

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **112012-014**

Project Number: 2012-07-098
Installation Number: 161-0039

Parent Company: Manchester Packaging Company
 Parent Company Address: 2000 E. James Blvd., St. James, MO 65559
 Installation Name: Manchester Packaging Company
 Installation Address: 2000 E. James Blvd., St. James, MO 65559
 Location Information: Phelps County, S16, T38N, R6W

Application for Authority to Construct was made for:
 Increase unprinted polyethylene film production due to the replacement of one existing 450 lb/hr extruder with three new 250 lb/hr extruders. This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060 *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

NOV 26 2012

EFFECTIVE DATE

Kyra L Moore

DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if the permittee fails to begin construction or modification within two years from the effective date of this permit. The permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

The permittee will be in violation of 10 CSR 10-6.060 if the permittee fails to adhere to the specifications and conditions listed in the application, this permit, and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans, and specifications.

The permittee shall notify the Missouri Department of Natural Resources' Air Pollution Control Program of the anticipated date of startup of these air contaminant sources. The information shall be made available within 30 days of actual startup. Also, the permittee shall notify the Department of Natural Resources' Southeast Regional Office within 15 days after the actual startup of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

The permittee may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If the permittee chooses to appeal, the permittee must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If the permittee chooses not to appeal, this certificate, the project review, the application, and associated correspondence constitutes the permit to construct. The permit allows the permittee to construct and operate the air contaminant sources, but in no way relieves the permittee of the obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources, and other applicable federal, state, and local laws and ordinances.

The Air Pollution Control Program invites questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060(12)(A)10 “Conditions required by permitting authority.”

Manchester Packaging Company
Phelps County, S16, T38N, R6W

1. Control Device Requirement – Fabric Filters
 - A. The permittee shall control emissions from the equipment listed in Table 1 using fabric filters as specified in the permit application.

Table 1: Emission Sources required to employ Fabric Filters

Emission Unit	Description
EP-10	Railcar Unloader Transfer System
EP-11	Hopper Loader Transfer System
EP-13	Vacuum Loader 1
EP-14	Vacuum Loader 2

- B. The fabric filters shall be operated and maintained in accordance with the manufacturer's specifications. The fabric filters shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them.
- C. Replacement filters for the fabric filters shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
- D. The permittee shall monitor and record the operating pressure drop across the fabric filters at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- E. The permittee shall maintain an operating and maintenance log for the fabric filters which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- 2) event, probable cause, and corrective actions; and
2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
2. Operational Requirement - Solvent/Ink Cloths
 - A. The permittee shall keep all inks, solvents, and cleaning solutions in sealed containers whenever the materials are not in use. The permittee shall provide and maintain suitable, easily read, permanent markings on all inks, solvents, and cleaning solution containers used at the installation.
3. Record Keeping and Reporting Requirements
 - A. The permittee shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - B. The permittee shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2012-07-098
Installation ID Number: 161-0039
Permit Number:

Manchester Packaging Company
2000 E. James Blvd.
St. James, MO 65559

Complete: October 3, 2012

Parent Company:
Manchester Packaging Company
2000 E. James Blvd.
St. James, MO 65559

Phelps County, S16, T38N, R6W

REVIEW SUMMARY

- The permittee has applied for authority to increase unprinted polyethylene film production by replacing one existing 450 lb/hr extruder with three new 250 lb/hr extruders.
- Increased HAP emissions are expected from the increased extrusion capacity. The HAPs of concern are Xylene (1330-20-7), Ethylbenzene (100-41-4), and Formaldehyde (50-00-0).
- 40 CFR Part 60, Subpart DDD – *Standards of Performance for VOC Emissions from the Polymer Manufacturing Industry* is not applicable to the installation. The facility purchases polyethylene for their film production process. No polyethylene is produced onsite.
- 40 CFR Part 63, Subpart T – *National Emission Standards for Halogenated Solvent Cleaning* is not applicable to the installation. The cleaning solvents employed by the installation contain no HAPs.
- 40 CFR Part 63, Subpart PPPP – *National Emission Standards for HAPs for Surface Coating of Plastic Parts and Products* is not applicable to the installation. The facility is not a major source of HAPs.
- 40 CFR Part 63, Subpart HHHHHH – *National Emission Standards for HAPs: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources* is not applicable to the installation. The facility does not perform paint stripping, autobody refinishing, or apply spray coatings.
- 40 CFR Part 63, Subpart JJJJJJ – *National Emission Standards for HAPs for Industrial, Commercial, and Institutional Boilers Area Sources* is not applicable to the installation. All of the combustion sources at the installation are natural gas only.

