(d)]

D. The permittee shall notify AQD before making changes other than those described in Section XVIII (Operational Flexibility), those qualifying for administrative permit amendments, or those defined as an Insignificant Activity (Section XVI) or Trivial Activity (Section XVII). The notification should include any changes which may alter the status of a "grandfathered source," as defined under AQD rules. Such changes may require a permit modification.

[OAC 252:100-8-7.2(b) and OAC 252:100-5-1.1]

E. Activities that will result in air emissions that exceed the trivial/insignificant levels and that are not specifically approved by this permit are prohibited. [OAC 252:100-8-6(c)(6)]

SECTION XIII. INSPECTION & ENTRY

A. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized regulatory officials to perform the following (subject to the permittee's right to seek confidential treatment pursuant to 27A O.S. Supp. 1998, § 2-5-105(18) for confidential information submitted to or obtained by the DEQ under this section):

(1) enter upon the permittee's premises during reasonable/normal working hours where a source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
(2) have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
(3) inspect, at reasonable times and using reasonable safety practices, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
(4) as authorized by the Oklahoma Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit.

[OAC 252:100-8-6(c)(2)]

SECTION XIV. EMERGENCIES

A. Any exceedance resulting from an emergency shall be reported to AQD promptly but no later than 4:30 p.m. on the next working day after the permittee first becomes aware of the exceedance. This notice shall contain a description of the emergency, the probable cause of the exceedance, any steps taken to mitigate emissions, and corrective actions taken.

[OAC 252:100-8-6 (a)(3)(C)(iii)(I) and (IV)]

B. Any exceedance that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to AQD as soon as is practicable; but under no circumstance shall notification be more than 24 hours after the exceedance. [OAC 252:100-8-6(a)(3)(C)(iii)(II)]

C. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. [OAC 252:100-8-2]

D. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that:

(1) an emergency occurred and the permittee can identify the cause or causes of the emergency;
(2) the permitted facility was at the time being properly operated;
(3) during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit.

[OAC 252:100-8-6 (e)(2)]

E. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof. [OAC 252:100-8-6(e)(3)]

F. Every written report or document submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F.
[OAC 252:100-8-6(a)(3)(C)(iv)]

SECTION XV. RISK MANAGEMENT PLAN

The permittee, if subject to the provision of Section 112(r) of the Clean Air Act, shall develop and register with the appropriate agency a risk management plan by June 20, 1999, or the applicable effective date. [OAC 252:100-8-6(a)(4)]

SECTION XVI. INSIGNIFICANT ACTIVITIES

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate individual emissions units that are either on the list in Appendix I to OAC Title 252, Chapter 100, or whose actual calendar year emissions do not exceed any of the limits below. Any activity to which a State or Federal applicable requirement applies is not insignificant even if it meets the criteria below or is included on the insignificant activities list.

(1) 5 tons per year of any one criteria pollutant.
(2) 2 tons per year for any one hazardous air pollutant (HAP) or 5 tons per year for an aggregate of two or more HAP's, or 20 percent of any threshold less than 10 tons per year for single HAP that the EPA may establish by rule.

[OAC 252:100-8-2 and OAC 252:100, Appendix I]

SECTION XVII. TRIVIAL ACTIVITIES

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate any individual or combination of air emissions units that are considered inconsequential and are on the list in Appendix J. Any activity to which a State or Federal applicable requirement applies is not trivial even if included on the trivial activities list.

[OAC 252:100-8-2 and OAC 252:100, Appendix J]

SECTION XVIII. OPERATIONAL FLEXIBILITY

A. A facility may implement any operating scenario allowed for in its Part 70 permit without the need for any permit revision or any notification to the DEQ (unless specified otherwise in the permit). When an operating scenario is changed, the permittee shall record in a log at the facility the scenario under which it is operating. [OAC 252:100-8-6(a)(10) and (f)(1)]

B. The permittee may make changes within the facility that:

(1) result in no net emissions increases,
(2) are not modifications under any provision of Title I of the federal Clean Air Act, and
(3) do not cause any hourly or annual permitted emission rate of any existing emissions unit to be exceeded;

provided that the facility provides the EPA and the DEQ with written notification as required below in advance of the proposed changes, which shall be a minimum of seven (7) days, or twenty four (24) hours for emergencies as defined in OAC 252:100-8-6 (e). The permittee, the DEQ, and the EPA shall attach each such notice to their copy of the permit. For each such change, the written notification required above shall include a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change. The permit shield provided by this permit does not apply to any change made pursuant to this paragraph. [OAC 252:100-8-6(f)(2)]

SECTION XIX. OTHER APPLICABLE & STATE-ONLY REQUIREMENTS

A. The following applicable requirements and state-only requirements apply to the facility unless elsewhere covered by a more restrictive requirement:

(1) Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in the Open Burning Subchapter.

[OAC 252:100-13]

(2) No particulate emissions from any fuel-burning equipment with a rated heat input of 10 MMBTUH or less shall exceed 0.6 lb/MMBTU. [OAC 252:100-19]

(3) For all emissions units not subject to an opacity limit promulgated under 40 C.F.R., Part 60, NSPS, no discharge of greater than 20% opacity is allowed except for:
   (a) Short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity;
   (b) Smoke resulting from fires covered by the exceptions outlined in OAC 252:100-13-7;
   (c) An emission, where the presence of uncombined water is the only reason for failure to meet the requirements of OAC 252:100-25-3(a); or
   (d) Smoke generated due to a malfunction in a facility, when the source of the fuel producing the smoke is not under the direct and immediate control of the facility and the immediate constriction of the fuel flow at the facility would produce a hazard to life and/or property.

