

Appendix A4.

**ANALYSIS, PRELIMINARY DETERMINATION AND DRAFT PERMIT FOR
THE RENEWAL OF OPERATION PERMIT NUMBER 642025010-F04
FOR
NORTHERN ENGRAVING CORP,
LOCATED AT
803 S BLACK RIVER ST,
SPARTA, MONROE COUNTY, WISCONSIN
ON THE OPERATION OF
AN EXISTING
DECORATED NAMEPLATE AND AUTOMOTIVE TRIM MANUFACTURING FACILITY**

This review was performed by the Wisconsin Department of Natural Resources in accordance with Sections 285.60 to 285.66, Wis. Stats. and Chapter NR 407, Wis. Adm. Code. This review is for a Synthetic Minor Non-Part 70 source located in an area which is designated attainment/unclassified for all criteria pollutants.

Air Pollution Control Operation Permit: 642025010-F10

Analysis, Preliminary Determination
and Draft Permit prepared by: Mary Oleson Date: 5/4/2007

Approval Element	Initials and Date
Preliminary Determination Document (including calculations)	<i>BKE 5/4/2007</i>
Applicable Requirement	<i>BKE 5/4/2007</i>
Compliance Documentation Methods (compliance inspector concurrence)	<i>MS 5/4/2007</i>
Compliance Plan and Schedule	<i>na</i>
Federal Enforceability of Permit Conditions (synthetic minor conditions)	<i>JEA 5/18/2007</i>

Approved for Public Review and Comment: /s/ Joseph E. Ancel Date: 5/18/2007

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INTRODUCTION

Sources which are not exempt from the operation permit requirements under Section 407.03, Wis. Adm. Code, that were issued an operation permit from the Department of Natural Resources, are required to obtain a renewed air pollution control operation permit. Sources subject to the requirements must submit a permit renewal application to the Department by the date set forth in Sections 285.66(3)(a), Wis. Stats., and NR 407.04(2), Wis. Adm. Code. The renewal application is then reviewed following the provisions set forth in Sections 285.62, 285.63 and 285.64, Wis. Stats., and Chapter NR 407, Wis. Adm. Code.

Subject sources are to be reviewed for their air pollution control technology and for their impact upon the air quality. This is to insure compliance with all applicable rules and statutory requirements. The review will show why the source(s) operation should be approved, conditionally approved, or disapproved. It will encompass emission calculations and air quality analysis using US EPA models, if applicable. Emissions from volatile organic compound (VOC) sources and small sources whose emissions are known to be insignificant are normally not modeled. As a precautionary note, the emission estimates may be based on US EPA emission factors (AP-42) or theoretical data and can vary from actual stack test data.

This review is based on information contained within the renewal application submitted for an air pollution control operation permit. A renewed operation permit may be issued if the criteria set forth in sections 285.63, 284.64 and 285.66, Wis. Stats., are met.

A final decision on the renewal will not be made until the public has had an opportunity to comment on the Department's analysis, preliminary determination and draft permit. The conditions proposed in the draft permit may be revised in any final permit issued based on comments received or further evaluation by the Department.

GENERAL APPLICATION INFORMATION

Owner/Operator: Northern Engraving Corp
PO Box 377
Sparta, WI 54656

Responsible Official: Mr. Bruce Corning, VP Management Systems
608-269-6911

Application Contact Person: Mary K Goodman, Air Quality Mgr
608-269-6911

Application Submitted By: Mary K Goodman, Air Quality Mgr
608-269-6911

Date of Administratively Complete Application: 1/1/2007

Dates of Submittal: Renewal Application: 12/11/2006, 4/9/2007, 4/13/2007, 4/27/2007, 4/30/2007

SOURCE DESCRIPTION

Northern Engraving Corporation manufactures decorative plastic and metal automotive trim and nameplates for the automotive and appliance industries. They operate a number of natural gas/propane boilers, roll coating lines, screen printing lines, lithographic printing lines, spray booths, aluminum sheet preparation, spin and punch presses, and resin mixing and press molding machines.

Note: All other air pollution sources at the facility are covered under the original operation permit (permit number 642025010-F01) and subsequent revisions (permit numbers 642025010-F02, 642025010-F03, and 642025010-F04) and details on the sources are included in the preliminary determination documents for those permits.

Changes Since Issuance of Original Operation Permit 632009730-F01: Since the original operation permit was issued to this facility the following permits were issued to the facility:

Construction permit 02-MEC-618/Significant Revision 642025010-F02 (integrated issuance) to cover modifications of P37/S37.

Construction permit 03-POY-016/Significant Revision 642025010-F03 (integrated issuance) to cover modifications of P32/S18 and construction of coating lines P75, P77 and P78 (process P77 and P78 were not installed).

Construction permit 05-MEC-206/Significant Revision 642025010-F04 (integrated issuance) to cover modifications of P32/S18 and a revision of P42/S42.

Construction permit exempt changes of P41/S41 and P42/S42 and installation of P80/S80 exempted by letter dated 4/30/2004.

Construction permit exempt installation of P79/S79, application submitted 3/3/2004.

Changes Identified in the Renewal Application: The permittee identified that all process lines remain the same as covered in the most recent operation permit 642025010-F04 with the following exceptions:

Process P77/S77: This process was covered by construction permit 03-POY-016 and was never installed. The permittee removed this process from their renewal application.

Process P78/S78: This process was covered by construction permit 03-POY-016 and was never installed. The permittee removed this process from their renewal application.

Process P32/S18: Emissions of two additional HAPs (HDI and ethylene glycol are new HAPs emitted from this process, but the MTEs are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code.)

Process P33 and S19: Changes to stack parameters, material usage rates and HAP emissions to reflect that this process now consists of 1 spraybooth rather than the two spraybooths identified in the most recent operation permit. (Results in a decrease in VOC and HAP emissions. Carbon black and propylene glycol monomethyl ether are new HAPs emitted, but the MTEs are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code.)

Process P37/S53: Changes to HAP emission rates. (Results in a decrease in emissions of existing HAPs. Ethylene glycol, HDI, isobutanol, methanol, propylene glycol monomethyl ether, and toluene are new HAPs emitted, but the MTEs are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code.)

Process P41/S41: Changes to stack parameters and number of ovens used. (Does not change emission rates.)

Process P42/S42: Changes to HAP emissions rates. (Results in increases in MTEs for existing HAPs and emission of new HAPs ethylene glycol, formaldehyde, and isobutanol. The MTEs of all HAPs after taking these changes into consideration are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code.)

Process P43/S43: Changes to HAP emissions rates. (Does not results in increases in MTEs for existing HAPs. Ethylene glycol and formaldehyde are new HAPs emitted, but MTEs are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code.)

Process P44/S44: Changes to HAP emissions rates. (Does not results in increases in MTEs for existing HAPs with the exception of a slight increase in 2-butoxyethanol. Isobutanol, naphthalene, and propylene monomethyl ether are new HAPs emitted. However, the MTEs of new and increased HAPs are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code.)

Process P63/S63: Changes to the material usage and application rates and resulting VOC and HAP emission rates.

(Results in a decrease in VOC MTEs. Does not result in increases in MTEs for existing HAPs with the exception of slight increases in DIBK and glycol ethers. Methylene chloride, perchloroethylene, propylene glycol monomethyl ether, trimethyl benzene and 2,2,4-trimethyl pentane are new HAPs emitted. However, the MTEs of new and increased HAPs are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code.)

Process P75/S75: Changes to HAP emission rates. (Does not result in increases in MTEs for existing HAPs with the exception of slight increases in 2-butoxyethanol, cyclohexanone, formaldehyde, and naphthalene. Ethylene glycol, glycol ethers, HDI, isobutanol, methanol, propylene glycol monomethyl ether, trimethyl benzene and xylene are new HAPs emitted. The MTEs of new and increased HAPs are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code with the exception of formaldehyde. Potential formaldehyde emissions from the facility are currently limited to less than the s. NR 445.07, Wis. Adm. Code Table A value so the need for a construction permit is not triggered by the increase in formaldehyde MTEs.

Process P79/S79: Changes to the stack parameters, process description and VOC usage and emission rates. (VOC and HAP MTEs are below the values listed in ss. NR 406.04(2)(a) and (f), Wis. Adm. Code.)

Process P80/S80: This process was installed in 2004. An operation permit application for the process was submitted 4/23/2004 and the process was exempted from construction permit requirements in a letter from the Department dated 4/30/2004, pursuant to s. NR 406.04(2)(c), Wis. Adm. Code. This roll coater is a significant emissions unit and will be included in the renewed operation permit.

Facility Wide Formaldehyde Emission Limitation: The permittee has elected to limit facility wide potential formaldehyde emissions to less than the Table A Value for stacks less than 25 feet (i.e. 137 pounds per year). This more restrictive emission limitation would be included in any renewed operation permit issued by the Department. In permit 642025010-F04 all formaldehyde emitted by the facility was emitted from stacks that were 25 feet to less than 40 feet in height so potential formaldehyde emissions were limited to less than the Table A value for this stack height range (i.e. 562 pounds per year). With changes in material formulations submitted with the renewal application, formaldehyde is now also emitted from stacks that are less than 25 feet tall so the permittee has elected to limit facility wide formaldehyde emissions to less than 137 pounds per year.

These changes will be incorporated into any renewed operation permit issued by the Department. (Note: The information above explains why these changes are exempt from construction permit requirements.)

Additionally the permittee requested language changes to the following permit conditions:

I.A.3.c.(1): The permittee requested a change to the compliance demonstration method language so they are required to retain a statement on site indicating that natural gas and propane are the only fuels available for combustion at the facility.

I.A.1.b.(1): The permittee requested changes to this compliance demonstration methods to factor in VOCs that are not 100 percent emitted in to equations for calculating VOC emissions.

These requested changes will be incorporated into any renewed operation permit issued by the Department.

Special Note: The permittee entered into a Cooperative Environmental Agreement with the Department (incorporated into operation permit 642025010-F01 on June 10, 2002) that limits the VOC emissions from the facility to 85 tons in any 12 consecutive months, limits emissions of each HAP regulated by the Clean Air Act to 8 tons in any 12 consecutive months, and limits emissions of all HAPs regulated by the Clean Air Act combined to 20 tons in any 12 consecutive months. These conditions were carried over into revised operation permits 642025010-F02, 642025010-F03 and 642025010-F04. These conditions will also be carried over into this permit renewal. For details on how the Cooperative Environmental Agreement is incorporated into the operation permits issued to Northern Engraving's Sparta facility and for details on the specific variances granted by the Department under this Agreement please refer to the Preliminary Determination for operation permit number 642025010-F01.

