State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Air Pollution Control Type A Registration Construction and Operation Permit Application

Form 4530-156 (R 06/18)

Notice: Pursuant to ss. NR 406.17(4)(a), and 407.105(4)(a), Wis. Adm. Code, completion of this form is required to apply for coverage under the registration permits. This application is for coverage under the Type A Registration Operation Permit and its companion Type A Registration Construction Permit. These two permits are referred to as the registration permits throughout the rest of this document. Failure to submit complete information as required on the form shall be grounds for denial of the application. The **checklist AM-555** may be helpful in completing the application. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Record Law [ss. 19.31 - 19.39, Wis. Stats.].

To qualify fo r a registration permit, all existing permits (active and inactive) must be revoked and all applications withdrawn. This registration permit application constitutes your request for those revocations and withdrawals to take place. Before your registration permit application is declared complete, a public written notification of our intent to revoke your previously issued permits will be prepared followed by either a 14-day waiting period for construction permits or a 21-day waiting period for operation permits. After the waiting period is over, your application will be declared complete and the review of your registration permit application will begin. A final decision on registration permit coverage will be made within 15 days of the application being declared complete. If your facility qualifies for coverage, you'll then receive coverage approval under the registration permit, and your previous permits will be formally revoked and any pending air permit applications withdrawn. **Be sure to send copies of all calculations with the application.**

For help see Instructions starting on page 10 or for more detail review the Registration Permit Application Guidebook AM-539.

Section 1: Facility Information

Facility Name U.S. GAIN RFG Facility Clover Hill			
Mailing Address 425 Better Way	City Appleton	State WI	ZIP Code 54915
Facility Physical Address W4306 Cloverland Drive			
○ City ◉ Town ○ Village of Ashford	County Fond Du Lac		
Parent Corporation Name U.S. Venture, Inc.	Country (if not U.S.)		
Street or Route 425 Better Way	City Appleton	State WI	ZIP Code 54915
Responsible Official Name Mike Koel	Title GAIN Division President		
Phone (include area code) (920) 830-6261	Email MKoel@usgain.com		
Street or Route 425 Better Way	City Appleton	State WI	ZIP Code 54915
Permit Contact Person Name Don Johnston	Title Director of Environmental Quality		
Phone (include area code) (920) 735-8228 / Fax (920) 730-4245	Email DJohnston@usventure.com		
Street or Route 425 Better Way	City Appleton	State WI	ZIP Code 54915
Facility NAICS code description: All Other Basic Organic Chemical Manufacturing	Facility Identification Number (FID):		

General Facility Description:

Generating biogas, by anaerobically digesting manure with the aid of heat supplied by a boiler, and processing said biogas in order to produce Renewable Natural Gas (RNG). The biodigester and boiler are owned and operated by a separate entity.

Provide a Listing and Description of all Air Pollution Sources:

Boiler: Used to heat digester and run off of LPG and natural gas (owned and operated by separate entity - not past of this process).
Flare: Raw biogas will be vented to flare for combustion only during upset conditions.
Tail Gas: Produced during the refining of biogas, vented directly to atmosphere.
Fugitive emission sources such as process piping.

Section 2: Eligibility Questions

1a. Does the facility have any existing air permits (construction or operation)? ○ Yes ◉ No

1b. If "Yes" to 1a, are the permits all revocable? ○ Yes ○ No
(To understand whether permits may not be revocable, please review the Additional Information below.) If you answer No to this question, you are NOT eligible for the Registration permit.

- If you answer Yes to 1b., go on to question 2.
- If you answer No to 1b, then you are indicating that you have a permit condition that may NOT be revocable. A facility that needs case-by-case determinations in a permit, such as BACT or LAER, is not eligible for a registration permit. A permit with RACT or LACT avoidance limits or case-by-case determinations may be revocable if the facility elects to comply with alternative requirements. The department will need to review the existing permits to determine if they are revocable.

ADDITIONAL INFORMATION: *Permits that have conditions set either as avoidance limits or as case-by-case determinations to comply with certain requirements (i.e. emissions caps, control requirements) may not be revocable. The requirements that may trigger avoidance limits or case-by-case determinations in existing permits may include: chs. NR 405 or 408 New Source Review (NSR) Major Source construction permits (caps or Prevention of Significant Deterioration (PSD) BACT/Nonattainment NSR LAER controls); ch. NR 445 (caps or BACT/LAER); ch. NR 420 or 422 RACT (avoidance caps); or ch. NR 424 LACT (case-by-case determination).*

If you have been issued permits in the past, they can help you determine if you have emission units covered by avoidance limits or BACT/LAER/LACT/RACT requirements. When answering this question, please note that the emission caps in the Registration Permit are considered enforceable caps on potential to emit. These limits may eliminate your need to retain any avoidance limits in existing permits. You can use the comment section below to provide additional information on such situations. Keep in mind that some NSR Major Source construction permit (PSD or Nonattainment) avoidance limits may not be maintained using ROPA emission limits of 25 tons per year. And specifically, a limit set under s. NR 405.08, Wis. Adm. Code, cannot be modified or revoked.

Facilities that have case-by-case BACT or LAER determinations in their permits, whether for a NSR Major Source construction permit or for NR 445 requirements, do NOT qualify for registration permit coverage.

There is further explanation of this in the Registration permit application guide for Type A permits, publication number AM-539 (http://dnr.wi.gov/files/PDF/pubs/am/AM539.pdf). If questions remain about existing permits and whether they are revocable, contact the Registration Permit Coordinator at (608) 266-7718, or email DNRamROPSairpermit@wisconsin.gov.

Comments:

Section 2: Eligibility Questions (continued)

2. Is your facility an affected source under the Acid Rain Program? ○ Yes ◉ No

- If you answer NO, go on to question 3.
- If you answer YES, you are an affected facility under the Acid Rain Program and as such would not be eligible for a registration permit.

ADDITIONAL INFORMATION: *Unless your facility generates electricity by combusting fossil fuels and your capacity to generate electricity is greater than 25 megawatts, you can answer No to this question. If you are unsure whether or not your facility is an affected source for the Acid Rain Program, go to http://docs.legis.wisconsin.gov/code/admin_code/nr/400/409.pdf for more information.*

Comments:

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3. Is your facility a municipal solid waste combustor or a combustor of infectious waste? ○ Yes ◉ No

- If you answer NO, go on to question 4.
- If you answer YES, you are either a municipal solid waste combustor or an infectious waste combustor and as such you will not qualify for coverage under the registration permit.

ADDITIONAL INFORMATION*: Municipal solid waste is household waste or solid waste from commercial or industrial sources that does not contain hazardous waste and does not contain any process waste which is the direct or indirect result of the manufacturing of a product or the performance of a service such as dry cleaning or painting. "Municipal solid waste" does not include waste wood, paper mill sludge, sewage sludge, tires or industrial process wastes.*

Your facility is a municipal solid waste combustor if it is a solid waste treatment facility that is used to burn municipal solid waste or products derived from municipal solid waste, alone or in conjunction with other materials. For more information, go to the DNR Solid Waste website: http://dnr.wi.gov/topic/Waste/Solid.html

Infectious waste is solid waste that contains pathogens with sufficient virulence and in sufficient quantity that exposure of a susceptible human or animal to the solid waste could cause the human or animal to contract an infectious disease. Your facility is a combustor of infectious waste if you burn any such infectious wastes. For more information, go to our website on Managing Healthcare Waste: http://dnr.wi.gov/topic/HealthWaste

Municipal solid waste combustors and infectious waste combustors are subject to special rules and do NOT qualify for coverage under the registration permit.

Comments:

Section 2: Eligibility Questions (continued)

4. Are any emission units at your facility subject to a New Source Performance Standard (NSPS)?

- If you answer NO, go on to question 5.
- If you answer YES, list the standard you are subject to in the space below:

○ Yes ◉ No

***ADDITIONAL INFORMATION**: New Source Performance Standards (NSPS) are federal regulations that apply to certain types of equipment or industries. If equipment at your facility is subject to a standard under an NSPS, and that standard is not allowed by the registration permit, the facility is NOT eligible for coverage.*

All NSPS have an applicability date. Equipment constructed or modified after the applicability date is affected. Sources subject to only the record keeping and notification requirements of an NSPS are still eligible to apply.

For a list of most common NSPS under Subparts of 40 CFR Part 60 and s. 111 of CAA allowed by the permit, see Table 4 of the Type A Registration Permit Fact Sheet at http://dnr.wi.gov/files/PDF/pubs/am/AM364.pdf or proceed to the end of this application for a listing.

Use the comment section below to indicate if you are subject only to record keeping or notification requirements of an NSPS and any other special circumstances.

Comments:

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5. Are any emission units at your facility subject to a National Emissions Standard for Hazardous Air Pollutants (NESHAP)?

- If you answer NO, then go on to question 6.
- If you answer YES, list the standard(s) you are subject to in the space below:

○ Yes ◉ No

***ADDITIONAL INFORMATION**: National Emission Standards for Hazardous Air Pollutants (NESHAPs) are federal regulations that apply to certain types of equipment or industries that emit hazardous air pollutants. If equipment at your facility is subject to a standard under a NESHAP and that standard is not allowed by the registration permit, the facility is NOT eligible for coverage.*

Sources subject to only the recordkeeping and notification requirements of a NESHAP are still eligible to apply. Any NESHAP for an area source under Section 112(d)(5) or (r) of the Clean Air Act that does not require the source to obtain a Part 70 permit is an allowed standard in the registration permit.

For a list of most common NESHAPs under Subparts of 40 CFR Part 63 and s. 112 of CAA allowed by the permit, see Table 4 of the Type A Registration Permit Fact Sheet at http://dnr.wi.gov/files/PDF/pubs/am/AM364.pdf or proceed to the end of this application for a listing.