- Fabric Filters are being used to control the particulate emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060 *Construction Permits Required*. Potential emissions of PM₁₀ are controlled below the de minimis level.
- This installation is located in Phelps County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- An emission testing is not required for the equipment.
- The installation is required to include the new equipment in their Part 70 Operating Permit within one year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Manchester Packaging Company is an existing polyethylene film products manufacturing facility in St. James, Missouri. The polyethylene film products produced by the installation are printed and unprinted polyethylene film and printed and unprinted polyethylene bags.

The installation receives polyethylene resin by rail. The polyethylene resin is unloaded from the railcar by the Railcar Unloader Transfer System (EP-10) and transferred to a resin storage silo. The stored polyethylene resin is transferred to the master blenders by Vacuum Loader 2 (EP-14) and then transferred to the auxiliary blenders by Vacuum Loader 1 (EP-13). After blending, the polyethylene resin is transferred to the Extruder (EP-14) by Hopper Loader Transfer System (EP-11) to produce unprinted polyethylene film.

The unprinted polyethylene film is either sold as is or can be printed and/or formed into bags. The installation operates six flexographic presses (EP-01, EP-02, EP-03, EP-04, EP-05, and EP-06).

The installation operates 15 bag machines to form unprinted or printed polyethylene film into bags.

Unprinted and printed polyethylene scrap is ground down and reused.

Additional equipment at the installation includes Overhead Press Dryer (EP-05), Deck Press Dryer (EP-06), and Space Heating (EP-08, EP-09, and EP-12).

The installation has received one previous construction permit, Permit No. 0198-035, in 1998 for the installation of four flexographic printing presses (EP-03, EP-04, EP-05, and EP-06) and two associated press dryers (EP-05 and EP-06).

The installation currently operates under the Part 70 Operating Permit OP2008-020, which expires March 16, 2013. A Part 70 Operating Permit renewal application is due six months prior to the expiration date. The installation shall revise their renewal application to include the new equipment.

PROJECT DESCRIPTION

The permittee has applied for authority to replace one existing 450 lb/hr extruder with three new 250 lb/hr (750 lb/hr combined) resulting in an increase in extrusion capacity and a debottlenecking of the unprinted polyethylene film production process. Extruders (EP-15) continue to bottleneck the installation.

Increased unprinted polyethylene film production potentially increases the amount of polyethylene film available for printing and/or bags. Table 2 lists the installation's new and existing equipment and modified equipment considered modified or debottlenecked as a result of this project.

Table 2: Installation Equipment List

Emission Unit	Description	Status	MHDR (units per hour)	
EP-01	L-1 Extruder Inline Flexographic Press – Ink	Modified	0.00073	tons
	L-1 Extruder Inline Flexographic Press – Solvent	Modified	0.00190	tons
EP-02	Portable Inline Flexographic Press – Ink	Modified	0.00073	tons
	Portable Inline Flexographic Press – Solvent	Modified	0.00190	tons
EP-03	P-3 Flexographic Printing Press – Ink	Modified	0.00156	tons
	P-3 Flexographic Printing Press – Solvent	Modified	0.00405	tons
EP-04	P-4 Flexographic Printing Press – Ink	Modified	0.00151	tons
	P-4 Flexographic Printing Press – Solvent	Modified	0.00393	tons
EP-05	Overhead Press Dryer	Existing	0.00037	MMscf
	P-5 Flexographic Printing Press – Ink	Modified	0.00124	tons
	P-5 Flexographic Printing Press – Solvent	Modified	0.00322	tons
EP-06	Deck Press Dryer	Existing	0.00037	MMscf
	P-5 Flexographic Printing Press – Ink	Modified	0.00124	tons
	P-5 Flexographic Printing Press – Solvent	Modified	0.00322	tons
EP-08	Space Heating	Existing	0.00034	MMscf
EP-09	Space Heating	Existing	0.00047	MMscf
EP-10	Railcar Unloader Transfer System	Modified	3.125	tons
EP-11	Hopper Loader Transfer System	Modified	3.125	tons
EP-12	Space Heating	Existing	0.00046	MMscf
EP-13	Vacuum Loader 1	New	3.125	tons
EP-14	Vacuum Loader 2	New	3.125	tons
EP-15	Extruders	Modified	3.125	tons

EMISSIONS/CONTROLS EVALUATION

Potential project emissions of the modified equipment were based on their increased emissions. Increased emissions were calculated using the potential emissions of the equipment minus the two-year average of actual emissions based on the installation's 2010 – 2011 EIQ data.