At the same time this operation permit is being renewed, the Department is also processing a renewal request for the Cooperative Environmental Agreement. Northern Engraving has requested several changes, of which the following will be reflected in the renewed operation permit:

Six Month Reports of Actual Facility Wide VOC and HAP Emissions: The original Agreement and associated Air Pollution Control Operation Permits require Northern Engraving to submit reports of their actual VOC and

HAP emissions to both US EPA and DNR every six months. (Permit condition I.A.6.c. for Holmen and permit condition I.A.8.c. for Sparta.) Under this reporting requirement, if the actual facility wide emissions of VOC or HAPs have exceeded 50 percent of the allowable emission limitations (i.e. Allowable limitation for VOC is 85 tons per year, allowable limitation for each CAA HAP is 8 tons per year, and allowable limitation for all CAA HAPs combined is 20 tons per year) then Northern Engraving is required to provide an explanation of why emissions reached the levels they did and how they intend to ensure emissions will not exceed the allowable emission limitations.

The US EPA required that this reporting requirement be included in the original Agreement and associated Air Pollution Control Operation Permits as a condition of allowing Northern Engraving to forgo daily record keeping of actual VOC and HAP emissions. At the time of issuance of the original Agreement and associated Air Pollution Control Operation Permits, it was US EPA's policy to require daily record keeping of actual emissions, if VOC and HAP emission limitations appeared in the permit as long term (i.e. monthly or 12 month average) emission limitations rather than usage or material content limitations.

Since the issuance of the original Agreement and associated Air Pollution Control Operation Permits, US EPA has changed their policy on the requirement of daily records when VOC and/or HAP emission limitations appear in the permit as long term emission limitations. The US EPA now allows the use of what they call the "Formula Based Approach" which allows record keeping on a time frame consistent with longer term VOC or HAP emission limitations provided a formula specifying how the permittee will calculate actual emissions is specifically included in the permit.

DNR staff discussed this issue with Constantine Blatheras of the US EPA and he concurred that the requirement to report actual VOC and HAP emissions every 6 months could be removed from the Agreement and associated Air Pollution Control Operation Permits, as the permits meet US EPA's requirements for the Formula Based Approach by specifying how Northern Engraving is required to calculate their actual VOC and HAP emissions. Accordingly, the 6 month reporting requirements will be dropped from the renewed Agreement and renewed Air Pollution Control Operation Permits.

The following is the permit condition from the current Air Pollution Control Operation Permits that will be omitted from the renewed permits:

- “c. Report actual facility wide volatile organic compound and hazardous air pollutant emissions as follows:
- (1) The permittee shall submit a report summarizing the actual, facility wide volatile organic compound and hazardous air pollutant emissions for each consecutive 12 month period as calculated in conditions I.A.1.b.(2) and I.A.2.b.(2) and (4), every 6 months.
 - (2) The period addressed by the report shall be the 6 month period starting on the date the Cooperative Agreement is signed or other date agreed upon and approved by DNR, U.S. EPA and the permittee, and each subsequent 6 month period thereafter.
 - (3) A copy of the report shall be submitted to the DNR (Marty Sellers, Air Management Engineer, Department of Natural Resources, 3550 Mormon Coulee Road, La Crosse, WI 54601) and the U.S. EPA (Steve Rothblatt, Branch Chief, Air Program Branch, U.S. EPA, 77 W. Jackson Blvd., Mailcode: AR-18J, Chicago, IL 60604) within twenty days following the end of the reporting period.
 - (4) If the report shows the actual facility wide volatile organic compound or hazardous air pollutant emissions have exceeded 50 percent of the allowable limitations outlined in conditions I.A.1.a and I.A.2.a.(1) and (2), the permittee shall provide an explanation why emissions reached the levels that they did and how they intend to ensure emissions will not exceed the allowable limitations outlined in conditions I.A.1.a. and I.A.2.a.(1) and (2).
- [s. NR 439.03(1)(a), Wis. Adm. Code]”

Northern Engraving has also requested the following change as part of the Agreement Renewal. This change will appear in the renewed Agreement, but will not appear in the renewed operation permit:

Time Allowed for Construction and Initial Operation under Future Construction Permits: In most cases when the DNR issues an Air Pollution Control Construction Permit for a new or modified process under ch. NR 406, Wis. Adm. Code, a facility is given an initial 18 month period to commence construction or modification with the option of extending the construction permit to allow an additional 18 months to commence construction or modification. If construction or modification is not started within this time period (a total of 36 months), the construction permit will expire and the facility would be required to reapply and obtain a new Air Pollution Control Construction Permit to cover the proposed project. Northern Engraving requested as part of the

renewal of the Agreement, to be allowed longer periods of time to commence construction and/or modification of proposed projects requiring a permit under ch. NR 406, Wis. Adm. Code. In reviewing the DNR’s procedures on this matter it was found that the Department does allow longer periods of time to commence construction and/or modification in the case of large, phased projects. Because longer periods of time are allowed in other cases, the Department will allow Northern Engraving to request periods for commencing construction and/or modification that are longer than 18 months on a case-by-case basis when they submit construction permit applications. Northern Engraving should specify the length of time they are requesting to commence construction and/or modification in any construction permit applications submitted in the future if they would like more than 18 months. The DNR would then allow the longer time period for commencing construction and/or modification under the Air Pollution Control Construction Permit issued for the project provided this does not extend beyond 42 months. Northern Engraving would still be allowed to request an 18 month extension of the construction permit if necessary. Note that the Department does not have the authority to approve construction permit extensions longer than 18 months.

Significant Emissions Units:

1. Process B02 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	B02
Unit description:	FACILITY WIDE SPACE HEATING
Control technology status:	Uncontrolled
Maximum continuous rating (mmBTU/hr):	37.1 mmBtu/hr
Date of construction or last modification:	1994
Construction Permit Requirements:	Because the space heaters fire gaseous fuels and because the maximum heat input rating of each space heater is less than 25.0 mmBtus per hour, they are exempt from construction permit requirements pursuant to s. NR 406.04(1)(a)5., Wis. Adm. Code.

Process B02 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural gas	Propane	
Higher Heating Value:	1000 mmBtu/cf6	92,000 Btu/gal	
Maximum Sulfur Content (weight %):	0	0.01	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	0.038 cf6	400 gal	

Stack S02 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S02	Exhaust flow rate, normal (ACFM):	30000
Exhausting Unit(s):	B02	Exhaust gas temperature, normal (°F):	70
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Horizontal
Discharge height above ground level (ft):	25 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	4 ft. x 4.5 ft.		

2. Process B22 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	B22
Unit description:	Clever Brooks Boiler
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	8.4 mmBtu/hr
Date of construction or last modification:	1961
Construction Permit Requirements:	This boiler was covered by permit EOP-10-KJC-83-42-077 issued on September 7, 1984

Process B22 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural gas	Propane	
Higher Heating Value:	1000 mmBtu/cf6	92,000 Btu/gal	
Maximum Sulfur Content (weight %):	0	0.01	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	8400 cf	91.3 gals	

Stack S12 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S12	Exhaust flow rate, normal (ACFM):	8000
Exhausting Unit(s):	B22	Exhaust gas temperature, normal (°F):	340
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	27 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.3 ft.		

3. Process B23 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	B23
Unit description:	Industrial Kewanee Boiler
Control technology status:	Uncontrolled
Maximum continuous rating (mmBTU/hr):	10.6 mmBtu/hr
Date of construction or last modification:	1971
Construction Permit Requirements:	This boiler was originally covered by EOP-10-KJC-83-42-077 issued on September 7, 1984.

Process B23 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural gas	Propane	
Higher Heating Value:	1000 mmBtu/cf6	92,000 Btu/gal	
Maximum Sulfur Content (weight %):	0	0.01	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	10600 cf	115 gals	

Stack S13 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S13	Exhaust flow rate, normal (ACFM):	10000
Exhausting Unit(s):	B23	Exhaust gas temperature, normal (°F):	340
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	28 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.3 ft.		

4. Process B24 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	B24
Unit description:	Industrial Kewanee Boiler
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	10.6
Date of construction or last modification:	1971
Construction Permit Requirements:	This boiler was originally covered by EOP-10-KJC-83-42-077 issued on September 7, 1984.

Process B24 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural gas	Propane	
Higher Heating Value:	1000 mmBtu/cf6	92,000 Btu/gal	
Maximum Sulfur Content (weight %):	0	0.01	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	10600 cf	115 gals	

Stack S14 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S14	Exhaust flow rate, normal (ACFM):	10000
Exhausting Unit(s):	B24	Exhaust gas temperature, normal (°F):	340

Stack S14 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	up
Discharge height above ground level (ft):	28 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.3 ft.		

5. Process B25 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	B25
Unit description:	Industrial Clever Brooks Boiler
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	6.3 mmBtu/hr
Date of construction or last modification:	1961
Construction Permit Requirements:	This boiler was originally covered by EOP-10-KJC-83-42-077 issued on September 7, 1984.

Process B25 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural gas	Propane	
Higher Heating Value:	1000 mmBtu/cf6	92,000 Btu/gal	
Maximum Sulfur Content (weight %):	0	0.01	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	6300 cf	68 gals	

Stack S15 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S15	Exhaust flow rate, normal (ACFM):	10000
Exhausting Unit(s):	B25	Exhaust gas temperature, normal (°F):	340
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	28 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.3 ft.		

6. Process P03 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P03
Unit description:	5 Lithographic Lines with UV Curing
Control technology status:	Uncontrolled

6. Process P03 – Emission Unit Information.

Process Parameter	Description
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	1995
Construction Permit Requirements:	These emissions units are not subject to construction permit requirements because the maximum theoretical emissions are less than 5.7 pounds per hour, pursuant to s. NR 406.04(2), Wis. Adm. Code.

Process P03 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Not applicable		

Stack S03 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S03	Exhaust flow rate, normal (ACFM):	4000
Exhausting Unit(s):	P03	Exhaust gas temperature, normal (°F):	200
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	23 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	2.5 ft.		