Use the comment section below to indicate if you are subject only to recordkeeping and notification requirements of any NESHAP, and any other special circumstances.

Comments:

Section 2: Eligibility Questions (continued)

6. Does your facility have any air pollution control devices?

- If you answer NO, then go on to question 7.
- If you answer YES, then fill out the table below for each device.

○ Yes ◉ No

b. Does the control device meet the minimum control efficiency required by the registration permit listed below?

○ Yes ○ No

Control Device	Minimum Control Efficiency (Total Enclosure Capture)			Minimum Control Efficiency (Hood Capture)			Your Control Device Efficiencies	
	PM	PM_{10} and PHAP	VOC and VHAP	PM	PM_{10} and PHAP	VOC and VHAP	Hood	Total Enclosure
Low efficiency cyclone	40 %	20 %		32 %	16 %			
Medium efficiency cyclone	60 %	40 %		48 %	32 %			
High efficiency cyclone	80 %	64 %		60 %	48 %			
Multiple cyclone w/out fly ash reinjection	80 %	60 %		64 %	48 %			
Multiple cyclone with fly ash reinjection	50 %	38 %		40 %	30 %			
Wet cyclone separator	50 %	40 %		38 %	30 %			
HEPA and other wall filters (including paint overspray filters)	95 %	95 %		76 %	76 %			
Fabric filters (e.g., baghouse, cartridge collectors)	98 %	92 %		78 %	73 %			
Spray towers	80 %	80 %	70 %	64 %	64 %	56 %		
Venturi scrubber	90 %	85 %		72 %	68 %			
Condensation scrubber (packed bed)	90 %	90 %		72 %	72 %			
Impingement plate scrubber	75 %	75 %		60 %	60 %			
Electrostatic precipitators	95 %	95 %		76 %	76 %			
Thermal oxidizers			95 %			76 %		
Catalytic oxidizers			95 %			76 %		
Condenser			70 %			56 %		
Flaring or direct combustor			98 %			78 %		
Biofiltration			80 %			64 %		
Adsorber (activated Carbon Systems carbon adsorption, solvent recovery)			85 %			68 %		

***ADDITIONAL INFORMATION**: The registration permit requires control devices to be able to meet specified minimum levels of control. If 100% of emissions produced are delivered to the control device then list your control efficiency in the total enclosure column. If emissions are only partially captured under a hood before being delivered to the control device use the hood column.*

For more information on calculating control efficiencies see the Type A Registration Permit Application Guide under the Registration Permit tab available at DNR's Air Permit options website: http://dnr.wi.gov/topic/AirPermits/Options.html or visit DNR's Small Business Environmental Assistance website: http://dnr.wi.gov/topic/smallbusiness/

Indicate the number of each control device at your facility that you will use to meet the registration permit emission cap or an applicable requirement. Use the comment section below to indicate any special circumstances like that if there are multiple control devices of the same variety or if there are varying control efficiencies.

Comments:

Section 2: Eligibility Questions (continued)

7. List your expected facility-wide actual annual calendar year emissions for each of the following pollutants in tons per year.

PM10 (particulate matter less than 10 microns)	0.02	ton/yr
Sulfur dioxide (SO2)	1.83	ton/yr
Nitrogen oxides (NOx)	0.07	ton/yr
Carbon monoxide (CO)	0.37	ton/yr
Volatile Organic Compounds (VOC)	0.07	ton/yr
Lead	0	ton/yr

***ADDITIONAL INFORMATION**: The Type A registration permit caps emissions of each of these pollutants to less than 25% of the major source threshold. Enter your expected actual annual emissions in the ton/yr column. In order to qualify for registration permit coverage, your actual calendar year emissions may not exceed 25% of the major source threshold which is equal to 25 tons per year of each of the listed pollutants except lead. Lead emissions may not exceed 0.5 tons per year. Be sure to send copies of all calculations with the application.*

If you use a control device to meet an emission cap, you must use the minimum control efficiencies listed in Question 6 of this application or in Table 3 of the Type A Registration Permits Factsheet at http://dnr.wi.gov/files/PDF/pubs/am/AM364.pdf

For additional information on calculating your facility-wide annual actual emissions, see the Type A Registration Permit Application Guide under the Registration Permit Tab available at on DNR's Air Permits website: http://dnr.wi.gov/topic/AirPermits/Options.html or visit DNR's Small Business Environmental Assistance website: http://dnr.wi.gov/topic/smallbusiness/

Use the comment section below to indicate any special circumstances.

Comments:

Based on a 3% upset condition per year where biogas has to be flared.

Section 2: Eligibility Questions (continued)

8. Does your facility emit any federally regulated hazardous air pollutants? (◉ Yes ○ No)

- If you answer NO, then go on to question 9.
- If you answer YES, list the pollutant and its annual emissions in the table or comment section below:

Federally Regulated Hazardous Air Pollutant	Annual emissions (lb/yr)
Formaldehyde	0.74

***ADDITIONAL INFORMATION**: The registration permit caps emissions of each federally regulated Hazardous Air Pollutant (HAP) to 5000 pounds per year and caps the total of all HAPs combined to 12,500 pounds per year. If you use a control device to meet an emission cap, you must use the control efficiencies listed in Table 3 of the Type A Registration Permits Factsheet at http://dnr.wi.gov/files/PDF/pubs/am/AM364.pdf. Be sure to send copies of all calculations with the application.*

For additional information on calculating your facility-wide annual actual emissions, see the Type A Registration Permit Application Guide under the Registration Permit tab available at DNR's Air Permit options website: http://dnr.wi.gov/topic/AirPermits/Options.html or visit DNR's Small Business Environmental Assistance website: http://dnr.wi.gov/topic/smallbusiness/

Use the comment section, below, to indicate any special circumstances.

Comments:

Section 2: Eligibility Questions (continued)

9. Answer the following 3 questions about stacks at your facility. Exclude stacks that vent insignificant emissions units or insignificant pollutants.

9a. Are any stacks shorter than nearby buildings? ○ Yes ◉ No

9b. Do any stacks discharge horizontally or in a downward direction? ○ Yes ◉ No

9c. Do any stacks have rain hats or other devices that obstruct air flow? ○ Yes ◉ No

If you answer YES to any of these questions, you will need to attach the results of an air quality modeling analysis to your application for coverage which shows that your facility emissions do not cause or exacerbate a violation of the ambient air quality standards. If your facility had a modeling analysis done for a previous permit review and you have not made changes to emission rates or stacks since the analysis was performed, you may attach those results.

If you do not have old modeling results or if you've made changes since the analysis, you will need to have modeling performed. You may submit your results in any format you choose or use Part 1 of the Modeling Assessment Form available at DNR's Air Permit options website under the Registration Permit tab: http://dnr.wi.gov/topic/AirPermits/Options.html or directly at http://dnr.wi.gov/files/PDF/forms/4500/4530-156A.pdf

***ADDITIONAL INFORMATION**:*
For purposes of answering this question, an insignificant emissions unit is one that has maximum controlled emissions of each criteria pollutant less than 1 ton per year. An insignificant pollutant is a criteria pollutant with a facility-wide maximum controlled emission rate less than 5 tons per year.

Stack vented emissions must be exhausted from unobstructed discharge points that are within 10 degrees of vertical. Stacks that are closed when the process is not operating, but that are open when the process is operating are considered to be unobstructed Stacks must be taller than any building that influences the dispersion of emissions from the stack. A building is considered to influence the dispersion of emissions if the stack is located within a circle around the building, the radius of which is 5 times the height of the building.

For additional help in answering these questions go to DNR's Air Permit options website under the Registration Permit tab at http://dnr.wi.gov/topic/AirPermits/Options.html for a link to the Type A Registration Permit Application Guide or visit DNR's Small Business Environmental Assistance website: http://dnr.wi.gov/topic/smallbusiness/

Comments:

Section 2: Eligibility Questions (continued)

10. What is your maximum controlled annual emission rate of particulate matter? 0.02 ton/yr

- If your answer is less than or equal to 5 tons per year, you have finished the application.
- If your answer is greater than 5 tons per year, an air quality dispersion modeling analysis must be performed for your facility.
- If you meet all the stack requirements in Question 9, you can use the modeling request form to provide information to the DNR and we will model for you, or you can submit air quality dispersion modeling results with your signed Registration Permit Application. Note, units in which maximum controlled emissions of each criteria pollutant are less than 1 ton per year are considered insignificant and do not need to be included in the modeling. Your application will not be complete until a modeling request form or modeling results are received.

***ADDITIONAL INFORMATION**: For help in answering this question, see the Registration Permit Application Guide available at DNR's Air Permit options website: http://dnr.wi.gov/topic/AirPermits/Options.html or visit DNR's Small Business Environmental Assistance website: http://dnr.wi.gov/topic/smallbusiness/*

If maximum controlled emissions of particulate matter are greater than 5 tons per year, your facility will need an air quality analysis to ensure that the ambient air quality standards can be met. If you meet all the stack requirements in Question 9, you can request DNR to perform the analysis for you by filling out and attaching the Modeling Assessment Request Form available at DNR's Air Permit options website under the Registration Permit tab at http://dnr.wi.gov/topic/AirPermits/Options.html

Just fill out, print and attach to your application for coverage. If you don't meet the stack requirements, you will have to provide the air quality analysis and attach the results to this application. You may use the Modeling Assessment Form available at DNR's Air Permit options website: http://dnr.wi.gov/topic/AirPermits/Options.html. If your facility had a modeling analysis done previously and you have not made changes to emission rates or stacks since the analysis was performed, you may attach those results in lieu of submitting or requesting or performing a new analysis.

Comments:

Signature of Responsible Official

STATEMENT OF COMPLETENESS

I have reviewed this application in its entirety and, based on information and belief formed after reasonable inquiry, I certify that the statements and information contained in this application are true, accurate and complete.