Table 3: Baseline Actual-to-Potential Evaluation

	Emission Unit	PM/PM₁₀	VOC
Potential Emissions (tons per year)	EP-01 Ink	-	6.22
	EP-01 Solvent	-	16.62
	EP-02 Ink	-	6.22
	EP-02 Solvent	-	16.62
	EP-03 Ink	-	13.30
	EP-03 Solvent	-	35.49
	EP-04 Ink	-	12.86
	EP-04 Solvent	-	34.39
	EP-05 Ink	-	10.56
	EP-05 Solvent	-	28.24
	EP-06 Ink	-	10.56
	EP-06 Solvent	-	28.24
	EP-10	9.03	-
	EP-11	9.03	-
	EP-13	9.03	-
EP-14	9.03	-	
EP-15	1.64	0.54	
2010/2011 Baseline Emissions (tons per year)	EP-01 Ink	-	5.30
	EP-01 Solvent	-	14.16
	EP-02 Ink	-	5.30
	EP-02 Solvent	-	14.16
	EP-03 Ink	-	11.33
	EP-03 Solvent	-	30.24
	EP-04 Ink	-	10.96
	EP-04 Solvent	-	29.30
	EP-05 Ink	-	9.00
	EP-05 Solvent	-	24.06
	EP-06 Ink	-	9.00
	EP-06 Solvent	-	24.06
	EP-10	2.49	-
	EP-11	2.49	-
	EP-15	0.45	0.15
Emission Increase (tons per year):		32.33	32.88
De Minimis Levels (tons per year):		25.0/15.0	40.0

Emissions from the flexographic printing presses (EP-01, EP-02, EP-03, EP-04, EP-05, and EP-06) were evaluated using a mass balance. The installation provided MSDS for all of the inks and solvents used, the following inks and solvents were determined to be the worst-case:

Table 4: Worst-case Inks and Solvents

Material Name	Chemical Type	Density (lb/gal)	% of Worst-case Pollutant
Sunshrink Cut Primer (90934183)	Ink	6.23	97.34% VOC
Wax Compound Spec (900005657)	Ink	7.81	0.1% HAP 0.08% Xylene (1300-20-7) 0.02% Ethyl Benzene (100-41-4)
Normal Propyl Acetate	Solvent	7.38	100% VOC

Note: None of the solvents contain HAP.

The emission factors for Railcar Unloader Transfer System (EP-10), Vacuum Loader 2 (EP-14), Vacuum Loader 1 (EP-13) and Hopper Loader Transfer System (EP-11) were obtained from EPA's Factor Information Retrieval System (WebFIRE) on October 3, 2012 for Process SCC 30101807.

There are no currently available EPA approved emission factors for Extruders (EP-15). The emission factors for Extruders (EP-15) were taken from the *Journal of the Air & Waste Management Association* (Volume 46 June 1996) paper "Development of Emission Factors for Polyethylene Processing" available at: <http://pubs.awma.org/gsearch/journal/1996/6/barlow.pdf>.

The following table provides an emissions summary for this project. Existing potential emissions from the facility were calculated as part of this project because a potential emissions calculation had not been performed since 1998 and the inks and solvents used by the installation have since changed. Existing actual emissions were taken from the installation's 2011 EIQ. Potential emissions of the application represent the potential of the new and modified equipment, assuming continuous operation (8,760 hours per year).