7. Process P32 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P32
Unit description:	4 roll coating machines and 3 natural gas/propane curing ovens rated at 5 mmBtu/hr, 6 mmBtu/hr, and 5.25 mmBtu/hr (Only 3 coaters can be operated at a time).
Control technology status:	Controlled by thermal oxidizer C18
Maximum continuous rating (mmBTU/hr):	16.25 mmBtu/hr
Date of construction or last modification:	P32-1S installed 1984, P32-10S installed 1989, P32-87S installed 1993. Modified 2003 and 2005.
Construction Permit Requirements:	The roll coating lines were originally covered by permit 92-POY-157 issued April 2, 1993 and permit 91-POY-088 issued on October 22, 1991. Modifications covered by 03-POY-016/642025010-F03 and 05-MEC-206/642025010-F04.

Process P32 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural gas	Propane	
Higher Heating Value:	1000 mmBtu/cf6	92,000 Btu/gal	

Process P32 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Maximum Sulfur Content (weight %):	0	0.01	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	16250 cf	176.6	

Stack S18 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S18	Exhaust flow rate, normal (ACFM):	14400
Exhausting Unit(s):	P32	Exhaust gas temperature, normal (°F):	350
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	26 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	5.2 ft.		

Control Device Information.

Properties	Description
Control Device Number:	C18
Unit Description:	Thermal Oxidizer controlling P32, P33, P57, P75, P78
Volatile Organic Compound Control Efficiency	95%
{Cooperative Environmental Agreement allows operation of P32 without control device C18. This is allowed provide the Cooperative Agreement remains in affect.}	

8. Process P33 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P33
Unit description:	1 Metal spraybooth with a 0.4 mmBtu per hour natural gas/propane curing oven. (P-33-18S-2B)
Control technology status:	Controlled by paper paint filters (C19) and Thermal Oxidizer (C18)
Maximum continuous rating (mmBTU/hr):	0.4 mmBtu/hr
Date of construction or last modification:	1993
Construction Permit Requirements:	This process was originally covered by permits 91-POY-088 issued on October 22, 1991 and 92-POY-157 issued on April 2, 1993.

Process P33 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural gas	Propane	
Higher Heating Value:	1000 mmBtu/cf6	92,000 Btu/gal	
Maximum Sulfur Content (weight %):	0	0.01	

Process P33 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	400 cf	4.3 gals	

Stack S19 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S19	Exhaust flow rate, normal (ACFM):	2700
Exhausting Unit(s):	P33	Exhaust gas temperature, normal (°F):	100
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	26 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.5 ft.		

Control Device Information.

Properties	Description
Control Device Number:	C18
Unit Description:	Thermal Oxidizer controlling P32, P33, P57, P75, P78
Volatile Organic Compound Control Efficiency	95%
{Cooperative Environmental Agreement allows operation of P32 without control device C18. This is allowed provide the Cooperative Agreement remains in affect.}	

Control Device Information.

Properties	Description
Control Device Number:	C19
Unit Description:	paper paint filters
Particulate matter emissions control efficiency	95%

9. Process P37 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P37
Unit description:	3 Screening lines each with a natural gas/propane curing oven (P-37-12S, P-43-SOS, P171-SOS)
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	8.5 mmBtu/hr
Date of construction or last modification:	2002
Construction Permit Requirements:	This process was originally covered by permits 92-POY-068, EOP-10-KJC-83-42-077A, and EOP-10-KJC-83-42-077. Modifications to the process were covered by 02-MEC-618/642025010-F02.

Process P37 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural gas	Propane	
Higher Heating Value:	1000 mmBtu/cf6	92,000 Btu/gals	
Maximum Sulfur Content (weight %):	0	0.01	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	8500 cf6	92.3 gals	

Stack S53 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S53	Exhaust flow rate, normal (ACFM):	10000
Exhausting Unit(s):	P37	Exhaust gas temperature, normal (°F):	270
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	23 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	2.6 ft.		

10. Process P41 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P41
Unit description:	2 Lithographic presses with 2 UV ovens
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	2001
Construction Permit Requirements:	These emissions units are not subject to construction permit requirements because the maximum theoretical VOC emissions are less than 5.7 pounds per hour, pursuant to s. NR 406.04(2), Wis. Adm. Code.

Process P41 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Not applicable		

Stack S41 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S41	Exhaust flow rate, normal (ACFM):	2500
Exhausting Unit(s):	P41	Exhaust gas temperature, normal (°F):	300
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	20 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	2.1 ft.	(equiv diameter of 7 stacks)	

11. Process P42 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number	P42
Unit description:	Two Roll Coaters with one Electric Drying Oven and 3 small electric ovens. Utilized for R&D activities.
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	2001
Construction Permit Requirements:	Because this process will not emit greater than 1666 pounds of volatile organic compounds per month it is exempt from construction permit requirements pursuant to s. NR 406.04(1)(g), Wis. Adm. Code.

Process P42 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Not applicable		

Stack S42 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S42	Exhaust flow rate, normal (ACFM):	5000
Exhausting Unit(s):	P42	Exhaust gas temperature, normal (°F):	300
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	25 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.4 ft.	(equiv. dia of 8 stacks)	

12. Process P43 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P43
Unit description:	One screening machine and 3 small screening machines with one electric oven.
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	2001
Construction Permit Requirements:	These emissions units are not subject to construction permit requirements because the maximum theoretical VOC emissions are less than 5.7 pounds per hour, pursuant to s. NR 406.04(2), Wis. Adm. Code.

Process P43 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Not applicable		

Stack S43 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S43	Exhaust flow rate, normal (ACFM):	1500
Exhausting Unit(s):	P43	Exhaust gas temperature, normal (°F):	300
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	20 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.9 ft.	(Equiv dia of 2 stacks)	

13. Process P44 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P44
Unit description:	Spraybooth utilized for R&D Activities
Control technology status:	Paint Overspray Filters C44
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	01/01/1991
Construction Permit Requirements:	This emissions unit is not subject to construction permit requirements because the maximum theoretical VOC emissions are less than 5.7 pounds per hour and the maximum theoretical PM emissions are less than 5.7 pounds per hour, pursuant to s. NR 406.04(2), Wis. Adm. Code.

Process P44 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Not applicable		

Stack S44 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S44	Exhaust flow rate, normal (ACFM):	2000
Exhausting Unit(s):	P44	Exhaust gas temperature, normal (°F):	70
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	20 ft.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1.5 ft.		

Control Device Information.

Properties	Description

Control Device Information.

Properties	Description
Control Device Number:	C44
Unit Description:	Paint Overspray Filters
Particulate matter emission control efficiency	90.0 %

14. Process P57 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P57
Unit description:	Plastic Spraybooth (this booth uses the same curing oven used for P33) (P-58-PBS)
Control technology status:	Paint Overspray Filters C57
Maximum continuous rating (mmBTU/hr):	(See curing oven for P33)
Date of construction or last modification:	1989
Construction Permit Requirements:	This unit is covered by permit 642025010-N01 issued on March 2, 1989.

Process P57 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	(See P33)		

Stack S57 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S57	Exhaust flow rate, normal (ACFM):	6000
Exhausting Unit(s):	P57	Exhaust gas temperature, normal (°F):	70
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	26 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	2 ft.		

Control Device Information.

Properties	Description
Control Device Number:	C57
Unit Description:	paper paint filters
Particulate matter emissions control efficiency	95.0%

15. Process P63 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P63
Unit description:	Miscellaneous Facility Wide Cleanup
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	1994
Construction Permit Requirements:	Clean-up activities were included in the construction permits issued for each process.

Process P63 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Not applicable		

Stack S63 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S63	Exhaust flow rate, normal (ACFM):	
Exhausting Unit(s):	P63	Exhaust gas temperature, normal (°F):	
This stack has an actual exhaust point:	No	Exhaust gas discharge direction:	

16. Process P72 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P72
Unit description:	Towel Dryer
Control technology status:	Uncontrolled
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	1991
Construction Permit Requirements:	This unit was covered by permit 90-IRS-135 issued on January 25, 1991.

Process P72 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Not applicable		

Stack S72 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S72	Exhaust flow rate, normal (ACFM):	200
Exhausting Unit(s):	P72	Exhaust gas temperature, normal (°F):	70

Stack S72 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	25 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	0.7 ft.		

17. Process P75 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P75
Unit description:	Roll Coating Machine with 1.6 mmBtu/hr NG/Propane oven
Control technology status:	Controlled by Thermal Oxidizer C18
Maximum continuous rating (mmBTU/hr):	1.6 mmBtu/hr
Date of construction or last modification:	2003
Construction Permit Requirements:	This process was covered by construction permit 03-POY-016.

Process P75 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural gas	Propane	
Higher Heating Value:	1000 mmBtu/cf6	92,000 Btu/gal	
Maximum Sulfur Content (weight %):	0	0.01	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	1600 cf	17.3 gals	

Stack S75 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S75	Exhaust flow rate, normal (ACFM):	7000
Exhausting Unit(s):	P75	Exhaust gas temperature, normal (°F):	70
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	26 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.0 ft.		

Control Device Information.

Properties	Description
Control Device Number:	C18
Unit Description:	Thermal Oxidizer controlling P32, P33, P57, P75, P78
Volatile Organic Compound Control Efficiency	95%
{Cooperative Environmental Agreement allows operation of P32 without control device C18. This is allowed provide the Cooperative Agreement remains in affect.}	

18. Process P79 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P79
Unit description:	2 Screening Lines - One with 1 screening machine and UV oven and one with 2 screening machines and UV oven
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	2004
Construction Permit Requirements:	Exempt from construction permit requirements because maximum theoretical VOC emissions are less than 5.7 pounds per hour, pursuant to s. NR 406.04(2), Wis. Adm.Code.

Process P79 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Not applicable		

Stack S79 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S79	Exhaust flow rate, normal (ACFM):	3000
Exhausting Unit(s):	P79	Exhaust gas temperature, normal (°F):	300
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	25 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	2.1 ft.		