Responsible Official Printed or Typed Name	Title
Mike Koel	President, U.S. GAIN
Responsible Official Signature	Date Signed
M Koel	8/28/19

Once the application is completed, print out for the **responsible official** of the facility to sign and date. If needed or required, attach the facility description, any supporting calculations, your air quality analysis or air quality analysis request form and any other supporting documents. Keep a copy of the entire package for your files and mail the original to:

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
BUREAU OF AIR MANAGEMENT
ATTN: REGISTRATION PERMITS
101 S WEBSTER ST
PO BOX 7921
MADISON WI 53707-7921

Instructions

Section 1: Facility Information

Facility name and mailing address

Provide the full business name and address of corporation, company, association, society, firm, partnership, individual or political subdivision of the state submitting the application.

Facility location

Specify the street address; city, and county where the facility is located. Do not use the mailing address, unless it is the same as the street address. Do not use the address of another location where a management unit or other corporate center is located. Check the appropriate box to indicate whether the location is a city, town, or village.

Parent corporation

If the facility is wholly or partly owned by another entity, identify that entity. If the buildings or land are rented, then identify the entity that owns and operates the equipment in the buildings on the site.

Responsible official

The responsible official is defined in s. NR 400.02(136), Wis. Adm. Code. "Responsible official" means one of the following:

(a) For a corporation, one of the following:
1. A president, secretary, treasurer or vice-president of the corporation in charge of a principal business function.
2. Any other person who performs similar policy or decision-making functions for the corporation.
3. A duly authorized representative of a person listed in subd. 1. or 2. if the representative is responsible for the overall operation of one or more manufacturing, production or operating facilities applying for or subject to a permit and the representative is approved in advance by the Department.

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

(c) For a municipality, or a state, federal or other public agency: either a principal executive officer or ranking elected official. For the purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency, for example, a regional administrator of EPA.

(d) The designated representative.

Permit contact person

Identify an individual who can function as the facility's primary contact for the DNR to request additional information concerning the air pollution sources during the permitting process. There are no restrictions on who can be chosen as permit contact person.

Facility NAICS code description

The North American Industry Classification System (NAICS) is used to identify the industrial sector which best characterizes a facility's products, services, and manufacturing processes. The electronic application provides a drop down menu of NAICS titles to choose from. The facility's SIC may also be entered, but is not required. For more help, consult the following websites to identify which NAICS title best describes your facility: *http://www.census.gov/epcd/www/naics.html* and *http://www.naics.com/search.htm.*

Facility identification number (FID)

Provide the facility identification (FID) number that appears on the annual emissions inventory reports. If your facility has never submitted such reports and does not have an FID, then leave this blank. The DNR will assign an FID to your facility.

Describe the facility and list all air pollution sources and include description.

Include a sentence on what the facility manufacturers and what air pollution sources or process lines are at the facility. If control devices are used, list the control devices, the process lines they control and the pollutants controlled by them. If needed, attach your facility description, emission calculations and any other documents you believe relevant to your facility's qualifications for this permit.

Ex.1. The facility is an aluminum foundry. Process lines include melting using an electric arc furnace, pouring, cooling, shakeout, molding making, sand handling, grinding and finishing. The facility uses baghouses to control particulate matter from melting, sand handling, shakeout operations, and grinding and finishing operations, and an afterburner for VOC and CO control. *Ex.2.* The facility has one 3500 kW portable diesel generator that was constructed in 2008 and has no control devices. *Ex.3.* The facility is a vegetable cannery. The emission units are a 30 mmBTU/hr boiler and a 42 mmBTU/hr boiler constructed in 1966 and 1991, respectively. Both units fire natural gas with propane as a backup fuel. Emissions are uncontrolled.

Section 2: Eligibility Questions

Answer each of the 10 questions carefully. More information about each question is described in the Application Guide available at DNR's Air Permit options website *http://dnr.wi.gov/topic/AirPermits/Options.html* under the Registration Permit tab and the application checklist AM-555 may be useful. Be sure to send copies of all calculations with the application. Your application will not be complete until calculations have been received. If you have additional questions, contact **Registration Permit Program Coordinator at (608) 266-7718 or email at DNRamROPSairpermit@wisconsin.gov.**

***Insignificant Emission Units**: Insignificant emission units and general ventilation stacks are not subject to the stack requirements listed in section I.B.1 of the registration permit. The following table is a list of emission units considered insignificant for purposes of the Type A Registration Permit.*

EMISSION UNITS NOT SUBJECT TO CERTAIN REGISTRATION PERMIT REQUIREMENTS

1. Convenience space heating units with heat input capacity of less than 5 million Btu per hour that burn gaseous fuels, liquid fuels or wood.
2. Convenience water heating.
3. Maintenance of grounds, equipment and buildings, including lawn care, pest control, grinding, cutting, welding, painting, woodworking, general repairs and cleaning, but not including use of organic compounds as clean–up solvents.
4. Boiler, turbine, generator, heating and air conditioning maintenance.
5. Pollution control equipment maintenance.
6. Internal combustion engines used for warehousing and material transport, forklifts and courier vehicles, front end loaders, graders and trucks, carts and maintenance trucks.
7. Fire control equipment.
8. Janitorial activities.
9. Office activities.
10. Fuel oil storage tanks with a capacity of 10,000 gallons or less.
11. Stockpiled contaminated soils.
12. Demineralization and oxygen scavenging of water for boilers.
13. Purging of natural gas lines.
14. Any emission unit, operation, or activity that has, for each air contaminant, maximum controlled emissions that are less than the level specified in Table 3 of ch. NR 407, Wis. Adm. Code. Multiple emissions units, operations, or activities that perform identical or similar functions shall be combined for the purposes of this determination.
15. If the maximum controlled emissions of any air contaminants listed in Table 3 of ch. NR 407, Wis. Adm. Code, from all emission units, operations or activities at a facility are less than 5 times the level specified in Table 3 of ch. NR 407, Wis. Adm. Code, for those air contaminants, any emission unit operation or activity that emits only those air contaminants.

ALLOWABLE NEW SOURCE PERFORMANCE STANDARDS (NSPS)

Sources covered under this permit may not be subject to any NSPS, other than those listed below.

1. 40 CFR part 60, subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (s. NR 440.207, Wis. Adm. Code).
2. 40 CFR part 60, subpart I - Standards of Performance for Hot Mix Asphalt Facilities (s. NR 440.25, Wis. Adm. Code).
3. 40 CFR part 60, subpart K - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction or Modification Commenced After June 11, 1973 and Prior to May 19, 1978 (s. NR 440.27, Wis. Adm. Code).
4. 40 CFR part 60, subpart Ka - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction or Modification Commenced After May 18, 1978 and Prior to July 23, 1984 (s. NR 440.28, Wis. Adm. Code).
5. 40 CFR part 60, subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Storage Vessels) for Which Construction, Reconstruction or Modification Commenced After July 23, 1984 (s. NR 440.285, Wis. Adm. Code).
6. 40 CFR part 60, subpart DD - Standards of Performance for Grain Elevators (s. NR 440.47, Wis. Adm. Code).
7. 40 CFR part 60, subpart EE - Standards of Performance for Surface Coating of Metal Furniture (s. NR 440.48, Wis. Adm. Code).
8. 40 CFR part 60, subpart SS - Standards of Performance for Industrial Surface Coating: Large Appliances (s. NR 440.57, Wis. Adm. Code).
9. 40 CFR part 60, subpart JJJ - Standards of Performance for Petroleum Dry Cleaners (s. NR 440.68, Wis. Adm. Code).
10. 40 CFR part 60, subpart OOO - Standards of Performance for Nonmetallic Mineral Processors (s. NR 440.688, Wis. Adm. Code).
11. 40 CFR part 60, subpart TTT - Standards of Performance for Industrial Surface Coating of Plastic Parts for Business Machines (s. NR 440.72, Wis. Adm. Code).
12. 40 CFR part 60, subpart JJJJ - Standards of Performance for spark ignition internal combustion engines - allowed only for the owner/operator of manufacturer-certified affected engines.
13. 40 CFR part 60, subpart IIII - Standards of Performance for compression ignition internal combustion engines - allowed only for the owner/ operator of manufacturer certified affected engines that are 2007 model year or later with displacements less than 30 liters per cylinder.
14. Any New Source Performance Standard where the facility or process is only subject to recordkeeping or notification requirements of that standard.

ALLOWABLE NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP)

Sources covered under this permit may not be subject to any NESHAP other than those listed below.

1. 40 CFR part 63, subpart N - National Emission Standards for chromium emissions from hard and decorative chromium electroplating and chromium anodizing tanks - allowed only for units that are area sources or located at area sources and which are any of the following:
   - Any decorative chromium electroplating operation or chromium anodizing operation that uses fume suppressants as an emission reduction technology.
   - Any decorative chromium electroplating operation that uses a trivalent chromium bath that incorporates a wetting agent as a bath ingredient.

ALLOWABLE NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP)

Sources covered under this permit may not be subject to any NESHAP other than those listed below.

