west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
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Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

April 14, 2016

CERTIFIED MAIL
91 7199 9991 7034 1380 3199

Mr. Tom Estock, Director of Environmental
Quad/Graphics, Inc.
855 Caperton Boulevard
Martinsburg, WV 25403

RE: **Permit Issuance**
Quad/Graphics, Inc.
Martinsburg
Permit Application: R14-0012G
Plant ID No.: 003-00042

Dear Mr. Estock:

Your application for a Class II Administrative Update as required by Section 5 of 45CSR13 - "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permit, General Permit, and Procedures for Evaluation" has been approved. The enclosed permit R14-0012G is hereby issued pursuant to Subsection 5.7 of 45CSR13. Please be aware of the notification requirements in the permit which pertain to commencement of construction, modification, or relocation activities; startup of operations; and suspension of operations.

Please note, the source is subject to 45CSR30. The permittee has the duty to update the facility's Title V (45CSR30) permit to reflect the changes permitted herein.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

Should you have any questions or comments, please contact me at (304) 926-0499, extension 1219.

Sincerely,

Joe Kessler, PE
Engineer

Enclosures

West Virginia Department of Environmental Protection
Division of Air Quality

Earl Ray Tomblin
Governor

Randy C. Huffman
Cabinet Secretary

Permit for a Class II Administrative Update

R14-0012G

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§ 22-5-1 et seq.) and 45 C.S.R. 13 — Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the facility listed below is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:
Quad/Graphics, Inc.
Martinsburg
003-00042

William F. Durham
Director

Issued: April 14, 2016

This permit will supercede and replace Permit R14-0012F issued on December 18, 2014.

Facility Location:	Martinsburg, Berkeley County, West Virginia
Mailing Address:	855 Caperton Boulevard Martinsburg, WV 25403
Facility Description:	Printing and ink blending operation.
SIC Codes:	2754, 2752, 2893
UTM Coordinates:	247.0 km Easting • 4,377.0 km Northing • Zone 17
Latitude/Longitude:	39.50926/-77.95182
Permit Type:	Modification
Desc. of Change:	Class II Administrative Update to change the size and model of two (2) previously permitted heatset web offset lithographic printing presses (OP-1 and OP-2).

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§ 22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §22-5-14.

The source is subject to 45CSR30. Changes authorized by this permit must also be incorporated into the facility's Title V operating permit. Commencement of the operations authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

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1.0 Emission Units

Emission Point ID	Emission Unit ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
Publication Rotogravure Printing Presses					
S-25/S-26/S-27	G-13	Cerutti Four (4) Color, 8 unit, 108" Rotogravure Press	1997	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-14	Cerutti Four (4) Color, 8 unit, 108" Rotogravure Press	1997	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-15	Cerutti Four (4) Color, 8 unit, 108" Rotogravure Press	1998	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-16	Cerutti Four (4) Color, 8 unit, 108" Rotogravure Press	1998	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-17	Cerutti Four (4) Color, 8 unit, 108" Rotogravure Press	1999	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-18	Cerutti Four (4) Color, 8 unit, 108" Rotogravure Press	1999	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-19	Cerutti Four (4) Color, 8 unit, 108" Rotogravure Press	2000	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-20	Permanently removed from service in 2010.			
S-25/S-26/S-27	G-21	Cerutti Four (4) Color, 8 unit, 108" Rotogravure Press	2002	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-22	Cerutti Four (4) Color, 8 unit, 108" Rotogravure Press	2002	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-23	Cerutti Four (4) Color, 12 unit, 108" Rotogravure Press	2001	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-28	Albert-Frankenthal Four (4) Color, 8 unit, 108" Rotogravure Press	2011	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-29	Cerutti Four (4) Color, 12 unit, 108" Rotogravure Press	Not Installed	108" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-30	Cerutti Four (4) Color, 8 unit, 133" Rotogravure Press	Not Installed	133" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-31	Cerutti Four (4) Color, 8 unit, 133" Rotogravure Press	Not Installed	133" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21

1.0 Emission Units

Emission Point ID	Emission Unit ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
S-25/S-26/S-27	G-32	Cerutti Four (4) Color, 8 unit, 133" Rotogravure Press	Not Installed	133" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-33	Cerutti Four (4) Color, 8 unit, 133" Rotogravure Press	Not Installed	133" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-34	Cerutti Four (4) Color, 8 unit, 133" Rotogravure Press	Not Installed	133" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	G-35	Cerutti Four (4) Color, 8 unit, 133" Rotogravure Press	Not Installed	133" Web	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-1	Yellow R/G Printing Ink	1997	20,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-2	Red R/G Printing Ink	1997	10,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-3	Blue R/G Printing Ink	1997	10,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-4	Black R/G Printing Ink	1997	10,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-5	Coated R/G Extender	1997	20,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-6	Uncoated R/G Extender	1997	20,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-7	Toluene (Recovered Solvent)	1997	30,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-8	Toluene (Recovered Solvent)	1997	30,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-9	Toluene (Recovered Solvent)	1997	30,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-10	Toluene (Recovered Solvent)	Not Installed	30,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
Heatset Web Offset Lithographic Presses					
S-28	OP-01	Goss International C700E 4-unit, 4 color, heatset, Offset Press	2016	≤72 inches	F-01 Thermal Oxidizer

1.0 Emission Units

Emission Point ID	Emission Unit ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
S-28	OP-02	Goss International C700E 4-unit, 4 color, heatset, Offset Press	2016	≤72 inches	F-01 Thermal Oxidizer
S-30	OP-03	Heidelberg Harris M1000 8-unit, 4 color heatset, Offset Press	1998	35 – 40 inches	F-03 Catalytic Oxidizer
S-31	OP-04	Man Roland Rotoman SS 8-unit, 4 color, heatset, Offset Press	2002	35 – 40 inches	F-04 Thermal Oxidizer
S-32	OP-05	Man Roland Rotoman SS 8-unit, 4 color, heatset, Offset Press	2002	35 – 40 inches	F-05 Thermal Oxidizer
S-33	OP-06	Heidelberg Harris M1000 8-unit, 4 color, heatset, Offset Press	Not Installed	35 – 40 inches	F-06 Thermal Oxidizer
S-34	OP-07	Heidelberg Harris M1000 8-unit, 4 color, heatset, Offset Press	Not Installed	35 – 40 inches	F-07 Thermal Oxidizer
S-35	OP-08	Heidelberg Harris M1000 8-unit, 4 color, heatset, Offset Press	Not Installed	35 – 40 inches	F-08 Thermal Oxidizer
S-36	OP-09	Heidelberg Harris M3000 8-unit, 4 color, heatset, Offset Press	Not Installed	57 – 66 inches	F-09 Thermal Oxidizer
S-37	OP-10	Heidelberg Harris M3000 8-unit, 4 color, heatset, Offset Press	Not Installed	57 – 66 inches	F-10 Thermal Oxidizer
S-38	OP-11	Heidelberg Harris M3000 8-unit, 4 color, heatset, Offset Press	Not Installed	57 – 66 inches	F-11 Thermal Oxidizer
S-39	OP-12	Heidelberg Harris M3000 8-unit, 4 color, heatset, Offset Press	Not Installed	57 – 66 inches	F-12 Thermal Oxidizer
Ink Blending& Manufacturing					
S-25/S-26/S-27	AC1	Storage (1) Clay Concentrate	2000	20,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	AEC1	Storage (2) Ethylcellulose Compound	2000	8,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	AW1	Storage (3) Wax Compound	2000	8,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	CB1	Storage (4) Blue Concentrate	2000	10,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	CK1	Storage (5) Black Concentrate	2000	10,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	CR1	Storage (6) Rubine Red Concentrate	2000	10,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21

1.0 Emission Units

Emission Point ID	Emission Unit ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
S-25/S-26/S-27	CR2	Storage (7) Barium Lithol Concentrate	2000	8,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	CY1	Storage (8) Yellow Concentrate	2000	12,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	R1A	Storage (9) Resinate #1	2000	30,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	R1B	Storage (10) Resinate #1	2000	30,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	R2	Storage (11) Resinate #2	2000	30,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	ABt1	Tote (1) Alkali Blue	Not Installed	350 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	MBt1	Tote (2) Miluri Blue	Not Installed	350 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	ECt1	Tote (3) Ethyl Cellulose	Not Installed	554 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	M1	Blending (1) Yellow Ink Mixing	2000	5,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	M2	Blending (2) Red Ink Mixing	2000	5,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	M3	Blending (3) Blue Ink Mixing	2000	5,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	M4	Blending (4) Black Ink Mixing	2000	5,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	M5	Blending (5) Coated Extender Mixing	2000	5,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	M6	Blending (6) Uncoated Extender Mixing	2000	5,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	M7	Blending (7) Ethyl Cellulose Mixing	2000	5,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21

1.0 Emission Units

Emission Point ID	Emission Unit ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
S-25/S-26/S-27	BL-01	Black Dispersion Tank	2008	1,476 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	BL-02	Black Buffer Tank	2008	2,056 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	BL-03	Black Letdown Tank	2008	2,839 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	CL-01	Clay Dispersion Tank	2008	1,476 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	CL-02	Clay Buffer Tank	2008	2,056 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	CL-03	Clay Letdown Tank	2008	2,839 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	CYL-01	Blue Dispersion Tank	2008	1,476 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	CYL-02	Blue Buffer Tank	2008	2,056 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	CYL-03	Blue Letdown Tank	2008	2,839 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	RES-01	Resinate Holding Tank 1	2008	2,839 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	RES-02	Resinate Holding Tank 2	2008	2,839 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	RESL-01	Resinate Dispersion Tank 1	2008	2,839 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	RESL-02	Resinate Dispersion Tank 2	2008	2,839 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	RL-01	Red Dispersion Tank	2008	1,476 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	RL-02	Red Buffer Tank	2008	2,056 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	RL-03	Red Letdown Tank	2008	2,839 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21

1.0 Emission Units

Emission Point ID	Emission Unit ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
S-25/S-26/S-27	YL-01	Yello Dispersion Tank	2008	1,476 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	YL-02	Yellow Buffer Tank	2008	2,056 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	YL-03	Yellow Letdown Tank	2008	2,839 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-11	Yellow R/G Printing Ink	2002	10,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-12	Red R/G Printing Ink	2002	8,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-13	Blue R/G Printing Ink	2002	10,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-14	Black R/G Printing Ink	2002	8,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
S-25/S-26/S-27	T-15	R/G Extender	2002	10,000 gallon	Solvent Recovery System - Carbon Adsorbers CA-01 through CA-21
Chrome Plating					
S-06	CP-06	Chrome Plating Tank	1997	0.015 mg/DSCM/tank	CS-06 CMP Scrubber
S-07	CP-07	Chrome Plating Tank	1998	0.015 mg/DSCM/tank	CS-07 CMP Scrubber
S-08	CP-08	Chrome Plating Tank	Not Installed	0.015 mg/DSCM/tank	CS-08 CMP Scrubber
Boilers					
S-1	B-01	Cleaver Brooks D-60-E Low NO_x Burners & FGR NG / LPG 1000 HP	1996	52.061 MMBtu/hr	B-01 Low NO_x Burners
S-2	B-02	Cleaver Brooks D-60-E Low NO_x Burners & FGR NG / LPG 1000 HP	1997	52.061 MMBtu/hr	B-02 Low NO_x Burners
S-3	B-03	Cleaver Brooks CBL-700 Low NO_x Burners & FGR NG / LPG 1300 HP	2000	54.40 MMBtu/hr	B-03 Low NO_x Burners
S-4	B-04	Johnston Boiler Co. PFTA 1600-4 Low NO_x Burners & FGR NG / LPG 1,600 HP	2001	65.78 MMBtu/hr	B-04 Low NO_x Burners