[OAC 252:100-25]

(4) No visible fugitive dust emissions shall be discharged beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. [OAC 252:100-29]

(5) No sulfur oxide emissions from new gas-fired fuel-burning equipment shall exceed 0.2 lb/MMBTU. No existing source shall exceed the listed ambient air standards for sulfur dioxide. [OAC 252:100-31]

(6) Volatile Organic Compound (VOC) storage tanks built after December 28, 1974, and with a capacity of 400 gallons or more storing a liquid with a vapor pressure of 1.5 psia or greater under actual conditions shall be equipped with a permanent submerged fill pipe or with a vapor-recovery system. [OAC 252:100-37-15(b)]

(7) All fuel-burning equipment shall at all times be properly operated and maintained in a manner that will minimize emissions of VOCs. [OAC 252:100-37-36]

SECTION XX. STRATOSPHERIC OZONE PROTECTION

A. The permittee shall comply with the following standards for production and consumption of ozone-depleting substances:

(1) Persons producing, importing, or placing an order for production or importation of certain class I and class II substances, HCFC-22, or HCFC-141b shall be subject to the requirements of §82.4;
(2) Producers, importers, exporters, purchasers, and persons who transform or destroy certain class I and class II substances, HCFC-22, or HCFC-141b are subject to the recordkeeping requirements at §82.13; and
(3) Class I substances (listed at Appendix A to Subpart A) include certain CFCs, Halons, HBFCs, carbon tetrachloride, trichloroethane (methyl chloroform), and bromomethane

(Methyl Bromide). Class II substances (listed at Appendix B to Subpart A) include HCFCs.

[40 CFR 82, Subpart A]

B. If the permittee performs a service on motor (fleet) vehicles when this service involves an ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all applicable requirements. Note: The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or the system used on passenger buses using HCFC-22 refrigerant. [40 CFR 82, Subpart B]

C. The permittee shall comply with the following standards for recycling and emissions reduction except as provided for MVACs in Subpart B:

(1) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to § 82.156;
(2) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to § 82.158;
(3) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to § 82.161;
(4) Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with record-keeping requirements pursuant to § 82.166;
(5) Persons owning commercial or industrial process refrigeration equipment must comply with leak repair requirements pursuant to § 82.158; and
(6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to § 82.166.

[40 CFR 82, Subpart F]

SECTION XXI. TITLE V APPROVAL LANGUAGE

A. DEQ wishes to reduce the time and work associated with permit review and, wherever it is not inconsistent with Federal requirements, to provide for incorporation of requirements established through construction permitting into the Source's Title V permit without causing redundant review. Requirements from construction permits may be incorporated into the Title V permit through the administrative amendment process set forth in OAC 252:100-8-7.2(a) only if the following procedures are followed:

(1) The construction permit goes out for a 30-day public notice and comment using the procedures set forth in 40 C.F.R. § 70.7(h)(1). This public notice shall include notice to the public that this permit is subject to EPA review, EPA objection, and petition to EPA, as provided by 40 C.F.R. § 70.8; that the requirements of the construction permit will be incorporated into the Title V permit through the administrative amendment process; that the public will not receive another opportunity to provide comments when the requirements are incorporated into the Title V permit; and that EPA review, EPA

objection, and petitions to EPA will not be available to the public when requirements from the construction permit are incorporated into the Title V permit.

(2) A copy of the construction permit application is sent to EPA, as provided by 40 CFR § 70.8(a)(1).

(3) A copy of the draft construction permit is sent to any affected State, as provided by 40 C.F.R. § 70.8(b).

(4) A copy of the proposed construction permit is sent to EPA for a 45-day review period as provided by 40 C.F.R.§ 70.8(a) and (c).

(5) The DEQ complies with 40 C.F.R. § 70.8(c) upon the written receipt within the 45-day comment period of any EPA objection to the construction permit. The DEQ shall not issue the permit until EPA's objections are resolved to the satisfaction of EPA.

(6) The DEQ complies with 40 C.F.R. § 70.8(d).

(7) A copy of the final construction permit is sent to EPA as provided by 40 CFR § 70.8(a).

(8) The DEQ shall not issue the proposed construction permit until any affected State and EPA have had an opportunity to review the proposed permit, as provided by these permit conditions.

(9) Any requirements of the construction permit may be reopened for cause after incorporation into the Title V permit by the administrative amendment process, by DEQ as provided in OAC 252:100-8-7.3(a), (b), and (c), and by EPA as provided in 40 C.F.R. § 70.7(f) and (g).

(10) The DEQ shall not issue the administrative permit amendment if performance tests fail to demonstrate that the source is operating in substantial compliance with all permit requirements.

B. To the extent that these conditions are not followed, the Title V permit must go through the Title V review process.

SECTION XXII. CREDIBLE EVIDENCE

For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any provision of the Oklahoma implementation plan, nothing shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[OAC 252:100-43-6]