FACILITY PERMIT REVIEW SHEET

DATE: 6/7/2013 **APPLICATION NUMBER:** 0310503-008-AF

FACILITY NAME: Trend Offset Printing Services, Inc.

FACILITY DESCRIPTION: Lithographic Printing

PERMIT PROCESSOR: C. Blane Johnson

MAJOR FOR CRITERIA POLLUTANTS AND/OR HAP's (Circle)

PM **SO_2** **NO_X** **CO** **PB** **O_3** **HAP**

SUBJECT TO: (Circle)

NSR(PSD) **PERMIT NUMBER:** _____

NSR(NAA) **PERMIT NUMBER:** _____

BACT **EU NUMBER:** _____

MACT **EU NUMBER:** _____

RACT **EU NUMBER:** _____

NSPS **EU NUMBER:** _____

FACILITY EMISSION SUMMARY

	POTENTIAL EMISSIONS	ALLOWABLE EMISSIONS	
	TPY	LBS/HR	TPY
PM	0.57		
SO_2	0.04		
NO_X	7.5		
CO	6.3		
CO_2	8966		
O_3			
PB	0.00004		
VOC	80.7		99
TOTAL HAP	2.7		25
SINGLE HAP (highest)	1.6		10

COMMENTS: _____

Effective 2/27/97

EMISSIONS CALCULATIONS

APPLICATION NUMBER: 0310503-008-AF **EU NUMBER:** 001

REFERENCES: Renewal application, operation permit 0310503-007-AO, CTG (EPA-453/R-06-002), and EPA EIIP Volume 2, Chapter 15.

POLLUTANT: Volatile Organic Compounds (VOC)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER
	25	20		

POTENTIAL EMISSION CALCULATIONS

maximum ink usage rate (lb/hr) X VOC content of ink (lb/lb) X retention factor (%) X (hr/yr) / (lb/ton) = PTE (ton/yr)

640	0.409	80%	8760	2000	=	917.2	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

917.2	0.05	=	45.9	tons/ yr controlled emissions

maximum blanket wash usage rate (gal/hr) X VOC content of wash (lb/gal) X (hr/yr) / (lb/ton) = PTE (ton/yr)

10	6.8	8760	2000	=	297.8	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X capture factor = emissions sent to afterburner (tons/yr)

297.8	40%	=	119.1	tons/yr to afterburner

uncontrolled emissions (tons/yr) - emissions to afterburner (tons/yr) = fugitive emissions (tons/yr)

297.8	119.1	=	178.7	tons/yr fugitive emissions

emissions to afterburner (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

119.1	0.05	=	6.0	tons/ yr controlled emissions

maximum fountain solution usage rate (gal/hr) X VOC content of solution (lb/gal) X (hr/yr) / (lb/ton) = PTE (ton/yr)

10	1.75	8760	2000	=	76.7	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X capture factor = emissions sent to afterburner (tons/yr)

76.7	70%	=	53.7	tons/yr to afterburner

uncontrolled emissions (tons/yr) - emissions to afterburner (tons/yr) = fugitive emissions (tons/yr)

76.7	53.7	=	23.0	tons/yr fugitive emissions

uncontrolled emissions (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

53.7	0.05	=	2.7	tons/ yr controlled emissions

Total emissions = 256.2 tons/yr

RULE APPLICABILITY: **FEDERAL** **STATE** **LOCAL**

COMMENTS:

POLLUTANT: Hazardous Air Pollutants (HAP's)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER
	10/25			

POTENTIAL EMISSION CALCULATIONS

maximum blanket wash usage rate (gal/hr) X density of wash (lb/gal) X HAP content of wash (lb/lb) X (hr/yr) / (lb/ton) = PTE (ton/yr)

10	7.17	0.026	8760	2000	=	8.2	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X capture factor = emissions sent to afterburner (tons/yr)

8.2	40%	=	3.3	tons/yr to afterburner

uncontrolled emissions (tons/yr) - emissions to afterburner (tons/yr) = fugitive emissions (tons/yr)

8.2	3.3	=	4.9	tons/yr fugitive emissions

emissions to afterburner (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

3.3	0.05	=	0.2	tons/ yr controlled emissions

Total emissions = 5.1 tons/yr

RULE APPLICABILITY: **FEDERAL** **STATE** **LOCAL**

COMMENTS: Highest HAP is Xylene at 3.1 tons/yr.

PERMIT PROCESSOR: **DATE:**

Effective 2/27/97

EMISSIONS CALCULATIONS

APPLICATION NUMBER: 0310503-008-AF **EU NUMBER:** 003

REFERENCES: Renewal application, operation permit 0310503-007-AO, CTG (EPA-453/R-06-002), and EPA EIIP Volume 2, Chapter 15.

POLLUTANT: Volatile Organic Compounds (VOC)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER
	49	20		

POTENTIAL EMISSION CALCULATIONS

maximum ink usage rate (lb/hr) X VOC content of ink (lb/lb) X retention factor (%) X (hr/yr) / (lb/ton) = PTE (ton/yr)

610 0.127 5% 8760 2000 = 17.0 tons/yr

maximum blanket wash usage rate (gal/hr) X VOC content of wash (lb/gal) X (hr/yr) / (lb/ton) = PTE (ton/yr)

1 6.8 8760 2000 = 29.8 tons/yr

maximum fountain solution usage rate (gal/hr) X VOC content of solution (lb/gal) X (hr/yr) / (lb/ton) = PTE (ton/yr)

1 1.75 8760 2000 = 7.7 tons/yr

Total emissions = 54.4 tons/yr

RULE APPLICABILITY: **FEDERAL** **STATE** **LOCAL**

COMMENTS:

POLLUTANT: Hazardous Air Pollutants (HAP's)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER
	10/25			

POTENTIAL EMISSION CALCULATIONS

maximum blanket wash usage rate (gal/hr) X density of wash (lb/gal) X HAP content of wash (lb/lb) X (hr/yr) / (lb/ton) = PTE (ton/yr)

1 7.17 0.026 8760 2000 = 0.8 tons/yr

RULE APPLICABILITY: **FEDERAL** **STATE** **LOCAL**

COMMENTS: Highest HAP is Xylene at 0.5 tons/yr.

PERMIT PROCESSOR: **DATE:**

Effective 2/27/97

EMISSIONS CALCULATIONS

APPLICATION NUMBER: 0310503-008-AF **EU NUMBER:** 005

REFERENCES: Renewal application, operation permit 0310503-007-AO, CTG (EPA-453/R-06-002), and EPA EIIP Volume 2, Chapter 15.

POLLUTANT: Volatile Organic Compounds (VOC)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER
	25			

POTENTIAL EMISSION CALCULATIONS

maximum ink usage rate (lb/hr) X VOC content of ink (lb/lb) X retention factor (%) X (hr/yr) / (lb/ton) = PTE (ton/yr)

1240	0.409	80%	8760	2000	=	1777.1	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

1777.1	0.05	=	88.9	tons/ yr controlled emissions

maximum blanket wash usage rate (gal/hr) X VOC content of wash (lb/gal) X (hr/yr) / (lb/ton) = PTE (ton/yr)

21	6.8	8760	2000	=	625.5	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X capture factor = emissions sent to afterburner (tons/yr)

625.5	40%	=	250.2	tons/yr to afterburner

uncontrolled emissions (tons/yr) - emissions to afterburner (tons/yr) = fugitive emissions (tons/yr)

625.5	250.2	=	375.3	tons/yr fugitive emissions

emissions to afterburner (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

250.2	0.05	=	12.5	tons/ yr controlled emissions

maximum fountain solution usage rate (gal/hr) X VOC content of solution (lb/gal) X (hr/yr) / (lb/ton) = PTE (ton/yr)

21	1.75	8760	2000	=	161.0	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X capture factor = emissions sent to afterburner (tons/yr)

161.0	70%	=	112.7	tons/yr to afterburner

uncontrolled emissions (tons/yr) - emissions to afterburner (tons/yr) = fugitive emissions (tons/yr)

161.0	112.7	=	48.3	tons/yr fugitive emissions

uncontrolled emissions (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

112.7	0.05	=	5.6	tons/ yr controlled emissions

Total emissions = 530.6 tons/yr

RULE APPLICABILITY: **FEDERAL** **STATE** **LOCAL**

COMMENTS:

POLLUTANT: Hazardous Air Pollutants (HAP's)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER
	10/25			

POTENTIAL EMISSION CALCULATIONS

maximum blanket wash usage rate (gal/hr) X density of wash (lb/gal) X HAP content of wash (lb/lb) X (hr/yr) / (lb/ton) = PTE (ton/yr)

21	7.17	0.026	8760	2000	=	17.1	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X capture factor = emissions sent to afterburner (tons/yr)

17.1	40%	=	6.9	tons/yr to afterburner

uncontrolled emissions (tons/yr) - emissions to afterburner (tons/yr) = fugitive emissions (tons/yr)

17.1	6.9	=	10.3	tons/yr fugitive emissions

emissions to afterburner (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

6.9	0.05	=	0.3	tons/ yr controlled emissions

Total emissions = 10.6 tons/yr

RULE APPLICABILITY: **FEDERAL** **STATE** **LOCAL**

COMMENTS: Highest HAP is Xylene at 6.5 tons/yr.

PERMIT PROCESSOR: **DATE:**

Effective 2/27/97

EMISSIONS CALCULATIONS

APPLICATION NUMBER: 0310503-008-AF **EU NUMBER:** N/A

REFERENCES: Renewal application, operation permit 0310503-007-AO, AP-42 Section1.4. This source of fugitive emissions is comprized of the burners for three (3) presses and one (1) regenerative thermal oxidizer (EU 001 - 5.4 MMBtu/hr; EU 005 - 6.0 and 4.0MMBtu/hr; RTO - 2.0 MMBtu/hr; Total - 17.4 MMBtu/hr).

POLLUTANT: Nitrogen Oxides (NO_X)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER

POTENTIAL EMISSION CALCULATIONS

heat input (MMBtu/hr) / natural gas heat capacity (MMBtu/MMscf) X emission factor (lb/MMscf)

17.4	1020	100	=	1.7	lb/hr
			=	7.5	tons/yr

RULE APPLICABILITY:

FEDERAL	STATE	LOCAL

COMMENTS:

POLLUTANT: Carbon Monoxide (CO)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER

POTENTIAL EMISSION CALCULATIONS

heat input (MMBtu/hr) / natural gas heat capacity (MMBtu/MMscf) X emission factor (lb/MMscf)

17.4	1020	84	=	1.4	lb/hr
			=	6.3	tons/yr

RULE APPLICABILITY:

FEDERAL	STATE	LOCAL

COMMENTS:

POLLUTANT: Carbon Dioxide (CO_2)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER

POTENTIAL EMISSION CALCULATIONS

heat input (MMBtu/hr) / natural gas heat capacity (MMBtu/MMscf) X emission factor (lb/MMscf)

17.4	1020	120,000	=	2047	lb/hr
			=	8966	tons/yr

RULE APPLICABILITY: **FEDERAL** **STATE** **LOCAL**

COMMENTS:

POLLUTANT: Lead (Pb)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER

POTENTIAL EMISSION CALCULATIONS

heat input (MMBtu/hr) / natural gas heat capacity (MMBtu/MMscf) X emission factor (lb/MMscf)

17.4	1020	0.0005	=	0.00001	lb/hr
			=	0.00004	tons/yr

RULE APPLICABILITY: **FEDERAL** **STATE** **LOCAL**

COMMENTS:

POLLUTANT: Particulate Matter - Total (PM_{total})

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER
		20		

POTENTIAL EMISSION CALCULATIONS

heat input (MMBtu/hr) / natural gas heat capacity (MMBtu/MMscf) X emission factor (lb/MMscf)

17.4	1020	7.6	=	0.13	lb/hr
			=	0.57	tons/yr

RULE APPLICABILITY:	FEDERAL	STATE	LOCAL
		62-296.320(4)(b)1	2.1101

COMMENTS:

POLLUTANT: Sulfur Dioxide (SO_2)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER

POTENTIAL EMISSION CALCULATIONS

heat input (MMBtu/hr) / natural gas heat capacity (MMBtu/MMscf) X emission factor (lb/MMscf)

17.4	1020	0.6	=	0.01	lb/hr
			=	0.04	tons/yr

RULE APPLICABILITY:	FEDERAL	STATE	LOCAL

COMMENTS:

POLLUTANT: Volatile Organic Compounds (VOC's)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER

POTENTIAL EMISSION CALCULATIONS

heat input (MMBtu/hr) / natural gas heat capacity (MMBtu/MMscf) X emission factor (lb/MMscf)

17.4	1020	5.5	=	0.09	lb/hr
			=	0.41	tons/yr

RULE APPLICABILITY:

FEDERAL	STATE	LOCAL

COMMENTS:

POLLUTANT: Hazardous Air Pollutants (HAP's)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER

POTENTIAL EMISSION CALCULATIONS

heat input (MMBtu/hr) / natural gas heat capacity (MMBtu/MMscf) X emission factor (lb/MMscf)

17.4	1020	1.89	=	0.03	lb/hr
			=	0.14	tons/yr

RULE APPLICABILITY:

FEDERAL	STATE	LOCAL

COMMENTS: Highest HAP is Hexane at 0.13 tons per year.

PERMIT PROCESSOR: _____ **DATE:** _____

Effective 2/27/97

EMISSIONS CALCULATIONS

APPLICATION NUMBER: 0310503-008-AF **EU NUMBER:** Facility

REFERENCES: Renewal application, operation permit 0310503-007-AO, CTG (EPA-453/R-06-002), and EPA EIIP Volume 2, Chapter 15.

POLLUTANT: Volatile Organic Compounds (VOC)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER
	25	20		

POTENTIAL EMISSION CALCULATIONS

HEATSET

maximum ink usage rate (lb/day) X VOC content of ink (lb/lb) X retention factor (%) X (days/yr) / (lb/ton) = PTE (ton/yr)

4000	0.409	80%	365	2000	=	238.9	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

238.9	0.05	=	11.9	tons/ yr controlled emissions

maximum blanket wash usage rate (lb/day) X VOC content of wash (lb/lb) X (days/yr) / (lb/ton) = PTE (ton/yr)

200	0.934	365	2000	=	34.1	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X capture factor = emissions sent to afterburner (tons/yr)

34.1	40%	=	13.6	tons/yr to afterburner

uncontrolled emissions (tons/yr) - emissions to afterburner (tons/yr) = fugitive emissions (tons/yr)

34.1	13.6	=	20.5	tons/yr fugitive emissions

emissions to afterburner (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

13.6	0.05	=	0.7	tons/ yr controlled emissions

maximum fountain solution usage rate (lb/day) X VOC content of solution (lb/lb) X (days/yr) / (lb/ton) = PTE (ton/yr)

200	0.43	365	2000	=	15.7	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X capture factor = emissions sent to afterburner (tons/yr)

15.7	70%	=	11.0	tons/yr to afterburner

uncontrolled emissions (tons/yr) - emissions to afterburner (tons/yr) = fugitive emissions (tons/yr)

15.7	11.0	=	4.7	tons/yr fugitive emissions

uncontrolled emissions (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

11.0	0.05	=	0.5	tons/ yr controlled emissions

COLDSET

maximum ink usage rate (lb/day) X VOC content of ink (lb/lb) X retention factor (%) X (days/yr) / (lb/ton) = PTE (ton/yr)

4000	0.127	5%	365	2000	=	4.6	tons/yr

maximum blanket wash usage rate (lb/day) X VOC content of wash (lb/lb) X (days/yr) / (lb/ton) = PTE (ton/yr)

150	0.934	365	2000	=	25.6	tons/yr

maximum fountain solution usage rate (lb/day) X VOC content of solution (lb/gal) X (days/yr) / (lb/ton) = PTE (ton/yr)

150	0.43	365	2000	=	11.8	tons/yr

Total emissions = 80.3 tons/yr

RULE APPLICABILITY: **FEDERAL** **STATE** **LOCAL**

COMMENTS:

POLLUTANT: Hazardous Air Pollutants (HAP's)

ALLOWABLE EMISSIONS

LBS/HR	TPY	% OPACITY	CONCENTRATION	OTHER
	10/25			

POTENTIAL EMISSION CALCULATIONS

HEATSET

maximum blanket wash usage rate (lb/day) X HAP content of wash (lb/lb) X (days/yr) / (lb/ton) = PTE (ton/yr)

400	0.026	365	2000	=	1.9	tons/yr uncontrolled emissions

uncontrolled emissions (tons/yr) X capture factor = emissions sent to afterburner (tons/yr)

1.9	40%	=	0.8	tons/yr to afterburner

uncontrolled emissions (tons/yr) - emissions to afterburner (tons/yr) = fugitive emissions (tons/yr)

1.9	0.8	=	1.1	tons/yr fugitive emissions

emissions to afterburner (tons/yr) X control efficiency [1-(destruction efficiency(95%)/100]

0.8	0.05	=	0.04	tons/ yr controlled emissions

COLDSET

maximum blanket wash usage rate (lb/day) X HAP content of wash (lb/lb) X (days/yr) / (lb/ton) = PTE (ton/yr)

300	0.026	365	2000	=	1.4	tons/yr

Total emissions = 2.6 tons/yr

RULE APPLICABILITY: **FEDERAL** **STATE** **LOCAL**

COMMENTS: Highest HAP is Xylene at 1.6 tons/yr.

PERMIT PROCESSOR: **DATE:**

Effective 2/27/97