19. Process P80 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P80
Unit description:	Roll Coating Machine (w/replacement) with NG/LPG oven
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	1.6 mmBtu/hr
Date of construction or last modification:	2004
Construction Permit Requirements:	This process is exempt from construction permit requirements because the maximum theoretical VOC emissions are less than 5.7 pounds per hour, pursuant to s. NR 406.04(2), Wis. Adm. Code.

Process P80 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2

Process P80 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural gas	Propane	
Higher Heating Value:	1000 mmBtu/cf6	92,000 Btu/gal	
Maximum Sulfur Content (weight %):	0	0.01	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	1.6 mmBtu/hr	1.6 mmBtu/hr	

Stack S80 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S80	Exhaust flow rate, normal (ACFM):	3000
Exhausting Unit(s):	P80	Exhaust gas temperature, normal (°F):	150
This stack has an actual exhaust point:	yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	26 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.5 ft.		

Stack Parameter Summary:

Stack ID	Actual Exhaust Point or Fugitive	Circular or Rectangular	Discharge Direction	Exhaust Obstacle	Diameter or Width (if rect.)	Length (if rect.)	Height	Temp.	Normal Flow Rate	Maximum Flow Rate
			U, D, H	True/False	ft (m)	ft (m)	ft (m)	°F	ACFM	ACFM
S02	Area source (equivalent stack info. provided)	Rectangular	H	F	4 ft.	4.5 ft.	25 ft.	70	30000	30000
S03	Actual	Circular	U	F	2.5 ft.		23 ft.	200	4000	4000
S12	Actual	Circular	U	F	1.3 ft.		27 ft.	340	8000	8000
S13	Actual	Circular	U	F	1.3 ft.		28 ft.	340	10000	10000
S14	Actual	Circular	U	F	1.3 ft.		28 ft.	340	10000	10000
S15	Actual	Circular	U	F	1.3 ft.		28 ft.	340	10000	10000
S18	Actual	Circular	U	F	5.2 ft.		26 ft.	350	14400	14400
S19	Actual	Circular	U	F	1.5 ft.		26 ft.	100	2700	2700
S41	Actual	Circular	U	F	2.1 ft.		20 ft.	300	2500	2500
S42	Actual	Circular	U	F	1.4 ft.		25 ft.	300	5000	5000
S43	Actual	Circular	U	F	1.9 ft.		20 ft.	300	1500	1500
S44	Actual	Circular	U	F	1.5 ft.		20 ft.	70	2000	2000
S53	Actual	Circular	U	F	1.5 ft.		23 ft.	270	10000	10000
S57	Actual	Circular	U	F	2.0 ft.		26 ft.	70	6000	7500
S63	Indoor fugitive									
S72	Actual	Circular	U	F	0.7 ft.		25 ft.	70	200	200
S75	Actual	Circular	U	F	1.0 ft.		26 ft.	70	7000	7000
S79	Actual	Circular	U	F	2.1 ft.		25 ft.	300	3000	3000
S80	Actual	Circular	U	F	1.5 ft.		26 ft.	150	3000	3000

Insignificant Emissions Units:

Boiler, Turbine, and HVAC System Maintenance.
 Convenience Water Heating.
 Demineralization and Oxygen Scavenging of Water for Boilers.
 Fire Control Equipment.
 Internal Combustion Engines Used for Warehousing and Material Transport.
 Janitorial Activities.
 Maintenance of Grounds, Equipment, and Buildings (lawn care, painting, etc.).
 Office Activities.
 Pollution Control Equipment Maintenance.
 Sanitary Sewer and Plumbing Venting.
 Carpentry shop, Diamond cutting, powder coat
 Adhesive application
 Norlens
 Paint Lab, reactor, ink mill
 Screenmaking
 Injection molding, water quality lab
 Litho lab
 Sheet Prep
 Art Dept.
 Tool Room
 Distillation
 Underground storage tanks
 Punch Presses

APPLICABLE REQUIREMENTS AND EMISSION CALCULATIONS

The applicable requirements and emission calculations for the following emissions units were reviewed under the preliminary determinations for operation permits 642025010-F01, 642025010-F02, 642025010-F03 and 642025010-F04 and under the preliminary determinations for construction permits 02-MEC-618, 03-POY-016, 04-MEC-109 and remain unchanged as a result of this renewal:

- Stack S02, Boiler B02 - Natural Gas/Propane Space Heaters with a Total Rating of 37.1 mmBtu/hr - Installed 1994**
- Stack S12, Boiler B22 - Natural Gas/Propane Boiler Rated at 8.4 mmBtu/hr - Installed 1961**
- Stack S13, Boiler B23 - Natural Gas/Propane Boiler Rated at 10.6 mmBtu/hr - Installed 1971**
- Stack S14, Boiler B24 - Natural Gas/Propane Boiler Rated at 10.6 mmBtu/hr - Installed 1971**
- Stack S15, Boiler B25 - Natural Gas/Propane Boiler Rated at 6.3 mmBtu/hr - Installed 1961**
- Stack S03, Process P03 - 5 Lithographic Lines with UV Curing - Installed 1988**
- Stack S18, Process P32 - 4 Roll Coating Machines, and 3 Natural Gas/Propane Curing Oven rated at 5 mmBtus/hr, 6 mmBtus/hr, and 5.25 mmBtus/hr - Controlled by Thermal Oxidizer C18 (P32-1S Installed 1984; P32-10S Installed 1989; P32-87S Installed 1993) (Only 3 can be operated at a time.) - Modified 2003 and 2005.**
- Stack S19, Process P33 - 1 Metal Spray Booths, With a 0.4 mmBtu per hour Natural Gas/Propane Curing Oven - Controlled by Paper Paint Filters (C19) and a Thermal Oxidizer C18 - (P-33-18S-2B) - Installed 1993**
- Stack S53, Process P37 - 3 Screening Lines each with a Natural Gas/Propane Curing - (P-37-12S; P-43-SOS; P171-SOS)**
- Stack S41, Process P41 - Two Litho Pressess with Two UV Ovens - Installed 2001**
- Stack S43, Process P43 - One Screening Machine and Three Small Screening Machines with One Electric Drying Oven - Installed 2001**
- Stack S42, Process P42 - Two Roll Coaters with Four Electric Drying Ovens - Utilized for R&D Activities - Installed 2001**
- Stack S44, Process P44 - Spraybooth - Utilized for R&D Activities - Installed 2001**

Stack S57, Process P57 - Plastic Spray Booth with (this booth uses same curing oven used for P33) - (P-58-PBS)

Stack S63, Process P63 - Miscellaneous Facility Wide Cleanup

Stack S72, Process P72 - Towel Dryer - Installed 1991

Stack S75, Process P75 - Roll Coating Machine with a 1.6 mmBtu per hour Natural Gas/Propane Curing Oven - Installed 2003

Please refer to the preliminary determinations for permits 642025010-F01, 02-MEC-618/642025010-F02, 03-POY-016/642025010-F03 and 05-MEC-206/642025010-F04 for a detailed description of the applicable requirements and emission calculations for these emissions units.

The following are the applicable requirements and emission calculations for emissions units that are either new or changed as a result of this renewal:

Stack S79, Process P79 - Two Screening Lines, One with 1 Screening Machine and 1 UV Oven, One with 2 Screening Machines and 1 UV Oven: Maximum theoretical emissions were calculated using worst case material usage rates, volatile organic compound contents and hazardous air pollutant contents. The printing lines are subject to s. NR 424.03(2)(c), Wis. Adm. Code which requires the use of the latest available control techniques or operating practices demonstrating best current technology. The permittee submitted information dated 4/9/2007 showing 85 percent control of volatile organic compound emissions is technologically infeasible. The Department determined LACT to be the use of inks with a VOC content no greater than of 0.3 pounds per gallon as applied.

Stack S80, Process P80 - Roll Coating Machine (and replacement coater) with a 1.6 mmBtu per hour Natural Gas/Propane Curing Oven: Maximum theoretical emissions were calculated using worst case usage rates, volatile organic compound contents and hazardous air pollutant contents. Because the roll coater was installed or last modified after April 1, 1972 and particulate matter emissions are created from fuel combustion in the oven, the coater is subject to s. NR 415.06(2)(a), Wis. Adm. Code which limits particulate matter emissions to not more than 0.15 pounds per mmBtu of heat input. Because the coater was constructed or last modified after April 1, 1972, it is subject to s. NR 431.05, Wis. Adm. Code which limits visible emissions to not more than 20 percent opacity.

Because this process coats plastic substrates and metal substrates with adhesives, it is exempt from the RACT requirements for miscellaneous metal parts and products, pursuant to s. NR 422.15(1)(e), Wis. Adm. Code. Because the maximum theoretical VOC emissions from the process are greater than 15 pounds per day, P80 would not be exempt from the requirements of s. NR 424.03(2), Wis. Adm. Code, pursuant to s. NR 424.03(1)(a)4., Wis. Adm. Code. Therefore P80 is subject to s. NR 424.03(2)(b), Wis. Adm. Code which requires control of VOCs by at least 85 percent. The facility submitted information (dated April 23, 2004) to demonstrate that 85 percent control of VOCs is technologically infeasible, therefore the roll coater is subject to s. NR 424.03(2)(c), Wis. Adm. Code which requires the use of the latest available control techniques and operating practices demonstrating best current technology (LACT) to control volatile organic compound emissions. The Department has determined that LACT for this process is the use of coatings with a VOC content that does not exceed 0.5 pounds per gallon as applied. These requirements would be included in any operation permit issued by the Department.

The coater is subject to the general emission limitations for sulfur dioxide, carbon monoxide and nitrogen oxides contained in ss. NR 417.03, NR 426.03, and NR 428.03, Wis. Adm. Code, respectively. These general limitations would be included in Part II of any operation permit issued by the Department.

Chapter NR 445, Wis. Adm. Code – Hazardous Air Pollutant Analysis: Maximum theoretical emissions of all non-exempt hazardous pollutants regulated by ch. NR 445, Wis. Adm. Code are below the corresponding Table A Values with the exception of 2-butoxyethanol, cyclohexanone, formaldehyde, isophorone, methylene bis 4-cyclohexylisocyanate, and naphthalene (note that all stacks are within 10 degrees of vertical and are unobstructed). See the facility emission table below for a summary of hazardous air pollutant emissions from the facility. The permittee has elected to limit facility wide potential formaldehyde emissions to less than the Table A Value for stacks less than 25 feet (i.e. 137 pounds per year). This more restrictive emission limitation would be included in any renewed operation permit issued by the Department. [Note: In permit 642025010-F04 all formaldehyde emitted by the facility was emitted from stacks that were 25 feet to less than 40 feet in height so potential formaldehyde emissions were limited to less than the Table A value for this stack height range (i.e. 562 pounds per

year). With changes in material formulations submitted with the renewal application, formaldehyde is now also emitted from stacks that are less than 25 feet tall so the permittee has elected to limit facility wide formaldehyde emissions to less than 137 pounds per year.] A dispersion modeling analysis performed by John Roth indicates the facility impact of 2-butoxyethanol, cyclohexanone, isophorone, methylene bis 4-cyclohexylisocyanate, and naphthalene should be less than their respective acceptable ambient concentration. See the Air Quality Review section for more details. [Note: For the original operation permit review and subsequent revisions, hazardous air pollutant emissions were compared to the values in Tables 1 through 5 of Subchapter II of chapter NR 445, Wis. Adm. Code. For this operation permit renewal, hazardous air pollutant emissions were compared to the revised values in Table A of Subchapter III of chapter NR 445, Wis. Adm. Code. Any renewed operation permit issued by the Department would ensure compliance with Subchapter III of chapter NR 445, Wis. Adm. Code.]

Compliance Assurance Monitoring (CAM) Applicability: Because this facility is a synthetic minor, non-Part 70 source it is not subject to Compliance Assurance Monitoring (CAM) requirements.

AIR QUALITY REVIEW

An air quality modeling analysis was conducted by John Roth of the Bureau of Air Management. The results of this analysis are summarized below and in a memo dated May 3, 2007:

A. INTRODUCTION

This dispersion analysis for a Title V operation permit compares model results to National Ambient Air Quality Standards (NAAQS) for the 5 criteria pollutants and several HAPs. The facility is located at 803 S Black River St, Sparta, Monroe County, Wisconsin. PSD baselines for PM HAVE been set for Monroe County

B. MODELING ANALYSIS

- ◆ Mary Oleson supplied the emission parameters used in this analysis. Building dimensions were determined using USEPA's Building Profile Input Program Prime (BPIP-Prime) with measurements taken on plot plans provided with the application. Please refer to the source parameter table.
- ◆ Five years (1998-2002) of preprocessed meteorological data was used in this analysis. The surface data was collected in Wisconsin Rapids, and the upper air meteorological data originated in Green Bay.
- ◆ The AMS/EPA Regulatory Model (AERMOD) was also used in the analysis. The model used rural dispersion coefficients with the regulatory default options. These allow for calm wind correction, buoyancy induced dispersion, and building downwash.
- ◆ The receptors used in this analysis consisted of a grid conforming to the physical layout of the building and grounds about the facility (424 receptors) with 25-meter resolution near the facility and extending some 400 meters from a point identified as (0,0) of the Cartesian axis on which this facility was placed via supplied plot plans. Points within known fences or on top of buildings were not considered. Terrain is a factor in the area, so receptor elevations were considered.
- ◆ All sources vent vertically and without obstruction except as noted elsewhere within this document.
- ◆ The increment-consuming devices are as noted elsewhere within this document.
- ◆ There is no other source in the area that consumes increment.
- ◆ PSD baselines for NO₂ and SO₂ have NOT been set for Monroe County.
- ◆ The USEPA and WDNR default ambient ratio of 0.75 was applied to NO_x emission rates to convert them into equivalent NO₂ emission rates.

C. MODEL RESULTS

NAAQS Analysis	TSP 24-hr	PM ₁₀ 24-hr	PM ₁₀ Annual
Facility Impact	74.0	74.0	17.1
Background	41.8	27.4	9.2
Total	125.8	101.4	26.3
NAAQS	150.0	150.0	50.0
% NAAQS	83.9	67.6	52.6

NAAQS Analysis	SO ₂ 3-hr	SO ₂ 24-hr	SO ₂ Annual
Facility Impact	8.6	3.8	0.8
Background	128.3	33.5	7.9
Total	136.9	37.3	8.7
NAAQS	1300	365	80
% NAAQS	10.5	10.2	10.9

NAAQS Analysis	CO 1-hr	CO 8-hr	NO ₂ Annual
Facility Impact	807.1	466.8	86.5
Background	3188	890.4	4.7
Total	3,995.1	1,357.2	91.2
NAAQS	40000	10000	100
% NAAQS	10.0	13.6	91.2

Increment Analysis	PM ₁₀ 24-hr	PM ₁₀ Annual
Facility Impact	21.1	3.5
Increment	30	17
% Increment	70.3	20.6

AAS Analysis	2-Butoxyethanol 24-hr	2-Butoxyethanol Annual	cyclohexanone 24-hr
Facility Impact	1,928.0	482	1,677.8
AAS	2320	13000	2311
% AAS	83.1	3.7	72.6

AAS Analysis	isophorone 1-hr	Methylene bis 4 isocyanate 24-hr	naphthalene 24-hr
Facility Impact	2,477.5	0.28	225.9
AAS	2826	1.29	1258
% AAS	87.7	21.7	18.0

D. CONCLUSION

The results of the modeling analysis demonstrate that the applicable air quality standards will be met assuming the emissions rates, stack parameters and all other restrictions listed in this document.

ID	LOCATION (UTM)				PHYSICALS			
	Descrip	X	Y	Z	Height (m)	Temp (K)	Vel (m/s)	Dia (m)
S18A	P32	675168.4	4867030	234.47	7.92	421.9	8.62	0.46
S18B	P32	675168.4	4867021	234.37	9.14	380.2	4.69	0.61
S18C	P32	675104.1	4866991	234.07	7.92	449.7	8.62	0.46
S19A	P33	675112.4	4867010	234.26	7.92	310.8	7.76	0.46
S19B	P33	675076.8	4866972	234.16	7.92	294.1	5.75	0.46
S53A	P37	675148.4	4867018	234.34	7	410.8	13.94	0.46
S53B	P37	675149.3	4867005	234.21	7.01	444.1	11.5	0.46
S53C	P37	675153.7	4866991	234.06	7.62	449.7	12.94	0.46
S72	P72	675153.3	4866973	233.77	7.62	294	6.47	0.21
S75	P75	675113	4866965	233.81	7.9	422	32.3	0.30
S41	P41	674989.1	4867012	234.98	6.096	422.04	1.467	0.6401
S42	P42	674996.9	4867032	235.1	7.62	422.04	4.62	0.4267
S43	P43	674977.3	4867021	235.07	6.096	422.04	6.092	0.5791
S44	P44	674996.4	4866986	234.81	6.096	294.26	5.749	0.4572
S12	B22	675042.8	4866994	234.43	8.23	444.26	30.62	0.3962
S13	B23	675037.2	4866975	234.42	8.53	444.26	38.27	0.3962
S14	B24	675035.8	4866957	234.35	8.53	444.26	38.27	0.3962
S15	B25	675034.8	4866936	234.21	8.53	444.26	30.16	0.3962
S79	P79	674976.9	4867035	235.2	7.62	422.04	4.40	0.6401
S80	P80	674976	4867034	235.21	7.9248	338.71	8.63	0.4572
S57	P57	675121	4867033	234.5	7.92	294.1	9.71	0.61
Volume	Source	X	Y	Z	Ht	Sig-Y	Sig-x	
V02A	Heat	675046	4867000	234.5	2.74	46.5	2.55	N/a
V02B	Heat	675135	4867000	234.5	2.74	46.5	2.55	N/a

ID	EMISSION RATES (LBS/HR)								
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	2-but	cyclo	Isophor	MBI	naphth	PM	NOx	SO2	CO
S18A	10.6	11.6	8.30	0.003	1.50	0.08	1.12	0.03	0.46
S18B	10.6	11.6	8.30	0.003	1.50	0.08	1.12	0.03	0.46
S18C	10.6	11.6	8.30	0.003	1.50	0.08	1.12	0.03	0.46
S19A	1.20	-	-	-	0.21	0.46	0.04	0.0001	0.02
S19B	1.20	-	-	-	0.21	0.46	0.04	0.0001	0.02
S53A	12.6	8.47	-	-	0.96	0.04	0.72	0.002	0.29
S53B	12.6	8.47	-	-	0.96	0.04	0.72	0.002	0.29
S53C	12.6	8.47	-	-	0.96	0.04	0.72	0.002	0.29
S72	0.04	2.50	-	-	-	-	-	-	-
S75	8.67	9.51	-	0.003	1.23	0.24	0.33	0.001	0.13
S41	0.085	-	-	-	-	-	-	-	-
S42	4.00	2.82	-	-	1.17	-	-	-	-
S43	2.13	1.77	-	-	0.22	-	-	-	-
S44	1.20	-	-	-	0.21	0.36	-	-	-

S12	-	-	-	-	-	0.06	1.73	0.005	0.71
S13	-	-	-	-	-	0.08	2.19	0.006	0.89
S14	-	-	-	-	-	0.08	2.19	0.006	0.89
S15	-	-	-	-	-	0.05	1.30	0.004	0.53
S80	-	-	-	-	-	0.24	0.33	0.001	0.13
S57	1.80	-	-	-	-	0.06	0.33	-	-
V02A	-	-	-	-	-	0.14	3.83	0.011	1.56
V02B	-	-	-	-	-	0.14	3.83	0.011	1.56

FACILITY EMISSIONS

Actual emissions are the total emissions generated by the emission sources identified below over the specified time period taking into account any reductions made by a control device or technique. Maximum theoretical emissions are the quantity of air contaminants that theoretically could be emitted by the emissions sources identified below, without considering emission control devices, based on the design capacity of the source. Potential to emit is the maximum capacity of the emission sources identified below to emit any air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air contaminant shall be treated as part of its design if the limitation is Federally enforceable.

A. Stack Emissions:

1. B02, Stack S02 - Nat. Gas/Propane Space Heaters with a Total Rating of 37.1 mmBtu/hr

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.28	1.23	0.28	1.23	5.57	24.37
Sulfur Dioxide	0.022	0.097	0.022	0.097	0.022	0.097
Nitrogen oxides	7.66	33.56	7.66	33.56	7.66	33.56
Carbon Monoxide	3.11	13.65	3.11	13.65	3.11	13.65
VOCs	0.20	0.89	0.20	0.89	0.20	0.89

2. P03, Stack S03 - 5 Lithographic Lines with UV Curing - Installed 1988

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	1.75	7.67	1.75	#	1.75	7.67

3. B22, Stack S12 - Natural Gas/Propane Boiler Rated at 8.4 mmBtu/hr - Installed 1961

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.06	0.28	0.06	0.28	5.04	22.08
Sulfur Dioxide	0.005	0.2	0.005	0.2	0.005	0.2
Nitrogen oxides	1.73	7.60	1.73	7.60	1.73	7.60
Carbon Monoxide	0.71	3.09	0.71	3.09	0.71	3.09
VOCs	0.05	0.20	0.05	0.20	0.05	0.20

4. B23, Stack S13 - Natural Gas/Propane Boiler Rated at 10.6 mmBtu/hr - Installed 1971

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY

Particulate matter emissions	0.08	0.35	0.08	0.35	6.36	27.86
Sulfur Dioxide	0.006	0.03	0.006	0.03	0.006	0.03
Nitrogen oxides	2.19	9.59	2.19	9.59	2.19	9.59
Carbon Monoxide	0.89	3.90	0.89	3.90	0.89	3.90
VOCs	0.06	0.26	0.06	0.26	0.06	0.26

5. B24, Stack S14 - Natural Gas/Propane Boiler Rated at 10.6 mmBtu/hr - Installed 1971

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.08	0.35	0.08	0.35	6.36	27.86
Sulfur Dioxide	0.006	0.03	0.006	0.03	0.006	0.03
Nitrogen oxides	2.19	9.59	2.19	9.59	2.19	9.59
Carbon Monoxide	0.89	3.90	0.89	3.90	0.89	3.90
VOCs	0.06	0.26	0.06	0.26	0.06	0.26

6. B25, Stack S15 - Natural Gas/Propane Boiler Rated at 6.3 mmBtu/hr - Installed 1961

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.05	0.21	0.05	0.21	3.78	16.56
Sulfur Dioxide	0.004	0.018	0.004	0.018	0.004	0.018
Nitrogen oxides	1.30	5.70	1.30	5.70	1.30	5.70
Carbon Monoxide	0.53	2.32	0.53	2.32	0.53	2.32
VOCs	0.03	0.15	0.03	0.15	0.03	0.15

7. P32, Stack S18 - 4 Roll Coating Machines and 3 Natural Gas/Propane Curing Ovens rated at 5 mmBtu/hr, 6 mmBtu/hr, and 5.25 mmBtu/hr - Controlled by Thermal Oxidizer C18 (Modified 2005) - (Only three coating machines can operate at any one time)

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.12	0.54	0.12	0.54	2.44	10.68
Sulfur Dioxide	0.010	0.042	0.010	0.042	0.010	0.042
Nitrogen oxides	3.36	14.70	3.36	14.70	3.36	14.70
Carbon Monoxide	1.37	5.98	1.37	5.98	1.37	5.98
VOCs	159.99	700.75	90.46	#	90.48	396.29

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P32

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
2-butoxyethanol *	31.8	139.28	31.8	139.28
n-butyl alcohol *	15.5	67.89	15.5	67.89
cumene	1.6	7.01	1.6	##
cyclohexanone *	34.9	152.86	34.9	152.86
diacetone alcohol *	10.8	47.30	10.8	47.30
ethyl benzene	15.1	66.14	15.1	##
formaldehyde	0.2	0.88	0.2	##
Ethylene glycol	2.16	9.46	2.16	##
glycol ether	23.2	101.62	23.2	##

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
Hexamethylene 1,6-diisocyanate	0.0002	0.0009	0.0002	0.0009
isobutyl alcohol *	4.5	19.71	4.5	19.71
isophorone	16.6	130.96	29.9	##
methanol	1.4	6.13	1.4	##
MAK *	4.7	20.59	4.7	20.59
MEK	29.7	130.09	29.7	##
MIBK	4.5	19.71	4.5	##
Methylene bis(4cycloisocyanate) *	0.009	0.039	0.009	0.039
naphthalene	4.5	19.71	4.5	##
propylene glycol monobutyl ether	25.2	110.38	25.2	##
toluene	7.4	32.71	7.4	##
trimethyl benzene *	13.4	58.69	13.4	58.69
xylene	49.9	218.56	49.9	##

8. P33, Stack S19 - 1 Metal Spray Booths, With a 0.4 mmBtu per hour Natural Gas/Propane Curing Oven - Controlled by Paper Paint Filters (C19) and a Thermal Oxidizer (C18) - (P-33-18S-2B) - Installed 1993

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	2.05	8.97	0.91	3.98	0.91	3.98
Sulfur Dioxide	0.0002	0.001	0.0002	0.001	0.0002	0.001
Nitrogen oxides	0.083	0.36	0.083	0.36	0.083	0.36
Carbon Monoxide	0.034	0.15	0.034	0.15	0.034	0.15
VOCs	7.84	34.34	7.84	#	7.84	34.34

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P33

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
2-butoxyethanol *	2.40	10.51	2.40	##
n-butyl alcohol *	0.41	1.80	0.41	##
Carbon black	0.14	0.61	0.14	
Diacetone alcohol *	0.26	1.14	0.26	
ethyl benzene	0.41	1.80	0.41	##
glycol ether	0.80	3.50	0.80	##
isobutyl alcohol	0.41	1.80	0.41	##
naphthalene	0.41	1.80	0.41	##
Propylene glycol monomethyl ether *	1.28	5.61	1.28	##
toluene	0.43	1.88	0.43	##
xylene	2.04	8.94	2.04	##

9. P37, Stack S53 - 3 Screening Lines each with a Natural Gas/Propane Curing Oven, (P-37-12S; P-43-SOS; P-171-SOS)

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.08	0.35	0.08	0.35	1.56	6.90
Sulfur Dioxide	0.0063	0.03	0.0063	0.03	0.0063	0.03
Nitrogen oxides	2.17	9.50	2.17	9.50	2.17	9.50
Carbon Monoxide	0.88	3.86	0.88	3.86	0.88	3.86
VOCs	49.04	214.78	49.04	#	49.04	214.78

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P37

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
2-butoxyethanol *	37.7	165.13	37.7	##
n-butyl alcohol *	4.9	21.46	4.9	##
Cyclohexanone	25.4	111.25	25.4	##
diacetone alcohol *	3.0	13.14	3.0	##
Ethyl benzene	2.6	11.39	2.6	
Ethylene glycol	0.96	4.20	0.96	
glycol ethers	39.6	173.45	39.6	##
Hexamethylene 1,6-diisocyanate	0.00003	0.00013	0.00003	
Isobutyl alcohol *	1.92	8.41	1.92	
Methanol	0.48	2.10	0.48	##
naphthalene	2.88	12.61	2.88	
Propylene glycol monomethyl ether *	6.96	30.48	6.96	
stoddard solvent *	1.9	8.32	1.9	##
Toluene	0.72	3.15	0.72	##
Trimethyl benzene*	3.8	16.64	3.8	
Xylene	10.3	45.11	10.3	##

10. P41, Stack S41 - Two Litho Presses with Two UV Ovens - Installed 2001

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	2.7	11.83	2.7	#	2.7	11.83

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P41

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
2-butoxyethanol *	0.085	0.37		
diisobutyl ketone *	0.02	0.09		
glycol ether	0.07	0.31		
toluene	0.01	0.04		
xylene	0.006	0.025		

11. P42, Stack S42 - Two Roll Coaters with Four Electric Drying Ovens - Installed 2001

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	7.65	33.52	7.65	#	7.65	33.52

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P42

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
n-butanol *	0.69	3.02		
2-butoxyethanol *	4.0	17.52		
cyclohexanone *	2.82	12.35		
diacetone alcohol *	0.86	3.77		
ethyl benzene	1.68	7.36		
Ethylene glycol	0.18	0.79		
formaldehyde	0.02	0.088		
glycol ethers	4.93	21.59		
Isobutanol *	0.82	3.59		
MIBK	0.50	2.19		
naphthalene	1.17	5.12		
toluene	0.50	2.19		
trimethyl benzene *	0.87	3.81		
xylene	5.54	24.27		

12. P43, Stack S43 – One Screening Machine and Three Small Screening Machines with One Electric Drying Oven - Installed 2001

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	3.99	17.47	3.99	#	3.99	17.47

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P43

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
n-butanol *	0.22	0.96		
2-butoxyethanol *	2.13	9.33		
cyclohexanone *	1.77	7.75		
diacetone alcohol *	0.21	0.92		
ethyl benzene	0.18	0.79		
Ethylene glycol	0.05	0.22		
formaldehyde	0.005	0.022		
glycol ethers	2.75	12.05		
naphthalene	0.22	0.96		
stoddard solvent	0.34	1.49		
trimethyl benzene *	0.26	1.14		
xylene	0.72	3.15		

13. P44, Stack S44 - Spraybooth - Installed 2001

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate Matter Emissions	1.91	8.38	0.36	1.60	0.36	1.60
VOCs	3.49	15.29	3.49	#	3.49	15.29

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P44

Pollutant	Maximum Theoretical	Potential to Emit
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	lbs/hr	TPY	lbs/hr	TPY
n-butanol *	0.69	3.02		
2-butoxyethanol *	1.2	5.26		
carbon black *	0.06	0.26		
diacetone alcohol *	0.67	2.93		
diisobutyl ketone *	0.55	2.41		
ethyl benzene	0.70	3.07		
glycol ether	0.84	3.69		
isobutanol	0.21	0.92		
MEK (fed)	0.63	2.76		
MIBK	0.59	2.58		
naphthalene	0.21	0.92		
Propylene monomethyl ether *	0.64	2.80		
stoddard solvent	0.22	0.96		
toluene	1.60	7.01		
xylene	2.76	12.09		

14. P57, Stack S57 - Plastic Spray Booth (uses same oven as P33) - (P-58-PBS)

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	1.0	4.38	0.06	0.26	0.36	1.60
VOCs	3.15	13.80	3.15	#	3.15	13.08

