



Environmental Affairs Department
100 River Road, Brackenridge, PA 15014-1597

December 23, 2022

Ms. JoAnn Truchan, P.E.
Allegheny County Health Department
Air Quality Division
301 39th Street
Pittsburgh, PA 15201

Dear Ms. Truchan,

Subject: ATI Flat Rolled Products Holdings, LLC - Brackenridge RACT III

On September 26, 2022, we received a request from Allegheny County Health Department to submit a case-by-case RACT evaluation, for applicable source(s) where there are no presumptive requirements or source standards.

Please be advised that many of the emission units which were previously subject to RACT have been idled, permanently shut down, and/or removed. Also, please note that the emissions units installed at our Hot Rolling and Processing Facility (HRPF) were demonstrated to meet LAER for NO_x and/or BACT for VOC. The case-by-case RACT analysis applies to the Argon-Oxygen Decarburization (AOD) vessel. The RBLC was searched, no emissions control technologies, which were not previously evaluated, are available, and the RACT cost-effectiveness was deemed to be economically infeasible.

Attachment 1 contains our Presumptive RACT notification and RACT "Top-Down Analysis" for the AOD. Potential emissions estimates and subsequent cost-effectiveness (\$/ton) are based on the RACT II Analysis, which was submitted to the Department in January 2014, and subsequently approved. In addition, Attachment 2 contains source and emissions information.

If you have any questions or require additional information, please do not hesitate to telephone me at (724) 226-5947.

Very truly yours,

A handwritten signature in blue ink, appearing to read "Deborah L. Calderazzo".

Deborah L. Calderazzo
Director, EHS

Attachments

ATTACHMENT 1

PRESUMPTIVE RACT,

RACT EXEMPT UNITS,

and

CASE-BY-CASE RACT ANALYSIS

ATTACHMENT 1

PRESUMPTIVE RACT

The Brackenridge Facility of ATI is a major source of NO_x and a major source of VOC.

The following units are natural gas-fired boilers or natural gas-fired combustion sources with a rated heat input capacity <20 MMBtu/hr, emergency standby engines operating less than 500 hours per year, electric arc furnaces, sources with capacity factor less than 5%, sources with NO_x potential to emit <5 tons per year and/or sources with VOC potential to emit <2.7 tons per year. These units will comply with the Presumptive RACT requirement pursuant to §129.112(c); operate in accordance with manufacturer's specifications and good operating practices.

Source ID	Description	Rated Capacity
112-114	F1	536,267 tons/year
109-111	F2	
0014	Continuous Caster Tundish Preheater No. 1	2.5 MMBtu/hr
	Continuous Caster Tundish Preheater No. 2	2.5 MMBtu/hr
0010	Horizontal EAF Ladle Preheater	4.5 MMBtu/hr
007	Vertical EAF Ladle Preheater No. 1	10.5 MMBtu/hr
	Vertical EAF Ladle Preheater No. 2	10.5 MMBtu/hr
009	Amer Horiz AOD Ladle Preheaters No. 1	8 MMBtu/hr
	Amer Horiz AOD Ladle Preheaters No. 2	8 MMBtu/hr
	Amer Horiz AOD Ladle Preheaters No. 3	8 MMBtu/hr
008	Bloom Horiz AOD Ladle Preheaters No. 4	15 MMBtu/hr
	Bloom Horiz AOD Ladle Preheaters No. 5	15 MMBtu/hr
	Bloom Horiz AOD Ladle Preheaters No. 6	15 MMBtu/hr
	Bloom Horiz AOD Ladle Preheaters No. 7	15 MMBtu/hr
0011	AOD Vessel Preheater	6 MMBtu/hr
0033	Plate Burner/Torch Cutters No. 1 & No. 2, NG	6 MMBtu/hr
0035	Tandem Mill Preheater	3 MMBtu/hr
0034	Misc Space Heaters/Misc. NG usage	< 20 MMBtu/hr each
EG-01	HRPF - Emergency Generator No. 1	2,250 KW
EG-02	HRPF - Emergency Generator No. 2	2,000 KW
S207A	HRPF - Active Hot Box No. 1	10 MMBtu/hr
S207B	HRPF - Active Hot Box No. 2	10 MMBtu/hr
S207C	HRPF - Active Hot Box No. 3	10 MMBtu/hr
S222	Plasma Cutter	30,000 tons per year
The following NG combustion sources have capacity factor <5%:		
S059	Loftus Soaking Pit No.11	26 MMBtu/hr
S060	Loftus Soaking Pit No.12	26 MMBtu/hr
S061	Loftus Soaking Pit No.13	26 MMBtu/hr
S062	Loftus Soaking Pit No.14	26 MMBtu/hr
S063	Loftus Soaking Pit No.15	26 MMBtu/hr
S064	Loftus Soaking Pit No.16	26 MMBtu/hr

ATTACHMENT 1 - CONTINUED

PRESUMPTIVE RACT

The following units are natural gas-fired combustion units with rated heat input capacities equal to or greater than 20 MMBtu/hr each and less than 50 MMBtu/hr. These units will comply with the Presumptive RACT requirement pursuant to §129.112(b); biennial combustion tune-up. Please note that annual RACT tune-ups / inspections are existing permit requirements for these sources.

Source ID	Description	Rated Capacity
S097	No. 3 Dept Boiler No.1	34 MMBtu/hr
S098	No. 3 Dept Boiler No. 2	34 MMBtu/hr

ATTACHMENT 1 - CONTINUED

PRESUMPTIVE RACT

The following sources have demonstrated to meet NO_x LAER and will comply with 129.112(k) based on CEMS (WBFs) or annual tune-ups / portable analyzer tests (CB1-4 (fugitive/exhaust indoors)). Please note that annual RACT inspections are existing permit requirements for CB1-4. Since tests were performed in calendar year 2022 and annual tune-ups/portable analyzer tests will continue to be performed, in accordance with §129.115, ATI requests a waiver to perform additional tests prior to January 1, 2023.

S201	WBF No. 1	465 MMBtu/hr
S202	WBF No. 2	465 MMBtu/hr
S212	Car Bottom Furnace No. 1	21.2 MMBtu/hr
S213	Car Bottom Furnace No. 2	21.2 MMBtu/hr
S214	Car Bottom Furnace No. 3	21.2 MMBtu/hr
S215	Car Bottom Furnace No. 4	21.2 MMBtu/hr

ATTACHMENT 1 - CONTINUED

ALTERNATIVE RACT PROPOSAL

A case-by-case RACT Analysis is attached for the following emission units in accordance with §129.114. Please note that a RACT II case-by-case analysis was performed and approved by the Department. The RBLC was searched and new technologies were not identified.

Source ID	Description	Rated Capacity
115-116	AOD	100 tons/hour

ATTACHMENT 1 - CONTINUED

RACT Exempt Emission Units

RACT EXEMPT pursuant to § 129.111(c) - PTE NO_x <1 TPY; PTE VOC <1 TPY		
0013	Continuous Caster Torch Cutter No. 1, NG	1.174 MMBtu/hr
	Continuous Caster Torch Cutter No. 2, NG	1.174 MMBtu/hr
	Continuous Caster Torch Cutter No. 3, NG	1.174 MMBtu/hr
FP-01	HRPF - Emergency Fire Pumps (North/South)	376 HP each
RACT EXEMPT per § 129.111(a) - source standards exist		
140	Parts Cleaners	
RACT EXEMPT per § 129.111(a) - source standards exist		
139	Misc Paint Usage (maintenance)	

The following units have been idled and/or permanently shutdown. Deactivation Plans have been or will be submitted to the Department. If these units are reactivated, applicable reactivation notices will be provided to the Department and units will be evaluated for RACT III requirements as necessary. If reactivated, these units will comply with the Presumptive RACT requirement pursuant to §129.112(c) [operate per manufacturer's specifications and good operating practices], will be evaluated for case-by-case RACT in accordance with §129.114, or are RACT exempt in accordance with §129.111. Please note that annual RACT tune-ups/inspections are existing permit requirements for many of these sources, and tune-ups would commence upon reactivation.

Source ID	Description	Rated Capacity
0012	AOD Mold Dryers (24 dryers)	48 MMBtu/hr
0029	No. 3 B&P Coil Preheater	16 MMBtu/hr
0030	No. 3 B&P Strip Dryer	2 MMBtu/hr
0025	No. 1 A&P Strip Dryer	2 MMBtu/hr
0027	No. 2 A&P Kolene Heater	5 MMBtu/hr
0028	No. 2 A&P Strip Dryer	2 MMBtu/hr
NA	Emergency Generator - No. 3 Dept WWTP (500 hours/yr)	200 KW
S057	Loftus Soaking Pit No. 9 (idled with GOES)	26 MMBtu/hr
S058	Loftus Soaking Pit No. 10 (idled with GOES)	26 MMBtu/hr
S065	Loftus Soaking Pit No. 17 (idled with GOES)	26 MMBtu/hr
S066	Loftus Soaking Pit No. 18 (idled with GOES)	26 MMBtu/hr
S067	Loftus Soaking Pit No. 19 (idled with GOES)	26 MMBtu/hr
S068	Loftus Soaking Pit No. 20 (idled with GOES)	26 MMBtu/hr
S069	Loftus Soaking Pit No. 21 (idled with GOES)	26 MMBtu/hr
S070	Loftus Soaking Pit No. 22 (idled with GOES)	26 MMBtu/hr
S071	Loftus Soaking Pit No. 23 (idled with GOES)	26 MMBtu/hr
S091A	No. 1 A&P Annealing Furnace	49 MMBtu/hr
S092A	No. 2 A&P Annealing Furnace	44 MMBtu/hr
125	No. 3 B&P H ₂ SO ₄ -HF/HNO ₃ Pickling	39 tons/hr
125	No. 1 A&P HNO ₃ /HF Pickling	30 tons/hr
125	No. 2 A&P HNO ₃ /HF Pickling	17 tons/hr

ATI FLAT ROLLED PRODUCTS HOLDINGS, LLC - BRACKENRIDGE FACILITY

RACT TOP-DOWN ANALYSIS

SOURCE S019 - AOD

NOx RACT PROPOSAL

CONTROL OPTIONS:		
Control Technology	Typical Control Effectiveness	Technical Feasibility
Selective Catalytic Reduction (SCR)	40 - 90 %	No (See Note 1)
Selective Non-Catalytic Reduction (SNCR)	25 - 70 %	No (See Note 2)
Flue Gas Recirculation (FGR)	10 - 50 %	No (See Note 3)
<p>Notes:</p> <p>1. SCR is infeasible for application at the AOD for the following reasons:</p> <ul style="list-style-type: none"> a) the AOD exhaust gas is highly variable with regard to flow rate, temperature and concentration of pollutants. This is due to the violent nature of the process which results when process gases are blown into the hot metal; b) the temperature of the exhaust gas often exceeds the operating range of the catalyst; c) metals and other particulates present in the exhaust gas stream would blind the catalyst, making it ineffective for reduction of NOx. <p>2. SNCR is infeasible for application at the AOD for many of the same reasons listed for SCR. Maintaining the near stable gas conditions necessary to affect NOx controlled by SNCR would be nearly impossible given the highly variable nature of the gas stream. In addition, the great variations in exhaust gas pollutant concentration would make it difficult to maintain the proper stoichiometric ratio of the reducing reagent, resulting in an undesirable level of ammonia slip and/or reduced efficiency.</p> <p>3. FGR is considered infeasible for application at the AOD because the AOD does not utilize a burner.</p>		

CONTROL OPTION COSTS:							
Control Technology	Estimated Control %	Emission Reduction (tons/yr)	Controlled Emissions (tons/yr)	Total Annualized Costs (\$/yr)	Total Cost Effectiveness (\$/ton)	Incremental Cost Effectiveness (\$/ton)	Potential for Adverse or Additional Environmental Impacts
NOT APPLICABLE							

ATI FLAT ROLLED PRODUCTS HOLDINGS, LLC - BRACKENRIDGE FACILITY

RACT TOP-DOWN ANALYSIS

SOURCE S019 - AOD

VOC RACT PROPOSAL

CONTROL OPTIONS:		
Control Technology	Typical Control Effectiveness	Technical Feasibility
Thermal Oxidation:		
Regenerative	95 - 98 %	Yes
Recuperative	95 - 98 %	Yes
Afterburner	95 - 98 %	Yes
Absorption (Scrubbing)	90 - 95 %	Yes
Carbon Adsorption	90 - 95 %	No - See Note 1
Catalytic Oxidation	90 - 95 %	No - See Note 2
Inertial Separation	60 - 80 %	No - See Note 3
Condensation	50 - 90 %	No - See Note 4
Notes:		
1. Particulate in outlet gas will foul the carbon beds.		
2. Particulate in outlet gas will foul the catalyst.		
3. Applicable for removal of liquid droplets only.		
4. Not feasible due to high VOC inlet loading requirements. Requires > 5,000 ppm.		

CONTROL OPTION COSTS:							
Control Technology	Estimated Control %	Emission Reduction (tons/yr)	Controlled Emissions (tons/yr)	Total Annualized Costs (\$/yr)	Total Cost Effectiveness (\$/ton)	Incremental Cost Effectiveness (\$/ton)	Potential for Adverse or Additional Environmental Impacts
Thermal Oxidation:							
Regenerative	96	35	1	\$17,354,140	\$502,145	NA	
Recuperative	96	35	1	\$31,443,304	\$909,818	NA	
Afterburner	96	35	1	\$74,754,506	\$2,163,035	NA	
Absorption	93	33	3	\$30,358,972	\$906,779	\$906,779	Requires disposal/reuse of captured VOCs
Baseline (No Control)	0	-	36.0	-	-	-	

CAPITAL AND ANNUALIZED COST ESTIMATE

SOURCE NO. S019 - AOD

CONTROL OPTION - THERMAL OXIDATION - REGENERATIVE

CAPITAL COST ESTIMATE

Cost Item	Cost Factor	\$
DIRECT COSTS:		
Purchase Equipment Costs:		
Thermal Oxidizer	EC	\$11,669,494
Auxiliary Equipment	-	-
Instrumentation	0.1 EC	\$1,166,949
Sales Taxes	0.07 EC	\$816,865
Freight	0.05 EC	\$583,475
Total Purchased Equip. Cost (PEC)		\$14,236,783
Installation:		
Foundation and Supports	0.12 PEC	\$1,708,414
Handling and Erection	0.4 PEC	\$5,694,713
Electrical	0.01 PEC	\$142,368
Piping	0.02 PEC	\$284,736
Insulation for Ductwork	0.01 PEC	\$142,368
Painting	0.01 PEC	\$142,368
Total Installation Cost		\$8,114,966
Total Direct Costs (DC) =		\$22,351,749
INDIRECT COSTS:		
Engineering	0.1 PEC	\$1,423,678
Construction and Field Expenses	0.1 PEC	\$1,423,678
Contractor Fees	0.1 PEC	\$1,423,678
Start-up	0.01 PEC	\$142,368
Performance Test	0.01 PEC	\$142,368
Contingencies	0.03 PEC	\$427,103
Total Indirect Cost (IC)		\$4,982,874
TOTAL CAPITAL COST (TCC) =		\$27,334,622

ANNUALIZED COST ESTIMATE

Cost Item	Cost Factor	\$
DIRECT OPERATING COSTS:		
Operating Labor	0.5 hr/turn	\$21,900
Supervision	15% of labor	\$3,285
Operating Materials	-	\$0
Maintenance Labor	0.5 hr/turn	\$21,900
Materials	100% of labor	\$21,900
Utilities - Natural Gas	\$7.25/mcf at 1704 scfm	\$6,493,262
Waste Disposal	-	\$0
Wastewater Treatment	-	\$0
Total Direct Operating Costs (DOC) =		\$6,562,247
INDIRECT OPERATING COSTS:		
Overhead	80% of DOC	\$5,249,798
Property Tax	1% of TCC	\$273,346
Insurance	1% of TCC	\$273,346
Administration	2% of TCC	\$546,692
Capital Recovery	0.16275	\$4,448,710

TOTAL ANNUALIZED COST = \$17,354,140

Notes:

Maximum no. of turns/yr = 1095
 Operating labor cost (\$/hr) = 40
 Maintenance labor cost (\$/hr) = 40
 Capital recovery assumes 10 year life (term) at 10% interest rate.

Reference: EPA Air Pollution Control Cost Manual, Sixth Edition, EPA/452/B-02-001, January 2002

EQUIPMENT COST ESTIMATION
THERMAL OXIDATION - REGENERATIVE

Source ID No.	Source	Qe (scfm)	Te (F)	O2 (% v/v)	VOC (ppmv)	he (Btu/scf)	he (Btu/lb)	The (F)	Qf (scfm)	Qd (scfm)	Qtot (scfm)	EC (4/88 \$)	EC (1/96 \$)	EC (3/13 \$)	EC (8/22 \$)
S019	AOD	335200	142	20	2	0.005	0.06	1527.1	1704.28	0	336,904	4,118,383	4,753,867	6,348,151	11,669,494

Reference: USEPA, Handbook - Control Technologies for Hazardous Air Pollutants, EPA 625/6-91-014, June 1991

Q_e = emission stream flow rate (scfm)
 T_e = emission stream temperature (F)
 O_2 = oxygen content of emission stream (% v/v)
 VOC = VOC concentration of emission stream (ppmv)
 he = heat content of emission stream = $0.01 \cdot y_i \cdot H_i$
 where y_i = percent composition of VOC in emission stream
 where H_i = heat content of VOC (as propane in Btu/scf) =
 Q_f = supplementary fuel (methane) flow rate (scfm) = $De \cdot Q_e \cdot [Cp\text{-air} \cdot (1.1T_c - T_{he}) / Df \cdot [hf - 1.1Cp\text{-air} \cdot (T_c - T_r)]]$
 where De = density of emission stream (lb/scf) = 0.274
 where $Cp\text{-air}$ = heat capacity of air (Btu/lb-F) = 0.284
 where Df = density of fuel (lb/scf as methane) = 0.0408
 where T_c = combustion temperature (F) = 1600
 where T_{he} = emission stream temperature after heat recovery (F) = $(HR/100) \cdot T_c + [1 - (HR/100)] \cdot T_e$
 where HR = heat recovery (%) = 95
 where T_r = reference temperature (F) = 77
 where hf = LHV of supplementary fuel (methane) (Btu/lb) = 21600
 Q_d = dilution air flow rate (scfm) = $[(he/hd) - 1] \cdot Q_e$
 where hd = desired heat content of emission stream (Btu/scf) = 13

Note: If emission stream heat content is less than or equal to 13 Btu/scf, no dilution air is required.

Q_{tot} = total exhaust gas flow rate (scfm) = $Q_e + Q_f + Q_d$
 EC = thermal incinerator equipment cost (\$)

Note: EC based on OAQPS Cost Control Manual (USEPA, EPA 450/3-90/006, March 1990) as follows:

$$EC (4/88 \$) = 2.204E+05 + 11.57 \cdot Q_{tot}$$

Note: EC (4/88 \$) is escalated to 1/96 \$ using Chemical Engineering Equipment Indices.
 Note: EC (1/96 \$) is escalated to 3/13 \$ using Chemical Engineering Equipment Indices.
 Note: EC is escalated to 8/22 \$ [Final] using Chemical Engineering Equipment Indices.

Apr-88	369.4
Jan-96	426.4
Mar-13	569.4
Aug-22	1046.7
EC Escalation Factor =	1.15
EC Escalation Factor '96-'13 =	1.34
EC Escalation Factor '13-'22 =	1.84

* = Estimate assumed that EC formula is still valid and applicable for flows outside of the 10,000 to 100,000 SCFM range.

CAPITAL AND ANNUALIZED COST ESTIMATE

SOURCE NO. S019 - AOD

CONTROL OPTION - THERMAL OXIDATION - RECUPERATIVE

CAPITAL COST ESTIMATE

Cost Item	Cost Factor	\$
DIRECT COSTS:		
Purchase Equipment Costs:		
Thermal Oxidizer	EC	\$1,459,901
Auxiliary Equipment	-	-
Instrumentation	0.1 EC	\$145,990
Sales Taxes	0.07 EC	\$102,193
Freight	0.05 EC	\$72,995
Total Purchased Equip. Cost (PEC)		\$1,781,079
Installation:		
Foundation and Supports	0.12 PEC	\$213,729
Handling and Erection	0.4 PEC	\$712,432
Electrical	0.01 PEC	\$17,811
Piping	0.02 PEC	\$35,622
Insulation for Ductwork	0.01 PEC	\$17,811
Painting	0.01 PEC	\$17,811
Total Installation Cost		\$1,015,215
Total Direct Costs (DC) =		\$2,796,294
INDIRECT COSTS:		
Engineering	0.1 PEC	\$178,108
Construction and Field Expenses	0.1 PEC	\$178,108
Contractor Fees	0.1 PEC	\$178,108
Start-up	0.01 PEC	\$17,811
Performance Test	0.01 PEC	\$17,811
Contingencies	0.03 PEC	\$53,432
Total Indirect Cost (IC)		\$623,378
TOTAL CAPITAL COST (TCC) =		\$3,419,672

ANNUALIZED COST ESTIMATE

Cost Item	Cost Factor	\$
DIRECT OPERATING COSTS:		
Operating Labor	0.5 hr/turn	\$21,900
Supervision	15% of labor	\$3,285
Operating Materials	-	\$0
Maintenance Labor	0.5 hr/turn	\$21,900
Materials	100% of labor	\$21,900
Utilities - Natural Gas	\$7.25/mcf at 4465 scfm	\$17,014,329
Waste Disposal	-	\$0
Wastewater Treatment	-	\$0
Total Direct Operating Costs (DOC) =		\$17,083,314
INDIRECT OPERATING COSTS:		
Overhead	80% of DOC	\$13,666,651
Property Tax	1% of TCC	\$34,197
Insurance	1% of TCC	\$34,197
Administration	2% of TCC	\$68,393
Capital Recovery	0.16275	\$556,552
TOTAL ANNUALIZED COST =		\$31,443,304

Notes:

Maximum no. of turns/yr = 1095
 Operating labor cost (\$/hr) = 40
 Maintenance labor cost (\$/hr) = 40
 Capital recovery assumes 10 year life (term) at 10% interest rate.

Reference: EPA Air Pollution Control Cost Manual, Sixth Edition, EPA/452/B-02-001, January 2002

EQUIPMENT COST ESTIMATION
THERMAL OXIDATION - RECUPERATIVE

Source ID No.	Source	Qe (scfm)	Te (F)	O2 (% v/v)	VOC (ppmv)	he (Btu/scf)	he (Btu/lb)	The (F)	Qf (scfm)	Qd (scfm)	Qtot (scfm)	EC (4/88 \$)	EC (1/96 \$)	EC (3/13 \$)	EC (8/22 \$)
S019	AOD	335200	142	20	2	0.005	0.06	1162.6	4465.63	0	339,666	515,226	594,728	794,179	1,459,901

Reference: USEPA, Handbook - Control Technologies for Hazardous Air Pollutants, EPA 625/6-91-014, June 1991

Q_e = emission stream flow rate (scfm)
 T_e = emission stream temperature (F)
 O_2 = oxygen content of emission stream (% v/v)
 VOC = VOC concentration of emission stream (ppmv)
 h_e = heat content of emission stream = $0.01 \cdot y_i \cdot H_i$
 where y_i = percent composition of VOC in emission stream
 where H_i = heat content of VOC (as propane in Btu/scf) =
 Q_f = supplementary fuel (methane) flow rate (scfm) = $De \cdot Q_e \cdot [Cp\text{-air} \cdot (1.1T_c - The - 0.1Tr) - he] / Df \cdot [hf - 1.1Cp\text{-air} \cdot (Tc - Tr)]$
 where De = density of emission stream (lb/scf) = 0.0739
 where $Cp\text{-air}$ = heat capacity of air (Btu/lb-F) = 0.264
 where Df = density of fuel (lb/scf as methane) = 0.0408
 where T_c = combustion temperature (F) = 1600
 where The = emission stream temperature after heat recovery (F) = $(HR/100) \cdot T_c + [1 - (HR/100)] \cdot T_e$
 where HR = heat recovery (%) = 70
 where Tr = reference temperature (F) = 77
 where hf = LHV of supplementary fuel (methane) (Btu/lb) = 21600
 Q_d = dilution air flow rate (scfm) = $[(he/hd) - 1] \cdot Q_e$
 where hd = desired heat content of emission stream (Btu/scf) = 13

Note: If emission stream heat content is less than or equal to 13 Btu/scf, no dilution air is required.

Q_{tot} = total exhaust gas flow rate (scfm) = $Q_e + Q_f + Q_d$
 EC = thermal incinerator equipment cost (\$)

Note: EC based on OAQPS Cost Control Manual (USEPA, EPA 450/3-90/006, March 1990) as follows:

$$EC (4/88 \$) = 21342 \cdot Q_{tot}^{0.2500}$$

Note: EC (4/88 \$) is escalated to 1/96 \$ using Chemical Engineering Equipment Indices.
 Note: EC (1/96 \$) is escalated to 3/13 \$ using Chemical Engineering Equipment Indices.
 Note: EC is escalated to 8/22 \$ [Final] using Chemical Engineering Equipment Indices.

Apr-88	369.4
Jan-96	426.4
Mar-13	569.4
Aug-22	1046.7
EC Escalation Factor =	1.15
EC Escalation Factor '96-'13 =	1.34
EC Escalation Factor '13-'22 =	1.84

* = Estimate assumed that EC formula is still valid and applicable for flows outside of the 500 to 50,000 SCFM range.

CAPITAL AND ANNUALIZED COST ESTIMATE

SOURCE NO. S019 - AOD

CONTROL OPTION - AFTERBURNER

CAPITAL COST ESTIMATE

Cost Item	Cost Factor	\$
DIRECT COSTS:		
Purchase Equipment Costs:		
Thermal Oxidizer	EC	\$588,538
Auxiliary Equipment	-	-
Instrumentation	0.1 EC	\$58,854
Sales Taxes	0.07 EC	\$41,198
Freight	0.05 EC	\$29,427
Total Purchased Equip. Cost (PEC)		\$718,016
Installation:		
Foundation and Supports	0.12 PEC	\$86,162
Handling and Erection	0.4 PEC	\$287,206
Electrical	0.01 PE	\$7,180
Piping	0.02 PEC	\$14,360
Insulation for Ductwork	0.01 PEC	\$7,180
Painting	0.01 PEC	\$7,180
Total Installation Cost		\$409,269
Total Direct Costs (DC) =		\$1,127,285
INDIRECT COSTS:		
Engineering	0.1 PEC	\$71,802
Construction and Field Expenses	0.1 PEC	\$71,802
Contractor Fees	0.1 PEC	\$71,802
Start-up	0.01 PEC	\$7,180
Performance Test	0.01 PEC	\$7,180
Contingencies	0.03 PEC	\$21,540
Total Indirect Cost (IC)		\$251,306
TOTAL CAPITAL COST (TCC) =		\$1,378,590

ANNUALIZED COST ESTIMATE

Cost Item	Cost Factor	\$
DIRECT OPERATING COSTS:		
Operating Labor	0.5 hr/turn	\$21,900
Supervision	15% of labor	\$3,285
Operating Materials	-	\$0
Maintenance Labor	0.5 hr/turn	\$21,900
Materials	100% of labor	\$21,900
Utilities - Natural Gas	\$7.25/mcf at 12197 scfm	\$46,477,888
Waste Disposal	-	\$0
Wastewater Treatment	-	\$0
Total Direct Operating Costs (DOC) =		\$46,546,873
INDIRECT OPERATING COSTS:		
Overhead	60% of DOC	\$27,928,124
Property Tax	1% of TCC	\$13,786
Insurance	1% of TCC	\$13,786
Administration	2 % of TCC	\$27,572
Capital Recovery	0.16275	\$224,366
TOTAL ANNUALIZED COST =		\$74,754,506

Notes:

Maximum no. of turns/yr = 1095
 Operating labor cost (\$/hr) = 40
 Maintenance labor cost (\$/hr) = 40
 Capital recovery assumes 10 year life (term) at 10% interest rate.

Reference: EPA Air Pollution Control Cost Manual, Sixth Edition, EPA/452/B-02-001, January 2002

**EQUIPMENT COST ESTIMATION
THERMAL OXIDATION - AFTERBURNER (NO HEAT RECOVERY)**

Source ID No.	Source	Qe (scfm)	Te (F)	O2 (% v/v)	VOC (ppmv)	he (Btu/scf)	he (Btu/lb)	The (F)	Qf (scfm)	Qd (scfm)	Qtot (scfm)	EC (4/88 \$)	EC (1/96 \$)	EC (3/13 \$)	EC (8/22 \$)
S019	AOD	335200	142	20	2	0.005	0.06	142	12197.40	0	347,397	207,706	239,756	320,162	588,538

Reference: USEPA, Handbook - Control Technologies for Hazardous Air Pollutants, EPA 625/6-91-014, June 1991

Q_e = emission stream flow rate (scfm)
 T_e = emission stream temperature (F)
 O_2 = oxygen content of emission stream (% v/v)
 VOC = VOC concentration of emission stream (ppmv)
 h_e = heat content of emission stream = $0.01 \cdot y_i \cdot H_i$
 where y_i = percent composition of VOC in emission stream
 where H_i = heat content of VOC (as propane in Btu/scf) =
 Q_f = supplementary fuel (methane) flow rate (scfm) = $D_e \cdot Q_e \cdot [Cp\text{-air} \cdot (1.1T_c - T_e) - h_e] / D_f \cdot [hf - 1.1Cp\text{-air} \cdot (T_c - T_r)]$
 where D_e = density of emission stream (lb/scf) =
 where $Cp\text{-air}$ = heat capacity of air (Btu/lb-F) =
 where D_f = density of fuel (lb/scf as methane) =
 where T_c = combustion temperature (F) =
 where T_e = emission stream temperature after heat recovery (F) = $(HR/100) \cdot T_c + [1 - (HR/100)] \cdot T_e$
 where HR = heat recovery (%) =
 where T_r = reference temperature (F) =
 where hf = LHV of supplementary fuel (methane) (Btu/lb) =
 Q_d = dilution air flow rate (scfm) = $[(h_e/h_d) - 1] \cdot Q_e$
 where h_d = desired heat content of emission stream (Btu/scf) =

Note: If emission stream heat content is less than or equal to 13 Btu/scf, no dilution air is required.