2. Any New Source Performance Standard or National Emissions Standards for Hazardous Air Pollutants where the facility or process is only subject to recordkeeping or notification requirements of that standard.
3. Any National Emission Standard for Hazardous Air Pollutants for Area Sources under Section 112(d)(5)[1] or (r) of the Clean Air Act that does not require the source to obtain a Part 70 permit. This includes:
   - 40 CFR 63, Subpart HH - Oil and Natural Gas Production
   - 40 CFR 63, Subpart ZZZZ - Reciprocating internal Combustion Engines
   - 40 CFR 63, Subpart WWWWW - Hospitals: Ethylene Oxide Sterilizers
   - 40 CFR 63, Subpart YYYYY - Electric Arc Furnace Steelmaking Facilities
   - 40 CFR 63, Subpart ZZZZZ - Iron and Steel Foundries
   - 40 CFR 63, Subpart BBBBBB (6B) - Gasoline Distribution Bulk Terminals, Bulk Plants and Pipeline Facilities
   - 40 CFR 63, Subpart CCCCCC (6C) - Gasoline Dispensing Facilities
   - 40 CFR 63, Subpart DDDDDD (6D) - Polyvinyl Chloride and Copolymers Production
   - 40 CFR 63, Subpart EEEEEE (6E) - Primary Copper Smelting
   - 40 CFR 63, Subpart FFFFFF (6F) - Secondary Copper Smelting
   - 40 CFR 63, Subpart GGGGGG (6G) - Primary Nonferrous Metals - Zinc, Cadmium and Beryllium
   - 40 CFR 63, Subpart HHHHHH (6H) - Paint Stripping and Miscellaneous Surface Coating Operations
   - 40 CFR 63, Subpart JJJJJJ (6J) - Industrial, Commercial and Institutional Boilers
   - 40 CFR 63, Subpart LLLLLL (6L) - Acrylic/Modacrylic Fiber
   - 40 CFR 63, Subpart MMMMMM (6M) - Carbon Black Production
   - 40 CFR 63, Subpart NNNNNN (6N) - Chromium Compounds
   - 40 CFR 63, Subpart OOOOOO (6-O) - Flexible Polyurethane Foam Production and Fabrication
   - 40 CFR 63, Subpart PPPPPP (6P) - Lead Acid Battery Manufacturing
   - 40 CFR 63, Subpart QQQQQQ (6Q) - Wood Preserving
   - 40 CFR 63, Subpart RRRRRR (6R) - Clay Ceramics Manufacturing
   - 40 CFR 63, Subpart TTTTTT (6T) - Secondary Nonferrous Metals Processing (Brass, Bronze, Magnesium and Zinc)
   - 40 CFR 63, Subpart WWWWWW (6W) - Plating and Polishing Operations
   - 40 CFR 63, Subpart XXXXXX (6X) - Metal Fabrication and Finishing Source Nine Categories
   - 40 CFR 63, Subpart YYYYYY (6Y) - Ferroalloys Production
   - 40 CFR 63, Subpart ZZZZZZ (6Z) - Nonferrous Foundries: Aluminum, Copper and Other
   - 40 CFR 63, Subpart BBBBBBB (7B) - Chemical Preparations Industry
   - 40 CFR 63, Subpart EEEEEEE (7E) - Gold Mine Ore Processing and Production

Before submitting the form, review the application checklist AM-555 to be sure all required elements are included. ***If you have additional questions, contact Registration Permit Program Coordinator at (608) 266-7718 or email at DNRamROPSairpermit@wisconsin.gov.***

[1] Sec. 112(d)(5) of the Clean Air Act refers to National Emissions Standards for Hazardous Air Pollutants (NESHAP) for area sources, commonly referred to as Generally Available Control Technology (GACT) standards.

Mr. Alex Torres
Statewide Registration Permit Program Coordinator
Bureau of Air Management
Wisconsin Department of Natural Resources

Dear Mr. Torres:

In response to your e-mail to Mr. Don Johnston with regards to the Registration Permit application submitted for the US GAIN RNG Facility Clover Hill facility, we are providing the following information. In reviewing your request, we noted that certain information had been incorrectly transcribed from the calculation spreadsheets, which we are correcting in this material. In addition, we have completed a separate application to replace the forms previously submitted for this project.

Calculations of CO, NOx and PM actual and maximum controlled emissions from the flare

We researched various sources to identify emission factors for combustion of biogas in flares, including emission test data collected at, and emission reports from the Madison Metropolitan Sewerage District (MMSD) with the origin of the emission factors identified as "DNR" except for the ROG factor which is identified as "OTHR", from AP-42 including the final version published in 1998 and the draft updates published in 2008, and the San Diego Air Pollution Control District (SDAPCD. It is our opinion that the information supplied with the permit application is as accurate, of the theoretical maximum emission rates as any of the sources. The AP-42 published factors that you had suggested, in fact, result in calculated emission rates lower than what we presented for both nitrogen oxides (NOx) and particulate matter (PM). For carbon monoxide, the emission factor in the 1998 version of AP-42 is somewhat more than double the factor we used, when adjusted for the biogas methane content of nominally 60 percent. However, in the 2008 draft revision, the corresponding factor is nearly an order of magnitude lower than the factor we used, which was based on information obtained from the MMSD emission reports.

Following are factors we identified in our search:

Table 1. Identified Emission Factors for Combustion of Raw Biogas in a Flare

Raw Biogas				
Flare Factors	MMSD (lb/MMCF fuel)	SDAPCD (lb/MMCF fuel)	AP-42 Final 1998 (lb/MMCF methane)	AP-42 Draft 2008 (lb/MMCF methane)
CO	204	1.8	750	46
NOx	37.5	48	40	39
ROG	39.37	12.1	-	-
PM	-	12	17	15
Formaldehyde	0	0.2042	-	-

Regardless of the factors used, calculated emission rates are substantially lower than the requirements in the Registration Permit. Furthermore, the flare is not used as an emission control device for regulate air pollutants, rather it generates the emissions by combustion of the methane in the raw biogas.

Note, the flare is used only when biogas is bypassed from the process used to produce the Renewable Natural Gas (RNG). The flare is not used routinely and was included in the emission calculations for completeness, to address the potential for emission during periods of startup, shutdown, and malfunctions.

The design basis for the process that will produce the RNG is 230 scfm of raw biogas. Under a startup, shutdown, or malfunction condition, the raw biogas may be directed to the flare. We have projected that these conditions may occur no more than 3 percent of potential operating hours, or 263 hours per year. On this basis, the following is our estimate of emission rates:

Table 2. Expected Emission Rates from the Flare			
Raw Biogas:	6000	ppm H_2S	
Flow	230	scfm	
Flare Factors			
CO		204	lb/MMCF
FORMALDEHYDE		0.2042	lb/MMCF
NOx		37.5	lb/MMCF
ROG		39.37	lb/MMCF
SO_2		1010.53	lb/MMCF
PM		12	lb/MMCF
Flare condition:	263	hours/year	
		lb/hr	TPY
CO		2.82	0.37
FORMALDEHYDE		0.0028	0.0004
NOx		0.52	0.07
ROG		0.54	0.07
SO_2		13.95	1.83
H_2S		0.15	0.02
PM		0.17	0.02

Note, it appears that U.S. Gain incorrectly transcribed certain emission rates onto the permit application form.

If instead, we rely upon the factors per your suggestion, we calculate the following emission rates:

Table 3. WDNR Requested Emission Factors for the Flare						
					lb/hr	TPY
NOx	40	lb/MMCF CH4	24	lb/MMCF	0.33	0.04
CO	750	lb/MMCF CH4	450	lb/MMCF	6.21	0.82
PM	17	lb/MMCF CH4	10.2	lb/MMCF	0.14	0.02

USEPA has assigned “A” ratings to the emission factors in the 2008 DRAFT, but only “C” and “D” ratings to the factors in the 1998 final version of AP-42. Using the draft emission factors with “A” ratings yields the following emission rates, adjusting the factors for the methane content of the biogas:

Table 4. Other Flare Emission Factors for Raw Biogas Combustion (AP-42 2008, Draft Revision)

					lb/hr	TPY
NOx	39	lb/MMCF CH4	23.4	lb/MMCF	0.32	0.04
CO	46	lb/MMCF CH4	27.6	lb/MMCF	0.38	0.05
PM	15	lb/MMCF CH4	9.0	lb/MMCF	0.12	0.02

We note that for flares combusting similar farm generated biogas, the WDNR has accepted these lower emission factors.[1] Regardless of the factors used, the projected actual annual emission rates are substantially less than the emission rates required under the Registration Permit.

Scenario used for the calculation of the estimated emissions reported in the application (Questions 7, 8, and 10).

Question 7: The scenario is 263 hours of process bypass (startup, shutdown and malfunction, etc.) to the flare at the process design rate of 230 scfm of raw biogas, at a maximum sulfur content equivalent to 6,000 ppmv of hydrogen sulfide (H_2S). As stated in the original application, this represents 3 percent of annual hours (0.03 x 8,760 hours per year, rounded up to 263). We note that in transcribing figures from the spreadsheet to the form, there were several transcription errors. The correct figures are as follows:

Table 5. Expected Facility-wide Annual Emission Rates	
	TPY
CO	0.37
NOx	0.07
ROG	0.07
SO_2	1.83
PM_{10}	0.02

Question 8: The emission rate for formaldehyde was transcribed from the wrong column of the calculation spreadsheet. The figure of 0.0028 was the hourly rate. The annual rate is 0.74 pounds per year. As with Question 8, the scenario is 263 operating hours of venting to the flare for startup, shutdown, malfunctions, etc. at the design flow rate of 230 scfm of raw biogas.

Question 10: The figure of 0.27 tons of PM per year is inclusive of the boiler emissions assuming the boiler is 7.5 MMBtu/hr capacity and operated at capacity for 8,760 hours per year, with 263 hours of biogas venting to the flare. Excluding the boiler, the emissions from the facility (the flare only) is calculated to be 0.02 tons per year.

Maximum design flow rate and height of the flare

[1] WDNR; December 15, 2017; ANALYSIS AND PRELIMINARY DETERMINATION FOR THE PROPOSED CONSTRUCTION PERMIT FOR THE MODIFICATION OF PROCESSES P01, P02, P03, P10 AND ANALYSIS AND PRELIMINARY DETERMINATION FOR THE OPERATION OF A DIGESTER, INTERNAL COMBUSTION ENGINES, AND FLARE FOR GL DAIRY BIOGAS LLC, LOCATED AT SCHNEIDER ROAD, SPRINGFIELD, DANE COUNTY, WISCONSIN

The height of the flare is 15 feet above ground surface. The estimated flow rate is approximately 7,500 acfm or greater dependent on temperature of the flue gas (approximately 2,719 scfm). This flow rate was calculated based on the anticipated characteristics of the raw biogas, and chemistry of combustion as shown in Table 6.

Table 6. Estimation of Flare Exhaust Volume Flow Rate

Flare inlet:				Flue Products cf flue gas/cf	Flue Gas (scfm) @ Zero Excess Air	
CH_4		138	scfm	9.53	1,315.14	
CO		0.23	scfm	2.88	0.66	
H_2S		1.38	scfm	7.65	10.56	
CO_2		87.4	scfm	1	87.40	
N_2		2.99	scfm	1	2.99	
SO_2					1.40	
					1,418.15	
		Flue Gas:	10	% O_2	2,719.20	scfm
			1,000	F	7,519.0	acfm

Note, because sulfur dioxide is created by the combustion process, it has been included in the estimated flow rate (approximately 1.4 scfm)

Flue Products from Table 9-18 Combustion Constants (Chemical Engineers Handbook. Perry & Chilton; 5th Edition), inclusive of CO_2, H_2O and N_2.

U.S Gain RNG and Clover Hill Dairy are Separate Sources

With respect to operation of the boiler at the farm, U.S. GAIN will not own, operate or control the emission source or the biodigester process. The Clover Hill Dairy and U.S. Gain (and its parent U.S.

Venture) are independent of one another, with no common control of the separate facilities, and with no person under common control. While the U.S. Gain RNG facility will be located adjacent to the Clover Hill Dairy, and will purchase biogas generated in the bio-digester that is owned, operated and controlled by the Clover Hill Dairy, U.S. Gain has no control over how that biogas is generated and does not control the operation of the bio-digester or the associated boiler that Clover Hill Dairy operates. For this reason, it is our opinion that the farm and the RNG facility are separate facilities, consistent with the guidance from USEPA to the Department for the similar situation between the Janesville City/Rock County Landfill and Ameresco which operates a co-located power generating facility.[2] Furthermore, the SIC Code for the dairy farm and its associated operations is 0241. The SIC Code for the RNG facility is 4925.

Plot plan with the proposed location of the flare and property lines

Attached.

[2] USEPA Office of Air Quality Planning and Standards, October 16, 2018 to Ms. Gail Good, Director, Bureau of Air Management, WDNR.

Air Pollution Control Permit Number: ROP-A03
Air Pollution Control Permit Number RCP-A03

AIR POLLUTION CONTROL
TYPE A
REGISTRATION OPERATION PERMIT (ROP)

In compliance with the provisions of Chapter 285, Wis. Stats., and Chapters NR 400 to NR 499, Wis. Adm. Code, the permittee granted coverage under this permit is authorized to operate a direct stationary source in conformity with the conditions herein.

AND TYPE A REGISTRATION CONSTRUCTION PERMIT (RCP)

AUTHORIZATION TO MODIFY A SOURCE UNDER THIS PERMIT EXPIRES WHEN THE REGISTRATION OPERATION PERMIT IS ISSUED FOR THE EMISSION UNITS INCLUDED IN THIS PERMIT. NOTWITHSTANDING THE FACT THAT AUTHORIZATION TO MODIFY A SOURCE EXPIRES, ALL CONDITIONS IN THIS CONSTRUCTION PERMIT ARE PERMANENT UNLESS THEY ARE REVISED THROUGH REVISION OF THE REGISTRATION CONSTRUCTION PERMIT OR THROUGH ISSUANCE OF A NEW CONSTRUCTION PERMIT.

In compliance with the provisions of Chapter 285, Wis. Stats., and Chapters NR 400 to NR 499, Wis. Adm. Code, the owner or operator granted coverage under this permit is authorized to modify and to initially operate a stationary source in conformity with the conditions herein

This authorization requires compliance by the permit holder with the emission limitations, monitoring requirements and other terms and conditions set forth in this permit.

Dated at Madison, Wisconsin, 04-16-2009

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By /s/
Andrew M. Stewart
Chief, Permits and Stationary Source Modeling Section

Registration Permit Contents, Glossary of Terms, and Other Useful Information

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Glossary of Terms Used in This Permit and Other Useful Information

Annual maximum controlled emissions of particulate matter - For the purposes of this permit, the annual maximum controlled emissions of particulate matter are the maximum hourly emissions of particulate matter calculated using the control efficiencies listed in this permit, if control equipment is used, multiplied by 8760 hours per year for all emissions sources (except emission units listed in Attachment 2 of this permit) emitting particulate matter at the facility. If the emission unit's physical design makes it impossible to operate 8760 hours per year, the annual maximum controlled emissions may be calculated taking time restrictions into account.

Facility-wide annual actual emissions – For the purposes of this permit, facility-wide annual actual emissions are the total emissions generated by all emission sources (except emission units listed in Attachment 2 of this permit) at the facility over the calendar year taking into account any reductions made by a control device or technique. When considering reductions made by a control device, only the control devices and control device efficiencies listed in this permit may be used.

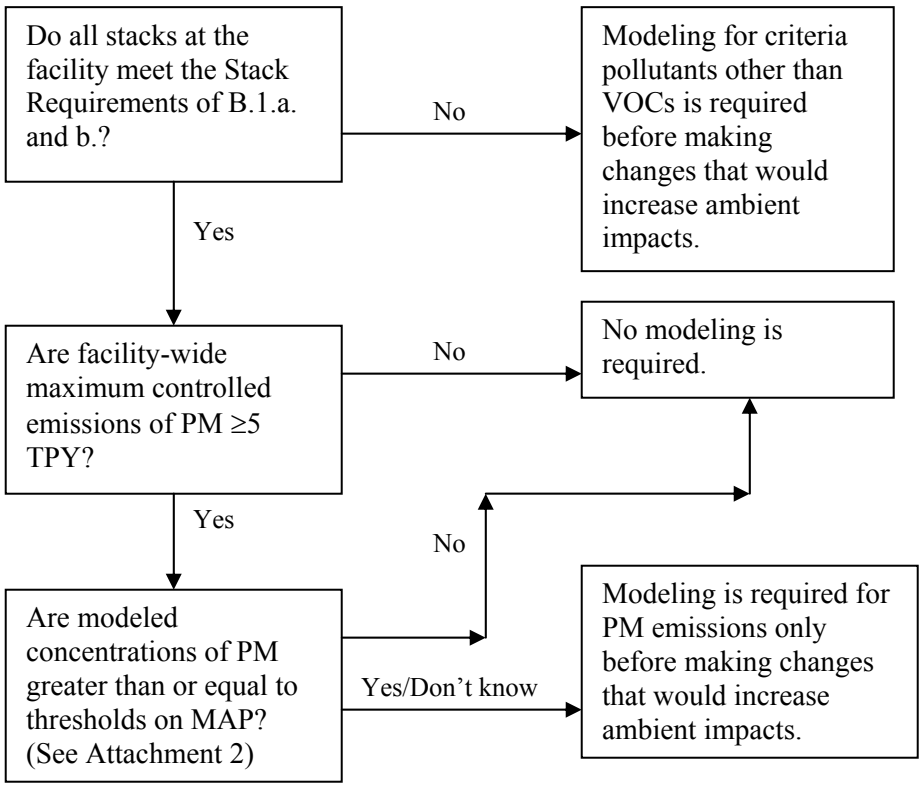
Hazardous air pollutants or contaminants are those regulated by s. 112(b) of the Clean Air Act and ch. NR 445, Wis. Adm. Code. Hazardous air contaminants regulated by the Clean Air Act are listed in Attachment 1 of this permit.

Photochemically Reactive Organic Compounds are defined in s. NR 419.02(14), Wis. Adm. Code, as any of the following: Group A: Hydrocarbons, alcohols, aldehydes, esters, ethers or ketones, which have olefinic or cyclo-olefinic type unsaturation. Group B: Aromatic compounds with 8 or more carbon atoms to the molecule, except ethylbenzene. Group C: Ethylbenzene, toluene or ketones having branched hydrocarbon structures. Group D: A solvent or mixture of organic compounds in which any of the following conditions are met: 1. More than 20% of the total volume is composed of any combination of compounds listed in group A, B, or C above. 2. More than 5% of the total volume is composed of any combination of the compounds listed in group A above. 3. More than 8% of the total volume is composed of any combination of the compounds listed in group B above.

Portable source is a facility, installation, operation or equipment that emits air pollution only while at a fixed location but is capable of being transported to a different location. A portable source is a type of direct stationary source. Examples include asphalt plants. An automobile is NOT a portable source.

Volatile Organic Compounds or VOC is defined in s. NR 400.02(162),, Wis. Adm. Code, and means any organic compound which participates in atmospheric photochemical reactions. This includes any such organic compound other than those listed in s. NR 400.02(162), Wis. Adm. Code.

Flow Chart for Determining Whether Modeling is Required under Section B.3 and 4. of the ROP



Abbreviations

BACT – Best Available Control Technology
HAP – Hazardous Air Pollutant or Contaminant
GACT – Generally Available Control Technology
LACT – Latest Available Control Technique and Operating Practices Demonstrating Best Current Technology
LAER – Lowest Achievable Emission Rate
MACT – Maximum Achievable Control Technology
MSDS – Material Safety Data Sheet
NESHAP - National Emission Standard for Hazardous Air Pollutants
NSPS – New Source Performance Standard
PHAP – Hazardous Air Pollutant emitted as a particle
PM – Particulate Matter
PM10 – Particulate Matter less than 10 microns in diameter
ROP – Registration Operation Permit
RCP – Registration Construction Permit
VHAP – Hazardous Air Pollutant emitted as a vapor
VOC – Volatile Organic Compounds
Wis. Adm. Code – Wisconsin Administrative Code
Wis. Stats. – Wisconsin Statutes

A. EMISSION LIMITATIONS

All facilities covered by this permit must meet the following emission limitations in A.1. and A.2.:

1. Facility-Wide Annual Actual Emission Limits:

The annual actual emissions of particulate matter, volatile organic compounds, nitrogen oxides, sulfur dioxide, carbon monoxide, and federally regulated hazardous air pollutants listed in s. 112(b) of the Clean Air Act, emitted from the facility may not exceed 25% of any major source threshold set forth in s. NR 407.02(4), Wis. Adm. Code, on a calendar year basis. Annual actual emissions of lead from the facility may not exceed 0.5 tons per year on a calendar year basis. See the note and Table 1 below for the annual actual emission limits in tons per year calculated based on 25% of the major source thresholds. [s. 285.65(7) and (14), Wis. Stats., and s. NR 407.105(2)(a)1., Wis. Adm. Code]

Note: Major source thresholds vary according to the attainment status of the area in which the facility is located. Therefore, if there is a change in the attainment status of the area where the facility is located for any pollutant, then the annual actual facility-wide emission limits will also change to 25% of the new major source threshold for that pollutant. Table 1 is for informational purposes only. The ton per year numbers will change if there is a change in the definition of major source or if new nonattainment areas are created or if the attainment designations change. These thresholds were current as of April 10, 2009.

Table 1 Emission Limits in Tons Per Year

Pollutant	Emission Limits
Particulate Matter Emissions	• 25 ton/year for particulate matter attainment areas • 17.5 ton/year for serious PM_{10} nonattainment areas
Volatile Organic Compounds (VOCs)	• 25 ton/year for ozone attainment and basic, marginal or moderate ozone nonattainment areas • 12.5 ton/year for serious ozone nonattainment or areas within ozone transport regions except for any severe or extreme nonattainment area for ozone • 6.25 ton/year for severe ozone nonattainment areas
Nitrogen Oxides	• 25 ton/year for ozone attainment and basic, marginal or moderate ozone nonattainment areas • 12.5 ton/year for serious ozone nonattainment or areas within ozone transport regions except for any severe or extreme nonattainment area for ozone • 6.25 ton/year for severe ozone nonattainment areas
Sulfur Dioxide	• 25 ton/year •
Carbon Monoxide	• 25 ton/year for attainment and moderate carbon monoxide nonattainment areas
Lead	• 0.5 tons/year
Section 112(b) Hazardous Air Pollutants (HAPs)	• 2.5 ton/year for any *single* pollutant • 6.25 ton/year for a *combination* of all pollutants

A. EMISSION LIMITATIONS

2. Other Applicable Requirements:

The owner or operator shall comply with all applicable air pollution control requirements in ch. 285, Wis. Stats., and chs. NR 400 to NR 499, Wis. Adm. Code, and all applicable federal air pollution control requirements in the Clean Air Act (42 USC 7401 to 7671q) and 40 CFR parts 50 to 97. [s. 285.65(3) and (13),Wis. Stats.]

Facilities that emit organic compounds *may* need to meet the following requirements.

3. Organic Compound Limitations for Process Lines:

For any process line that emits organic compounds, and which is not exempt under s. NR 424.03(1), Wis. Adm. Code, the owner or operator shall meet the requirements of s. NR 424.03(2) or (3), Wis. Adm. Code, by doing one of the following:

a. Apply 85% control as applicable in (1) or (2) below:

(1) For a process line constructed or last modified before August 1, 1979, control photochemically reactive organic compound emissions from the process line by at least 85%.

(2) For a process line constructed or last modified on or after August 1, 1979, control volatile organic compound emissions from the process line by at least 85%.

b. In lieu of A.3.a. above, apply latest available control techniques and operating practices demonstrating best current technology (LACT) for the process line as described in A.4 through 6. of this permit. The LACT as described in this permit shall be followed at all times the process line is operating[1]**.**

c. If a surface coating or printing process line meets the specific applicability[2] requirements in any section from ss. NR 422.05 to 422.155, Wis. Adm. Code, but is not subject to that section based on an exemption in s. NR 422.03, Wis. Adm. Code, the owner or operator may elect to meet the emission limitations in ss. NR 422.05 to 422.155 for the process line instead of meeting a. or b., above after submitting a written request to the Department and receiving approval from the Department to do so. [ss. NR 407.105(1)(c) and NR 424.03(2) and (3), Wis. Adm. Code.]

Requirements A. 4. through A.6. apply to each process line for which the owner or operator elected to apply LACT under condition A.3.b

4. Emission Limitation for all process lines, other than hot mix asphalt plants electing LACT:

a. The owner or operator shall limit emissions of photochemically reactive organic compounds to less than 10 tons per calendar year for each process line on which construction or modification last commenced prior to August 1, 1979; and

b. The owner or operator shall limit emissions of volatile organic compounds to less than 10 tons per calendar year for each process line on which construction or modification commenced on or after August 1, 1979. [ss. NR 407.105(1)(c), Wis. Adm. Code, and 285.65(7), Wis. Stats.]

c. By March 1 of each year, the owner or operator shall calculate the amount of photochemically reactive organic compounds or volatile organic compounds as appropriate, emitted by each process line subject to LACT, for the previous calendar year. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code.]

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[1] These limits are necessary to ensure that 85% control is technologically infeasible allowing the option to comply with LACT. These emission caps apply only to the process line and do not excuse the facility from having to meet the facility-wide VOC limits in condition A.1.

[2] Geographic location or emission rates are not considered in determining if a process line meets the specific applicability requirements. The intention is to allow facilities that are in the same industrial group as those for which the section was written to use the conditions in that section.

A. EMISSION LIMITATIONS

5. Coating Process Line LACT:

a. In addition to complying with A.4., LACT for a coating process line has been determined to be use of high transfer application techniques including: electrostatic spray, dip coating or low pressure spray methods such as high volume low pressure (HVLP).[ss. NR 407.105(1)(c) and NR 424.03(2)(c), Wis. Adm. Code.]

b. The owner or operator of a coating process line subject to 5.a. above shall keep on site~~,~~ plans, technical drawings or manufacturer's specifications of the coating operation that are adequate to show the coating technique that is used. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code.]

6. Department Approved LACT for Hot-Mix Asphalt Plants:

a. Each year, within 30 days of the onset of hot mix production, and after that point, once within 20,000 tons of every additional 100,000 tons of hot mix production, a burner check shall be performed to determine the optimum levels[3] of the following parameters:

(1) Carbon monoxide (CO) and oxygen (O_2) levels in the drum, using a portable combustion analyzer, corresponding to burner operation in the most efficient manner, where the test port is located in the drum between the burner and the hot mix asphalt line, at the knock-out box, or in the duct-work after the drum;

(2) Draft pressure levels at the front of the drum to assure the most efficient burner operation, measured by means of a pressure gauge (i.e., photohelic gauge) or other type of controller that controls a variable damper located in front of or behind the induced draft fan;

(3) The following liquid fuel viscosity and gaseous fuel pressure and fuel feed conditions:

(i) Liquid fuel temperature for each liquid fuel;

(ii) Pump pressure for each liquid fuel; and

(iii) Gaseous fuel pressure.

b. The hot mix asphalt plant shall undergo a minimum of one burner check annually unless a written waiver is obtained from the Department.

c. The owner or operator shall perform weekly inspections to ensure that the plant drum has tightly sealing drum end seals and duct work which keep air in-leakage to a minimum.

d. The owner or operator shall maintain records of the optimum levels of the parameters in Condition A.6.a., of this permit.

e. The owner or operator shall maintain records of the burner checks and weekly inspections required under Conditions A.6.b. and A.6.c., of this permit. These records shall include the date of each action.

[ss. NR 407.105(1)(c) and NR 424.03(2)(c), Wis. Adm. Code.]

[3] The levels determined in this condition must follow the requirements as described in s. NR 439.055(3), Wis. Adm. Code. In this context, the optimum levels and most efficient burner operation is intended to provide a combustion environment which reduces or minimizes the emissions of organic compounds (i.e. products of incomplete combustion). Carbon monoxide (CO) and oxygen (O_2) measurements provided a surrogate for the emissions of organic compounds. Reductions of the CO concentration without excessive oxygen dilution (minimum CO emissions) usually corresponds to efficient fuel utilization and a reduction in the emissions of organic compounds.

B. STACK AND MODELING REQUIREMENTS

1. Stack Requirements for stacks emitting particulate matter sulfur dioxide, nitrogen oxides, carbon monoxide, and lead:[4]:

Except as provided in B.2., the following requirements apply to all stacks at the facility except those stacks serving emissions units listed in Attachment 1, and stacks serving exclusively as general building ventilation:

a. Stack vented emissions from a facility covered by this permit shall be exhausted from unobstructed discharge points that are within 10 degrees of vertical. [s. NR 407.105(2)(a)2, Wis. Adm. Code.]

b. Stacks at a facility covered by this permit shall be taller than any building that influences the dispersion of emissions from the stack. A building is considered to influence the dispersion of emissions from a stack if it is located within a circle around the building, the radius of which is 5 times the height of the building. [s. NR 407.105(2)(a)3, Wis. Adm. Code.]

2. Alternative to Stack Requirements:

In lieu of meeting the requirements of B.1. the owner or operator may instead demonstrate through air dispersion modeling that emissions from all of the facility's stacks, except those stacks serving emissions units listed in Attachment 1, and stacks serving exclusively as general building ventilation, do not and will not cause or exacerbate a violation of an air quality standard for the following air contaminants emitted by the facility: particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide and lead. [s. NR 407.105(2)(a)4, Wis. Adm. Code.]

The modeling requirements in B. 3. and B.4. only apply when making changes at your facility after your facility is covered under this ROP.

3. Modeling requirements for changes at facilities that meet the stack requirements in B.1.:

a. Except as provided in B.3.b., the owner or operator shall demonstrate through an air dispersion modeling analysis that the facility's emissions will not cause or exacerbate a violation of the particulate matter standard prior to making any of the following changes at the facility:

(1) Adding a new stack or emissions unit that will emit particulate matter.

(2) Making physical changes to an existing stack that would allow for an increase in the ambient impact of particulate matter.

(3) Making operational changes that would increase the maximum controlled emission rate of particulate matter.

b. Modeling is not required prior to making a change under B.3.a., if either of the following conditions are met:

(1) The facility-wide maximum controlled emissions of particulate matter will be less than 5 tons per year.

(2) Previous modeling showed ambient air concentrations of particulate matter at levels that were lower than the modeling thresholds in Attachment 2.

[4] The stack and modeling requirements for hazardous air contaminants are contained in ch. NR 445, Wis. Adm. Code. All facilities covered by this permit must meet the applicable requirements of ch. NR 445, Wis. Adm. Code, in addition to the requirements of this section.

B. STACK AND MODELING REQUIREMENTS

Notes:

- The modeling thresholds on the map in Attachment 2 may be updated in the future. Updates to the modeling threshold map will be posted at http://dnr.wi.gov/air/permits/streamlining/regpermits.html
- Stacks venting emission units listed in Attachment 1 and stacks that serve exclusively as general building ventilation need not be included in any required modeling analyses.

4. Modeling requirements for changes at facilities that conducted air dispersion modeling, as required in B.2.:

a. Prior to making a change described under B.4.b., the owner or operator shall demonstrate through an air dispersion modeling analysis that the facility's emissions will not cause or exacerbate a violation of an ambient air quality standard for the following pollutants: particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and lead.

b. Modeling is required prior to making any of the following changes at the facility:

(1) Adding a new stack or emissions unit that will emit one of the listed pollutants.

(2) Making physical changes to an existing stack that would allow for an increase in the ambient impact of one of the listed pollutants.

(3) Making operational changes that would increase the maximum controlled emission rate of one of the listed pollutants.

Note: Stacks venting emission units listed in Attachment 1 and stacks that serve exclusively as general building ventilation need not be included in any required modeling analyses.

C. PROHIBITIONS

Changes at your facility that result in any of the following will make your facility ineligible to remain covered under this Registration Permit. You will need to apply for and receive a different type of permit *before* doing any of the following activities.

1. The owner or operator may not add or change emission units or operations so that the facility would be considered an affected source under ch. NR 409, Wis. Adm. Code, a municipal solid waste combustion source under s. NR 500.03(86), Wis. Adm. Code or an infectious waste combustion source.[s. NR 407.105(3)(a), Wis. Adm. Code.]

2. The owner or operator may not add or change emission units, operations, or stacks so that they cause or exacerbate a violation of an ambient air quality standard, demonstrated as required in condition B.3 and B.4. [s. NR 407.105(3)(c), Wis. Adm. Code.]

3. Except as allowed in section H. of this permit, the owner or operator may not add or change emission units or operations so that the emission unit or facility would become subject to a standard or regulation under s. 111 of the Act (New Source Performance Standards) or to a MACT standard under s. 112 of the Act.[5] [s. NR 407.105(3)(d), Wis. Adm. Code.]

4. The owner or operator may not add or change emission units or operations so that the emissions of HAPs regulated under ch. NR 445, Wis. Adm. Code, require a case-by-case BACT or LAER determination. [s. NR 407.105(4)(b), Wis. Adm. Code.]

[5]Standards under s. 112 that require control to a level considered Generally Available Control Technology (GACT) are allowed under the permit. See Section H.

D. COMPLIANCE DEMONSTRATION REQUIREMENTS

All facilities need to meet the compliance demonstration requirement in D.1. and D.2.

1. Facility-wide Annual Actual Emission Calculations:

By March 1st of each year, the owner or operator shall calculate the facility-wide annual actual emissions of particulate matter, volatile organic compounds, sulfur dioxide, nitrogen oxides, carbon monoxide, lead, each federally regulated hazardous air pollutant, and all federally regulated hazardous air pollutants combined, emitted by the facility in the previous calendar year. Emissions shall be calculated as follows:

a. All emissions from the facility shall be included in the calculation except emissions from emissions units listed in Attachment 1.

b. If the facility uses a control device to reduce emissions, the control efficiencies listed in Section G of this permit shall be used to calculate annual actual emissions. Only control devices listed in this permit or specifically required in an applicable air pollution requirement may be considered in calculating the facility-wide annual actual emissions. Where the control efficiencies listed in the permit and the specific control efficiencies required in an applicable requirement differ, the higher control efficiency may be used to calculate annual actual emissions.

c. Work practices and pollution prevention techniques that reduce emissions are not considered control devices for the purposes of this permit. These practices and techniques may be considered when calculating the facility-wide annual actual emissions as long as such reductions are quantifiable[6].

d. Facility-wide annual actual emissions shall be calculated using the actual operating schedule, actual amounts of raw materials used or products produced, or actual amounts of fuels burned during the calendar year. [s. NR 407.105(1)(c), Wis. Adm. Code.]

2. Other Applicable Requirements:

The owner or operator shall ensure that appropriate methods for demonstrating compliance are in place and followed for all other requirements applicable to this facility in ch. 285, Wis. Stats., and chs. NR 400 to NR 499, Wis. Adm. Code, and all applicable federal air pollution requirements in the Clean Air Act (42 USC 7401 to 7671q) and 40 CFR parts 50 to 97. [s. NR 407.105(1)(c), Wis. Adm. Code.]

Facilities that need to use a control device to meet any applicable emission limit must meet the following compliance demonstration requirements

3. If the owner or operator must use a control device to meet the facility-wide annual actual emissions limit in A.1., or any other applicable emission limitation in ch. 285, Wis. Stats., and chs. NR 400-499, Wis. Adm. Code, or any other applicable federal air pollution requirement in the Clean Air Act (42 USC 7401 to 7671q and 40 CFR parts 50 to 97), then the following requirements shall be met:

a. The control device shall be listed in Section G of this permit or otherwise specifically required by an applicable air pollution requirement.

b. The control device shall meet, at a minimum, the control efficiency listed in Section G for the device or the specific control efficiency required in the applicable air pollution requirement, whichever is higher.

c. The control device shall be used at all times the emission unit is operating except as allowed by the applicable emission limitation. [s. NR 407.105(1)(c), Wis. Adm. Code.]

[6] Work practices that reduce emissions include techniques such as applying water to dust piles or road ways, the practice of keeping containers of organic compounds or used rags covered and other pollution prevention techniques.

E. RECORDKEEPING AND MONITORING REQUIREMENTS

All facilities must follow the requirements in E.1. through E.3.

1. Records to Calculate Annual Actual Emissions:

The owner or operator shall maintain records sufficient to calculate facility-wide annual actual emissions for the previous calendar year as required in Condition D.1. [ss. NR 407.105(1)(c) and 439.04(1)(d), Wis. Adm. Code.]

2. Recordkeeping and Monitoring Requirements for all Other Applicable Requirements:

The owner or operator shall conduct monitoring and maintain records sufficient to demonstrate compliance with other applicable requirements in ch. 285, Wis. Stats., and chs. NR 400 to NR 499, Wis. Adm. Code, and applicable federal air pollution requirements in the Clean Air Act (42 USC 7401 to 7671q) and 40 CFR parts 50 to 97. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code.]

3. Records of Stack Parameters:

The owner or operator of a facility shall keep and maintain on site technical drawings, blueprints or equivalent records that describe or illustrate the physical stack parameters of each stack. Stacks that only vent emissions from emissions units listed in Attachment 1, and stacks serving exclusively as general building ventilation, do not need to meet this requirement. [s. 285.65(3), Wis. Stats.]

4. Modeling Records:

If the owner or operator demonstrated eligibility for this permit through an air quality modeling analysis or if the owner or operator subsequently performed an air quality modeling analysis as required under B.3 or B.4. of this permit, the owner or operator shall maintain on site records of the following:

a. Modeling input files used in the modeling analyses and the output files sufficient to show the results of all required modeling analyses. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code.]

b. If required to model under Section B.3. or 4. of this permit, the owner or operator shall also maintain records describing the change that was made and the start date of the construction or modification. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code.]

5. Records Retention:

The owner or operator shall keep on site all records required by this permit for at least five years, unless a longer time period is required under any other condition of this permit or by statute or rule. [ss. NR 407.105(1)(c), NR 439.04(1)(d), and NR 439.04(2), Wis. Adm. Code.]

The monitoring and recordkeeping requirements below apply to facilities that must use a control device in order to meet any limit in this permit.

6. Air Pollution Control Device Monitoring:

If a source at the facility is equipped with an air pollution control device, the owner or operator shall monitor the operation of the control device to ensure that it is operating properly. The parameters to be monitored are contained in E.8. of this permit. If a control device is not listed in E.8. of this permit, the owner or operator shall monitor the device as recommended by the control device manufacturer or based on good engineering practice. [ss. 285.65(3), Wis. Stats and NR 406.17(1)(c) and NR 439.055, Wis. Adm. Code]

E. RECORDKEEPING AND MONITORING REQUIREMENTS

7. Air Pollution Control Device Operational Parameter Ranges:

The owner or operator shall maintain a list of the proper control device parameter ranges for each control device at the facility. These ranges shall be based on the control device manufacturer's recommendations or good engineering practice as established by operational history. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code.]

8. Air Pollution Control Device Monitoring Records:

For each control device used to meet any applicable emission limit, the owner or operator shall monitor and record the appropriate control device parameters at the frequency specified in s. NR 439.055(2), Wis. Adm. Code. If the facility operates a type of control device that is not listed below, then the owner or operator shall keep records of control device parameters which demonstrate the proper operation of the device per the manufacturer's specifications. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code.]