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P57

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
2-butoxyethanol	1.8	7.88	1.8	##
n-butyl alcohol	1.6	7.01	1.6	##
diacetone alcohol	1.0	4.38	1.0	##
2-ethoxy ethyl acetate	0.69	3.02	0.69	##
MEK	1.44	6.31	1.44	##
MIBK	0.60	2.63	0.60	##
stoddard solvent	0.8	3.50	0.8	##
toluene	7.6	33.29	7.6	##
xylene	4.0	17.52	4.0	##

15. P63, Stack S63 - Miscellaneous Facility Wide Cleanup

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	50.0	150.0	50.0	#	50.0	150.0

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P63

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
2-butoxyethanol *	0.08	0.35	0.08	
cumene	0.03	0.13	0.03	
cyclohexanone	0.06	0.26	0.06	

diisobutyl ketone	1.06	4.64	1.06	
glycol ethers	0.58	2.54	0.58	
Methylene chloride	4.03	17.65	4.03	
perchloroethylene	2.21	9.68	2.21	
Propylene glycol monomethyl ether *	0.15	0.66	0.15	
stoddard solvent *	0.25	1.10	0.25	
toluene	0.08	0.35	0.08	
Trimethyl benzene *	0.31	1.36	0.31	
2,2,4-trimethyl pentane	0.05	0.22	0.05	
xylene	0.06	0.26	0.06	

16. P72, Stack S72 - Towel Dryer - Installed 1991

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	25.0	73.0	25.0	#	25.0	73.0

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P72

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
2-butoxyethanol	0.04	0.18	0.04	##
cumene	0.5	2.19	0.5	##
cyclohexanone	2.5	10.95	2.5	##
diacetone alcohol	0.4	1.75	0.4	##
diisobutyl ketone	1.3	5.69	1.3	##
ethyl benzene	0.03	0.13	0.03	##
glycol ether	0.04	0.18	0.04	##
MIBK	0.4	1.75	0.4	##
stoddard solvent	3.8	16.64	3.8	##
toluene	2.5	10.95	2.5	##
xylene	0.45	1.97	0.45	##

17. P75, Stack S75 – Roll Coating Machine with a 1.6 mmBtu per hour Natural Gas/Propane Curing Oven

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.012	0.053	0.012	0.053	0.24	1.05
Sulfur dioxide	0.0010	0.004	0.0010	0.004	0.0010	0.004
Nitrogen oxides	0.33	1.45	0.33	1.45	0.33	1.45
Carbon monoxide	0.13	0.59	0.13	0.59	0.13	0.59
VOCs	34.1	148.96	34.1	#	34.1	148.96

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P75

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
2-butoxyethanol *	8.67	38.37	8.67	
Butyl alcohol *	4.30	18.83	4.30	
cumene	0.45	1.97	0.45	

cyclohexanone	9.51	41.65	9.51	
diacetone alcohol *	3.00	13.14	3.00	
ethyl benzene	4.20	18.40	4.20	
Ethylene glycol	0.6	2.63	0.6	
formaldehyde	0.1	0.44	0.1	
glycol ethers	7.14	31.27	7.14	
Hexylmethylene 1,6-diisocyanate	0.00005	0.00022	0.00005	
Isobutanol *	1.23	5.39	1.23	
MEK	8.25	36.14	8.25	
MIBK	1.25	5.48	1.25	
MAK	2.15	9.42	2.15	
methanol	0.24	1.05	0.24	
Methylene bis(4-cylcohexylisocyanate) *	0.003	0.013	0.003	
naphthalene	1.23	5.39	1.23	
Propylene glycol monomethyl ether *	7.0	30.66	7.0	
toluene	2.05	8.98	2.05	
Trimethyl benzene *	3.66	16.03	3.66	
xylene	13.85	60.66	13.85	

18. P79, Stack S79 – 2 screening lines, one with 1 screening machine and 1 UV oven, one with 2 screening machines and 1 UV oven.

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	2.07	9.07	2.07	#	2.07	9.07

HAZARDOUS AIR POLLUTANT EMISSIONS FROM P79

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
diisobutyl ketone	0.053	0.23	0.053	##
glycol ether	0.38	1.66	0.38	##

19. P80, Stack S80 – Roll Coating Machine (and replacement coater) with a 1.6 mmBtu per hour Natural Gas/Propane Curing Oven

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.012	0.053	0.012	0.053	0.24	1.05
Sulfur dioxide	0.0010	0.004	0.0010	0.004	0.0010	0.004
Nitrogen oxides	0.33	1.45	0.33	1.45	0.33	1.45
Carbon monoxide	0.13	0.59	0.13	0.59	0.13	0.59
VOCs	2.15	9.42	2.15	#	2.15	9.42

B. Facility Emissions Summary:

Pollutant	Maximum Theoretical Emissions	Potential to Emit Under Title V Operation Permit	Maximum Allowable Emissions	Potential to Emit Under the Cooperative Agreement
	TPY	TPY	TPY	TPY

Particulate Matter Emissions	16.19	5.29	141.62	5.29
Sulfur Dioxide	0.46	0.46	0.46	0.46
Nitrogen Oxides	93.5	62.64	93.5	62.64
Carbon Monoxide	38.03	38.03	38.03	38.03
VOCs	1441.66	99.0	1136.48	87.34 #
Total CAA HAPs	2785.71	24.96	2785.71	20

VOC emissions from coating and printing and associated clean-up processes at the facility are limited to 85 tons per year. There is a small amount of VOC emitted from fuel burning operation at the facility that bring the facility total potential VOC emissions to 87.34 tons per year.

Total HAPs Emitted from Stacks 25 Feet to < 40 Feet in Height (Excludes Stacks S41, S43, S44, S53, S63)					
Hazardous Air Pollutant	Potential to Emit		NR 445, Wis. Adm. Code Table A Value (stacks 25 to <40 ft)		PTE greater than Table Value?
	(lbs/hr)	(lbs/yr)		Units	
2-butoxyethanol*	48.71	426,612	20.2	lbs/hr	yes
n-butyl alcohol*	22.5	197,100	36	lbs/hr	no
carbon black*	0.41	3591.6	0.73	lbs/hr	no
cumene	2.55	<20,000	51.3	lbs/hr	no
cyclohexanone*	49.73	435,635	20.1	lbs/hr	yes
diacetone alcohol*	16.32	142,963	49.6	lbs/hr	no
diisobutyl ketone*	1.35	11,852	30.4	lbs/hr	no
Ethylene glycol	2.94	<20,000	23.8	lbs/hr	no
ethyl benzene	21.42		90.6	lbs/hr	no
		<20,000	730,000	tpy	no
2-ethoxy ethyl acetate*	0.69	6,044	5.64	lbs/hr	no
formaldehyde	0.32	136.8	562	lbs/yr	no
glycol ethers	36.49	<20,000	na		na
Hexamethylene-1,6-diisocyanate	0.00025		0.00718	lbs/hr	no
		2.19	7.31	lbs/yr	no
isobutyl alcohol*	6.96	60,970	31.6	lbs/hr	no
isophorone	16.6	<20,000	6.72	lbs/hr	yes
methyl n-amyl* ketone	6.85	60,006	48.7	lbs/hr	no
MEK	39.39	<20,000	na		na
methanol	1.64	14,366	na		na
methylene bis4-cyclohexylisocyanate *	0.012	105.12	0.0112	lbs/hr	yes
MIBK	7.25	<20,000	42.7	lbs/hr	no
naphthalene	7.31	<20,000	10.9	lbs/hr	no
Propylene glycol monomethyl ether *	8.28	72,533	1,460,000	lbs/yr	no
propylene glycol monobutyl ether	25.2	<20,000	1,460,000	lbs/yr	no
stoddard solvent*	4.6	40,296	119	lbs/hr	no
toluene	20.48		39.3	lbs/hr	no
		<20,000	292,000	lbs/yr	no

Total HAPs Emitted from Stacks 25 Feet to < 40 Feet in Height (Excludes Stacks S41, S43, S44, S53, S63)					
Hazardous Air Pollutant	Potential to Emit		NR 445, Wis. Adm. Code Table A Value (stacks 25 to <40 ft)		PTE greater than Table Value?
	(lbs/hr)	(lbs/yr)		Units	
trimethyl benzene*	17.93		25.6	lbs/hr	no
xylene	75.78		90.6	lbs/hr	no
Total HAPS regulated by the CAA		##			

Total HAPs Emitted from Stacks Shorter Than 25 Feet (S41, S43, S44, S53)					
Hazardous Air Pollutant	Potential to Emit		NR 445, Wis. Adm. Code Table A Value (stacks <25 ft)		PTE greater than Table Value?
	(lbs/hr)	(lbs/yr)		Units	
2-butoxyethanol*	41.12	360,211	5.19	lbs/hr	yes
n-butyl alcohol*	5.81	50,896	11.3	lbs/hr	no
carbon black*	0.06	526	0.188	lbs/hr	no
cyclohexanone*	27.17	238,009	5.17	lbs/hr	yes
diacetone alcohol*	3.88	33,989	12.8	lbs/hr	no
diisobutyl ketone*	0.58	5431	7.81	lbs/hr	no
ethyl benzene	3.48		23.3	lbs/hr	no
		<20,000	177,688	lbs/yr	no
Ethylene glycol	1.01	8848	7.47	lbs/hr	no
formaldehyde	0.005	43.8	137	lbs/yr	no
glycol ethers	43.26	<20,000	na		
Hexamethylene-1,6-diisocyanate	0.00003		0.00185	lbs/hr	no
		0.26	1.78	lbs/yr	no
Isobutanol *	2.13	18,659	8.14	lbs/hr	no
methanol	0.48	4205	na		na
MEK	0.63	5519	na		na
MIBK	0.59	5168	11.0	lbs/hr	no
naphthalene	3.31	<20,000	2.82	lbs/hr	yes
Propylene glycol monomethyl ether *	7.6	66,576	355,375	lbs/yr	no
stoddard solvent*	2.46	21,550	30.8	lbs/hr	no
toluene	2.33		10.1	lbs/hr	no
		<20,000	71,075	lbs/yr	no
trimethyl benzene*	4.06	35,566	6.6	lbs/hr	no
xylene	13.79	<20,000	23.3	lbs/hr	no
Total HAPS regulated by the CAA		##			

Total HAPs Emitted as Indoor Fugitive Emissions (S63)					
Hazardous Air Pollutant	Potential to Emit		NR 445, Wis. Adm. Code Table A Value		PTE greater than Table Value?
	(lbs/hr)	(lbs/yr)		Units	

Total HAPs Emitted as Indoor Fugitive Emissions (S63)				
Hazardous Air Pollutant	Potential to Emit		NR 445, Wis. Adm. Code Table A Value	PTE greater than Table Value?
	(lbs/hr)	(lbs/yr)		
2-butoxyethanol *	0.08	700.8		exempt
cumene	0.03	262.8		exempt
Cyclohexanone *	0.06	525.6		exempt
diisobutyl ketone *	1.06	9285.6		exempt
glycol ethers	0.58	5080.8		na
Methylene chloride	4.03	<20,000		exempt
perchloroethylene	2.21	19,359.6		exempt
Propylene glycol monomethyl ether *	0.15	1314		exempt
stoddard solvent *	0.25	2190		exempt
toluene	0.08	700.8		exempt
Trimethyl benzene *	0.31	2715.6		exempt
2,2,4-trimethyl pentane	0.05	438		exempt
xylene	0.06	525.6		exempt
Total HAPS regulated by the CAA	##			

HAP = hazardous air pollutant

CAA = Clean Air Act

na = not applicable

* denotes state-only HAPs

The permittee elected restrictions to limit the potential VOC emissions from the facility to not more than 85 tons per year while operating under the Cooperative Agreement and to less than 100 tons per year otherwise. See total facility emissions summarized above. These more restrictive limitations are included in the facility’s original operation permit and would be retained in any revised Operation Permit issued by the Department. Note: VOC emissions from use of materials containing VOCs will be limited to 85 tons per year. The additional 2.8 tons of VOCs per year are from combustion of natural gas and propane at the facility

The permittee elected restrictions to limit the potential emissions of all HAPs regulated by the Clean Air Act to not more than 20 tons per year while operating under the Cooperative Agreement and to less than 25 tons per year otherwise. The permittee has elected restrictions to limit the potential emissions of each HAP regulated by the Clean Air Act to not more than 8 tons per year while operating under the Cooperative Agreement and to less than 10 tons per year otherwise. These more restrictive limitations are included in the facility’s original operation permit and would be retained in any revised Operation Permit issued by the Department.

FACILITY STATUS UNDER PART 70

The facility is located in an area designated as attainment/unclassified for all criteria pollutants. The facility would be considered a synthetic minor, non-part 70 source because the permittee elected limitations to restrict the potential emissions of volatile organic compounds and the potential emissions of nitrogen oxides to each less than the major source threshold of 100 tons per year. The potential emissions of each other criteria pollutant are less than the major source threshold level of 100 tons per year. Additionally, the permittee elected limitations to restrict the potential emissions of each hazardous air pollutant regulated by the Clean Air Act to less than 10 tons per year and the potential emissions of all hazardous air pollutants regulated by the Clean Air Act combined to less than 25 tons per year.

Note: The permittee has elected to restrict the potential emissions of volatile organic compounds to not more than 85 tons per year while operating under a Cooperative Agreement with the Department. Additionally, the permittee elected to restrict the potential emissions of each hazardous air pollutant regulated by the Clean Air Act to not more than 8 tons per year and the potential emissions of all hazardous air pollutants regulated by the Clean Air Act combined to not more than 20 tons per year, while operating under a Cooperative Agreement with the Department.

COMPLIANCE DEMONSTRATION METHODS

The compliance demonstration methods for the following emissions units were reviewed under the preliminary determinations for operation permits 642025010-F01, 642025010-F02, 642025010-F03, 642025010-F04 and the preliminary determinations for construction permits 02-MEC-618, 03-POY-016, 05-MEC-206 and remain unchanged as a result of this renewal:

- Stack S02, Boiler B02 - Natural Gas/Propane Space Heaters with a Total Rating of 37.1 mmBtu/hr - Installed 1994**
- Stack S12, Boiler B22 - Natural Gas/Propane Boiler Rated at 8.4 mmBtu/hr - Installed 1961**
- Stack S13, Boiler B23 - Natural Gas/Propane Boiler Rated at 10.6 mmBtu/hr - Installed 1971**
- Stack S14, Boiler B24 - Natural Gas/Propane Boiler Rated at 10.6 mmBtu/hr - Installed 1971**
- Stack S15, Boiler B25 - Natural Gas/Propane Boiler Rated at 6.3 mmBtu/hr - Installed 1961**
- Stack S03, Process P03 - 5 Lithographic Lines with UV Curing - Installed 1988**
- Stack S18, Process P32 - 4 Roll Coating Machines, and 3 Natural Gas/Propane Curing Oven rated at 5 mmBtus/hr, 6 mmBtus/hr, and 5.25 mmBtus/hr - Controlled by Thermal Oxidizer C18 (P32-1S Installed 1984; P32-10S Installed 1989; P32-87S Installed 1993) (Only 3 can be operated at a time.) - Modified 2003 and 2005.**
- Stack S19, Process P33 - 1 Metal Spray Booths, With a 0.4 mmBtu per hour Natural Gas/Propane Curing Oven - Controlled by Paper Paint Filters (C19) and a Thermal Oxidizer C18 - (P-33-18S-2B) - Installed 1993**
- Stack S53, Process P37 - 3 Screening Lines each with a Natural Gas/Propane Curing - (P-37-12S; P-43-SOS; P171-SOS)**
- Stack S41, Process P41 - Two Litho Pressess with Two UV Ovens - Installed 2001**
- Stack S43, Process P43 - One Screening Machine and Three Small Screening Machines with One Electric Drying Oven - Installed 2001**
- Stack S42, Process P42 - Two Roll Coaters with Four Electric Drying Ovens - Utilized for R&D Activities - Installed 2001**
- Stack S44, Process P44 - Spraybooth - Utilized for R&D Activities - Installed 2001**
- Stack S57, Process P57 - Plastic Spray Booth with (this booth uses same curing oven used for P33) - (P-58-PBS)**
- Stack S63, Process P63 - Miscellaneous Facility Wide Cleanup**
- Stack S72, Process P72 - Towel Dryer - Installed 1991**
- Stack S75, Process P75 - Roll Coating Machine with a 1.6 mmBtu per hour Natural Gas/Propane Curing Oven - Installed 2003**

Please refer to the preliminary determinations for permits 642025010-F01, 02-MEC-618/642025010-F02, 03-POY-016/642025010-F03, and 05-MEC-206/642025010-F04 for a description of the compliance demonstration methods for these emissions units.

The following are the compliance demonstration methods for emissions units that are either new or changed as a result of this renewal:

Stack S79, Process P79 - Two Screening Lines, One with 1 Screening Machine and 1 UV Oven, One with 2 Screening Machines and 1 UV Oven: To demonstrate compliance with the LACT VOC content restriction, the facility shall keep the following records for each coating and other VOC containing material used on P79: (1) A unique name or identification number for each coating and other VOC containing material, as applied; and (2) The VOC content of each coating and other VOC containing material, as applied in pounds per gallon. The permittee shall use US EPA Method 24, or coating manufacturer's formulation data to determine the VOC content of the coatings used. In the case of an inconsistency between the Method 24 results and the formulation data, the Method 24 results shall govern. Additionally, the facility shall only burn natural gas and/or propane in the curing oven associated with P80. These requirements would be included in any operation permit issued by the Department.

Stack S80, Process P80 - Roll Coating Machine (and replacement coater) with a 1.6 mmBtu per hour Natural Gas/Propane Curing Oven: To demonstrate compliance with the LACT VOC content restriction, the facility shall keep the following records for each coating and other VOC containing material used on P80: (1) A unique name or identification number for each coating and other VOC containing material, as applied; and (2) The VOC content of each coating and other VOC containing material, as applied in pounds per gallon. The permittee shall use US EPA

Method 24, or coating manufacturer's formulation data to determine the VOC content of the coatings used. In the case of an inconsistency between the Method 24 results and the formulation data, the Method 24 results shall govern. Additionally, the facility shall only burn natural gas and/or propane in the curing oven associated with P80. These requirements would be included in any operation permit issued by the Department.

Additionally, the following compliance demonstration methods in permit 642025010-F04 were changed as described below:

I.A.3.c.(1): The permittee requested a change to the compliance demonstration method language so they are required to retain a statement on site indicating that natural gas and propane are the only fuels available for combustion at the facility. This change makes the record keeping requirements in Part A of the permit consistent with Part B of the permit.

I.A.1.b.(1): The permittee requested changes to this compliance demonstration method to factor in VOCs that are not 100 percent emitted in to equations for calculating VOC emissions. A multiplier was added to the equation allowing the permittee to factor in an emission rate for VOC that are not 100 percent emitted.

I.A.1.b.(5), I.B.10.a.(2)(a), and I.B.11.a.(2)(a): These conditions require the calculation of monthly VOC emissions from process P41, P42, and P43 to demonstrate that the monthly VOC emissions from each process is less than 1666 pounds per month to ensure that these process are exempt from construction permit requirements. Similar to condition I.A.1.b.(1), a multiplier was added to the equation in each condition to calculate monthly VOC emissions to allow for VOC that are not emitted at 100% of the content of the raw material.

I.B.17.a.(2)(a): Similar to condition I.A.1.b.(1), a multiplier was added to this equation for calculating monthly VOC emissions to allow the permittee to factor in an emission rate for VOCs that are not emitted at 100 percent of their content.

I.A.1.c.(2) and (3), I.B.10.a.(3)(c), I.B.11.a.(3)(c), I.B.17.a.(3)(a): A requirement was added to each of these conditions indicating that the permittee must keep records of the VOC emission rate multiplier used for each VOC containing raw material.

Note: The compliance plan and schedule from current permit 642025010-F04 was removed from the draft permit renewal as the permittee has complied with all the requirements of the plan.

FACILITY COMPLIANCE STATUS

The Department finds that:

1. The source will meet applicable emission limits and other requirements.
2. The source will not cause nor exacerbate a violation of an ambient air quality standard or ambient air increment.

PRELIMINARY DETERMINATION

The Wisconsin Department of Natural Resources has reviewed the permit application and other materials submitted by Northern Engraving Corporation and hereby makes a preliminary determination that an operation permit may be issued with the following Draft Applicable Limits and Draft Permit Conditions.