Q_{tot} = total exhaust gas flow rate (scfm) = $Q_e + Q_f + Q_d$
 EC = thermal incinerator equipment cost (\$)

Note: EC based on OAQPS Cost Control Manual (USEPA, EPA 450/3-90/006, March 1990) as follows:

$$EC (4/88 \$) = 10294 \cdot Q_{tot}^{0.2355}$$

Note: EC (4/88 \$) is escalated to 1/96 \$ using Chemical Engineering Equipment Indices.

Note: EC (1/96 \$) is escalated to 3/13 \$ using Chemical Engineering Equipment Indices.

Note: EC is escalated to 8/22 \$ [Final] using Chemical Engineering Equipment Indices.

Apr-88	369.4
Jan-96	426.4
Mar-13	569.4
Aug-22	1046.7
EC Escalation Factor =	1.15
EC Escalation Factor '96-'13 =	1.34
EC Escalation Factor '13-'22 =	1.84

* = Estimate assumed that EC formula is still valid and applicable for flows outside of the 500 to 50,000 SCFM range.

CAPITAL AND ANNUALIZED COST ESTIMATE

SOURCE NO. S019 - AOD

CONTROL OPTION - ABSORPTION

CAPITAL COST ESTIMATE		
Cost Item	Cost Factor	\$
DIRECT COSTS:		
Purchase Equipment Costs:		
Absorption	EC	\$1,166,625
Auxiliary Equipment	-	-
Instrumentation	0.1 EC	\$116,663
Sales Taxes	0.07 EC	\$81,664
Freight	0.05 EC	\$58,331
Total Purchased Equip. Cost (PEC)		\$1,423,283
Installation:		
Foundation and Supports	0.08 PEC	\$113,863
Handling and Erection	0.14 PEC	\$199,260
Electrical	0.04 PEC	\$56,931
Piping	0.02 PEC	\$28,466
Insulation for Ductwork	0.01 PEC	\$14,233
Painting	0.01 PEC	\$14,233
Total Installation Cost		\$426,985
Total Direct Costs (DC) =		\$1,850,268
INDIRECT COSTS:		
Engineering	0.1 PEC	\$142,328
Construction and Field Expenses	0.05 PEC	\$71,164
Contractor Fees	0.1 PEC	\$142,328
Start-up	0.02 PEC	\$28,466
Performance Test	0.01 PEC	\$14,233
Contingencies	0.03 PEC	\$42,698
Total Indirect Cost (IC)		\$441,218
TOTAL CAPITAL COST (TCC) =		\$2,291,485

Note - does not account for site preparation or buildings

Reference: EPA Air Pollution Control Cost Manual, Sixth Edition, EPA/452/B-02-001, January 2002

ANNUALIZED COST ESTIMATE		
Cost Item	Cost Factor	\$
DIRECT OPERATING COSTS:		
Operating Labor	0.5 hr/turn	\$21,900
Supervision	15% of labor	\$3,285
Operating Materials	-	\$0
Maintenance Labor	0.5 hr/turn	\$21,900
Materials	100% of labor	\$21,900
Utilities - Water	-	\$0
Waste Disposal	-	\$0
Wastewater Treatment	\$0.37/1000gal	\$16,539,000
Total Direct Operating Costs (DOC) =		\$16,607,985
INDIRECT OPERATING COSTS:		
Overhead	80% of DOC	\$13,286,388
Property Tax	1% of TCC	\$22,915
Insurance	1% of TCC	\$22,915
Administration	2 % of TCC	\$45,830
Capital Recovery	0.16275	\$372,939
TOTAL ANNUALIZED COST =		\$30,358,972

Notes:

Maximum no. of turns/yr = 1095
 Operating labor cost (\$/hr) = 40
 Maintenance labor cost (\$/hr) = 40
 Capital recovery assumes 10 year life (term) at 10% interest rate.

EQUIPMENT COST ESTIMATION
ABSORPTION

Source ID No.	Source	Oe (scfm)	Te (F)	VOC (ppmv)	Gmol (mol/hr)	Lgal (gal/min)	G (lb/hr)	L (lb/hr)	ABS	ORD	Garea (lb/ft ²)	Garea (lb/ft ²)	Area (ft ²)	Dcolumn (ft)	TC (\$/ft)	VOC-out (ppmv)	VOC-out (lb/ft ²)	Nog	Hg (ft)	HI (ft)	Hog (ft)	Hpack (ft)	Ht (ft)	Vpack (ft ³)	PC (\$/ft ³)	
S019	AOO	335200	142	2	51956	2360881	84992	1496333	3777409	0.09	0.11	0.49	0.36	1141	38	228988	0.14	14.28	5	1.64	1.45	2.54	12.70	24.24	14524	185,178

Reference: USEPA, Handbook - Control Technologies for Hazardous Air Pollutants, EPA 625/6-91-014, June 1991

Oe = emission stream flow rate (scfm)
 Te = emission stream temperature (F)
 VOC = VOC concentration of emission stream - uncontrolled (ppmv)
 Lmol = solvent (water) flow rate (mol/hr) = AF * m * Gmol
 where AF = absorption factor = 1.6
 where m = slope of vapor-liquid equilibrium curve = 28.4
 where Gmol = emission stream flow rate (mol/hr) = 0.155 Oe
 Lgal = solvent (water) flow rate (gal/hr) = 0.038 Lmol
 ABS = abscissa of flooding curve (see Reference, Section 4.7, Figure 4.7-2) = (UG) * (Dg/Dl)^{0.5}
 where L = solvent (water) flow rate (lb/hr) = MW * Lmol where MW (lb/mol) = 18
 where G = emission stream flow rate (lb/hr) = MW * Gmol where MW (lb/mol) = 62.3
 where Dg = density of solvent (water) (lb/ft³) = 62.3
 where Dl = density of emission stream (lb/ft³) = 0.0739
 ORD = ordinate of flooding curve (see Reference, Section 4.7, Figure 4.7-2) = (Garea)^{0.5} * (u)^{0.5} / (Dg * Dl) * gc
 where Garea = emission stream flow rate at flooding conditions (lb/ft² - sec)
 where u = packing factor = 28
 where gc = gravitational constant (ft/sec²) = 32.2

Garea = emission stream flow rate (lb/ft² - sec) = Garea * f
 where f = fraction of flooding = 0.75
 Area = cross-section area of column (ft²) = G/(3600 * Garea)
 Dcolumn = column diameter (ft) = 1.13 * (Area)^{0.5}
 Hpack = packing height (ft) = Nog * Hog
 where Nog = no. of gas transfer units determined from Reference Section 4.7, Figure 4.7-3
 where Hog = height of overall transfer unit (ft) = Hg * (1/AB)^{0.5}
 where Hg = height of gas transfer unit (ft) = (P * (3600 * Garea) / (L * u))^{0.5}

where P = where d = where Scl = where S = where r = where g =

where Scl = Schmidt number for liquid stream = 500
 where S = Schmidt number for emission stream = 500
 where r = where g =

where P = where r = where g =

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where P = where r = where g =

Note: EC (\$/ft³) is calculated to 1.85 \$ using Chemical Engineering Equipment Indices.
 Note: EC (1/ft³) is calculated to 2.13 \$ using Chemical Engineering Equipment Indices.
 Note: EC is calculated to 822 \$ (ft³/min) using Chemical Engineering Equipment Indices.

Jan-96 426.4
 Mar-13 569.4
 Aug-22 1048.7
 EC Escalation Factor = 1.15
 EC Escalation Factor '96-'13 = 1.34
 EC Escalation Factor '13-'22 = 1.84

Fp = fan power (kW/hr) = 1.81E-04 * Oe-actfm * Plot * 9760
 AGR = annual solvent (water) usage = 60 * Lgal * 9760

Note Tower Cost based on Reference, Section 4.7, Figure 4.7-4.
 Assume Tower Cost (\$/ft³ - Dcolumn) = 500

EC (\$/ft³) = Tower Cost + Packing Cost

ATTACHMENT 2

***SOURCE INFORMATION
AND EMISSIONS***

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: F1 (S015) and F2 (S017)
 Installer: AL Installation Date: F1 - 2003 ; F2 - 2004
 Contractor (if operated by another): N/A
 Design Charging or Production rate (specify units): 120 tons of hot metal per furnace
 Total Annual Production (specify units normally used): 536,267 tons per year (F1 and F2 combined)
 Raw
 Materials: Scrap, fluxes
 Materials Produced: Specialty metals
 Process Operation Units: (1.) ACHD Installation Permit No. 0059-1006
 (Name and Previous County (2.) _____
 Permit Number, if any) (3.) _____
 (4.) _____
 (5.) _____
 (6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
 _____ Total days x _____ Hours/day = _____ Hours/year

PART VII - STACK DATA

F2

Stack Identification: **P006 (F2 CANOPY BAGHOUSE EXHAUST)**

UTM East 607720 UTM North 4495805

Stack Height: 61 ft. Ground level elevation 770 ft. Diameter 10' X 82' ft.

Material
Outer: _____ lining: _____

Exit temperature (°F): Est. 200 Exit Velocity: NA f/s.

Exhaust Rate
per unit: 300,000 (ACFM) % Moisture: 5

Nearest building to stack:
distance 10 ft. height 30 ft. length 280 ft. width 100 ft.

Processes Sharing Stack: If more than one process shares a stack, list and estimate relative contribution of each.

Description N/A

Contribution to emissions from stack _____ %

Description N/A

Contribution to emissions from stack _____ %

Stack Identification: **P007/P008 (F2 DEC BAGHOUSE EXHAUST)**

UTM East 607698 / 607685 UTM North 4495858 / 4495876

Stack Height: 84 ft. Ground level elevation 770 ft. Diameter _____ ft.

Material
Outer: _____ lining: _____

Exit temperature (°F): Est. 200 Exit Velocity: NA f/s.

Exhaust Rate
per unit: 100,000 (ACFM) % Moisture: 5

Nearest building to stack:
distance 10 ft. height 84 ft. length 800 ft. width 300 ft.

Processes Sharing Stack: If more than one process shares a stack, list and estimate relative contribution of each.

Description N/A

Contribution to emissions from stack _____ %

Description N/A

Contribution to emissions from stack _____ %

F1

Stack Identification: **P009 (F1 CANOPY/AOD BAGHOUSE EXHAUST)**

UTM East 607628

UTM North 4496059

Stack Height: 74 ft. Ground level elevation 770 ft. Diameter N/A ft.

Material

Outer: _____ lining: _____

Exit temperature (°F): Est. 200 Exit Velocity: 11.2 f/s.

Exhaust Rate

per unit: 480,000 (ACFM) % Moisture: 5

Nearest building to stack:

distance 0 ft. height 30 ft. length 450 ft. width 150 ft.

Processes Sharing Stack: If more than one process shares a stack, list and estimate relative contribution of each.

Description F1 Canopy

Contribution to emissions from stack 46 %

Description AOD

Contribution to emissions from stack 54 %

Stack Identification: **P010/P011 (F1 DEC BAGHOUSE EXHAUST)**

UTM East 607676 / 607666

UTM North 4495884 / 4495896

Stack Height: 75 ft. Ground level elevation 770 ft. Diameter NA ft.

Material

Outer: _____ lining: _____

Exit temperature (°F): Est. 200 Exit Velocity: 6 f/s.

Exhaust Rate

per unit: 34,000 (ACFM) % Moisture: 5

Nearest building to stack:

distance 10 ft. height 30 ft. length 800 ft. width 300 ft.

Processes Sharing Stack: If more than one process shares a stack, list and estimate relative contribution of each.

Description N/A

Contribution to emissions from stack _____ %

Description N/A

Contribution to emissions from stack _____ %

PART VIII – REMARKS

N/A

Attach calculations and reference all emission factors for Allowable, Potential to Emit, and Actual Emissions to this sheet. Reference all emission factors and efficiencies of control equipment.

Company: Allegheny Ludlum

Page: _____

Application – 7

Submit Original and Two Copies

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification or Description: S019 - Argon Oxygen Decarburization Vessel (AOD)
 Installer: AL Installation Date: 1977
 Contractor (if operated by another): N/A
 Design Charging or Production rate (specify units): 100 tons per hour
 Total Annual Production (specify units normally used): 600,000 tons per year
 Raw Materials: Hot metal, metallic additions, fluxes, Ar, O2, N2
 Materials Produced: Specialty metals
 Process Operation Units: (1.) N/A
 (Name and Previous County (2.) _____
 Permit Number, if any) (3.) _____
 (4.) _____
 (5.) _____
 (6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
 _____ Total days x _____ Hours/day = _____ Hours/year

PART VII - STACK DATA

Stack Identification: **P009 (F1 CANOPY/AOD BAGHOUSE EXHAUST)**

UTM East 607628

UTM North 4496059

Stack Height: 74 ft. Ground level elevation 770 ft. Diameter N/A ft.

Material

Outer: _____ lining: _____

Exit temperature (°F): Est. 200 Exit Velocity: 11.2 f/s.

Exhaust Rate

per unit: 480,000 (ACFM) % Moisture: 5

Nearest building to stack:

distance 0 ft. height 30 ft. length 450 ft. width 150 ft.

Processes Sharing Stack: If more than one process shares a stack, list and estimate relative contribution of each.

Description F1 Canopy

Contribution to emissions from stack 46 %

Description AOD

Contribution to emissions from stack 54 %

PART VIII - REMARKS

N/A

Attach calculations and reference all emission factors for Allowable, Potential to Emit, and Actual Emissions to this sheet. Reference all emission factors and efficiencies of control equipment.

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S020 – Continuous Caster Tundish Preheater No. 1
 Installer: AL Installation Date: Unknown
 Contractor (if operated by another): N/A
 Design Charging or Production rate (specify units): 2.5 MMBtu/hr
 Total Annual Production (specify units normally used): 22 MMcf/yr
 Raw Materials: Natural Gas
 Materials Produced: N/A
 Process Operation Units: (1.) N/A
 (Name and Previous County (2.) _____
 Permit Number, if any) (3.) _____
 (4.) _____
 (5.) _____
 (6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
 _____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S021 – Continuous Caster Tundish Preheater No. 2
 Installer: AL Installation Date: Unknown
 Contractor (if operated by another): N/A
 Design Charging or Production rate (specify units): 2.5 MMBtu/hr
 Total Annual Production (specify units normally used): 22 MMcf/yr
 Raw Materials: Natural Gas
 Materials Produced: N/A
 Process Operation Units: (1.) N/A
 (Name and Previous County (2.) _____
 Permit Number, if any) (3.) _____
 (4.) _____
 (5.) _____
 (6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
 _____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S027 -- Horizontal EAF Ladle Preheater
Installer: AL Installation Date: Unknown
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 4.5 MMBtu/hr
Total Annual Production (specify units normally used): 39.4 MMcf/yr
Raw Materials: Natural Gas
Materials Produced: N/A
Process Operation Units: (1.) N/A
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S022, S023, S024 – Continuous Caster Torch Cutters 1-3
Installer: N/A Installation Date: 2000
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 1.174 MMBtu/hr each; 150 tons/hour each
Total Annual Production (specify units normally used): 31 MMcf/yr; 3,942,000 tons/yr (3 torches combined)
Raw Materials: Natural Gas / Slabs
Materials Produced: Cut Slabs
Process Operation Units: (1.) 0059-I005
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

PART VI - EMISSION CONTROLS

D007 BAGHOUSE (fabric collector) – F1 CANOPY/AOD BAGHOUSE

Percent Capture Est. 90 % (not control efficiency)
Gas flow through control units 480,000 ACFM @ 200 °F

Manufacturer's Name and Model WHEELABRATOR FRYE 264 SERIES 8S

Type of bag material WOVEN POLYESTER GORTEX

Total filter cloth area 247,296 sq. ft., air to cloth ratio 3.0:1

Bag cleaning method: SHAKER cycle NA Min

Pressure Drop: 12 "H₂O,

Pollutant	Efficiency (%)	Basis for Efficiency	Outlet Grain Loading
PM / PM-10	99.5	Mfg Est.	<0.0052 gr/dscf

FUGITIVE DUST CONTROLS: Describe below or attach a complete explanation of all controls of fugitive emissions not discussed in Form E - Roads or Form F - Storage Piles.
N/A

PART VII - STACK DATA

Stack Identification: P009 (F1 CANOPY/AOD BAGHOUSE EXHAUST)

UTM East 607628 UTM North 4496059

Stack Height: 74 ft. Ground level elevation 770 ft. Diameter N/A ft.

Material Outer: lining:

Exit temperature (°F): Est. 200 Exit Velocity: 11.2 f/s.

Exhaust Rate per unit: 480,000 (ACFM) % Moisture: 5

Nearest building to stack: distance 0 ft. height 30 ft. length 450 ft. width 150 ft.

Processes Sharing Stack: If more than one process shares a stack, list and estimate relative contribution of each.

Description F1 Canopy
Contribution to emissions from stack 46 %

Description AOD (includes torch cutters)
Contribution to emissions from stack 54 %

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S027 – Horizontal EAF Ladle Preheater
Installer: AL Installation Date: Unknown
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 4.5 MMBtu/hr
Total Annual Production (specify units normally used): 39.4 MMcf/yr
Raw Materials: Natural Gas
Materials Produced: N/A
Process Operation Units: (1.) N/A
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS

Company Identification: S035 -AOD Vessel Preheater
Installer: American Combustion Installation Date: 1983
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 6 MMBtu/hr
Total Annual Production (specify units normally used): 53 MMcf/yr
Raw Materials: Natural Gas
Materials Produced: N/A
Process Operation Units: (1.) N/A
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS

Company Identification: S032, S033, S034 – American Horizontal AOD Ladle Preheaters 1-3
Installer: American Combustion Installation Date: 1994
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 8 MMBtu/hr each
Total Annual Production (specify units normally used): 210.3 MMcf/yr
Raw Materials: Natural Gas
Materials Produced: N/A
Process Operation Units: (1.) 93-I-0026
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS

Company Identification: Sxx1, xx2, xx2, xx4 - Bloom Horizontal AOD Ladle Preheaters 4-7
Installer: Bloom Installation Date: 2009
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 15 MMBtu/hr each
Total Annual Production (specify units normally used): 272 MMcf/yr
Raw Materials: Natural Gas
Materials Produced: N/A
Process Operation Units: (1.) 0059-1007
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S029 – Vertical EAF Ladle Preheater 2
 Installer: Bloom Engineering Installation Date: 1983
 Contractor (if operated by another): N/A
 Design Charging or Production rate (specify units): 10.5 MMBtu/hr
 Total Annual Production (specify units normally used): 92 MMcf/yr
 Raw Materials: Natural Gas
 Materials Produced: N/A
 Process Operation Units: (1.) N/A
 (Name and Previous County (2.) _____
 Permit Number, if any) (3.) _____
 (4.) _____
 (5.) _____
 (6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
 _____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S028 - Vertical EAF Ladle Preheater 1
Installer: Bloom Engineering Installation Date: 1983
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 10.5 MMBtu/hr
Total Annual Production (specify units normally used): 92 MMcf/yr
Raw Materials: Natural Gas
Materials Produced: N/A
Process Operation Units: (1.) N/A
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S046, 047 – Plate Burner / Torch Cutter Nos. 1-2
Installer: AL Installation Date: 1973
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 3.0 MMBtu/hr each; 21.36 tons/hour each
Total Annual Production (specify units normally used): 52.6 MMcf/yr; 374,227 tons/yr (both)
Raw Materials: Natural Gas / Slabs
Materials Produced: Cut Slabs
Process Operation Units: (1.) 0025603-000-11600
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

PART VI - EMISSION CONTROLS

D011 BAGHOUSE (fabric collector) – Plate Burner / Torch Cutter Baggouse

Percent Capture 90-100 % (not control efficiency)
Gas flow through control units 60,000 ACFM @ 70 °F

Manufacturer's Name and Model WHEELABRATOR FRYE Model 144

Total filter cloth area 12,720 sq. ft., air to cloth ratio 4.7:1

Bag cleaning method: Pulse Jet cycle NA Min

Pressure Drop: 8 "H₂O,

Pollutant	Efficiency (%)	Basis for Efficiency	Outlet Grain Loading
PM / PM-10	99.5	Mfg Est.	<0.01 gr/dscf

FUGITIVE DUST CONTROLS: Describe below or attach a complete explanation of all controls of fugitive emissions not discussed in Form E - Roads or Form F - Storage Piles.

N/A

PART VII - STACK DATA

Stack Identification: **P013 Vent Exhaust**

UTM East 607317 UTM North 4495896

Stack Height: 40 ft. Ground level elevation 760 ft. Diameter N/A ft.

Material Outer: _____ lining: _____

Exit temperature (°F): 70 Exit Velocity: 83.3 f/s.

Exhaust Rate per unit: 60,000 (ACFM) % Moisture: 5

Nearest building to stack: distance 0 ft. height 50 ft. length 560 ft. width 300 ft.

Processes Sharing Stack: If more than one process shares a stack, list and estimate relative contribution of each.

Description S046 Plate Burner / Torch Cutter No. 1

Contribution to emissions from stack 50 %

Description S046 Plate Burner / Torch Cutter No. 2

Contribution to emissions from stack 50 %

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S059 – Loftus Soaking Pit #11
Installer: Loftus Engineering Company Installation Date: 1970
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 26 MMBtu/hr
Total Annual Production (specify units normally used): 228 MMcf/yr
Raw Materials: Ingots, Natural Gas
Materials Produced: Heated ingots
Process Operation Units: (1.) N/A
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S060 – Loftus Soaking Pit #12
 Installer: Loftus Engineering Company Installation Date: 1970
 Contractor (if operated by another): N/A
 Design Charging or Production rate (specify units): 26 MMBtu/hr
 Total Annual Production (specify units normally used): 228 MMcf/yr
 Raw Materials: Ingots, Natural Gas
 Materials Produced: Heated ingots
 Process Operation Units: (1.) N/A
 (Name and Previous County (2.) _____
 Permit Number, if any) (3.) _____
 (4.) _____
 (5.) _____
 (6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
 _____ Total days x _____ Hours/day = _____ Hours/year

PART VII - STACK DATA

Stack Identification: P015 Soaking Pits #9-12 Stack Exhaust

UTM East 607260

UTM North 4495547

Stack Height: 125 ft. Ground level elevation 760 ft. Diameter 6 ft.

Material

Outer: Steel lining: Brick

Exit temperature (°F): 1000 Exit Velocity: 11.24 f/s.

Exhaust Rate

per unit: 19,070 (ACFM) % Moisture: 10

Nearest building to stack:

distance 20 ft. height TBD ft. length TBD ft. width TBD ft.

Processes Sharing Stack: If more than one process shares a stack, list and estimate relative contribution of each.

Description S057 Loftus Soaking Pit #9

Contribution to emissions from stack 25 %

Description S058 Loftus Soaking Pit #10

Contribution to emissions from stack 25 %

Description S059 Loftus Soaking Pit #11

Contribution to emissions from stack 25 %

Description S060 Loftus Soaking Pit #12

Contribution to emissions from stack 25 %

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S061 – Loftus Soaking Pit #13
 Installer: Loftus Engineering Company Installation Date: 1970
 Contractor (if operated by another): N/A
 Design Charging or Production rate (specify units): 26 MMBtu/hr
 Total Annual Production (specify units normally used): 228 MMcf/yr
 Raw Materials: Ingots, Natural Gas
 Materials Produced: Heated ingots
 Process Operation Units: (1.) N/A
 (Name and Previous County (2.) _____
 Permit Number, if any) (3.) _____
 (4.) _____
 (5.) _____
 (6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
 _____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S062 – Loftus Soaking Pit #14
Installer: Loftus Engineering Company Installation Date: 1970
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 26 MMBtu/hr
Total Annual Production (specify units normally used): 228 MMcf/yr
Raw Materials: Ingots, Natural Gas
Materials Produced: Heated ingots
Process Operation Units: (1.) N/A
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S063 - Loftus Soaking Pit #15
Installer: Loftus Engineering Company Installation Date: 1970
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 26 MMBtu/hr
Total Annual Production (specify units normally used): 228 MMcf/yr
Raw Materials: Ingots, Natural Gas
Materials Produced: Heated ingots
Process Operation Units: (1.) N/A
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S064 – Loftus Soaking Pit #16
Installer: Loftus Engineering Company Installation Date: 1970
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 26 MMBtu/hr
Total Annual Production (specify units normally used): 228 MMcf/yr
Raw Materials: Ingots, Natural Gas
Materials Produced: Heated ingots
Process Operation Units: (1.) N/A
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

PART VII - STACK DATA

Stack Identification: **P016 Soaking Pits #13-16 Stack Exhaust**

UTM East 607260

UTM North 4495547

Stack Height: 125 ft. Ground level elevation 760 ft. Diameter 6 ft.

Material

Outer: Steel lining: Brick

Exit temperature (°F): 1000 Exit Velocity: 11.24 f/s.

Exhaust Rate

per unit: 19,070 (ACFM) % Moisture: 10

Nearest building to stack:

distance 20 ft. height TBD ft. length TBD ft. width TBD ft.

Processes Sharing Stack: If more than one process shares a stack, list and estimate relative contribution of each.

Description S061 Loftus Soaking Pit #13

Contribution to emissions from stack 25 %

Description S062 Loftus Soaking Pit #14

Contribution to emissions from stack 25 %

Description S063 Loftus Soaking Pit #15

Contribution to emissions from stack 25 %

Description S064 Loftus Soaking Pit #16

Contribution to emissions from stack 25 %

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification: S090A – 56" Tandem Mill Preheater
 Installer: AL Installation Date: Unknown
 Contractor (if operated by another): N/A
 Design Charging or Production rate (specify units): 3 MMBtu/hr
 Total Annual Production (specify units normally used): 26.3 MMcf/yr
 Raw Materials: Natural Gas
 Materials Produced: N/A
 Process Operation Units: (1.) N/A
 (Name and Previous County (2.) _____
 Permit Number, if any) (3.) _____
 (4.) _____
 (5.) _____
 (6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Attachment

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
 _____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM B
FUEL BURNING OR COMBUSTION EQUIPMENT**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF COMBUSTION UNIT (MAKE A COPY OF SCHEDULE B FOR EACH UNIT)

Company Identification: S097 No. 3 Department Boiler 1
 Unit Make: Johnson Boiler Company Unit Model: N/A
 Description of Unit and Type of Firing (e.g. spreader stoker, traveling grate, etc.)
Steam Boiler
 Installer: AL Installation Date: 1983
 Contractor (if operated by another): NA
 Installation Date: NA Your Identification: NA
 Previous County Air Pollution Permit Number (if any): 0025603-000-00905
 Rated Capacity (BTU/hr) 34 Maximum Capacity (BTU/hr): 34
 Normal Use (BTU/hr) NA
 Percent of Heat Used for:
 Power Generation 0 % process 100 % space heating 0 % (Annual average)

PART II - OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: (Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.)
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (limitations on operating hours are optional) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: Either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.

_____ Total days x _____ Hours/day = _____ Hours/year

PERMIT APPLICATION FORM B
FUEL BURNING OR COMBUSTION EQUIPMENT

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF COMBUSTION UNIT (MAKE A COPY OF SCHEDULE B FOR EACH UNIT)

Company Identification: S098 No. 3 Department Boiler 2
Unit Make: Johnson Boiler Company Unit Model: N/A
Description of Unit and Type of Firing (e.g. spreader stoker, traveling grate, etc.)
Steam Boiler
Installer: AL Installation Date: 1983
Contractor (if operated by another): NA
Installation Date: NA Your Identification: NA
Previous County Air Pollution Permit Number (if any): 0025603-000-00905
Rated Capacity (BTU/hr) 34 Maximum Capacity (BTU/hr): 34
Normal Use (BTU/hr) NA
Percent of Heat Used for:
Power Generation 0 % process 100 % space heating 0 % (Annual average)

PART II - OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: (Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.)
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25
B. Requested limits: (limitations on operating hours are optional) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: Either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.

_____ Total days x _____ Hours/day = _____ Hours/year

PART VII - STACK DATA

Stack Identification: P035 Stack Exhaust

UTM East 606681 UTM North 4495693 or

Stack Height: 20 ft. Ground level elevation 760 ft. Diameter NA ft.

Material
Outer: N/A Lining: N/A

Exit temperature (F): 350 Exit Velocity: 5.71 (f/s).

Exhaust rate: 11,200 (ACFM) % Moisture: 5

Nearest building to stack:
Distance 15 ft. height 60 ft. length 50 ft. width 35 ft.

Processes Sharing Stack: If more than one process shares a stack, list them and estimate relative contribution of each.

Description S097 No. 3 Dept. Boiler 1

Contribution to emissions from stack 50 %

Description S098 No. 3 Dept. Boiler 2

Contribution to emissions from stack 50 %

**PERMIT APPLICATION FORM B
FUEL BURNING OR COMBUSTION EQUIPMENT**

PLANT NAME AND LOCATION: Allegheny Ludlum
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF COMBUSTION UNIT (MAKE A COPY OF SCHEDULE B FOR EACH UNIT)

Company Identification: S116 Misc. Natural Gas Usage (space heaters, etc.)
 Unit Make: Varies Unit Model: Varies
 Description of Unit and Type of Firing (e.g. spreader stoker, traveling grate, etc.)
Varies
 Installer: AL Installation Date: NA
 Contractor (if operated by another): NA
 Installation Date: NA Your Identification: NA
 Previous County Air Pollution Permit Number (if any): NA
 Rated Capacity (BTU/hr) 160 MMBtu/hr (combined) Maximum Capacity (BTU/hr): 160 MMBtu/hr (combined)
 Normal Use (BTU/hr) NA
 Percent of Heat Used for:
 Power Generation 0 % process 0 % space heating 100 % (Annual average)

PART II - OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: (Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.)
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (limitations on operating hours are optional) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: Either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.

_____ Total days x _____ Hours/day = _____ Hours/year

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum Corporation (ALC)
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification or Description: (2) Walking Beam Furnaces (S201, S202)
Installer: ALC Installation Date: 2010-2011
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 465 MMBtu/hr/furnace
Total Annual Production (specify units normally used): 6,110 MMscf/year/total
Raw Materials: Natural Gas for Heating Specialty Products
Materials Produced: Heated Specialty Products
Process Operation Units: (1.) N/A
(Name and Previous County) (2.) _____
Permit Number, if any (3.) _____
(4.) _____
(5.) _____
(6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Technical Support Document, Figure 2-2, General Flow Path for the Hot Rolling Technology Project

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

PART VII - STACK DATA

Stack data must be provided for each flue, duct, pipe, stack, chimney or conduit (stacks) at which collected emissions are vented to open air through a restricted opening.