Table 4: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions	Uncontrolled Potential Project Emissions	New Controlled Potential Installation Emissions
PM	25.0	15.08	N/A	32.33	3.51
PM ₁₀	15.0	15.08	0.001	32.33	3.51
PM _{2.5}	10.0	0.07	N/A	N/A	0.07
SO _x	40.0	0.01	0.0002	N/A	0.01
NO _x	40.0	0.88	0.04	N/A	0.88
VOC	40.0	175.95	46.78	32.88	219.94
CO	100.0	0.74	0.007	N/A	0.74
GHG ¹	100,000	1,059.16	N/A	N/A	1,059.16
HAPs	25.0	0.08	N/A	0.02	0.09
Xylene (1330-20-7)	10.0	0.04	N/A	0.01	0.05
Hexane (110-54-3)	10.0	0.02	N/A	N/A	0.02
Ethylbenzene (100-41-4)	10.0	0.01	N/A	0.002	0.01
Formaldehyde (50-00-0)	2.0	0.004	N/A	0.004	0.01

N/A = Not Applicable

¹The GHG values within this table are expressed as CO₂e.

Potential individual HAP emissions are below each individual HAP's respective SMAL; therefore, no HAP modeling was required.

The uncontrolled potential project emissions of PM₁₀ exceed the 15.0 de minimis threshold; therefore, the installation was required to use the fabric filters proposed in the application on the modified PM₁₀ emissions sources by Special Condition 1. Emissions from EP-10, EP-11, EP-13, and EP-14 were modified as part of this permit and given 95% PM and PM₁₀ overall control efficiencies for the use of the fabric filters. Prior to this permit, fabric filters were not required for these emission units; therefore, existing potential emissions reflect uncontrolled PM and PM₁₀ levels.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060 *Construction Permits Required*. Potential emissions of PM₁₀ are controlled below the de minimis level.

APPLICABLE REQUIREMENTS

The permittee shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- 10 CSR 10-6.065 *Operating Permits*
- 10 CSR 10-6.110 *Submission of Emission Data, Emission Fees and Process Information*
- 10 CSR 10-6.165 *Restriction of Emission of Odors*
- 10 CSR 10-6.170 *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*
- 10 CSR 10-6.220 *Restriction of Emission of Visible Air Contaminants*

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060 *Construction Permits Required*, I recommend this permit be granted with special conditions.

Alana L. Rugen, EIT
New Source Review Unit

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 26, 2012, received July 30, 2012, designating Manchester Packaging Company as the owner and operator of the installation.
- EPA's Factor Information Retrieval System (WebFIRE)
- *Journal of the Air & Waste Management Association* (Volume 46 June 1996) paper "Development of Emission Factors for Polyethylene Processing"

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ...	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs National Emissions Standards for Hazardous Air Pollutants
CFR	Code of Federal Regulations	NO_x	nitrogen oxides
CO	carbon monoxide	NSPS	New Source Performance Standards
CO₂	carbon dioxide	NSR	New Source Review
CO_{2e}	carbon dioxide equivalent	PM	particulate matter
COMS	Continuous Opacity Monitoring System	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CSR	Code of State Regulations	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
dscf	dry standard cubic feet	ppm	parts per million
EQ	Emission Inventory Questionnaire	PSD	Prevention of Significant Deterioration
EP	Emission Point	PTE	potential to emit
EPA	Environmental Protection Agency	RACT	Reasonable Available Control Technology
EU	Emission Unit	RAL	Risk Assessment Level
fps	feet per second	SCC	Source Classification Code
ft	feet	scfm	standard cubic feet per minute
GACT	Generally Available Control Technology	SIC	Standard Industrial Classification
GHG	Greenhouse Gas	SIP	State Implementation Plan
gpm	gallons per minute	SMAL	Screening Model Action Levels
gr	grains	SO_x	sulfur oxides
GWP	Global Warming Potential	SO₂	sulfur dioxide
HAP	Hazardous Air Pollutant	tph	tons per hour
hr	hour	tpy	tons per year
hp	horsepower	VMT	vehicle miles traveled
lb	pound	VOC	Volatile Organic Compound
lbs/hr	pounds per hour		
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

Mr. Charles R. Armistead
President
Manchester Packaging Company
2000 E. James Blvd.
St. James, MO 65559

RE: New Source Review Permit - Project Number: 2012-07-098

Dear Mr. Armistead:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your New Source Review Permit application and with your Part 70 Operating Permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Alana Rugen at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:arl

Enclosures

c: Southeast Regional Office
PAMS File: 2012-07-098

Permit Number: