

APPENDIX A2.

ANALYSIS, PRELIMINARY DETERMINATION AND DRAFT PERMIT FOR  
THE RENEWAL OF OPERATION PERMIT NUMBER 632009730-F04  
FOR  
NORTHERN ENGRAVING CORPORATION,  
LOCATED AT  
1023 SAND LAKE ROAD,  
HOLMEN, LA CROSSE COUNTY, WISCONSIN  
ON THE OPERATION OF  
AN EXISTING  
PRINTED/COATED PLASTIC SHEET 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: 632009730-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: 6/13/2007

cc: GEF II - AM/7 – FESOP Renewal  
La Crosse County Library, 103 State Street, Holmen, WI 54638

## 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 Corporation  
P.O Box 377  
Sparta, WI 54656

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

Application Contact Person: Mary Goodman, Air Quality Manager  
(608) 269-6911

Application Submitted By: Mary Goodman, Air Quality Manager

Date of Administratively Complete Application: 12/28/2006

Dates of Submittal: 12/8/2006, 4/9/2007, 4/21/2007

## SOURCE DESCRIPTION

The Northern Engraving Corporation, Holmen facility produces printed/coated plastic sheets. The facility houses several screening and lithographic process lines and a roll coating line. There are also several offices, a tool and die repair shop, storage rooms, a maintenance shop, an ink-mixing and screen-making facility in the plant.

**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 05-MEC-314/Significant Revision 632009730-F03 (integrated issuance) to cover modifications to P09/S09 and the construction permit-exempt installation of P60 (logged as application 632009730-F02).

Construction permit 06-MEC-044/Significant Revision 632009730-F04 (integrated issuance) to cover further modifications to P09/S09.

**Changes Identified in the Renewal Application:** The permittee identified that all process lines remain the same as covered in the most recent operation permit 632009730-F04. However, they identify the following changes in their renewal application:

Process P03/S03: The second oven was removed so they operate one natural gas/propane oven rated at 1.25 mmBtu.hour on this process line.

Process P08/S08: Usage rate and HAP emission rate changes (Results in a decrease in VOC, toluene, and cyclohexanone emissions. Hexamethylene-1,6-diisocyanate (HDI) and perchloroethylene are new HAPs now emitted, but the MTEs are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code)

Process P09/S09: Emission of an additional HAP (HDI is a new HAP emitted from this process, but the MTEs are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code.)

Process P14/S14: Usage rate and HAP emission rate changes (Results in a decrease in VOC and cyclohexanone emissions. Trimethyl benzene is a new HAP emitted from the process, but the MTEs are less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code. Mineral spirit emissions increase but remain less than the values listed in s. NR 406.04(2)(f), Wis. Adm. Code.)

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), I.A.4.c.(1), I.B.1.a.(3)(b), I.B.1.b.(3)(b), I.B.2.b.(3)(b), I.B.3.a.(3)(b), and I.B.3.b.(3)(b). 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., I.B.9.a.(2)(a), I.A.2.b., and I.B.9.b.(2)(a). The permittee requested changes to these compliance demonstration methods to factor in hazardous air pollutants that are not 100 percent emitted in to equations for calculation HAP 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 632009730-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 632009730-F03 and 632009730-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 Holmen 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 632009730-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 P03 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P03
Unit description:	Two Lithographic Presses with One Natural Gas/Propane Drying Oven (PLO-05-H and PLO-07-H)
Control technology status:	Uncontrolled
Maximum continuous rating (mmBTU/hr):	1.25
Date of construction or last modification:	1991
Construction Permit Requirements:	These presses were originally covered by construction permit 91-POY-126 issued on December, 6, 1991.

#### Process P03 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural Gas	Propane	None
Higher Heating Value:	1000 mmBtu/cf6	92 mmBtu/gal3	
Maximum Sulfur Content (weight %):	0	0.403	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	1.25 mmBtu/hr	1.25 mmBtu/hr	

#### Stack S03 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S03	Exhaust flow rate, normal (ACFM):	4844
Exhausting Unit(s):	P03	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):	1.0 ft.		

#### 2. Process P08 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P08

## 2. Process P08 – Emission Unit Information.

Process Parameter	Description
Unit description:	One roll coater with natural gas/propane conveyor oven (PCO-08-H)
Control technology status:	Uncontrolled
Maximum continuous rating (mmBTU/hr):	0.8 mmBtu per hour
Date of construction or last modification:	1991
Construction Permit Requirements:	The roll coater was originally covered by construction permit 91-POY-126, issued December 6, 1991.

## Process P08 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural Gas	Propane	None
Higher Heating Value:	1000 mmBtu/cf6	92 mmBtu/gal3	
Maximum Sulfur Content (weight %):	0	0.403	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	0.8 mmBtu/hr	0.8 mmBtu/hr	

## Stack S08 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S08	Exhaust flow rate, normal (ACFM):	2800
Exhausting Unit(s):	P08	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):	32 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.0 ft.		

## 3. Process P09 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P09
Unit description:	Six screening lines with 2 screening machines and two screening lines with 1 screening machine for a total of 14 machines. Plus four additional backup screening machines for temporary replacement of the original 14 machines. Only 14 machines shall be operated at any one time. Process P09 includes 8 ovens. Six of these ovens fire natural gas or propane and have a total combined heat input rating of 7.9 mmBtus per hour. Two ovens are electric ovens. Installed 1991 and 2001. Modified 2005 and 2006. (Screening lines PSO-12-H, PSO-27-H, PSO-21-H, PSO-18-H, PSO-26-H, PSO-23-H, PSO-H-31, PSO-H30)
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	7.9 mmBtu per hour
Date of construction or last modification:	2006

3. Process P09 – Emission Unit Information.

Process Parameter	Description
Construction Permit Requirements:	The screening lines were covered by construction permits EOP-10-KJC-83-32-081, EOP-10-KJC-83-32-081, 910POY-126, 01-MEC-615, 05-MEC-314, and 06-MEC-044.

Process P09 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	Natural Gas	Propane	none
Higher Heating Value:	1000 mmBtu/cf6	92 mmBtu/gal3	
Maximum Sulfur Content (weight %):	0	0.403	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	7.9 mmBtu/hr	7.9 mmBtu/hr	

Stack S09 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S09	Exhaust flow rate, normal (ACFM):	30010
Exhausting Unit(s):	P09	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):	32 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	4.9 ft.		

4. Process P14 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P14
Unit description:	Miscellaneous Facility Wide Cleanup
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	12/01/1991
Construction Permit Requirements:	Cleanup was covered in the construction permits issued for each process.

Process P14 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	none		

Stack S14 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
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## Stack S14 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S14	Exhaust flow rate, normal (ACFM):	-1
Exhausting Unit(s):	P14	Exhaust gas temperature, normal (°F):	0
This stack has an actual exhaust point:	no	Exhaust gas discharge direction:	

## 5. Process P36 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P36
Unit description:	Towel Dryer
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	12/01/1991
Construction Permit Requirements:	The towel dryer is covered by construction permit EOP-10-KJC-83-32-081A, issued on October 31, 1989.

## Process P36 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	none		

## Stack S36 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S36	Exhaust flow rate, normal (ACFM):	1900
Exhausting Unit(s):	P36	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):	25 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1 ft.		

## 6. Process P40 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P40
Unit description:	Screen Cleaning Machine
Control technology status:	Uncontrolled
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	1998
Construction Permit Requirements:	

Process P40 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	none		

Stack S40 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S40	Exhaust flow rate, normal (ACFM):	500
Exhausting Unit(s):	P40	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):	28 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.5 ft.		

7. Process P50 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P50
Unit description:	Two digital printing lines each with an IR oven.
Control technology status:	Uncontrolled
Maximum continuous rating (mmBTU/hr):	Not applicable
Date of construction or last modification:	2001
Construction Permit Requirements:	Because the maximum theoretical volatile organic compound emissions from this process are less than 5.7 pounds per hour, no construction permit is required pursuant to s. NR 406.04(2), Wis. Adm. Code.

Process P50 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1	Backup Fuel #2
Fuel Name:	none		

Stack S50 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S50	Exhaust flow rate, normal (ACFM):	0
Exhausting Unit(s):	P50	Exhaust gas temperature, normal (°F):	0
This stack has an actual exhaust point:	No	Exhaust gas discharge direction:	

8. Process P60 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P60
Unit description:	Screening machine with a natural gas oven with attached UV curing unit. The heat input rating of the natural gas oven is 0.78 mmBtu

## 8. Process P60 – Emission Unit Information.

Process Parameter	Description
	per hour.
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	0.78
Date of construction or last modification:	2002
Construction Permit Requirements:	Process P60 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 P60 – 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 mmBtu/gal3	
Maximum Sulfur Content (weight %):	0	0.403	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	0.78 mmBtu/hr	0.78 mmBtu/hr	

## Stack S60 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S60	Exhaust flow rate, normal (ACFM):	2000
Exhausting Unit(s):	P60	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):	22.0 ft.	Stack equipped with any obstruction:	no
Inside dimensions at outlet (ft):	1.2 ft.		

## 9. Process B10 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	B10
Unit description:	Natural Gas/Propane Space Heaters
Control technology status:	uncontrolled
Maximum continuous rating (mmBTU/hr):	Total of 10 mmBtu per hour
Date of construction or last modification:	various
Construction Permit Requirements:	Process B10 is exempt from construction permit requirements because the maximum theoretical emissions are less than the rates listed in NR 406.04(2), Wis. Adm. Code.

Process B10 – 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 mmBtu/gal3	
Maximum Sulfur Content (weight %):	0	0.403	
Maximum Ash Content (weight %):	0	0	
Maximum hourly consumption:	10 mmBtu/hr	10 mmBtu/hr	

Stack S10 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S10		
Exhausting Unit(s):	B10		
This stack has an actual exhaust point:	No		

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
S03	Actual	Circular	U	No	1.0 ft.	0 ft. 0 in. ( m)	26 ft. 0 in. (7.9248 m)	150	4844	4844
S08	Actual	Circular	U	No	1.0 ft.	0 ft. 0 in. ( m)	32 ft. 0 in. (9.7536 m)	150	2800	2800
S09	Actual	Circular	U	No	4 ft. 10.8 in. (1.49352 m)	0 ft. 0 in. ( m)	32 ft.	150	30010	31000
S14	fugitive							0		
S36	actual	Circular	U	No	1 ft. 0 in. (0.3048 m)	0 ft. 0 in. ( m)	25 ft. 0 in. (7.62 m)	70	1900	1900
S40	Actual	Circular	U	No	1.5 ft.		28 ft	70	500	500
S50	fugitive									
S60	actual	Circular	U	no	1.2 ft.	0 ft. 0 in. ( m)	22 ft.	150	2000	2000
S10	Area source									

Insignificant Emissions Units:

- Boiler, Turbine, and HVAC System Maintenance.
- Convenience Space Heating (< 5 million BTU/hr Burning Gas, Liquid, or Wood).
- Convenience Water Heating.
- Internal Combustion Engines Used for Warehousing and Material Transport.
- Janitorial Activities.
- Maintenance of Grounds, Equipment, and Buildings (lawn care, painting, etc.).
- Office Activities.
- Sanitary Sewer and Plumbing Venting.
- Four UV-Cured Lithographic Presses

Thermometer Metalizing Process  
Parts Dryer  
Ink Mixing Station  
Electirc Lab Oven  
Two each, 30,000 gallon propane storage tanks  
Adhesive Application Press  
Stock Room for paint, powder ink, solvents, and plastic  
Tool and Die repair room  
Punch Presses  
Photo Shears  
Thompson Presses  
Quality Control Room and Laboratory  
Flexlens  
Screenmaking

### **SOURCE SPECIFIC APPLICABLE REQUIREMENTS AND EMISSION CALCULATIONS**

The applicable requirements and emission calculations for the following emissions units were reviewed under the preliminary determinations for operation permit numbers 632009730-F01, 632009730-F03, and 632009730-F04 and under the preliminary determinations for construction permit numbers 05-MEC-314 and 06-MEC-044 and remain unchanged as a result of this renewal:

- Stack S03, Process P03 - 2 Lithographic Presses with One Natural Gas/Propane Drying Oven Rated at 1.25 mmBtus per hour - Installed 1991 (PLO-05-H and PLO-07-H)**
- Stack S08, Process P08 - 1 Roll Coater with Natural Gas/Propane Conveyor Oven - Installed 1991 (PCO-08-H)**
- Stack S09, Process P09 - Six screening lines with 2 screening machines and two screening lines with 1 screening machine for a total 14 screening machines. Plus four additional backup screening machines for temporary replacement of the original 14 machines. Only 14 machines shall be operated at any one time. Process P09 includes 8 ovens. Six of these ovens fire natural gas or propane and have a total combined heat input rating of 7.9 mmBtus per hour. Two ovens are electric ovens. Installed 1991 and 2001. Modified 2005 and 2006. (Screening lines PSO-12-H, PSO-27-H, PSO-21-H, PSO-18-H, PSO-26-H, PSO-23-H, PSO-H-31, PSO-H-30)**
- Stack S36, Process P36 - Towel Dryer - Installed 1991**
- Stack S40, Process P40 - Screen Cleaning Machine - Installed 1998**
- Stack S14, Process P14 - Miscellaneous Facility Wide Cleanup**
- Stack S50, Process P50 - Two Digital Printing Lines each with an IR Curing Oven - Installed 2001**
- Stack S60, Process P60 - Screening machine with a natural gas oven with attached UV curing unit. The heat input rating of the natural gas oven is 0.78 mmBtus per hour. Installed 2002**

Please refer to the preliminary determinations for permit numbers 632009730-F01, 05-MEC-314/632009730-F03, and 06-MEC-044/632009730-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:

Space Heaters B10: Maximum theoretical emissions were calculated using emission factors from AP-42, 5th edition. Because the space heaters were installed and last modified after April 1, 1972, they are 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 heat input from any stack. Because the space heaters were installed and last modified after April 1, 1972, they are subject to s. NR 431.05, Wis. Adm. Code which limits visible emissions to not greater than 20% opacity. The space heaters are subject to the general limitations for sulfur dioxide, volatile organic compounds, carbon monoxide and nitrogen oxides contained in ss. NR 417.03, NR 419.03, NR 426.03 and NR 428.03, Wis. Adm. Code, respectively.