Stack Identification: **P201; P202**

UTM East 607.097 Km UTM North 4495.748 km or
Longitude _____ Latitude _____

Most important stacks have been located on topographic or air navigation charts. If you know the UTM coordinates or latitude and longitude, provide this information. If there is a number of stacks close together, a common location may be used

Stack Height: 165 ft. Ground level elevation 735 ft. Diameter 11 ft.

Material

Outer: TBD lining: TBD

Exit temperature (°F): approx 920 Exit Velocity: 36 f/s.

Exhaust Rate

per unit: 67,839 (SCFM) % Moisture: 17.8

Nearest building to stack: **See Facility Layout**

distance _____ ft. height _____ ft. length _____ ft. width _____ ft.

Processes Sharing Stack: If more than one process shares a stack, list them and estimate relative contribution of each.

Description N/A

Contribution to emissions from stack _____ %

Description N/A

Contribution to emissions from stack _____ %

Description N/A

Contribution to emissions from stack _____ %

Description N/A

PART VIII - REMARKS

N/A

Attach calculations and reference all emission factors for Allowable, Potential to Emit, and Actual Emissions to this sheet. Reference all emission factors and efficiencies of control equipment.

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum Corporation (ALC)
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification or Description: Active Hot Boxes 1-3 (S206)
Installer: ALC Installation Date: 2010-2011
Contractor (if operated by another): N/A
Design Charging or Production rate (specify units): 10 MMBtu/hr each
Total Annual Production (specify units normally used): 197 MMscf/year (total)
Raw
Materials: Specialty Products
Materials Produced: Heated Specialty Products
Process Operation Units: (1.) N/A
(Name and Previous County (2.) _____
Permit Number, if any) (3.) _____
(4.) _____
(5.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Technical Support Document, Figure 2-2, General Flow Path for the Hot Rolling Technology Project

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
Start time 00 : 00 End time 24 : 00
Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
Percent of Annual Production
December, January, & February 25 June, July, & August 25
March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.
_____ Total days x _____ Hours/day = _____ Hours/year

PART VII - STACK DATA

Stack data must be provided for each flue, duct, pipe, stack, chimney or conduit (stacks) at which collected emissions are vented to open air through a restricted opening.

Stack Identification: N/A (Volume Source)(Z206)

UTM East _____ UTM North _____ or
Longitude _____ Latitude _____

Most important stacks have been located on topographic or air navigation charts. If you know the UTM coordinates or latitude and longitude, provide this information. If there is a number of stacks close together, a common location may be used

Stack Height: _____ ft. Ground level elevation _____ ft. Diameter _____ ft.

Material

Outer: _____ lining: _____

Exit temperature (°F): _____ Exit Velocity: N/A f/s.

Exhaust Rate: _____ (SCFM) % Moisture: _____

Nearest building to stack: N/A
distance _____ ft. height _____ ft. length _____ ft. width _____ ft.

Processes Sharing Stack: If more than one process shares a stack, list them and estimate relative contribution of each.

Description N/A

Contribution to emissions from stack _____ %

Description N/A

Contribution to emissions from stack _____ %

Description N/A

Contribution to emissions from stack _____ %

Description N/A

PART VIII - REMARKS

N/A

Attach calculations and reference all emission factors for Allowable, Potential to Emit, and Actual Emissions to this sheet. Reference all emission factors and efficiencies of control equipment.

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum Corporation (ALC)
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification or Description: (6) Car Bottom Furnaces (S211, S212, S213, S214, S215, S216)
 Installer: ALC Installation Date: 2010-2011
 Contractor (if operated by another): N/A
 Design Charging or Production rate (specify units): 21.2 MMBtu/hr/furnace
 Total Annual Production (specify units normally used): 846 MMscf/year/total
 Raw Materials: Natural Gas for Heating Specialty Products
 Materials Produced: Heated Specialty Products
 Process Operation Units: (1.) N/A
 (Name and Previous County) (2.) _____
 Permit Number, if any) (3.) _____
 (4.) _____
 (5.) _____
 (6.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Technical Support Document, Figure 2-2, General Flow Path for the Hot Rolling Technology Project

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)
 Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00
 Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.
 Percent of Annual Production
 December, January, & February 25 June, July, & August 25
 March, April, & May 25 September, October, & November 25

B. Requested limits: (Limitations on operating hours are optional.) Choose One:
 8760 hours (no limitations) or
 I/We request the following limitation -- **This may become a federally enforceable permit condition:** Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.

PART VII - STACK DATA

Stack data must be provided for each flue, duct, pipe, stack, chimney or conduit (stacks) at which collected emissions are vented to open air through a restricted opening.

Stack Identification: N/A (fugitive source, Z211, Z212, Z213, Z214, Z215, Z216)

UTM East _____ UTM North _____ or
Longitude _____ Latitude _____

Most important stacks have been located on topographic or air navigation charts. If you know the UTM coordinates or latitude and longitude, provide this information. If there is a number of stacks close together, a common location may be used

Stack Height: _____ ft. Ground level elevation _____ ft. Diameter _____ ft.

Material _____
Outer: _____ lining: _____

Exit temperature (°F): _____ Exit Velocity: N/A f/s.

Exhaust Rate: _____ (SCFM per frnc) % Moisture: _____

Nearest building to stack: N/A
distance _____ ft. height _____ ft. length _____ ft. width _____ ft.

Processes Sharing Stack: If more than one process shares a stack, list them and estimate relative contribution of each.

Description NA

Contribution to emissions from stack _____ %

Description NA

Contribution to emissions from stack _____ %

Description NA

Contribution to emissions from stack _____ %

Description NA

PART VIII - REMARKS

N/A

Attach calculations and reference all emission factors for Allowable, Potential to Emit, and Actual Emissions to this sheet. Reference all emission factors and efficiencies of control equipment.

**PERMIT APPLICATION FORM A
PROCESS OPERATIONS**

PLANT NAME AND LOCATION: Allegheny Ludlum Corporation (ALC)
100 River Road, Brackenridge, PA 15014

PART I - DESCRIPTION OF PROCESS (MAKE A COPY OF SCHEDULE A FOR EACH PROCESS.)

Company Identification or Description: Plasma Torch Cutting Operation (S221)
 Installer: ALC Installation Date: 2010-2011
 Contractor (if operated by another): N/A
 Design Charging or Production rate (specify units): 30,000 tons /year
 Total Annual Production (specify units normally used): 30,000 tons/year
 Raw Materials: Specialty Products
 Materials Produced: Specialty Products
 Process Operation Units: (1.) N/A
 (Name and Previous County Permit (2.) _____
 Number, if any) (3.) _____
 (4.) _____
 (5.) _____

Diagram of Process Flow: Attach a separate sheet with a drawing of a flow diagram of this process, labeling each segment listed under Process Operation Segments. Label product intake points and product discharge points for each segment. Label emissions discharge points and the location of emissions control devices.

See Technical Support Document, Figure 2-2, General Flow Path for the Hot Rolling Technology Project

PART II - PROCESS OPERATION SCHEDULE

A. Normal schedule: (Provide information for last year. If a new unit, please estimate)

Hours/day 24 Days/week 7 Weeks/year 52 Hours/year 8760
 Start time 00 : 00 End time 24 : 00

Seasonal: Periods correspond to seasons instead of calendar quarters. The first season is split to include December, January, and February of the calendar year reported.

Percent of Annual Production

December, January, & February	<u>25</u>	June, July, & August	<u>25</u>
March, April, & May	<u>25</u>	September, October, & November	<u>25</u>

B. Requested limits: (Limitations on operating hours are optional.) Choose One:

8760 hours (no limitations) or

I/We request the following limitation -- **This may become a federally enforceable permit condition:**
 Describe how this can be enforced: either list an operating schedule or downtime (e.g. only operate 8:00 to 4:00) or an operating hour reporting requirement.

_____ Total days x _____ Hours/day = _____ Hours/year

Company: Allegheny Ludlum Corporation

Page: _____

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Submit Original and Two Copies

PART VII - STACK DATA

Stack data must be provided for each flue, duct, pipe, stack, chimney or conduit (stacks) at which collected emissions are vented to open air through a restricted opening.

Stack Identification: **P221**

UTM East **TBD** UTM North **TBD** or
Longitude _____ Latitude _____

Most important stacks have been located on topographic or air navigation charts. If you know the UTM coordinates or latitude and longitude, provide this information. If there is a number of stacks close together, a common location may be used

Stack Height: **TBD** ft. Ground level elevation **765** ft. Diameter **TBD** ft.

Material

Outer: _____ lining: _____

Exit temperature (°F): **TBD** Exit Velocity: **TBD** f/s.

Exhaust Rate: **TBD** (SCFM) % Moisture: **TBD**

Nearest building to stack: **NA**
distance _____ ft. height _____ ft. length _____ ft. width _____ ft.

Processes Sharing Stack: If more than one process shares a stack, list them and estimate relative contribution of each.

Description	N/A
Contribution to emissions from stack	_____ %
Description	N/A
Contribution to emissions from stack	_____ %
Description	N/A
Contribution to emissions from stack	_____ %
Description	N/A

PART VIII - REMARKS

N/A

Attach calculations and reference all emission factors for Allowable, Potential to Emit, and Actual Emissions to this sheet. Reference all emission factors and efficiencies of control equipment.

TABLE V-A-1: Walking Beam Furnaces Emission Limitations

POLLUTANT	HOURLY EMISSION LIMIT (each furnace) (lb/hr)	ANNUAL EMISSION LIMIT (each furnace) (tons/year) ¹	ANNUAL EMISSION LIMIT (combined furnaces) ² (tons/year) ¹
PM ³	4.9	21.46	32.19
PM10 ⁴	4.9	21.46	32.19
PM2.5 ⁵	4.9	21.46	32.19
SOx (as SO ₂)	0.28	1.22	1.83
NOx	32.55	142.57	213.85
CO	9.30	40.73	61.10
VOCs	2.51	11.00	16.50

¹ A year is defined as any 12 consecutive months.

² Combined emissions are based on natural gas usage limit in condition V.A.1.c above.

³ PM emissions include filterable and condensable particulate matter and include PM₁₀ and PM_{2.5} emissions.

⁴ PM₁₀ emissions include filterable and condensable particulate matter and include PM_{2.5} emissions.

⁵ PM_{2.5} emissions include filterable and condensable particulate matter.