1.0 Emission Units

Emission Point ID	Emission Unit ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
S-5	B-05	Johnston Boiler Co. PFTA 1600-4 Low NO_x Burners & FGR NG / LPG 1,600 HP	Not Installed	65.78 MMBtu/hr	B-05 Low NO_x Burners
S-9	B-09	Johnston Boiler Co. PFTA 1600-4 Low NO_x Burners & FGR NG / LPG 1,600 HP	Not Installed	65.78 MMBtu/hr	B-09 Low NO_x Burners
Miscellaneous Operations/Processes					
S-82	RZ-01	Renzmann Cylinder Wash System	2000	30 min cycles (approx.)	None
S-12	IJ	Ink Jet Printing	1997	9.24 lbs/hr and 40.46 TPY VOC	None
Fugitive	NA	Truck/Rail Loadout Operations	1997	8,000,000 gallons/yr	None
Solvent Recovery System (SRS)					
S-25	CA-01	Carbon Adsorber	1997	32 tons carbon	NA
S-25	CA-02	Carbon Adsorber	1997	32 tons carbon	NA
S-25	CA-03	Carbon Adsorber	1997	32 tons carbon	NA
S-25	CA-04	Carbon Adsorber	1998	32 tons carbon	NA
S-25	CA-05	Carbon Adsorber	1998	32 tons carbon	NA
S-25	CA-06	Carbon Adsorber	1999	32 tons carbon	NA
S-25	CA-07	Carbon Adsorber	1999	32 tons carbon	NA
S-26	CA-08	Carbon Adsorber	2000	32 tons carbon	NA
S-26	CA-09	Carbon Adsorber	2000	32 tons carbon	NA
S-26	CA-10	Carbon Adsorber	2000	32 tons carbon	NA
S-26	CA-11	Carbon Adsorber	2001	32 tons carbon	NA
S-26	CA-12	Carbon Adsorber	2002	32 tons carbon	NA
S-26	CA-13	Carbon Adsorber	2002	32 tons carbon	NA
S-26	CA-14	Carbon Adsorber	Not Installed	32 tons carbon	NA
S-27	CA-15	Carbon Adsorber	Not Installed	32 tons carbon	NA
S-27	CA-16	Carbon Adsorber	Not Installed	32 tons carbon	NA
S-27	CA-17	Carbon Adsorber	Not Installed	32 tons carbon	NA

1.0 Emission Units

Emission Point ID	Emission Unit ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
S-27	CA-18	Carbon Adsorber	Not Installed	32 tons carbon	NA
S-27	CA-19	Carbon Adsorber	Not Installed	32 tons carbon	NA
S-27	CA-20	Carbon Adsorber	Not Installed	32 tons carbon	NA
S-27	CA-21	Carbon Adsorber	Not Installed	32 tons carbon	NA

2.0. General Conditions

2.1. Definitions

2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.

2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.

2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45 CSR § 30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments
CBI	Confidential Business Information
CEM	Continuous Emission Monitor
CES	Certified Emission Statement
C.F.R. *or* CFR	Code of Federal Regulations
CO	Carbon Monoxide
C.S.R. *or* CSR	Codes of State Rules
DAQ	Division of Air Quality
DEP	Department of Environmental Protection
dscm	Dry Standard Cubic Meter
FOIA	Freedom of Information Act
HAP	Hazardous Air Pollutant
HON	Hazardous Organic NESHAP
HP	Horsepower
lbs/hr	Pounds per Hour
LDAR	Leak Detection and Repair
M	Thousand
MACT	Maximum Achievable Control Technology
MDHI	Maximum Design Heat Input
MM	Million
MMBtu/hr *or* mmbtu/hr	Million British Thermal Units per Hour
MMCF/hr *or* mmcf/hr	Million Cubic Feet per Hour
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NO_x	Nitrogen Oxides
NSPS	New Source Performance Standards
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter less than 2.5μm in diameter
PM_{10}	Particulate Matter less than 10μm in diameter
Ppb	Pounds per Batch
pph	Pounds per Hour
ppm	Parts per Million
Ppmv or ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration
psi	Pounds per Square Inch
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TAP	Toxic Air Pollutant
TPY	Tons per Year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulate
USEPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator
VEE	Visual Emissions Evaluation
VOC	Volatile Organic Compounds
VOL	Volatile Organic Liquids

2.3. Authority

This permit is issued in accordance with West Virginia Air Pollution Control Law W.Va. Code §§22-5-1 et seq. and the following Legislative Rules promulgated thereunder:

2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation;*

2.3.2. 45CSR14 – *Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration.*

2.4. Term and Renewal

2.4.1. This permit supercedes and replaces previously issued Permit R14-12F. This permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any applicable legislative rule.

2.5. Duty to Comply

2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Applications R14-12 through R14-12G, R13-2360, R13-2189, R13-2189A and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to; **[45CSR§§13-5.11 and 13-10.3]**

2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;

2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;

2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses and/or approvals from other agencies; i.e., local, state and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-4]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-5.4.]

2.10. Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.
[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;

d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

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

2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.

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

a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;

b. The permitted facility was at the time being properly operated;

c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and,

d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emission, and corrective actions taken.

2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

2.12.5. The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. **[45CSR§13-10.1]**

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]

3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]

3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§15]

3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1 State-Enforceable only.]

3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]

3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45 C.S.R. 11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4 or 45CSR§13-5.4 as applicable.

b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving

such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4 or 45CSR§13-5.4 as applicable.

c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary. **[WV Code § 22-5-4(a)(15)]**

3.4. Recordkeeping Requirements

3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken. **[45CSR§4. *State-Enforceable only.*]**

3.5. Reporting Requirements

3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.

3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

If to the DAQ:

Director
WVDEP
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304-2345

If to the USEPA:

Associate Director
Office of Air Enforcement and Compliance
Assistance Review (3AP20)
U. S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

3.5.4. **Operating Fee.**

3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a Certified Emissions Statement (CES) and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

4.1.1. Publication Rotogravure Press Requirements

a. The following table provides a list of publication rotogravure presses authorized to operate by this permit at the subject facility. The presses shall be installed, maintained, and operated so as to minimize any fugitive escape of Volatile Organic Compound (VOC)-laden vapors and shall utilize the specified control devices:

Table 4.1.1(a): Publication Rotogravure Presses

Source ID No.	Source Description	Control Device ID No.(1)	Control Device Description	Emission Point ID No.(1)
G-13	Cerutti Four (4) Color, 8unit, 108" Rotogravure Press	CA-01 through CA-21	Carbon Adsorber	S-25
G-14	Cerutti Four (4) Color, 8unit, 108" Rotogravure Press		Carbon Adsorber	
G-15	Cerutti Four (4) Color, 8unit, 108" Rotogravure Press		Carbon Adsorber	
G-16	Cerutti Four (4) Color, 8unit, 108" Rotogravure Press		Carbon Adsorber	
G-17	Cerutti Four (4) Color, 8unit, 108" Rotogravure Press		Carbon Adsorber	
G-18	Cerutti Four (4) Color, 8unit, 108" Rotogravure Press		Carbon Adsorber	
G-19	Cerutti Four (4) Color, 8unit, 108" Rotogravure Press		Carbon Adsorber	
G-20	Permanently Removed From Service in 2010.		N/A	
G-21	Cerutti Four (4) Color, 8unit, 108" Rotogravure Press		Carbon Adsorber	S-26
G-22	Cerutti Four (4) Color, 8unit, 108" Rotogravure Press		Carbon Adsorber	
G-23	Cerutti Four (4) Color, 12unit, 108" Rotogravure Press		Carbon Adsorber	
G-24	Cerutti Four (4) Color, 12unit, 108" Rotogravure Press		Carbon Adsorber	S-27
G-28	Albert -Frankenthal Four (4) Color, 8unit, 108" Rotogravure Press		Carbon Adsorber	
G-29	Cerutti Four (4) Color, 8unit, 133" Rotogravure Press		Carbon Adsorber	
G-30	Cerutti Four (4) Color, 8unit, 133" Rotogravure Press		Carbon Adsorber	
G-31	Cerutti Four (4) Color, 8unit, 133" Rotogravure Press		Carbon Adsorber	
G-32	Cerutti Four (4) Color, 8unit, 133" Rotogravure Press		Carbon Adsorber	
G-33	Cerutti Four (4) Color, 8unit, 133" Rotogravure Press		Carbon Adsorber	
G-34	Cerutti Four (4) Color, 8unit, 133" Rotogravure Press		Carbon Adsorber	

(1) The presses vent to three (3) banks of seven carbon adsorbers known collectively as the solvent recovery system. Due to possible layout changes and times of maintenance, presses may vent to any of the three adsorber banks. Each adsorber bank has one stack (emission points S-25, S-26, S-27).

b. Maximum hourly and annual emissions from the operation of each publication rotogravure printing press identified under 4.1.1(a), as emitted from the solvent recovery system (SRS), shall not exceed those limits as specified in Appendix A. All annual limits specified in this permit are twelve month rolling totals. A twelve month rolling total is the sum of the measured quantity for the previous twelve consecutive months.

c. VOC capture efficiency shall be 100% for the rotogravure press room enclosures. Compliance with this provision shall be determined by meeting the following provisions:

i. All VOC emissions must be captured and contained for discharge through the control device.

ii. The total area of all natural draft openings (NDOs) shall not exceed five percent of the surface area of the enclosure's four walls, floor, and ceiling. (A natural draft opening is defined as an

opening that is not connected to a duct in which a fan or a blower is installed. Examples of natural draft openings are the entrances and exits to the enclosure which accommodate raw material and product flow. Inward flow through the natural draft openings will take place only if forced make-up air is introduced to the total enclosure at a rate less than the rate at which air is exhausted.)

iii. All access doors and windows whose areas are not included in 4.1.1(c)(ii) and are not included in the calculation in 4.1.1(c)(iv) shall be closed during routine operation.

iv. The average face velocity (FV) of air through all NDOs shall be at least 3,600 m/hr (200 ft/min), which equates to a pressure drop of 0.004 inches of water. The direction of air through all NDOs shall be into the enclosure.

v. Any NDO shall be at least four equivalent opening diameters from any VOC emitting source. The equivalent diameter of an opening is four times the opening area divided by the perimeter.

d. At all times the presses as identified under 4.1.1.a. are engaged in printing operations, each of press room enclosures shall vent to the SRS and it shall not be by-passed, disconnected, or otherwise rendered ineffective in the control of VOCs from the printing operations.

e. The permittee shall maintain a facility-wide minimum overall VOC control efficiency of 95.00% for each calendar month, and 96.00% as averaged over any period of twelve (12) months, for the operation of the rotogravure presses identified under 4.1.1(a).

f. The permittee shall, in the first six (6) months of operation of a new adsorber, maintain a minimum overall VOC control efficiency of 92% for rotogravure press(es) vented to that adsorber for each calendar month. Compliance with the provisions of 4.1.1(e) shall be a determination of compliance with this requirement. However, the calculated overall control efficiency of press(es) vented to a new absorbers in the first six (6) months of operation may be excluded from the facility-wide compliance calculation required under 4.1.1(e) if the permittee can identify exclusively the overall control efficiency of the press(es) vented to the new adsorber only. The emission limits under Appendix A will remain in effect for presses vented to adsorbers during their first six (6) months of operation. If overall control efficiency of presses vented to adsorbers during their first six (6) months of operation are exempted from the calculation required under 4.1.1(e), the permittee shall show compliance with the specific press emission limits using the calculated overall control efficiency of the new adsorber only. If included in the compliance calculation required under 4.1.1(e), the permittee shall use the facility-wide calculated 12-month overall control efficiency for compliance calculations as specified under 4.2.2.

g. The following table provides a list of rotogravure ink and associated material storage tanks authorized to operate by this permit at the subject facility. The tanks shall be installed, maintained, and operated so as to minimize any fugitive escape of VOC-laden vapors:

Table 4.1.1(g): Publication Rotogravure Ink and Material Storage Tanks

Tank ID No.	Nominal[1] Volume (gal)	Calculated[2] Volume (gal)	Material Stored or Blended
T-1	20,000	17,273	Yellow R/G Printing Ink
T-2	10,000	8,813	Red R/G Printing Ink
T-3	10,000	8,813	Blue R/G Printing Ink
T-4	10,000	8,813	Black R/G Printing Ink
T-5	20,000	17,273	Coated R/G Extender
T-6	20,000	17,273	Uncoated R/G Extender
T-7	30,000	29,940	Toluene (recovered solvent)
T-8	30,000	29,940	Toluene (recovered solvent)
T-9	30,000	29,940	Toluene (recovered solvent)
T-10	30,000	29,940	Toluene (recovered solvent)

(1) Nominal capacity as assigned by manufacturer.
(2) Capacity as calculated from tank dimensions.

h. The maximum annual throughput of the materials in the following table shall not be exceeded for the specified storage tanks:

Table 4.1.1(h): Publication Rotogravure Ink and Material Storage Tank Limits

Tank ID	Material Stored	Max Throughput (gallons)
T-1	Yellow R/G Printing Ink	1,972,483
T-2	Red R/G Printing Ink	1,094,433
T-3	Blue R/G Printing Ink	1,269,692
T-4	Black R/G Printing Ink	581,452
T-5	Coated R/G Extender	2,513,499
T-6	Uncoated R/G Extender	1,167,249
T-7 to T-10	Recovered Toluene	59,103,676(1)

(1) Aggregate Limit for Tanks T7, T8, T9, T10.

i. All VOC-laden vapors resulting from working or breathing losses from any of the tanks listed in 4.1.1.g. shall either be vented to the SRS or recovered through the use of a vapor-balance system.

For the purposes of this permit, breathing loss is defined as the expulsion of vapor from a tank due to vapor expansion resulting from diurnal temperature and barometric pressure changes.

For the purposes of this permit, working loss is defined as the vapor displaced during tank loading operations and when air drawn into the tank during unloading operations becomes saturated with vapor and expands.

j. Emissions resulting from the storage and transfer of the materials listed under 4.1.1(g) within the storage/mixing tanks identified under 4.1.1(g), as emitted from the SRS, shall not exceed those limits as specified in Appendix A.

k. The operation of the sources listed under 4.1.1(a) and 4.1.1(g) shall meet all the applicable requirements under 40 CFR 63, Subpart KK.

4.1.2. Heatset Web Offset Lithographic Press Requirements

a. The following table provides a list of heatset web offset lithographic presses authorized to operate by this permit at the subject facility. The presses shall be installed, maintained, and operated so as to minimize any fugitive escape of VOC-laden vapors and shall utilize the following specified control devices:

Table 4.1.2(a): Heatset Web Offset Lithographic Presses

Source ID No.	Source Description	Control Device ID No.	Control Device Description	Emission Point ID No.
OP-01	C700E 4-unit, 4 color, heatset, Offset Web Printing Press	F-01	Thermal Oxidizer	S-28
OP-02	C700E 4-unit, 4 color, heatset, Offset Web Printing Press	F-01	Thermal Oxidizer	S-28
OP-03	Heidelberg Harris M1000 8-unit, 4 color, heatset, Offset Web Printing Press	F-03	Catalytic Oxidizer	S-30
OP-04	Man Roland, Rotoman SS, 8-unit, 4 color, heatset, Offset Web Printing Press (M1000)	F-04	Thermal Oxidizer	S-31
OP-05	Man Roland, Rotoman SS, 8-unit, 4 color, heatset, Offset Web Printing Press (M1000)	F-05	Thermal Oxidizer	S-32
OP-06	M1000 8-unit, 4 color, heatset, Offset Web Printing Press	F-06	Thermal Oxidizer	S-33

Source ID No.	Source Description	Control Device ID No.	Control Device Description	Emission Point ID No.
OP-07	M1000 8-unit, 4 color, heatset, Offset Web Printing Press	F-07	Thermal Oxidizer	S-34
OP-08	M1000 8-unit, 4 color, heatset, Offset Web Printing Press	F-08	Thermal Oxidizer	S-35
OP-09	M3000 8-unit, 4 color, heatset, Offset Web Printing Press	F-09	Thermal Oxidizer	S-36
OP-10	M3000 8-unit, 4 color, heatset, Offset Web Printing Press	F-10	Thermal Oxidizer	S-37
OP-11	M3000 8-unit, 4 color, heatset, Offset Web Printing Press	F-11	Thermal Oxidizer	S-38
OP-12	M3000 8-unit, 4 color, heatset, Offset Web Printing Press	F-12	Thermal Oxidizer	S-39

b. Maximum hourly and annual emissions from the operation of each heatset web offset lithographic presses identified under 4.1.2(a), as emitted from the appropriate control device, shall not exceed those limits as specified in Appendix B.

c. At all times the presses as identified under 4.1.2(a) are engaged in printing operations, each of press dryers shall vent to the specified control device and they shall not be by-passed, disconnected, or otherwise rendered ineffective in the control of VOCs from the printing operations.

d. Each oxidizer exhaust fan on each heatset web offset lithographic presses listed under 4.1.2(a) shall be equipped and operated with a process interlock to ensure that the fan continuously effects a negative operating pressure on each of the unit press dryers.

e. The catalytic oxidizer, identified as F-03, shall maintain a minimum VOC destruction efficiency of 97.5% by weight during all times of operation. The catalytic oxidizer shall be monitored and operated according to the following conditions:

i. The permittee shall install, calibrate, and maintain devices to continuously monitor and record that the following conditions are met during all times of operation:

Table 4.1.2(e)(i): Catalytic Oxidizer Operating Parameters

Operating Parameter	F-03
inlet catalyst bed temperature range (^{0}F)	550-850
maximum outlet catalyst bed temperature (^{0}F)	1,100
minimum catalyst bed temperature rise (^{0}F)	200
maximum catalyst bed temperature rise (^{0}F)	400

ii. The catalytic oxidizer shall be equipped and operated with a process interlock to ensure that a maximum pressure drop of 13 inches water is continuously effected across the catalyst bed.

iii. The permittee shall maintain records sufficient to demonstrate that the following conditions are met during all times of operation:

Table 4.1.2(e)(iii): Catalytic Oxidizer Operating Parameters

Operating Parameter	F-03
minimum inlet air flow rate (scfm)	7,000
minimum catalyst bed volume (ft3)	39
maximum VOC load to catalytic oxidizer (lb/hr)	196

iv. The catalytic oxidizer shall be equipped and operated with an interlock that prevents the outlet catalyst bed temperature from exceeding 1,100 ^{0}F.

f. Each thermal oxidizer, identified in Permit Application R14-12B as F-01 and F-04 through F-12, shall maintain a minimum VOC destruction efficiency of 97.50%, by weight, during all times of

operation. Each thermal oxidizer shall be monitored and operated according to the following conditions:

i. The thermal oxidizer shall maintain a firebox temperature of no less than 1,250 degrees Fahrenheit (677 degrees Celsius). The owner or operator shall install, calibrate, maintain, and continuously operate a monitoring device for the measurement of the thermal oxidizer firebox temperature. The monitoring device is to be certified by the manufacturer to be accurate within ±1% in degrees Fahrenheit.

g. The following equipment shall not exceed the specified maximum design heat inputs (MDHI) and maximum fuel usage limits:

Table 4.1.2(g): Equipment Ratings

M1000 with Catalytic Oxidizer (OP-03 and F-03)(1)	
Number of dryers	2
Dryer MDHI (mmBtu/Hr)	3.70
Catalytic Oxidizer Afterburner MDHI	3.02
Total MDHI	10.42
Maximum Annual Natural Gas Usage (mmSCF/yr)	50.40
Maximum Annual LPG Usage (gallons/yr)	19,343
M1000 with Thermal Oxidizer (OP-(04,05,06,07,08) and F-(04,05,06,07,08))(1)	
Number of dryers	2
Dryer MDHI (mmBtu/Hr)	7.00
Thermal Oxidizer Afterburner MDHI	n/a
Total MDHI	14.00
Maximum Annual Natural Gas Usage (mmSCF/yr)	72.87
Maximum Annual LPG Usage (gallons/yr)	25,989
M3000 with Thermal Oxidizer (OP-(09,10,11,12) and F-(09,10,11,12))(1)	
Number of dryers	2
Dryer MDHI (mmBtu/Hr)	8.00
Thermal Oxidizer Afterburner MDHI	n/a
Total MDHI	16.00
Maximum Annual Natural Gas Usage (mmSCF/yr)	85.42
Maximum Annual LPG Usage (gallons/yr)	29,702
C700E with Thermal Oxidizer (OP-(01,02) and F-(01))(1)	
Number of dryers	1
Dryer MDHI (mmBtu/Hr)	7
Thermal Oxidizer Afterburner MDHI	n/a
Total MDHI	7.00
Maximum Annual Natural Gas Usage (mmSCF/yr)	38.43
Maximum Annual LPG Usage (gallons/yr)	14,749

(1) The limits are on a per unit basis and are not aggregated for all similar units.

h. The thermal oxidizers identified as F01, and F-04 through F-12 shall limited to consuming propane or pipe line quality natural gas. The sulfur concentration of the propane supplied to the facility shall not exceed 169 ppm by weight.

i. Visible particulate matter generated from the thermal and catalytic oxidizer identified as F-01 through F-12shall not be greater than or equal to 20% opacity except for visible particulate matter emission less than 40% for a period or periods aggregating no more than 8 minutes per start-up; **[45CSR§6-4.3. and 45CSR§6-4.4.]**

j. All used rags containing any washing and clean-up solvents shall be stored in closed containers until their removal from the facility.

k. Material types used for the following specified purposes shall be limited to the maximum specified VOC and HAP contents:

Table 4.1.2(k): Material VOC/HAP Content Limits

Material	VOC Contents(1)		HAP Contents (lb/gal)		
	Weight %	lb/gal	Xylene	Ethylbenzene	Napthalene
Inks	44.00	3.67	0.00	0.00	0.00
Auto Blanket Wash (on rolls)	30.00	0.14	0.00	0.00	0.00
Auto Blanket Wash	30.00	2.19	0.00	0.00	0.06
Blanket Wash	no limit	6.58	0.07	0.00	0.00
Fountain Solution	no limit	2.09	0.00	0.00	0.00
Clean Up Solvent	no limit	6.43	0.30	0.08	0.00

(1) The material must meet both limits where applicable.

l. The permittee shall use no fountain solution that contains a restricted alcohol. For the purposes of this permit, a "restricted alcohol" shall be defined as an alcohol which contains only one hydroxyl (-OH) group and less than five (5) carbon atoms.

m. The permittee shall use no clean-up solvent with a VOC composite vapor pressure in excess of 25 mm Hg (@ 68 degrees F).

n. The following operating parameters apply to the Blanket Wash Storage Tank:

i. Maximum capacity of 2,000 gallons

ii. Conservation vent setting range of - 0.5 psig to + 0.5 psig

iii. The maximum nominal rating of any pump used to load blanket wash into the storage tank shall not exceed 100 gallons per minute (GPM).

4.1.3. Ink Manufacturing and Blending Facility Requirements

a. The following table provides a list of storage/mixing tanks and associated stored materials authorized to operate by this permit at the subject facility. The tanks shall be installed, maintained, and operated so as to minimize any fugitive escape of VOC-laden vapors from such vessels:

Table 4.1.3(a): Ink Manufacturing and Blending Storage Tanks

Source ID No.	Type	Nominal(1) Volume (gal)	Calculated(2) Volume (gal)	Material Stored or Blended
AC1	Storage	20,000	22,486	Clay Concentrate
AEC1	Storage	8,000	9,280	Ethyl cellulose Compound
AW1	Storage	8,000	9,280	Wax Compound
CB1	Storage	10,000	11,457	Blue Concentrate
CK1	Storage	10,000	11,457	Black Concentrate
CR1	Storage	10,000	11,457	Rubine Red Concentrate
CR2	Storage	8,000	9,280	Barium Lithol Concentrate

Source ID No.	Type	Nominal[1] Volume (gal)	Calculated[2] Volume (gal)	Material Stored or Blended
CY1	Storage	12,000	13,862	Yellow Concentrate
R1A	Storage	30,000	30,516	Resinate #1
R1B	Storage	30,000	30,516	Resinate #1
R2	Storage	30,000	30,516	Resinate #2
ABt1	Tote	350	n/a	Alkali Blue
MBt1	Tote	350	n/a	Miluri Blue
ECt1	Tote	554	n/a	Ethyl cellulose
M1	Mixing	5,000	7,144	Yellow Ink Mixing
M2	Mixing	5,000	7,144	Red Ink Mixing
M3	Mixing	5,000	7,144	Blue Ink Mixing
M4	Mixing	5,000	7,144	Black Ink Mixing
M5	Mixing	5,000	7,144	Coated Extender Mixing
M6	Mixing	5,000	7,144	Uncoated Extender Mixing
M7	Mixing	5,000	7,144	Ethyl cellulose Mixing
BL-01	Mixing	1,476	1,375	Black
BL-02	Mixing	2,056	1,908	Black
BL-03	Mixing	2,839	2,632	Black
CL-01	Mixing	1,476	1,375	Clay
CL-02	Mixing	2,056	1,908	Clay
CL-03	Mixing	2,839	2,632	Clay
CYL-01	Mixing	1,476	1,375	Blue
CYL-02	Mixing	2,056	1,908	Blue
CYL-03	Mixing	2,839	2,632	Blue
RES-01	Storage	2,839	2,632	Resinate
RES-02	Storage	2,839	2,632	Resinate
RESL-01	Storage	2,839	2,632	Resinate
RESL-02	Storage	2,839	2,632	Resinate
RL-01	Mixing	1,476	1,375	Red
RL-02	Mixing	2,056	1,908	Red
RL-03	Mixing	2,839	2,632	Red
YL-01	Mixing	1,476	1,375	Yellow
YL-02	Mixing	2,056	1,908	Yellow
YL-03	Mixing	2,839	2,632	Yellow
T-11	Storage	10,000	11,457	Yellow R/G Printing Ink
T-12	Storage	8,000	9,280	Red R/G Printing Ink
T-13	Storage	10,000	11,457	Blue R/G Printing Ink
T-14	Storage	8,000	9,280	Black R/G Printing Ink
T-15	Storage	10,000	11,457	R/G Ex tender

(1) Nominal capacity as assigned by manufacturer.

(2) Capacity as calculated from tank dimensions.
(3) n/a = not applicable: Totes are reusable sealed containers. Material is delivered to site already in the "totes."

b. The maximum annual throughput of the materials in the following table shall not be exceeded.

Table 4.1.3(b): Ink Manufacturing and Blending Storage Tanks Limits

Tank ID	Material Stored	Max Throughput (gallons)
AC1	Clay Concentrate	852,055
AEC1	Ethylcellulose Compound	777,526
AW1	Wax Compound	449,921
CB1	Blue Concentrate	893,039
CK1	Black Concentrate	838,836
CR1	Rubine Red Concentrate	677,334
CR2	Barium Lithol Concentrate	491,834
CY1	Yellow Concentrate	1,295,742
R1A, R1B	Resinate #1	6,703,222
R2	Resinate #2	2,958,580
ABt1	Alkali Blue	80,994
MBt1	Miluri Blue	25,448
T-11	Yellow R/G Printing Ink	2,072,091
T-12	Red R/G Printing Ink	1,351,523
T-13	Blue R/G Printing Ink	991,432
T-14	Black R/G Printing Ink	1,116,284
T-15	R/G Ex tender	3,379,670

c. All VOC-laden vapors resulting from working or breathing losses from any of the tanks listed in 4.1.3(a) shall either be vented to the SRS or recovered through the use of a vapor-balance system.

d. Emissions resulting from the Ink Manufacturing and Blending operations identified under 4.1.3(b), as emitted from the SRS, shall not exceed those limits as specified in Appendix A.

e. The operation of the sources listed under 4.1.3(a) shall meet all the applicable requirements under 40 CFR 63, Subpart KK.

f. The amount of ink concentrates/finished inks produced and loaded out shall not exceed the following annual limits on a twelve month (12) month rolling total:

Table 4.1.3(f): Ink Concentrate/Finished Inks Manufacturing and Loadout Limits

Product Line	Maximum Annual Production Volume (gallons/yr)	Maximum Amount Loaded out per year (gal/yr)
Yellow	1,200,000	2,072,091
Red	1,050,000	1,351,523
Blue	1,050,000	991,432
Black	1,050,000	1,116,284
Clay	1,200,000	960,000
Resonate	9,500,000	10,200,000
Coated Extender	1,791,632	1,791,632
Uncoated Extender	1,588,038	1,588,038

g. The maximum rated capacity of any pump used to loadout ink concentrates/finished inks shall not exceed 120 gallons per minute.

h. The permittee is limited to loading out a maximum of five (5) tanks at any given time.

i. Rail and truck tankers shall be loaded, at a minimum, using a submerged/bottom fill method. For the purposes of this permit, submerged fill is defined as a method of liquid vessel filling in which the fill pipe is extended into the vessel a sufficient distance so as to enable the fill pipe to be submerged for a minimum of 80% of a complete filling of the vessel.

4.1.4. Chrome Plating Tank Requirements

a. The following table provides a list of chrome plating tanks authorized to operate at the subject facility by this permit. The chrome plating operations shall utilize the specified control devices.

Table 4.1.4: Chrome Plating Tank Requirements

Tank ID No.	Description	Control Device ID No.	Control Device	Emission Point ID No.
CP-06	Chrome Plating Tank	CS-06	CMP Scrubber	S-06
CP-07	Chrome Plating Tank	CS-07	CMP Scrubber	S-07
CP-08	Chrome Plating Tank	CS-08	CMP Scrubber	S-08

b. Pursuant to 40 CFR 63, Subpart N, emissions to the atmosphere from each hard chromium electroplating tank operation shall not exceed those limits as specified in Appendix A.

c. The operation of the sources listed under 4.1.4(a) shall meet all the applicable requirements under 40 CFR 63, Subpart N.

4.1.5. Boiler Operation Requirements

a. The following table provides a list of boilers authorized to operate at the subject facility by this permit. The boilers shall not exceed the specified Maximum Design Heat Input (MDHI), shall utilize the specified control device, shall combust only the specified fuels within the specified fuel consumption limits, and shall not exceed the specified maximum hours of operation.

Table 4.1.5(a): Boiler Parameter Limits

ID No.	Model No.	MDHI (MMBtu/Hr)	Control Device(s)	Maximum Annual Limits[1]		
				Natural Gas (MM ft³)	LPG[2] (10^3 gal)	Hours of Operation
B-01	Cleaver Brooks D-60-E	52.061	Low-NOx Burners and FGR	894.22	386.57	No Limit
B-02	Cleaver Brooks D-60-E	52.061	Low-NOx Burners and FGR			
B-03	Cleaver Brooks CBL-700	54.40	Low-NOx Burners and FGR	467.20	201.97	No Limit
B-04	Johnston PFTA 1600-4	65.78	Low-NOx Burners and FGR	564.943	244.23	No Limit
B-05	Johnston PFTA 1600-4	65.78	Low-NOx Burners and FGR	564.943	244.23	No Limit
B-09	Johnston PFTA 1600-4	65.78	Low-NOx Burners and FGR	564.943	244.23	No Limit

(1) The limits for B1 and B2 are aggregate limits.
(2) LPG = Liquified Petroleum Gas (Propane)

b. The boilers identified as B-01 though B0-5, and B-09 shall limited to consuming propane or pipe line quality natural gas. The sulfur concentration of the propane supplied to the facility shall not exceed 169 ppm by weight.

c. Emissions resulting from the boilers identified under 4.1.5.a. shall not exceed those limits as specified in Appendix A. The hourly boiler emission limits represent the maximum amount of pollutant emitted over any given period of one hour.

d. The emission of Nitrogen Oxides (NO_x) into the atmosphere from the operation of the following boilers shall not exceed the specified limits in pounds/mmBtu of heat input while combusting the specified fuel:

Table 4.1.5(d): Boiler Emission Limits

ID No.	Natural Gas	LPG
B-03	0.035	0.22
B-04	0.035	0.15
B-05	0.035	0.15
B-09	0.035	0.15

e. A flue gas recirculation rate shall be utilized for each applicable boiler that is consistent with good engineering practices, manufacturer's recommendations, and data developed during the required stack test so as to guarantee the optimum reduction in the formation of NOx. The permittee shall, at all times the applicable boilers are in operation, utilize flue gas recirculation.

f. Visible emissions of smoke and/or particulate matter emitted from the boilers identified as B-01 through B-05 and B-09 which is greater than ten (10) percent opacity based on a six minute block average is prohibited. Compliance with this standard is met by restricting the unit size in item a and the fuel type in item b of this condition.
[45CSR§2-3.1 and 45CSR§§2A-3.1.a. and b.]

g. The permittee shall develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance performed on the boilers and their associated control technologies. These records need not include maintenance tasks that have no potential effect on emissions performance.

4.1.6. Miscellaneous Operations/Processes Requirements

a. The permittee is authorized to operate a rotogravure cylinder washing machine. The unit is identified in permit application R14-12B as RZ-01 and shall be operated according to the following conditions:

(1) Emissions resulting from the operation of the washer identified under 4.1.6(a) shall not exceed those limits as specified in Appendix A.

(2) Pursuant to 40 CFR 63, Subpart KK, Section 63.824, no material used in the operation of the source identified under 4.1.6(a) shall have a HAP content in excess of eight percent (8%), by weight, of the total volatile matter of the material.

(3) The washing unit shall be maintained and operated in such a manner as to minimize solvent loss from cylinder washing operations.

(4) The operation of the source listed under 4.1.6(a) shall meet all the applicable requirements under 40 CFR 63, Subpart KK.

b. The permittee is authorized to operate ink jet label printing operations. The units are identified in Section 104 of permit application R14-12B and shall be operated according to the following conditions:

(1) Emissions resulting from the operation of the ink jet label printing operations identified under 4.1.6(b) shall not exceed those limits as specified in Appendix A.

c. The permittee is authorized to operate recovered solvent loadout operations. The solvent loadout operations shall be operated according to the following conditions:

(1) The amount of recovered solvent loaded into railcar and truck tankers shall not exceed 8,000,000 gallons per rolling twelve (12) month average.

(2) The maximum nominal rating of any pump used on the solvent loadout operations shall not exceed 100 gallons per minute.

(3) A maximum of one vessel shall be loaded at a time.

(4) Rail and truck tankers shall be loaded, at a minimum, using a submerged fill method. For the purposes of this permit, submerged fill is defined as a method of liquid vessel filling in which the fill pipe is extended into the vessel a sufficient distance so as to enable the fill pipe to be submerged for a minimum of 80% of a complete filling of the vessel.

(5) Emissions resulting from the operation of the solvent loadout operations identified under 4.1.6(c) shall not exceed those limits as specified in Appendix A.

4.1.7. Solvent Recovery System (Carbon Adsorbers) Requirements

a. The permittee shall install, maintain, and operate a solvent recovery system (SRS), utilizing carbon adsorbtion, so as to control VOCs in solvent laden air vented to the SRS. At all times the SRS is in use, it shall be operated in a manner so as to achieve a minimum control device efficiency of 98.25% in the control of VOCs contained in solvent-laden air.

For the purposes of this permit, "control device efficiency" shall be defined as the mass of pollutant exiting a control device divided by the mass of the same pollutant entering into the control device.

b. The permittee shall continuously monitor and record the temperature within the adsorber beds and prefilters, and the VOC concentrations at the adsorber bed outlets.

c. The permittee shall continuously monitor and record the pressure in the main SLA duct. The pressure shall be maintained at or less than -0.5 inches of water column.

d. The malfunction prevention and abatement plan for the solvent recovery system, submitted with permit application R14-12, shall be updated by the permittee at least once every two (2) years. Such updates shall be submitted to the Director of the Division of Air Quality upon completion.

e. The operation of the SRS shall meet all the applicable requirements under 40 CFR 63, Subpart KK.

4.1.8. Operation and Maintenance of Air Pollution Control Equipment.
The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

4.2. Monitoring Requirements

4.2.1. For the purposes of determining on-going compliance with the limits set forth in 4.1.1.(b), the permittee shall maintain records of the following on an individual press basis:

a. The hours of operation of each rotogravure press;

b. The name and product number of each ink, ink additive, and solvent (referred to hereafter as "material") used in the operation of each rotogravure press;

c. The mass of VOC and speciated HAPs of each material and the volume of each material used each month; and

d. Within fifteen (15) days of the last day of each month, the permittee shall compile and tally the following information: hourly, monthly, and rolling twelve month emission rates for VOCs and speciated HAPs from each of the rotogravure presses listed under 4.1.1(a) The VOC and speciated HAP emission rates shall be calculated using the following formulas:

i. The mass of VOCs and speciated HAPs per volume of each material shall be determined by one of the following methods:

(1) Certified Product Data Sheets ("Certified Product Data Sheets" shall have the definition assigned to them under 40 CFR 63, Subpart KK) provided by the material supplier, or

(2) 40 CFR 60, Appendix A, Method 24.

ii. The mass of VOCs and speciated HAPs of each material used on a monthly basis, shall be calculated using the following formula:

Mass(pounds of VOCs, HAPs/Month) = A*B

Where: A = monthly material usages in gallons per month
B = VOCs and speciated HAPs content of the materials used in pounds per gallon as determined under 4.2.1(d)(1).

iii. The annual, monthly, and hourly emission rates of VOCs and speciated HAPs shall be calculated in the following manner:

(1) The annual emission rate of VOCs and aggregate and speciated HAPs shall be calculated as the sum of the monthly emission rates of VOCs and speciated HAPs, respectively, from the previous twelve (12) months.

(2) The monthly emission rate of VOCs and aggregate and speciated HAPs shall be calculated, on a monthly basis, using the following formula:

Emission rate(pounds of VOCs, HAPs/Month) = C*(1-(CDE/100))

Where: C = Mass(pounds of VOCs, HAPs/Month)
CDE = Minimum or demonstrated control device efficiency (as applicable) of SRS in percent. The minimum SRS control device efficiency shall be used until such time as a continuos SRS control device monitoring plan is approved under A.7(e)(2). For the calculation above, when using demonstrated efficiency, the efficiency shall be efficiency as averaged over the month in question.

iv. The hourly emission rates of VOCs and aggregate and speciated HAPs shall be calculated, on a monthly basis, using the following formula:

Emission rate(pounds of VOCs, HAPs/Hour) = Emission rate(pounds of VOCs, HAPs/Month)/D

Where: D = Monthly hours of specific rotogravure press operations

4.2.2. To determine compliance with the minimum overall control efficiencies under 4.1.1.(e), the permittee shall use the calculations and methodology contained in Appendix C to calculate "e" as defined in Appendix C. For the purposes of the above definition, the amount of VOCs recovered by the SRS attributable to storage/mixing tank operations may be assumed to be negligible. The overall control control efficiency for each calendar month shall be the value of "e" calculated for that month. The twelve (12) month average overall control efficiency shall be the sum of the twelve (12) most recently calculated monthly control efficiencies divided by twelve (12).

4.2.3. For the purposes of determining compliance with maximum throughput limits set forth in 4.1.1(h), the permittee shall maintain monthly record of the amount, in gallons, of each material unloaded into the permanent storage tanks listed under 4.1.1(g).

4.2.4. For the purposes of determining on-going compliance with the limits set forth in 4.1.2(b), the permittee shall maintain records of the following on an individual press basis::

a. The hours of operation of each heatset lithographic web offset press;

b. The name and product number of each ink, fountain solution, blanket wash, auto blanket wash, and clean-up solvent (referred to hereafter as "material") used in the operation of each offset press;

c. Monthly and twelve month rolling total records of the amount of natural gas and LPG that is combusted in the press dryers and oxidation equipment;

d. The mass of VOC and speciated HAPs of each material and the volume of each material used each month.

e. Within fifteen (15) days of the last day of each month, the permittee shall monthly records that contains the following information: hourly, monthly, and rolling twelve month emission rates for VOCs and speciated HAPs from each of the offset presses listed under 4.1.2(a). Such records shall break down the emissions The VOC and speciated HAP emission rates shall be calculated using the following formulas:

The mass of VOCs and speciated HAPs per volume of each material shall be determined by one of the following methods

i. Certified Product Data Sheets ("Certified Product Data Sheets" shall have the definition assigned to them under 40 CFR 63, Subpart KK) provided by the material supplier, or

ii. 40 CFR 60, Appendix A, Method 24.

f. The mass of VOCs and speciated HAPs of each material used on a monthly basis, shall be calculated using the following formula:

Mass(pounds of VOCs, HAPs/Month) = A*B

Where: A = monthly material usages in gallons per month
B = VOCs and speciated HAPs content of the materials used in pounds per gallon as determined under 4.2.1(e).

g. The annual, monthly, and hourly emission rates of VOCs and speciated HAPs shall be calculated in the following manner:

i. The annual emission rate of VOCs and aggregate and speciated HAPs shall be calculated as the sum of the monthly emission rates of VOCs and speciated HAPs, respectively, from the previous twelve (12) months;

ii. The monthly emission rate of VOCs and aggregate and speciated HAPs shall be calculated, on a monthly basis, using the following formulas:

(1) For offset stack (F-01 through F-12) emissions from the use of inks, blanket wash, auto blanket wash, and fountain solution (but not attributable to fuel combustion):

Emission rate(pounds of VOCs, HAPs/Month) = C*(1-WR)*(CapE)*(1-CEo)

(2) For fugitive printing emissions from the use of inks, blanket wash, auto blanket wash, and fountain solution:

Emission rate(pounds of VOCs, HAPs/Month) = C*(1-WR)*(1-CapE)

(3) For clean-up solvent emissions:

Emission rate(pounds of VOCs, HAPs/Month) = C*(1-WR)*(1-CapE)

Where:

C = Mass(pounds of VOCs, HAPs/Month) attributed to specified material(s)
WR = Web Retention Factor
CapE = Capture Efficiency
CE = Minimum destruction efficiency of oxidation method

iii. The hourly emission rates of VOCs and aggregate and speciated HAPs shall be calculated, on a monthly basis, using the following formula:

Emission rate(pounds of VOCs, HAPs/Hour) = Emission rate(pounds of VOCs, HAPs/Month)/D

Where: D = Monthly hours of specific offset press operations

h. The specified values used in the calculations required under items f and g of this condition shall have the values given in the following table for the specified materials:

Table 4.2.4(h): Calculation Values

Material	WR	CapE	CE
Inks	0.15	1.00	0.975
Blanket Wash	0.00	0.40	0.975
Auto Blanket Wash	0.00	0.40	0.975
Fountain Solution	0.00	0.70	0.975
Clean-up Solvent	n/a	0.40	0

4.2.5. The permittee shall maintain records of the specified oxidizer operating parameters to show compliance with the requirements identified in 4.1.2(f) and 4.1.2(g) of this permit.

4.2.6. For the purposes of determining compliance with maximum throughput limits set forth in 4.1.3(b), the applicant shall maintain a monthly record of the amount, in gallons, of each material unloaded into the permanent storage tanks listed under 4.1.3(a).

4.2.7. For the purposes of determining compliance with maximum fuel combustion throughput limits set forth in 4.1.5(a), the applicant shall maintain monthly and annual records of the amount of natural gas and/or LPG that is combusted in the boilers.

4.2.8. For the purposes of determining on-going compliance with the limits set forth in 4.1.6(a)(1), the permittee shall use the emissions calculation and record-keeping methodology as described under 4.2.1(d) with respect to the cylinder washing unit and with a control efficiency of 0.00% (no control device).

4.2.9. For the purposes of determining on-going compliance with the limits set forth in 4.1.6(b)(1), the permittee shall use the emissions calculation and record-keeping methodology as described under 4.2.1(d) with respect to the ink jet printers and with a control efficiency of 0.00% (no control device). The records and emission calculations for the ink jet printers shall be on an aggregate basis and not per printer.

4.2.10. For the purposes of determining compliance with the maximum recovered toluene limits set forth in 4.1.6(c), the applicant shall maintain monthly and annual records of the amount of recovered toluene loaded and taken off site.

4.2.11. The operation of the sources listed under 4.1.4(a) shall comply with all applicable reporting and record-keeping requirements under 40 CFR 63, Subpart N and any reporting and record-keeping requirements under the General Provisions of 40 CFR 63 referenced therein.

4.2.12. The facility shall comply with all applicable reporting and record-keeping requirements under 40 CFR 63, Subpart KK and any reporting and record-keeping requirements under the General Provisions of 40 CFR 63 referenced therein.

4.2.13. The operation of the sources listed under 4.1.5(a) shall comply with all applicable reporting and record-keeping requirements under 40 CFR 60, Subpart Dc and any reporting and record-keeping requirements under the General Provisions of 40 CFR 60 referenced therein..

4.2.14. Use of any material containing any constituent identified in Section 112(b) of the 1990 Clean Air Act Amendments as a Hazardous Air Pollutant (HAP) and not listed under the specified emission limit in Appendix A shall be in accordance with the following:

a. The permittee shall notify the Director in writing of the material to be/that was used and the additional HAP(s) contained therein within thirty (30) days of the use of the material. Additionally, an MSDS sheet for the material shall be supplied at this time to the Director.

b. The use of the material shall be incorporated into the record keeping requirements as mandated in this permit.

c. The permittee shall apply for a modification to this permit prior to the use of the HAP-containing surface coating if the use of said surface coating is defined as a modification pursuant to §45-13-2.17.

d. No material containing any toxic air pollutant (TAP) as defined by West Virginia Legislative Rule 45CSR27, Section 2.10., shall be used without prior approval of the Director of the Division of Air Quality.

4.2.15. For the purpose of determining compliance with the opacity limits of condition 4.1.2.i., 45CSR§§6-4.3. and 4.4., the permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit. The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stack, transfer point, fugitive emission source, etc.) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of normal facility operation and appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of 45CSR§7A as soon a practicable, but within seventy-two (72) hours of the final visual emission check. A 45CSR§7A observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.

4.2.17. The permittee shall show compliance with the minimum control device efficiency under 4.1.7.a. by one of the following methods:

(a) Testing as required under 4.3.9.

(b) Develop a method to continuously monitor the control device efficiency of the SRS. Use of a continuous monitoring method for compliance with 4.1.7(a) is contingent on the following:

(i) The submission of a continuous control device efficiency monitoring protocol that details the installation, operation, calibration, and verification procedures used for the proposed monitoring plan. Further, the protocol shall propose the methodology of averaging the collected data to provide an accurate representation of SRS performance to be used in monthly emission limit calculations; and

(ii) Written approval of the plan submitted under item b of this condition by the Director of the Division of Air Quality.

4.2.18. All records of monitoring in this section shall be maintained in accordance with condition 3.4.1. of this permit.

4.3. Testing Requirements

4.3.1. The facility shall conduct an initial performance test using Method 306 or 306A as required under 40 CFR 63.7, within 180 days of startup of each hard chromium electroplating tank operation as listed under 4.1.4(a) using the procedures and test methods listed in 40CFR63.7 and 63.344.

4.3.2. Within sixty (60) days of achieving the maximum permitted operating rate, but no later than 180 days after initial startup, and at such times thereafter as may be required by the USEPA Administrator or the Director, the permittee shall conduct, or have conducted, a performance test on one boiler from each of the following groups of boilers: (1) B-01 and B-02; (2) B-03; and (3) B-04, B-05, and B-09. The tests shall demonstrate compliance with the hourly NOx and CO emission limits while combusting both natural gas and LPG (NO_x only for LPG). Initial tests have been conducted previously that satisfy the requirements of this condition shall not have to be conducted again upon approval of the Director of the Division of Air Quality.

4.3.3. Within 180 days of initial startup of each heatset lithographic offset press, and at such times thereafter as may be required by the USEPA Administrator or the Director of the Division of Air Quality, the permittee shall conduct, or have conducted, a performance test on the thermal oxidizer to determine compliance with the minimum VOC destruction efficiency and shall demonstrate compliance with the hourly NOx and CO emission limits while combusting both natural gas and LPG (NOx only for LPG) as required under 4.12. Upon approval from the Director, NOx and CO testing may be waived for similar units that have previously been determined to be in compliance through testing.

4.3.4. Testing requirements for heatset lithographic offset press OP-03 shall be the following:

a. The permittee shall, within one hundred twenty (120) days of the installation of a new catalyst bed, conduct, or have conducted, a performance test on the catalytic oxidizer (F-03) to determine compliance with the minimum VOC destruction efficiency as required under condition 4.1.2. of this permit.

b. Upon reaching 20,000 hours of oxidizer operation on a catalyst, the permittee shall conduct, or have conducted, within thirty (30) days, a performance test on the oxidizer to determine compliance with the minimum VOC destruction efficiency as required under condition 4.1.2.of this permit.

c. Thereafter fulfill the above testing requirement at 20,000 hours in item (b), the permittee shall determine the VOC destruction efficiency once every five years except when the catalyst bed has been schedule to be replaced within this five year period. Replacement of the catalyst bed shall re-institute the requirements in item (a) of the condition.

d. Thereafter fulfill the above testing requirement at 20,000 hours in item (b), the permittee shall determine the viability of the catalyst bed in achieving the minimum VOC destruction efficiency once every year except when the catalyst bed has been schedule to be replace during the respective calendar year.

4.3.5. Within 180 days of the date of the issuance of this permit, the permittee shall conduct a performance test to determine compliance with the FV requirement on all applicable NDOs under 4.1.1(c)(4). Thereafter, the permittee shall conduct such tests at a minimum of once every 36 months.

4.3.6. The operation of the sources identified under 4.1.1. and 4.1.4. shall meet all the applicable testing requirements under 40 CFR 63, Subpart N, Subpart KK, and the General Provisions referenced therein.

4.3.7. All tests required by this section shall be in accordance with conditions 4.3.8. and 3.3.1. of this permit.

4.3.8. Tests that are required by the Director to determine compliance with any emission limitations set forth in this permit shall be conducted in accordance with the methods as set forth below. The Director may require a different test method or approve an alternative method in light of any new technology advancements that may occur. Compliance testing shall be conducted at maximum permitted capacity(in the absence of limits on a piece of equipment, the testing shall be conducted at maximum design capacity) unless otherwise approved by the Director in the protocol submitted under 3.3.1.

a. Tests to determine compliance with particulate emission limits shall be conducted, as applicable, in accordance with Method 5, 5A, 5B, 5C, 5D, 5E, 5F, 5G, or 5H as set forth in 40 CFR 60, Appendix A and EPA Method 201, 201A, and 202 as set forth in 40 CFR 51.

b. Tests to determine compliance with SO2 emission limits shall be conducted in accordance with Method 6, 6A, 6B, or 6C as set forth in 40 CFR 60, Appendix A.

c. Tests to determine compliance with CO emission limits shall be conducted in accordance with Method 10, 10A, or 10B as set forth in 40 CFR 60, Appendix A.

d. Tests to determine compliance with NOx emission limits shall be conducted in accordance with Method 7, 7A, 7B, 7C, 7D, or 7E as set forth in 40 CFR 60, Appendix A.

e. Tests to determine compliance with VOC emission limits/control efficiencies shall be conducted in accordance with Method 18, Method 25, or 25A as set forth in 40 CFR 60, Appendix A.

f. Tests to determine compliance with speciated organic HAP emission limits shall be conducted in accordance with Method 18 as set forth in 40 CFR 60, Appendix A.

4.3.9. Within 180 days of initial startup of each bank of absorbers, as described in permit applications R14-12, R14-12A, R14-12B, R14-14C, and at such times thereafter as may be required by the USEPA Administrator or the Director of the Division of Air Quality, the permittee shall conduct, or have conducted, a performance test on each bank of adsorbers to determine compliance with the VOC control device efficiency. After the initial performance test, the permittee shall conduct a performance test on each bank of adsorbers within two (2) years of the previous test unless a different schedule is approved by the Director of the DAQ. The testing requirements under this condition shall be waived upon the written approval of continuous monitoring plan as described under 4.2.17(b) Such testing shall be conducted in accordance with Condition 3.3.1. of this permit.

4.3.10. With respect to any mandatory testing required under this section (Section 4.3.), the permittee shall conduct the tests within the mandatory schedule unless granted a variance from such schedule by the Director upon request from the permittee.

4.4. Recordkeeping Requirements

4.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

a. The date, place as defined in this permit and time of sampling or measurements;

b. The date(s) analyses were performed;

c. The company or entity that performed the analyses;

d. The analytical techniques or methods used;

e. The results of the analyses; and

f. The operating conditions existing at the time of sampling or measurement.

4.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

4.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.

b. Steps taken to minimize emissions during the event.

c. The duration of the event.

d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.

f. Steps taken to correct the malfunction.

g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

4.4.4. For the purpose of demonstrating compliance with condition 4.1.2.i., the permittee shall maintain records of the visible emission opacity tests conducted. Said records shall be maintained on-site or in a readily accessible off-site location maintained in accordance with 3.4.1. of this permit.

4.4.5. The permittee shall maintain records any testing conducted as required in section 4.3. of this permit in accordance with condition 3.4.1. of this permit.

4.5. Reporting Requirements

4.5.1. At such times as may be required by the Director, the permittee shall notify, in writing, the date and time on which solvent loadout operations are going to take place so as to allow West Virginia Division of Air Quality (WVDAQ) personnel to observe the loadout process. The notification shall be sent to the following address:

West Virginia Division of Air Quality
Eastern Panhandle Regional Office
HC 63, Box 2545
Romney, WV 26757

The notification must be received no less than seven (7) days prior to the date the loadout operation is to take place.

Pursuant to 45CSR4, Section 6.1, if DAQ personnel determine that the solvent loadout operations cause or contribute to an objectionable odor, the permittee shall develop and offer an acceptable control program for the elimination of the cause or contribution of/to the objectionable odor.

4.5.2. The permittee shall submit the results of testing as required in Section 4.3. or by the Director before the close of business on the 60th day following the completion of such testing to the Director.

4.5.3. Any exceedances(s) of the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten (10) calendar days of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

4.5.4. The permittee shall notify the Director, in writing, the date on which the catalyst bed is schedule to be replace in the catalytic oxidizer, identified F-03 thirty-days prior to being replaced as part of scheduled or normal maintenance practices. Catalyst bed replace other part of schedule or normal maintenance, the permittee shall notify the Director, in writing, the date on which the catalyst bed is to be or was replace as soon as practical but no later than seven days after such replace has taken place. Such notification shall include the rational for such replacement. Record of such notification shall be maintained in accordance with condition 3.4.1. of this permit.

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature[1] _____ _____
(please use blue ink) Responsible Official or Authorized Representative Date

Name and Title _____ _____
(please print or type) Name Title

Telephone No. _____ Fax No. _____

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[1] This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(I) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), or

(ii) the delegation of authority to such representative is approved in advance by the Director;

b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of USEPA); or

d. The designated representative delegated with such authority and approved in advance by the Director.

Appendix A: Emission Source (EP) Inventory

Quad/Graphics, Inc. - Permit Number R14-0012G

Martinsburg Plant - Identification Number 003-00042

Natural Gas/LPG Fired Boilers

EP ID Number	EP Unit Description	EP Unit ID Numbers	Emission Generating Units (EGU)	EGU ID Nos	Pollutant(s)	Maximum Permitted Emissions: Natural Gas Lbs/Hour	Maximum Permitted Emissions: LPG Lbs/Hour	Maximum Permitted Emissions: Tons/Year	Comments
S-1	Boiler Exhaust Stack	B-01	Boiler Cleaver Brooks Model D-60-E 1,000 HP	B-01	CO	1.41	1.84	6.25	Boiler has separate hourly emission limits for times of natural gas and LPG (Propane) combustion. Annual emission limit represents worst-case from the combustion of both fuels. All PM emitted is assumed PM_{10}.
					NOx	1.58	10.93	8.48	
					PM_{10}	0.47	0.35	2.08	
					SO2	0.05	0.82	0.36	
					VOCs	0.06	0.17	0.29	
S-2	Boiler Exhaust Stack	B-02	Boiler Cleaver Brooks Model D-60-E 1,000 HP	B-02	CO	1.41	1.84	6.25	Boiler has separate hourly emission limits for times of natural gas and LPG (Propane) combustion. Annual emission limit represents worst-case from the combustion of both fuels. All PM emitted is assumed PM_{10}.
					NOx	1.58	10.93	8.48	
					PM_{10}	0.47	0.35	2.08	
					SO2	0.05	0.82	0.36	
					VOCs	0.06	0.17	0.29	
S-3	Boiler Exhaust Stack	B-03	Boiler Cleaver Brooks Model CBL-700 1,300 HP	B-03	CO	2.01	1.92	8.82	Boiler has separate hourly emission limits for times of natural gas and LPG (Propane) combustion. Annual emission limit represents worst-case from the combustion of both fuels. All PM emitted is assumed PM_{10}.
					NOx	1.90	11.42	9.94	
					PM_{10}	0.54	0.36	2.38	
					SO2	0.05	0.86	0.37	
					VOCs	0.65	0.18	2.86	
S-4	Boiler Exhaust Stack	B-04	Boiler Johnston Boiler Company Model PFTA 1,600-4 1,600 HP	B-04	CO	2.50	4.60	11.30	Boiler has separate hourly emission limits for times of natural gas and LPG (Propane) combustion. Annual emission limit represents worst-case from the combustion of both fuels. All PM emitted is assumed PM_{10}.
					NOx	2.30	9.87	11.36	
					PM_{10}	0.07	0.07	0.29	
					SO2	0.04	1.04	0.34	
					VOCs	0.26	0.53	1.20	
S-5	Boiler Exhaust Stack	B-05	Boiler Johnston Boiler Company Model PFTA 1,600-4 1,600 HP	B-05	CO	2.50	4.60	11.30	Boiler has separate hourly emission limits for times of natural gas and LPG (Propane) combustion. Annual emission limit represents worst-case from the combustion of both fuels. All PM emitted is assumed PM_{10}.
					NOx	2.30	9.87	11.36	
					PM_{10}	0.07	0.07	0.29	
					SO2	0.04	1.04	0.34	
					VOCs	0.26	0.53	1.20	
S-9	Boiler Exhaust Stack	B-09	Boiler Johnston Boiler Company Model PFTA 1,600-4 1,600 HP	B-09	CO	2.50	4.60	11.30	Boiler has separate hourly emission limits for times of natural gas and LPG (Propane) combustion. Annual emission limit represents worst-case from the combustion of both fuels. All PM emitted is assumed PM_{10}.
					NOx	2.30	9.87	11.36	
					PM_{10}	0.07	0.07	0.29	
					SO2	0.04	1.04	0.34	
					VOCs	0.26	0.53	1.20	

Appendix A: Emission Source (EP) Inventory

Quad/Graphics, Inc. - Permit Number R14-0012G
Martinsburg Plant - Identification Number 003-00042

Chrome Plating Operations

EP ID Number	EP Unit Description	EP Unit ID Numbers	Emission Generating Units (EGU)	EGU ID Nos	Pollutant(s)	Maximum Permitted Emissions lb/hour	Comments
S-6	Chromium Tank Scrubber	S-06	Chrome Plating Tank	CP-06	Chromium (VI), as Cr water soluble	0.00073	These limits are pursuant to 40 CFR 63, Subpart N, Section 63.342.c.1(I).
S-7	Chromium Tank Scrubber	S-07	Chrome Plating Tank	CP-07	Chromium (VI), as Cr water soluble	0.00073	
S-8	Chromium Tank Scrubber	S-08	Chrome Plating Tank	CP-08	Chromium (VI), as Cr water soluble	0.00073	

Ink Jet Printers

EP ID Number	EP Unit Description	EP Unit ID Numbers	Emission Generating Units (EGU)	EGU ID Nos	Pollutant(s)	Maximum Permitted Emissions Lbs/Hour	Tons/Year	Comments
S-12	Ink Jet Printing	S-12	Ink Jet Printing	-	VOCs	9.24	40.46	The emissions from the ink jet printers are fugitive and not vented through a common stack.
					HAPs	0.01	0.02	
					Methanol	0.01	0.02	

Appendix A: Emission Source (EP) Inventory

Quad/Graphics, Inc. - Permit Number R14-0012G

Martinsburg Plant - Identification Number 003-00042

Solvent Recovery System

EP ID Number	EP Unit Description	EP Unit ID Numbers	Emission Generating Units (EGU)	EGU ID Nos.	Pollutant(s)	Maximum Permitted Emissions Lbs/Hour	Tons/Year	Comments
S-25 S-26 S-27	Carbon Adsorber Stacks	CA-1 to CA-21	108" Rotogravure Press	G13-G24, G29	VOCs	19.70	57.50	The limits are per each specified press and as controlled by the carbon adsorbers. Facility permitted for 12 108" presses. Hourly emission compliance is on a monthly average basis and annual emission compliance is on a twelve month rolling total basis. Aggregate HAP limit is in effect even if sum of speciated HAP limits are in excess of aggregate HAP limit.
					HAPs	19.70	57.50	
					Toluene	19.70	57.50	
					Xylene	0.07	0.25	
					Ethylbenzene	0.02	0.07	
S-25 S-26 S-27	Carbon Adsorber Stacks	CA-1 to CA-21	108" Rotogravure Press	G-28	VOCs	19.70	51.50	Hourly emission compliance is on a monthly average basis and annual emission compliance is on a twelve month rolling total basis. Aggregate HAP limit is in effect even if sum of speciated HAP limits are in excess of aggregate HAP limit.
					HAPs	19.70	51.50	
					Toluene	19.70	51.50	
					Xylene	0.07	0.25	
					Ethylbenzene	0.02	0.07	
S-25 S-26 S-27	Carbon Adsorber Stacks	CA-1 to CA-21	133" Rotogravure Press	G29-G35	VOCs	24.26	70.81	The limits are per each specified press and as controlled by the carbon adsorbers. Facility permitted for six (6) 133" presses. Hourly emission compliance is on a monthly average basis and annual emission compliance is on a twelve month rolling total basis. Aggregate HAP limit is in effect even if sum of speciated HAP limits are in excess of aggregate HAP limit.
					HAPs	24.26	70.81	
					Toluene	24.26	70.81	
					Xylene	0.09	0.30	
					Ethylbenzene	0.03	0.09	
S-25 S-26 S-27	Carbon Adsorber Stacks	CA-1 to CA-21	Rotoagravure, Ink Blending, and Manufacturing Tanks	Tanks Listed In Tables 4.1.1(g) and 4.1.3(a)	VOCs	1.23	0.53	The limits are aggregate limits for all specified sources and as controlled by the carbon adsorbers. Aggregate HAP limit is in effect even if sum of speciated HAP limits are in excess of aggregate HAP limit.
					HAPs	1.20	0.52	
					Toluene	1.19	0.52	
					Xylene	7.27E-03	2.69E-03	
					Ethylbenzene	1.08E-03	4.10E-04	

Appendix A: Emission Source (EP) Inventory

Quad/Graphics, Inc. - Permit Number R14-0012G

Martinsburg Plant - Identification Number 003-00042

S-25 S-26 S-27	Carbon Adsorber Stacks	CA-1 to CA-21	Various - See Above	See Above	VOCs HAPs *Toluene* *Xylene* *Ethylbenzene*	383.19 383.16 383.15 1.45 0.44	1,109.39 1,109.38 1,109.38 4.77 1.44	These limits are the summation of the above limits and represent maximum allowable emissions from the combination of the three carbon adsorber bank emission points (S-26, S-27, S-28). Aggregate HAP limit is in effect even if sum of speciated HAP limits are in excess of aggregate HAP limit.

Offset Presses

EP ID Number	EP Unit Description	EP Unit ID Numbers	Emission Generating Units (EGU)	EGU ID Nos.	Pollutant(s)/Emission Limits	Comments
S-28	Thermal Oxidizer	F-01	Heatset Offset Web Press	OP-01	See Appendix B	See Appendix B for Heatset Lithographic Press emissions limits. Aggregate HAP limits are in effect even if sum of speciated HAP limits are in excess of aggregate HAP limit.
S-29	Thermal Oxidizer	F-02	Heatset Offset Web Press	OP-02	See Appendix B	
S-30	Catalytic Oxidizer	F-03	Heatset Offset Web Press	OP-03	See Appendix B	
S-31	Thermal Oxidizer	F-04	Heatset Offset Web Press	OP-04	See Appendix B	
S-32	Thermal Oxidizer	F-05	Heatset Offset Web Press	OP-05	See Appendix B	
S-33	Thermal Oxidizer	F-06	Heatset Offset Web Press	OP-06	See Appendix B	
S-34	Thermal Oxidizer	F-07	Heatset Offset Web Press	OP-07	See Appendix B	
S-35	Thermal Oxidizer	F-08	Heatset Offset Web Press	OP-08	See Appendix B	
S-36	Thermal Oxidizer	F-09	Heatset Offset Web Press	OP-09	See Appendix B	
S-37	Thermal Oxidizer	F-10	Heatset Offset Web Press	OP-10	See Appendix B	
S-38	Thermal Oxidizer	F-11	Heatset Offset Web Press	OP-11	See Appendix B	
S-39	Thermal Oxidizer	F-12	Heatset Offset Web Press	OP-12	See Appendix B	

Rennzman Cylinder Washer

EP ID Number	EP Unit Description	EP Unit ID Numbers	Emission Generating Units (EGU)	EGU ID Nos	Pollutant(s)	Maximum Permitted Emissions Lbs/Hour	Maximum Permitted Emissions Tons/Year	Comments
S-82	Cylinder Washer	RZ-1	Cylinder Washer	RZ-1	VOCs	15.34	24.76	

Recovered Solvent and Manufactured Ink Loadout Operations

EP ID Number	EP Unit Description	EP Unit ID Numbers	Emission Generating Units (EGU)	EGU ID Nos.	Pollutant(s)	Maximum Permitted Emissions Lbs/Hour	Maximum Permitted Emissions Tons/Year	Comments
Fugitive	Fugitive	n/a	Recovered Solvent Truck/Rail Loadout	n/a	VOCs *Toluene*	8.66 8.66	5.78 5.78	Emissions are fugitive in nature.
Fugitive	Fugitive	n/a	Manufactured Ink Truck/Rail Loadout	n/a	VOCs *Toluene*	3.98 3.98	2.93 2.93	Emissions are fugitive in nature.

Appendix B: Heatset Lithographic Printing Press Emission Limits

Quad/Graphics, Inc.: Permit Number R14-0012G
Martinsburg Plant - Identification Number 003-00042

EP ID Number	Source	Air Pollution Control Device	CO		NO_x		PM_{10}		SO_2		VOCs		Hazardous Air Pollutants (HAPs)							
													Xylene		MEK		Ethylbenzene		Napthalene	
			lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
	M1000 Press w/ CO																			
	Printing																			
S-30	Ink/Solution/Wash Application	Catalytic Oxidizer	0	0	0	0	0	0	0	0	2.54	8.34	0	0	0	0	0	0	0	0
S-30	Combustion Emissions (N/G)		0.86	-	1.02	-	0.08	-	0.01	-	0.06	-	0	-	0	-	0	-	0	-
	Combustion Emissions (LPG)		0.37	-	2.19	-	0.07	-	0.16	-	0.03	-	0	-	0	-	0	-	0	-
	Combustion Emissions (Annual)		-	2.11	-	2.80	-	0.20	-	0.04	-	0.14	-	0	-	0	-	0	-	0
S-30	TOTAL S-30		0.86	2.11	2.19	2.80	0.08	0.20	0.16	0.04	2.59	8.47	0	0	0	0	0	0	0	0
Fugitive	Uncaptured		0	0	0	0	0	0	0	0	1.69	5.55	0.01	0.04	0	0	0	0	0	0
	Cleaning																			
Fugitive	Uncaptured		0	0	0	0	0	0	0	0	0.15	0.48	0.01	0.02	0.01	0.04	0.00	0.01	0	0
	M1000 Press w/ TO		CO		NO_x		PM_{10}		SO_2		VOCs		Xylene		MEK		Ethylbenzene		Napthalene	
	Printing		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
S-(31-35)	Ink/Solution/Wash Application	Thermal Oxidizer	0	0	0	0	0	0	0	0	2.54	8.34	0	0	0	0	0	0	0	0
S-(31-35)	Combustion Emissions (N/G)		1.15	-	1.37	-	0.10	-	0.01	-	0.08	-	0	-	0	-	0	-	0	-
	Combustion Emissions (LPG)		0.50	-	2.94	-	0.09	-	0.22	-	0.05	-	0	-	0	-	0	-	0	-
	Combustion Emissions (Annual)		-	3.05	-	4.02	-	0.28	-	0.06	-	0.20	-	0	-	0	-	0	-	0
S-(31-35)	TOTAL S-(31-35)		1.15	3.05	2.94	4.02	0.10	0.28	0.22	0.06	2.61	8.54	0	0	0	0	0	0	0	0
Fugitive	Uncaptured		0	0	0	0	0	0	0	0	1.69	5.55	0.01	0.04	0	0	0	0	0	0
	Cleaning																			
Fugitive	Uncaptured		0	0	0	0	0	0	0	0	0.15	0.48	0.01	0.02	0.01	0.04	0.00	0.01	0	0
	M3000 Press w/ TO		CO		NO_x		PM_{10}		SO_2		VOCs		Xylene		MEK		Ethylbenzene		Napthalene	
	Printing		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
S-(36-39)	Ink/Solution/Wash Application	Thermal Oxidizer	0	0	0	0	0	0	0	0	2.55	8.37	0	0	0	0	0	0	0	0
S-(36-39)	Combustion Emissions (N/G)		1.32	-	1.57	-	0.12	-	0.01	-	0.09	-	0	-	0	-	0	-	0	-
	Combustion Emissions (LPG)		0.57	-	3.36	-	0.11	-	0.25	-	0.05	-	0	-	0	-	0	-	0	-
	Combustion Emissions (Annual)		-	3.57	-	4.70	-	0.33	-	0.07	-	0.24	-	0	-	0	-	0	-	0
S-(36-39)	TOTAL S-(36-39)		1.32	3.57	3.36	4.70	0.12	0.33	0.25	0.07	2.63	8.60	0	0	0	0	0	0	0	0
Fugitive	Uncaptured		0	0	0	0	0	0	0	0	2.05	6.75	0.01	0.04	0	0	0	0	0.01	0.02
	Cleaning																			
Fugitive	Uncaptured		0	0	0	0	0	0	0	0	0.18	0.61	0.01	0.03	0.02	0.05	0.00	0.01	0	0
	C700E Press w/ TO		CO		NO_x		PM_{10}		SO_2		VOCs		Xylene		MEK		Ethylbenzene		Napthalene		Glycol Ethers	
	Printing		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
S-(28,29)	Ink/Solution/Wash Application	Thermal Oxidizer	0	0	0	0	0	0	0	0	2.42	6.78	0	0	0	0	0	0	0	0	0	0
S-(28,29)	Combustion Emissions (N/G)		0.58	-	0.69	-	0.05	-	0.00	-	0.04	-	0	-	0	-	0	-	0	-	0	-
	Combustion Emissions (LPG)		0.25	-	1.47	-	0.05	-	0.11	-	0.02	-	0	-	0	-	0	-	0	-	0	-
	Combustion Emissions (Annual)			1.52		2.01		0.14		0.03		0.10	-	0	-	0	-	0	-	0	-	0
S-(28,29)	TOTAL S-(28,29)		0.58	1.52	1.47	2.01	0.05	0.14	0.11	0.03	2.46	6.88	0	0	0	0	0	0	0	0	0	0
Fugitive	Uncaptured		0	0	0	0	0	0	0	0	1.58	4.44	0	0	0	0	0	0	0	0	0.11	0.31
	Cleaning																					
Fugitive	Uncaptured		0	0	0	0	0	0	0	0	0.16	0.44	0.01	0.01	0.00	0.00	0.01	0.03	0	0	0	0

Notes

(1) The limits above are per individual press. Emission Points are listed for all similar emission points (i.e., S-(31-35) means the emission points identified as S31, S32, S33, S34, S35.)

(2) Operations that utlize rags shall dispose of rags in sealed containers and dispose of properly

(3) All particulate emissions from combustion is assumed to be PM_{10}.

(4) Offset combustion hourly limits are different for LPG and Natural Gas (N/G). Annual combustion limits represent the sum of the annual emissions while combusting both fuels.

APPENDIX C

Summary of Quad/Graphics, Inc.
Lomira Gravure Press
Mass Balance Solvent Recovery Report

NON-CONFIDENTIAL

Chemical Research \ Technology | 952 Badger Road | Lomira, Wisconsin 53048 | Telephone 920-921-5271

INTRODUCTION:

The solvent recovery report for the Quad/Graphics Lomira Gravure press operation is compiled by CR\T (Chemcial Research\Technology), the ink division of Quad/Graphics. CR\T personnel maintain inventory, perform quality control, and provide in-house technical support (and facilitate supplier involved support) for gravure ink material and solvent used in the process.

The report uses a mass balance to figure the efficiency of the solvent recovery system.

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DETAILS: Solvent consumed via tank inks	page 4
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Third term in expression: Solvent consumed via tank toluene, general	page 6
DETAILS: Solvent consumed via tank toluene	page 6
Fourth term in expression: Solvent consumed via drum solvents, general	page 7
DETAILS: Solvent consumed via drum solvents	page 7

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DEFINITIONS:

ink is defined as any ink, toner, extender, or additive, or any other solids/solvent mixture used in the gravure printing process (ie, raw ink and related coatings.)

solvent is any solids-free solvent; all solvent used is considered VOC solvent.

initial refers to the value at the start time of the period (the day when month-end inventory, either the last day or first day of a month.)

final refers to the value at the end time of the period (the day when month-end inventory, either the last day or first day of a month.)

received refers to an amount received between the initial time and final time.

running weighted average of a property applies to tank inks; it gives the value of the property at any given time by tracking the change in the property with each shipment received into a tank. Calculation of the running weighted average (RWA) of a property is made for each receipt of ink to a tank as follows:

$$\text{property}_{\text{new RWA}} = \frac{[\text{property}_{\text{old RWA}} * (\text{old volume ink in tank}) + \text{property}_{\text{received}} * (\text{volume ink received into tank})]}{[(\text{old volume ink in tank}) + (\text{volume ink received into tank})]}$$

where,

old refers to the value before pumping ink into a tank

new refers to the value after pumping ink into a tank

$\text{property}_{\text{received}}$ is the measured value resulting from testing a tanker sample

wpg is the density of a material in units of lb per gallon

Efficiency of solvent recovery, e, for a period is defined as:

$$e = \frac{\text{lb solvent recovered}}{\text{lb solvent consumed}} * 100$$

where, (98.7% / 100

solvent recovered refers to the total (from all presses) solvent recovered during the period.

solvent consumed refers to the total (from all presses) solvent consumed via inks and solvents during the period.

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CALCULATIONS:

The general equation for solvent recovery efficiency:

The efficiency of solvent recovery, e, for a period is defined as:

$$e = \frac{\text{lb solvent recovered}}{\text{lb solvent consumed}} * 100$$

Lb solvent recovered:

lb solvent recovered = final meter - initial meter

Lb solvent consumed:

lb solvent consumed

$$= \left(\sum_{\text{all tank, drum inks}} \text{lb solvent consumed via an ink}\right) + \left(\sum_{\text{tank toluene, drum solvents}} \text{lb solvent consumed via solvents}\right)$$

$$= \left(\sum_{\text{all tank inks}} \text{lb solvent consumed via an ink}\right) \quad \text{(see page 4)}$$

$$+ \left(\sum_{\text{all drum inks}} \text{lb solvent consumed via an ink}\right) \quad \text{(see page 5)}$$

$$+ \left(\sum_{\text{toluene tanks}} \text{lb solvent consumed via tank toluene}\right) \quad \text{(see page 6)}$$

$$+ \left(\sum_{\text{drum solvents}} \text{lb solvent consumed via solvents}\right) \quad \text{(see page 7)}$$

The first and second terms in this expression account for tank and drum inks, respectively.

The third and fourth terms in this expression account for tank toluene and drum solvents, respectively.

Details on each of these four terms follow.

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CALCULATIONS (continued):

First term in expression: Solvent consumed via tank inks, general:

$\sum_{\text{all tank inks}}$ lb solvent consumed via an ink

The first term, which is due to tank inks, uses the general mass balance expression,

lb solvent consumed via an ink = (lb solvent in an ink$_{initial}$) - (lb solvent in an ink$_{final}$) + (lb solvent in an ink$_{received}$)

DETAILS: Solvent consumed via tank inks:

For solvent contained in initial and final inventories of an ink,

lb solvent in an ink$_{initial, final}$ = (gallons of ink$_{initial, final}$) * (wpg of ink$_{initial, final}$) * (mass fraction of solvent in ink$_{initial, final}$)

gallons of ink$_{initial, final}$ = volume of ink in storage tank at the time$_{initial, final}$

volume of ink in storage tank = (Cone volume for tank) + (Gallons/inch constant for tank)*(Tank height of ink in tank)

Tank height of ink in tank = reading from tank height level indicator

Cone volume for tank----->

yellow, coated extender tanks, uncoated extender tanks = 1300 gallons
red, blue, black tanks = 840 gallons

Gallons/inch constant for tank----->

yellow, coated extender tanks, uncoated extender tanks = 69.2 gallons/inch
red, blue, black tanks = 44.2 gallons/inch

wpg of ink$_{initial, final}$ = running weighted average wpg at the time$_{initial, final}$

mass fraction of solvent in ink$_{initial, final}$ = running weighted average mass fraction of solvent in ink at the time$_{initial, final}$

(Note: See definition for running weighted average.)

For solvent contained in received quantities of an ink,

lb of solvent in an ink$_{received}$ = $\sum_{\text{all shipments}}$ lb solvent in ink shipment

= $\sum_{\text{all shipments}}$ (gallons of ink$_{received}$) * (wpg of ink$_{received}$) * (mass fraction of solvent in ink$_{received}$)

gallons of ink$_{received}$ = (unloading stop meter reading)$_{ink\ receipt}$ - (unloading start meter reading)$_{ink\ receipt}$

wpg of ink$_{received}$ = measured wpg from tanker sample

mass fraction of solvent in ink$_{received}$ = measured mass fraction of solvent in ink from tanker sample

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CALCULATIONS (continued):

Second term in expression: Solvent consumed via drum inks, general:

$\sum_{\text{all drum inks}}$ lb solvent consumed via an ink

The second term, which is due to drum inks, uses the general mass balance expression,

lb solvent consumed via an ink = (lb solvent in $\text{ink}_{\text{initial}}$) - (lb solvent in $\text{ink}_{\text{final}}$) + (lb solvent in $\text{ink}_{\text{received}}$) - (lb solvent in $\text{ink}_{\text{shipped out}}$)

DETAILS: Solvent consumed via drum inks:

For solvent contained in initial and final inventories of an ink,

lb solvent in $\text{ink}_{\text{initial, final}}$

= (drums of ink on hand at the $\text{time}_{\text{initial, final}}$) * (55 gallons per drum) * (wpg of ink) * (mass fraction of solvent in ink)

drums of ink on hand at the $\text{time}_{\text{initial, final}}$ = inventoried amount

wpg of ink = wpg (estimated value based on similar, known inks)

mass fraction of solvent in ink = mass fraction of solvent (estimated value based on similar, known inks)

For solvent contained in received quantities of an ink,

lb of solvent in $\text{ink}_{\text{received}}$ = $\sum_{\text{all shipments}}$ lb solvent in ink receipt

= $\sum_{\text{all shipments}}$ (pounds of $\text{ink}_{\text{received}}$) * (mass fraction of solvent in ink)

pounds of $\text{ink}_{\text{received}}$ = packing-slip (invoiced) actual amount received

mass fraction of solvent in ink = mass fraction of solvent (estimated value based on similar, known inks)

For solvent contained in shipped quantities of an ink,

lb solvent in drum $\text{ink}_{\text{shipped out}}$ = $\sum_{\text{all shipments}}$ lb solvent in drum ink shipment

= $\sum_{\text{all shipments}}$(gallons of drum $\text{ink}_{\text{shipped out}}$) * (wpg of $\text{ink}_{\text{shipped out}}$) * (mass fraction of solvent in $\text{ink}_{\text{shipped out}}$)

gallons of drum $\text{ink}_{\text{shipped out}}$ = waste manifest gallons shipped

wpg of $\text{ink}_{\text{shipped out}}$ = weight per gallon (estimated value based on similar, known inks)

mass fraction of solvent in $\text{ink}_{\text{shipped out}}$ = mass fraction of solvent in ink shipped out (estimated value based on similar, known inks)

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CALCULATIONS (continued):

Third term in expression: Solvent consumed via tank toluene, general:

$\sum_{\text{toluene tanks}}$ lb solvent consumed via tank toluene

The third term, which is due to tank toluene, uses the general mass balance expression,

lb solvent consumed = (lb solvent on hand$_{initial}$) - (lb solvent on hand$_{final}$) - (lb solvent$_{shipped\ out}$)

DETAILS: Solvent consumed via tank toluene:

For solvent contained in initial and final inventories of tank toluene,

(lb solvent on hand)$_{initial,\ final}$ = (volume of toluene in tanks)$_{initial,\ final}$ * wpg$_{toluene}$

(volume of toluene in tanks)$_{initial,\ final}$ = (level indicator volume reading$_{T16}$ + level indicator volume reading$_{T17}$)$_{initial,\ final}$

wpg$_{toluene}$ = original measured value = 7.15 lb/gallon

For solvent contained in shipped quantities of tank toluene,

(lb solvent$_{shipped\ out}$) = $\left(\sum_{\text{all shipments}}\right.$ volume of toluene shipment$\left.\right)$ * wpg$_{toluene}$

volume of toluene shipment = (loading stop meter reading)$_{toluene\ shipment}$ - (loading start meter reading)$_{toluene\ shipment}$

wpg$_{toluene}$ = original measured value = 7.15 lb/gallon

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CALCULATIONS (continued):

Fourth term in expression: Solvent consumed via drum solvents, general:

$\sum_{\text{drum solvents}}$ lb solvent consumed via solvents

The fourth term, which is due to drum solvents uses the general mass balance expression,

lb drum solvent consumed = (lb drum solvent on hand$_{initial}$) - (lb drum solvent on hand$_{final}$) + (lb drum solvent$_{received}$)

DETAILS: Solvent consumed via drum solvents:

For solvent contained in initial and final inventories of miscellaneous drum solvents,

lb drum solvent on hand$_{initial, final}$ = (drums of solvent on hand at the time$_{initial, final}$) * (55 gallons per drum) * (wpg of solvent)

wpg of solvent = original measured value for the solvent or manufacurer's value

drums of solvent on hand at the time$_{initial, final}$ = inventoried amount

For solvent contained in received quantities of a solvent,

lb drum solvent$_{received}$ = $\sum_{\text{all shipments}}$ lb drum solvent shipment

lb drum solvent shipment = packing-slip (invoiced) lb of solvent received

or

lb drum solvent shipment = [packing-slip (invoiced) gallons of solvent received] * (wpg of solvent)

wpg of solvent = original measured value for the solvent or manufacurer's value

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R14-0012G
Quad/Graphics, Inc.
Martinsburg

APPENDIX D - MONTHLY/QUARTERLY OPACITY REPORT

Date of Observation:
Date Entered by:
Reviewed by:
Date Reviewed:
General Weather Conditions:

Emission Point ID	Description of Emission Point	Time of Observation	Visible Emissions (Yes/No)	Consecutive Months of Visible Emission	Comments