These general limitations would be included in Part II of any permit issued by the Department

Chapter NR 445, Wis. Adm. Code – Hazardous Air Pollutant Analysis: 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, diacetone alcohol, and trimethyl benzene (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. A dispersion modeling analysis performed by John Roth shows the facility impact of 2-butoxyethanol, cyclohexanone, diacetone alcohol, and trimethyl benzene are less than their respective acceptable ambient concentration. Please see the Air Quality Review section for more information. [Note: For the original operation permit review, 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 review, additional emissions from the modified equipment were incorporated into a modeling analysis of the entire facility. See the Air Quality Review section below for details. Hazardous air pollutant emissions were compared to the revised values in Table A of 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.

## CONTROL TECHNOLOGY REVIEW

The control technologies for the following emissions units were reviewed under the preliminary determinations for operation permit numbers 632009730-F01, 632009730-F03, and 632009730-F04 and under the preliminary determinations for construction permit numbers 05-MEC-314 and 06-MEC-044 and remain unchanged as a result of this renewal:

- Stack S03, Process P03 - 2 Lithographic Presses with One Natural Gas/Propane Drying Oven Rated at 1.25 mmBtus/hr - Installed 1991 (PLO-05-H and PLO-07-H)**
- Stack S08, Process P08 - 1 Roll Coater with Natural Gas/Propane Conveyor Oven - Installed 1991 (PCO-08-H)**
- Stack S09, Process P09 - Six screening lines with 2 screening machines and two screening lines with 1 screening machine for a total 14 screening machines. Plus four additional backup screening machines for temporary replacement of the original 14 machines. Only 14 machines shall be operated at any one time. Process P09 includes 8 ovens. Six of these ovens fire natural gas or propane and have a total combined heat input rating of 7.9 mmBtus per hour. Two ovens are electric ovens. Installed 1991 and 2001. Modified 2005 and 2006. (Screening lines PSO-12-H, PSO-27-H, PSO-21-H, PSO-18-H, PSO-26-H, PSO-23-H, PSO-H-31, PSO-H-30)**
- Stack S36, Process P36 - Towel Dryer - Installed 1991**
- Stack S40, Process P40 - Screen Cleaning Machine - Installed 1998**
- Stack S14, Process P14 - Miscellaneous Facility Wide Cleanup**
- Stack S50, Process P50 - Two Digital Printing Lines each with an IR Curing Oven - Installed 2001**
- Stack S60, Process P60 - Screening machine with a natural gas oven with attached UV curing unit. The heat input rating of the natural gas oven is 0.78 mmBtus per hour. Installed 2002**

Please refer to the preliminary determination for permit numbers 632009730-F01, 05-MEC-314/632009730-F03, and 06-MEC-044/632009730-F04 for a detailed description of the control technologies for these emissions units.

The following are the control technologies for emissions units that are either new or changed as a result of this renewal: None.

## 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 4, 2007:

#### A. INTRODUCTION

On May 3, 2007 a dispersion modeling analysis was completed for Northern Engraving to assess the impact of the particulate matter, sulfur dioxide, nitrogen oxide, carbon monoxide, 2-butoxyethanol, cyclohexanone, diacetone alcohol, and trimethyl benzene emissions from their facility in Holmen, La Crosse County, on ambient air quality. This analysis was performed in support of operation permit renewal 632009730-F10.

#### B. MODELING ANALYSIS

- ◆ Northern Engraving provided the stack parameters and building dimensions used in this analysis. Mary Oleson verified emissions and rule applicability for those sources. Building dimensions were determined for all sources using BPIP-PRIME with measurements taken on the plot plan provided with the application. Please refer to the source parameter table for details.
- ◆ The PSD baselines for PM<sub>10</sub>, SO<sub>2</sub>, and NO<sub>x</sub> in La Crosse County have not been set. Therefore, none of the sources at NE-Holmen consume increment.
- ◆ Five years (1998-2002) of preprocessed meteorological data was used in this analysis. The surface data was collected in Wisconsin Rapids (ISW), and the upper air meteorological data also originated in Green Bay.
- ◆ Regional background concentration were found to be as follows:

Regional Background Concentrations (Concentrations are in µg/m <sup>3</sup> )			
Monitoring Site	Pollutant	Averaging Period	Concentration
1415 East Walnut GRB East H.S. Brown County	SO <sub>2</sub>	3 hr	137.1
		24 hr	35.2
		Annual	7.9
Devil's Lake Park Sauk County	NO <sub>2</sub>	Annual	4.7
923 270 <sup>th</sup> Avenue Luck, Polk County	CO	1 hr	3,188.0
		8 hr	890.4
Trout Lake Nursery Vilas County	PM <sub>10</sub>	24 hr	27.4
		Annual	9.2
Trout Lake Nursery Vilas County	TSP	24 hr	41.8

- ◆ The AERMIC Model (AERMOD) was also used in the analysis. The model used rural dispersion coefficients with the regulatory default options. These allow for calm wind and missing data correction, buoyancy induced dispersion, and building downwash including recirculation cavity effects.
- ◆ The receptors used in this analysis followed USEPA and WDNR ambient air policy and consisted of a rectangular grid with 25-meter resolution extending from the facility. Receptors on top of any building or within enclosed fence lines were not considered. For the pollutants listed in Chapter NR 445 of the Wisconsin Administrative Code, receptors on the Northern Engraving property were also not considered. Receptor terrain elevations were derived from the AERMOD terrain processor (AERMAP) using USGS digitized elevation model (DEM) files.

C. MODEL RESULTS

The results demonstrate that the ambient air quality standards for all pollutants will be attained and maintained assuming the emission rates and stack parameters listed in the attached source table.

Modeling Analysis Results (All Concentrations in $\mu\text{g}/\text{m}^3$ )			
	TSP – 24 hr	PM <sub>10</sub> – 24 hr	PM <sub>10</sub> – Annual
Facility Impact	91.6	91.6	12.8
Background	41.8	27.4	9.2
Total Concentration	133.4	119.0	22.0
NAAQS	150.0	150.0	50.0
% NAAQS	88.9	79.3	44.0

Modeling Analysis Results (All Concentrations in $\mu\text{g}/\text{m}^3$ )			
	SO <sub>2</sub> – 3 hr	SO <sub>2</sub> – 24 hr	SO <sub>2</sub> – Annual
Facility Impact	2.1	1.0	0.2
Background	137.1	35.2	7.9
Total Concentration	139.2	36.2	8.1
NAAQS	1,300.0	365.0	80.0
% NAAQS	10.7	9.9	10.1

Modeling Analysis Results (All Concentrations in $\mu\text{g}/\text{m}^3$ )			
	CO – 1 hr	CO – 8 hr	NO <sub>2</sub> – Annual
Facility Impact	292.4	183.4	63.6
Background	3,188.0	890.4	4.7
Total Concentration	3,480.4	1,073.8	68.3
NAAQS	40,000	10,000	100.0
% NAAQS	8.7	10.7	68.3

Modeling Analysis Results (All Concentrations in $\mu\text{g}/\text{m}^3$ )			
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	2-Butoxy 24 hr	2-Butoxy Annual	Cyclohexa 24 hr	Diactetone 24 hr	Trimethyl 24 hr
Facility Impact	660.4	85.2	806.6	945.7	511.2
NR 445 AAC	2,320	13000	2311	5701	2949
% AAC	28.5	0.7	34.9	16.6	17.3

#### D. CONCLUSIONS

The results demonstrate that all ambient air quality standards will be attained and maintained assuming the emission rates and stack parameters listed in the attached source table.

NORTHERN ENGRAVING - HOLMEN Stack Parameters					
ID	LOCATION (UTM)	HEIGHT (M)	DIAMETER (M)	VELOCITY (M/S)	TEMP (K)
S03	640247, 4868128	7.92	0.30	32.34	338.6
S08A	640253, 4868117	9.75	0.30	9.06	338.6
S08B	640253, 4868120	9.75	0.30	9.06	338.6
S09A	640229, 4868186	9.75	0.43	6.02	338.6
S09B	640228, 4868183	9.75	0.43	6.02	338.6
S09C	640235, 4868178	9.75	0.46	9.37	338.6
S09D	640235, 4868175	9.75	0.46	12.21	338.6
S09E	640236, 4868171	9.75	0.46	7.10	338.6
S09F	640236, 4868167	9.75	0.46	9.09	338.6
S09G	640236, 4868163	9.75	0.46	12.21	338.6
S09H	640236, 4868159	9.75	0.46	8.52	338.6
S36	640218, 4868182	7.62	0.30	12.29	294.0
S40	640252, 4868188	8.53	0.46	1.444	294.0
S60	640241, 4868151	6.71	0.36	9.50	338.6
<i>(a) Volume Sources</i>					
ID	LOCATION (UTM)	HEIGHT (M)	Init Sigma Y (M)	Init Sigma Z (M)	
V10A	640244, 4868127	2.74	22.3	2.55	
V10B	640244, 4868175	2.74	22.3	2.55	
V10C	640291, 4868127	2.74	21.4	2.55	

NORTHERN ENGRAVING – HOLMEN Emission Rates				
ID	PM RATE (#/HR)	SO <sub>2</sub> RATE (#/HR)	NO <sub>x</sub> RATE (#/HR)	CO RATE (#/HR)
S03	0.19	0.0008	0.26	0.11
S08A	0.006	0.0005	0.17	0.067
S08B	-	-	-	-
S09A	-	-	-	-
S09B	-	-	-	-
S09C	0.19	0.0008	0.26	0.11
S09D	0.23	0.0009	0.31	0.13
S09E	0.19	0.0008	0.26	0.11
S09F	0.19	0.0008	0.26	0.11
S09G	0.23	0.0009	0.31	0.13
S09H	0.17	0.0007	0.23	0.092
S36	-	-	-	-
S40	-	-	-	-
S60	0.06	0.0005	0.08	0.07
V10A	0.025	0.002	0.69	0.28
V10B	0.025	0.002	0.69	0.28
V10C	0.025	0.002	0.69	0.28

NORTHERN ENGRAVING – HOLMEN Emission Rates				
ID	2-butoxyethanol (#/HR)	cyclohexanone (#/HR)	diacetone alcohol (#/HR)	trimethyl benzene (#/HR)
S03	-	-	-	-
S08A	-	2.33	-	-
S08B	-	2.33	-	-
S09A	2.88	2.90	4.18	1.20
S09B	2.88	2.90	4.18	1.20
S09C	3.61	4.06	5.20	3.22
S09D	3.61	4.06	5.20	3.22
S09E	3.61	4.06	5.20	3.22
S09F	3.61	4.06	5.20	3.22
S09G	3.61	4.06	5.20	3.22
S09H	3.61	4.06	5.20	3.22
S36	0.10	0.30	-	-
S40	-	0.14	-	-
S60	-	-	-	-
V10A	-	-	-	-
V10B	-	-	-	-
V10C	-	-	-	-

**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. P03, Stack S03 - 2 Lithographic Presses with One Natural Gas/Propane Drying Oven Rated at 1.25 mmBtu/hr - Installed 1991 (PLO-05-H and PLO-07-H)**

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.0095	0.042	0.0095	0.042	0.19	0.82
Sulfur Dioxide	0.00075	0.0033	0.00075	0.0033	0.00075	0.0033
Nitrogen oxides	0.26	1.13	0.26	1.13	0.26	1.13
Carbon Monoxide	0.11	0.46	0.11	0.46	0.11	0.46
VOCs	1.84	8.06	0.94	#	1.84	8.06

**2. P08, Stack S08 - 1 Roll Coater with Natural Gas/Propane Conveyor Oven - Installed 1991 (PCO-08-H)**

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.006	0.03	0.006	0.03	0.006	0.03
Sulfur Dioxide	0.0005	0.002	0.0005	0.002	0.0005	0.002
Nitrogen oxides	0.17	0.72	0.17	0.72	0.17	0.72
Carbon Monoxide	0.07	0.29	0.07	0.29	0.07	0.29
VOCs	24.45	107.09	24.45	#	24.45	107.09

**HAZARDOUS AIR POLLUTANT EMISSIONS FROM P08**

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
cyclohexanone *	4.66	20.40	4.66	##
Hexamethylene-1,6-diisocyanate	0.000004	0.000018	0.000004	##
perchloroethylene	0.082	0.36	0.082	##
toluene	0.90	3.94	0.90	##

**3. P09, Stack S09 - Six screening lines with 2 screening machines each and two screening lines with 1 screening machine for a total 14 screening machines. Plus four additional backup screening machines for temporary replacement of the original 14 machines. Only 14 machines shall be operated at any one time. Process P09 includes 8 ovens. Six of these ovens fire natural gas or propane and have a total combined heat input rating of 7.9 mmBtus per hour. Two ovens are electric ovens. Installed 1991 and 2001. Modified 2005 and 2006. (Screening lines PSO-12-H, PSO-27-H, PSO-21-H, PSO-18-H, PSO-26-H, PSO-23-H, PSO-H-31, PSO-H-30)**

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

Particulate matter emissions	0.06	0.26	0.06	0.26	1.19	5.19
Sulfur Dioxide	0.0047	0.020	0.0047	0.020	0.0047	0.020
Nitrogen oxides	1.63	7.14	1.63	7.14	1.63	7.14
Carbon Monoxide	0.66	2.91	0.66	2.91	0.66	2.91
VOCs	223.47	538.24	223.47	#	223.47	538.24

**HAZARDOUS AIR POLLUTANT EMISSIONS FROM P09**

Pollutant	Maximum Theoretical			Potential to Emit
	lbs/hr	lbs/hr averaged over 24 hours	TPY	lbs/hr
2-butoxyethanol *	49.86	27.42	120.12	49.86
cumene	3.53	1.94	8.50	3.53
cyclohexanone *	54.87	30.18	132.19	54.87
diacetone alcohol *	71.94	39.57	173.31	71.94
ethyl benzene	7.98	4.39	19.22	7.98
Glycol ether	35.53	19.54	85.60	35.53
Hexamethylene-1,6-diisocyanate	0.000054	0.000054	0.00024	0.000054
naphthalene	7.98	4.39	19.22	7.98
Propylene glycol monomethyl ether *	94.35	51.89	227.30	94.35
stoddard solvent *	31.53	17.33	75.94	31.53
Trimethyl benzene *	37.05	20.38	89.24	37.05
xylene	27.93	15.36	67.28	27.93

**4. P14, Stack S14 - Miscellaneous Facility Wide Cleanup**

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	13.0	60.0	13.0	#	13.0	60.0

**HAZARDOUS AIR POLLUTANT EMISSIONS FROM P14**

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
cyclohexanone *	0.14	0.62	0.14	0.62
Mineral Spirits * (indoor fugitive)	0.64	2.81	0.64	2.81
1,2,4-trimethyl benzene (indoor fugitive)	0.29	1.27	0.29	1.27

**5. P36, Stack S36 - Towel Dryer - Installed 1991**

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	25.0	109.5	25.0	#	25.0	109.5

**HAZARDOUS AIR POLLUTANT EMISSIONS FROM P36**

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
2-butoxyethanol *	0.10	0.44	0.10	0.44
cyclohexanone *	0.30	1.31	0.30	1.31

**6. P40, Stack S40 - Screen Cleaning Machine - Installed 1998**

Pollutant	Maximum Theoretical	Potential to Emit	Maximum Allowables

	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	0.31	1.37	0.31	#	0.31	1.37

**HAZARDOUS AIR POLLUTANT EMISSIONS FROM P40**

Pollutant	Maximum Theoretical		Potential to Emit	
	lbs/hr	TPY	lbs/hr	TPY
cyclohexanone *	0.14	0.61	0.14	0.61

**7. P50, Stack S50 - Two Digital Printing Lines each with an IR curing oven - Installed 2001**

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOCs	2.01	8.78	2.01	#	2.01	8.78

**8. P60, Stack S60 - Screening machine with a natural gas oven with attached UV curing unit. The heat input rating of the natural gas oven is 0.78 mmBtus per hour. Installed 2002**

Pollutant	Maximum Theoretical		Potential to Emit		Maximum Allowables	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
Particulate matter emissions	0.006	0.03	0.006	0.03	0.006	0.03
Sulfur Dioxide	0.0005	0.002	0.0005	0.002	0.0005	0.002
Nitrogen oxides	0.08	0.34	0.08	0.34	0.08	0.34
Carbon Monoxide	0.07	0.29	0.07	0.29	0.07	0.29
VOCs	2.27	9.94	2.27	#	2.27	9.94

**TOTAL FACILITY EMISSIONS**

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	0.57	0.57	10.18	0.57
Sulfur Dioxide	0.046	0.046	0.046	0.046
Nitrogen Oxides	14.98	14.98	14.98	14.98
Carbon Monoxide	6.23	6.23	6.23	6.23
VOCs	843.08	99	843.08	85.44
Total CAA HAPs	575.75	24.96	575.75	20

Hazardous Air Pollutant	Potential to Emit			NR 445, Wis. Adm. Code Table A Value (stacks ≥25 ft and < 40 ft)	PTE greater than Table Value?
	(lbs/hr)	24-hr ave (lbs/hr)	(lbs/yr)		
cumene	3.53		16,000	51.3	lbs/hr no
2-butoxyethanol *	50.05	27.61	438,438	20.2	lbs/hr yes
cyclohexanone *	60.1147	35.42	526,605	20.1	lbs/hr yes
diacetone alcohol *	71.94	39.97	630,194	49.6	lbs/hr no
ethyl benzene	7.98			90.6	lbs/hr no
				16,000	730,000
glycol ethers	35.53		16,000	na	
Hexamethylene-1,6-isocyanate	0.000058			0.00718	lbs/hr no
				0.00026	7.3

Hazardous Air Pollutant	Potential to Emit			NR 445, Wis. Adm. Code Table A Value (stacks ≥25 ft and < 40 ft)	Units	PTE greater than Table Value?
	(lbs/hr)	24-hr ave (lbs/hr)	(lbs/yr)			
(HDI)						
naphthalene	7.98		16,000	10.9	lbs/hr	no
perchloroethylene	0.082			35.4	lbs/hr	no
			716	1237	lbs/yr	no
Propylene glycol monomethyl ether*	94.35		826,506	1,460,000	lbs/yr	no
stoddard solvent *	32.07		280,933	119	lbs/hr	no
toluene	1.80			39.3	lbs/hr	no
			15,768	292,000	lbs/yr	no
Trimethyl benzene*	37.34	20.67	327,098	25.6	lbs/hr	no
xylene	27.93		16,000	90.6	lbs/hr	no
<b>Total HAPS regulated by the CAA</b>		##				

HAP = hazardous air pollutant

CAA = Clean Air Act

na = not applicable

\* denotes state-only HAPs

# The permittee has 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 would be included in any 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 0.44 tons of VOCs per year are from combustion of natural gas and propane at the facility

## The permittee has 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 would be included in any Operation Permit issued by the Department.

Note: The above table includes a column for the potential emissions in pounds per hour averaged over 24 hours. Inherent in the operation of process P09 is a significant amount of time for setup, color check, downtime, breacktime and cleanup. As a worst case the process runs only 55 percent of the time in any 24 hour period. (Data shows that actual run time is 36 percent of the time and 55 percent was used as a worst case.) Twenty four hour average emission rates are included in the above table for pollutants with HAPs over the Table A values and with ambient air standards that are based on a 24 hour average. These 24 hour average emission rates are used in the dispersion modeling.

**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 to 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 permit numbers 632009730-F01, 632009730-F03, and 632009730-F04 and under the preliminary determinations for construction permit numbers 05-MEC-314 and 06-MEC-044 and remain unchanged as a result of this renewal:

- Stack S03, Process P03 - 2 Lithographic Presses with Natural Gas/Propane Drying Ovens - Installed 1991 (PLO-05-H and PLO-07-H)**
- Stack S08, Process P08 - 1 Roll Coater with Natural Gas/Propane Conveyor Oven - Installed 1991 (PCO-08-H)**
- Stack S09, Process P09 - Six screening lines with 2 screening machines and two screening lines with 1 screening machine for a total 14 screening machines. Plus four additional backup screening machines for temporary replacement of the original 14 machines. Only 14 machines shall be operated at any one time. Process P09 includes 8 ovens. Six of these ovens fire natural gas or propane and have a total combined heat input rating of 7.9 mmBtus per hour. Two ovens are electric ovens. Installed 1991 and 2001. Modified 2005 and 2006. (Screening lines PSO-12-H, PSO-27-H, PSO-21-H, PSO-18-H, PSO-26-H, PSO-23-H, PSO-H-31, PSO-H-30)**
- Stack S36, Process P36 - Towel Dryer - Installed 1991**
- Stack S40, Process P40 - Screen Cleaning Machine - Installed 1998**
- Stack S14, Process P14 - Miscellaneous Facility Wide Cleanup**
- Stack S50, Process P50 - Two Digital Printing Lines each with an IR Curing Oven - Installed 2001**
- Stack S60, Process P60 - Screening machine with a natural gas oven with attached UV curing unit. The heat input rating of the natural gas oven is 0.78 mmBtus per hour. Installed 2002**

Please refer to the preliminary determinations for permit numbers 632009730-F01, 05-MEC-314/632009730-F03, and 06-MEC-044/632009730-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:

Space Heaters B10: To demonstrate compliance with particulate matter and visible emission limitations the permittee would be required to retain a statement that natural gas and propane are the only fuels available for combustion at the facility. This is an adequate compliance demonstration method because the maximum theoretical emissions while firing these fuels are less than the allowable particulate matter emission limit. Additionally, it is not expected that visible emission limitations would be exceeded while firing natural gas and propane. Please see the Draft Permit for specific compliance demonstration methods.

I.A.3.c.(1), I.A.4.c.(1), I.B.1.a.(3)(b), I.B.1.b.(3)(b), I.B.2.b.(3)(b), I.B.3.a.(3)(b), I.B.3.b.(3)(b): 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 is adequate to demonstrate compliance because it is not expected that they will exceed the particulate matter emission and visible emission limitations while firing these fuels.

I.A.1.b.(1) and I.B.9.a.(2)(a): 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 VOCs that are not emitted at 100 percent of their content.

I.A.1.c.(2) and I.B.9.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.

I.A.2.b.(1) and I.B.9.b.(2)(a): The permittee requested changes to this compliance demonstration method to factor in HAPs that are not 100 percent emitted in to equations for calculating HAP emissions. A multiplier was added to the equation allowing the permittee to factor in an emission rate for HAPs that are not emitted at 100 percent of their content.

I.A.2.c.(2) and I.B.9.b.(3)(a): A requirement was added to each of these conditions indicating that the permittee must keep records of the HAP emission rate multiplier used for each HAP containing raw material.

### **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.