- j. The pounds per hour emissions limitations in Condition V.A.1.i above apply at all times during operation including startup and shutdown. (§2102.04.b.6, §2102.06.b.1, §2104.08, 25 Pa. Code §129.97(g)(1)(i))

2. Testing Requirements:

- a. The permittee shall conduct emissions tests at the maximum production rate at which each Walking Beam furnace will be operated at least once every five (5) years in accordance with the Site Level Condition IV.13 above (“Emissions Testing Requirements”) to determine compliance with the emissions limitations of Condition V.A.1.i above for NO_x and VOC, CO, PM, PM₁₀, PM_{2.5}, and for manganese while a manganese-containing mold flux is used. Upon written application setting forth all information necessary to evaluate the application, the Department may, for good cause shown, extend the time for conducting such tests beyond 120 days after startup, but shall not extend the time beyond 60 days after achieving full production. (§2102.04.b.6, §2102.04.e., §2103.12.i., §2108.02, 25 Pa. Code §129.100)
- b. Emissions testing shall be performed in accordance with the following test methods unless an alternate test method is approved by the Department in writing: (§2102.04.b.6, §2102.04.e., §2103.12.i., §2108.02)
 - 1) Particulate matter emissions shall be determined in accordance with EPA Method 5;
 - 2) PM₁₀ (filterable and condensable) and PM_{2.5} (filterable and condensable) emissions shall be determined in accordance with EPA Method 202;
 - 3) Emissions of nitrogen oxides shall be determined in accordance with EPA Method 7E;
 - 4) Emissions of volatile organic compounds shall be determined in accordance with EPA Method 25 or 25A;
 - 5) Emissions of carbon monoxide shall be determined in accordance with EPA Method 10.

D. Process P-006: Three Active Hot Boxes

Process Description: Active Hot Boxes
Facility ID: P-006
Max. Design Rate/Units: 10 MMBtu/hr each
Raw Materials: Natural Gas
Control Device(s): Ultra low NO_x burners

1. Restrictions

- a. The Active Hot Boxes shall only fire pipeline quality natural gas. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07, 25 Pa. Code §129.97(c)(2) and (3))
- b. Heat input to the Active Hot Boxes shall be limited to 10 MMBtu/hr. each (§2102.04.b.6, 25 Pa. Code §129.97(c)(2)and (3))
- c. The total natural gas input to the Active Hot Boxes shall not exceed 188 million cubic feet per any twelve (12) consecutive months. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07, 25 Pa. Code §129.97(c)(2) and (3))
- d. The permittee shall not operate or allow to be operated the Active Hot Boxes unless ultra-low NO_x burners (ULNBs) are in place and operating according to manufacturer’s specifications. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07; §2105.03, 25 Pa. Code §129.97(c)(2) and (3))
- e. The permittee shall employ effective combustion and operational control practices to minimize emissions of VOC, CO, SO_x, PM, PM₁₀, and PM_{2.5}. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07, §2105.03, 25 Pa. Code §129.97(c)(2) and (3))
- f. Emissions from the Active Hot Boxes shall not exceed the following (§2102.04.b.6, §2102.06.b.1):

Table V-D-1: Active Hot Boxes 1, 2 and 3 Emissions, Total

POLLUTANT	COMBINED EMISSIONS (lbs/hr)	COMBINED EMISSIONS (tpy ¹)
PM ²	0.22	0.73
PM ₁₀ ³	0.22	0.73
PM _{2.5} ⁴	0.22	0.73
SULFUR OXIDES (as SO ₂)	0.02	0.06
NITROGEN OXIDES	2.10	6.90
CARBON MONOXIDE	2.10	6.90
VOLATILE ORGANIC COMPOUNDS	0.15	0.49

¹ A year is defined as any 12 consecutive months.

² PM emissions include filterable and condensable particulate matter and include PM₁₀ and PM_{2.5} emissions.

³ PM₁₀ emissions include filterable and condensable particulate matter and include PM_{2.5} emissions.

E. Process P-006: Four (4) Car Bottom Furnaces

Process Description: Four (4) Car Bottom Furnaces
Facility ID: P-006
Max. Design Rate/Units: 21.2 MMBtu/hr per furnace
Raw Materials: Natural Gas
Control Device(s): Ultra low NO_x burners on each furnace

1. Restrictions

- a. The four (4) Car Bottom furnaces shall only fire pipeline quality natural gas. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07, 25 Pa. Code §129.97(b)(1) and (c)(2))
- b. Heat input to the four (4) Car Bottom furnaces shall be limited to 21.2 MMBtu/hr each. (§2102.04.b.6, 25 Pa. Code §129.97(b)(1) and (c)(2))
- c. The total natural gas input to the four (4) Car Bottom furnaces shall not exceed 531 million cubic feet per any twelve (12) consecutive months. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07, 25 Pa. Code §129.97(b)(1) and (c)(2))
- d. The permittee shall not operate or allow to be operated any of the Car Bottom furnaces unless ultra-low NO_x burners (ULNBs) are in place and operating according to manufacturer's specifications. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07)
- e. The permittee shall employ effective combustion and operational control practices to minimize emissions of VOC, CO, SO_x, PM, PM₁₀, and PM_{2.5}. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07, §2105.03, 25 Pa. Code §129.97(b)(1) and (c)(2))
- f. Emissions from the four (4) Car Bottom furnaces shall not exceed the following (§2102.04.b.6, §2102.06.b.1, 25 Pa. Code §129.97(b)(1) and (c)(2)):

Table V-E-1: Car Bottom Furnaces 1, 2, 3 and 4 Emissions

POLLUTANT	LBS/HR (each furnace)	TPY (each furnace) ¹	TPY (combined emissions) ²
PM ³	0.16	0.69	2.06
PM ₁₀ ⁴	0.16	0.69	2.06
PM _{2.5} ⁵	0.16	0.69	2.06
SULFUR OXIDES	0.01	0.05	0.16
NITROGEN OXIDES	1.87	8.17	24.51
CARBON MONOXIDE	1.48	6.50	19.50
VOLATILE ORGANIC COMPOUNDS	0.11	0.46	1.39

¹ A year is defined as any 12 consecutive months.

² Combined emissions are based on natural gas usage limit in Condition V.E.1.c above.

³ PM emissions include filterable and condensable particulate matter and include PM₁₀ and PM_{2.5} emissions.

G. Process P-007: Plasma Torch Cutting Operation

Process Description: Plasma Torch Cutting Operation
Facility ID: P-007
Capacity: 30,000 tons/yr
Raw Materials: Specialty Steel Products
Control Device: Baghouse

1. Restrictions

- a. The permittee shall employ effective operational control practices to minimize emissions of NO_x. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07, §2105.03, 25 Pa. Code §129.97(c)(1))
- b. NO_x emissions from the Plasma Torch Cutting operation shall not exceed 0.79 pound per hour. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07, 25 Pa. Code §129.97(c)(1))
- c. NO_x emissions from the Plasma Torch Cutting operation shall not exceed 3.46 tons per year. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07, 25 Pa. Code §129.97(c)(1))
- d. Emissions of PM, PM₁₀ and PM_{2.5} from the Plasma Torch Cutting operation shall be controlled by a baghouse. (§2102.04.b.6)
- e. PM, PM₁₀ and PM_{2.5} emissions from the Plasma Torch Cutting operation baghouse shall not exceed 0.01 pound per hour. (§2102.04.b.6)
- f. In addition to the requirements of Site Level Condition IV.2 above, visible emissions from the stack shall not exceed 10.0% opacity, based on a 6-minute average. Such opacity shall be determined by EPA Method 9. (§2102.04.b.6). §2102.04.b.6)
- g. Emissions from the Plasma Torch Cutting operation shall not exceed the following: (§2102.04.b.6, §2102.06.b.1, §2104.02.b, 25 Pa. Code §129.97(c)(1)):

Table V-G-1: Plasma Torch Cutting Emissions

POLLUTANT	LBS/HR	TPY ¹
PM ²	0.01	0.04
PM ₁₀ ³	0.01	0.04
PM _{2.5} ⁴	0.01	0.04
NITROGEN OXIDES	0.79	3.46

¹ A year is defined as any 12 consecutive months.

² PM emissions include filterable particulate matter and include PM₁₀ and PM_{2.5} emissions.

³ PM₁₀ emissions include filterable particulate matter and include PM_{2.5} emissions.

⁴ PM_{2.5} emissions include filterable particulate matter.

2. Testing Requirements

The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Article XXI

H. Process P-014: One (1) Emergency Generator

Process Description: One (1) Emergency Generator
Facility ID: EG-001
Max. Design Rate/Units: 2,250 kW (3,015 hp)
Raw Materials: Diesel Fuel
Control Device(s): Uncontrolled

1. Restrictions

- a. The operation of the emergency generator shall be limited to two hundred (200) hours per twelve (12) consecutive month period during those times when power supplied by a public utility is unavailable. (§2102.04.b.6, §2102.05, §2102.06.b.1, §2102.07, 25 Pa. Code §129.97(c)(8))
- b. The emergency generator (EG-001) must comply with the emission limitations in Table V-H-1 below. (§2102.04.b.6, §2102.06.b.1, 25 Pa. Code §129.97(c)(8))

TABLE V-H-1: Emergency Generator Emissions

POLLUTANT	HOURLY EMISSION LIMIT (lbs/hr)	ANNUAL EMISSION LIMIT (tons/year) ¹
PM	1.00	0.10
PM ₁₀	1.00	0.10
PM _{2.5}	1.00	0.10
SO ₂	0.04	0.004
NO _x	31.91	3.19
CO	17.28	1.73
VOC	31.91	3.19

¹ A year is defined as any consecutive 12-month period.

- c. The permittee shall only combust or allow to be combusted fuel oil that meets the following requirements: (§60.4207(b), §2103.20.b.4, §80.510(b), §2102.04.b.6D, §2105.03, 25 Pa. Code §129.97(c)(8))
 - 1) Sulfur content no higher than 0.0015% sulfur content (by weight); and
 - 2) Cetane index equal to 40 minimum or aromatic content equal to 35% volume maximum.
- d. The engines may be operated for the purpose of maintenance check and readiness testing, provided that the tests are recommended by the Federal, State County, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing are limited to 100 hours per year. ((§2102.04.b.6, §60.4211(e), 25 Pa. Code §129.97(c)(8))

2. Testing Requirements

- a. The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 above entitled "Emissions Testing. (§2103.12.h.1, §2108.02, 25 Pa. Code §129.100)