Table 2. Control Device Parameters

If you operate this control device:	You must monitor this parameter:
Centrifugal Collector (cyclone)	Pressure drop
Multiple cyclone w/out flyash reinjection	Pressure drop
Multiple cyclone with flyash reinjection	Pressure drop
Wet cyclone separator	Pressure drop and water flow rate
Wall filters (including paint overspray filters and rotary drum filters)	Pressure drop **OR** Condition of filter including alignment, saturation and tears/holes
Fabric filters and HEPA filters (e.g., baghouse, cartridge collectors)	Pressure drop
Spray towers	Pressure drop and water flow rate
Venturi scrubber	Pressure drop and scrubber liquor flow rate
Condensation scrubber (packed bed)	Pressure drop and scrubber liquor flow rate
Impingement plate scrubber	Pressure drop and scrubber liquor flow rate
Electrostatic precipitators	Primary and secondary voltage, in volts; primary and secondary current, in amps; and sparking rate, in sparks per minute
Thermal oxidizers	Temperature in the combustion chamber
Catalytic oxidizers	Temperature in the inlet to the catalytic bed; and Catalyst bed reactivity
Condenser	Condenser outlet gas temperature
Flaring or direct combustor	Temperature indicating presence of flame
Biofilter	Bed temperature, moisture content
Carbon Adsorption	Pressure drop, VOC concentration at outlet

F. REPORTING AND NOTIFICATION REQUIREMENTS

All facilities covered by this permit must meet the reporting and notification requirements in F.1 and F.2.

1. Annual Summary of Monitoring, and Certification of Compliance

By **March 1** of each year after the first full year of coverage, the owner or operator shall submit an annual summary of monitoring, and a compliance certification to the Wisconsin Department of Natural Resources, Bureau of Air Management, Compliance and Enforcement Section, 101 S. Webster St, PO Box 7921, Madison, WI 53707.

a. The report submission under this condition shall meet the requirements of s. NR 439.03(1)(b) and (c), Wis. Adm. Code.:

b. The report shall be certified by a responsible official as to the truth, accuracy and completeness of the report.

c. The time period to be addressed by the report is the January 1 to December 31 period that precedes the report. [ss. NR 407.105(1)(c), and NR 439.03(1)(b) and (c), Wis. Adm. Code.]

2. Air Emission Inventory Report:

By March 1 of each year, the owner or operator shall submit an air emission inventory report of annual, actual emissions or throughput information in accordance with ch. NR 438, Wis. Adm. Code. If facility emissions are below the reporting thresholds in ch. NR 438, Wis. Adm. Code, the facility may submit, in lieu of a full inventory report, notification and documentation that its emissions are below reporting thresholds. [ss. NR 407.105(1)(c) and NR 438.03(1)(c), Wis. Adm. Code.]

Additional reporting for facilities that changed ownership or did air quality modeling prior to making changes during the past year.

3. Change of Ownership or Control:

The Bureau of Air Management shall be notified of a change of ownership or control of a facility covered by this permit within 30 calendar days after the change. The notification shall specify a date for the transfer of permit responsibility, coverage and liability. [s. NR 407.105(1)(c), Wis. Adm. Code]

4. Reporting requirement for facilities required to model under B.3. or 4. of this permit:

If required to model prior to making changes under B.3 or B.4. of this permit, the owner or operator shall submit with the annual certification required in F.1. the following information associated with operational changes at the facility:

a. A brief description of the change which caused the need to perform modeling under B.3. or B.4.[7]

b. The results of air quality modeling required under B.3. or B.4. including the modeled concentrations, the background concentration, and the total concentrations. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code.]

Note:

- This requirement does not apply to changes at emission units that emit exclusively volatile organic compounds, to emissions units listed in Attachment 1 or to stacks serving exclusively as general building ventilation.

[7] Examples include, but are not limited to, addition or modifications of processes, adding or changing a raw material, or changes to pollution control devices, stack heights diameters, and other stack parameters, stack locations, and building heights.

F. REPORTING AND NOTIFICATION REQUIREMENTS

Facilities that want to change operations in such a way that they'll no longer be eligible for this permit must notify the Department as follows *before* making these changes:

5. Changes Rendering Your Facility Ineligible for This Permit:

If the owner or operator plans to make a change at the facility that will result in the facility no longer being eligible for this permit:

a. Before making the change, the owner or operator shall submit to the Department an application for a construction permit, unless the change is exempt under ch. NR 405, 406 and 408.

b. Before making the change, the owner or operator shall request in writing that coverage under this registration permit be revoked upon issuance of any required air permit, and submit to the Department an application for a different type of permit if required.

c. The owner or operator may not make the change until any required air pollution control construction and/or operation permit(s) are obtained.

[s. NR 407.105(6)(a) and (e), Wis. Adm. Code.]

Additional reporting requirements for Portable Sources

6. Relocation Requirements:

a. The owner or operator of a portable source covered by this registration permit shall provide written notice to the department at least 20 days prior to relocation. Relocation may occur if the Department does not object to the relocation.

b. If a portable source relocates to a location with a different emission threshold in condition A.1. for any pollutant during any calendar year, the owner or operator shall calculate the amount of emissions that occurred at the previous location and the amount of emissions that occurred at the new location. The owner or operator shall compare those emission rates to the appropriate thresholds in condition A.1. of this permit. If the emission rate of any pollutant at the new location is greater than its emission limit, the owner or operation shall apply for a different type of operation permit within 30 days of identifying the exceedance.

c. The portable source in its new location shall meet all applicable emission limitations and visibility requirements in the Department's rules and may not violate an air quality standard.

[s. 285.60(5), Wis. Stats.]

G. AIR POLLUTION CONTROL DEVICE REQUIREMENTS

Table 3. Air Pollution Control Device Efficiencies

Control Device	Control Efficiency (Total Enclosure)[8]			Control Efficiency (Hood)		
	PM	PM_{10} and PHAP	VOC and VHAP	PM	PM_{10} and PHAP	VOC and VHAP
Low efficiency cyclone[9]	40%	20%	-	32%	16%	-
Medium efficiency cyclone[9]	60%	40%	-	48%	32%	-
High efficiency cyclone[9]	80%	60%	-	64%	48%	-
Multiple cyclone w/out flyash reinjection	80%	60%	-	64%	48%	-
Multiple cyclone with fly ash reinjection	50%	38%	-	40%	30%	-
Wet cyclone separator	50%	38%	-	40%	30%	-
Wall filters (including paint overspray filters and rotary drum filters)	95%	95%	-	76%	76%	-
Fabric filters and HEPA (e.g., baghouse, cartridge collectors)	98%	92%	-	78%	73%	-
Spray towers	80%	80%	70%	64%	64%	56%
Venturi scrubber	90%	85%	-	72%	68%	-
Condensation scrubber (packed bed)	90%	90%	-	72%	72%	-
Impingement plate scrubber	75%	75%	-	60%	60%	-
Electrostatic precipitators	95%	95%	-	76%	76%	-
Thermal oxidizers	-	-	95%	-	-	76%
Catalytic oxidizers	-	-	95%	-	-	76%
Condenser	-	-	70%	-	-	56%
Flaring or direct combustor	-	-	98%	-	-	78%
Biofilter	-	-	80%	-	-	64%
Adsorber (activated carbon systems, carbon adsorption, solvent recovery)			85%			68%

Table 4. Cyclone Efficiency Table

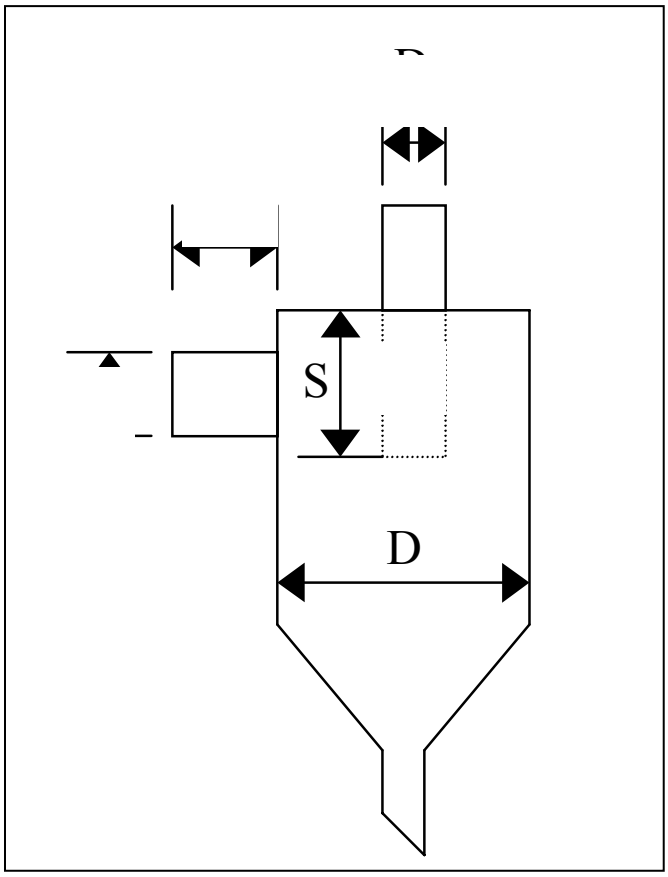
(see Diagram 1. on next page for cyclone dimension nomenclature)

Ratio Dimensions	High Efficiency	Medium Efficiency	Low Efficiency
Height of inlet, H/D	≤0.44	>0.44 and <0.8	≥0.8
Width of inlet, W/D	≤0.2	>0.2 and <0.375	≥0.375
Diameter of gas exit, D_e/D	≤0.4	>0.4 and <0.75	≥0.75
Length of vortex finder, S/D	≤0.5	>0.5 and <0.875	≥0.875

If one or more of the "ratio dimensions," as listed in Table 4, are in a different efficiency category (high, medium, low), then the lowest efficiency category shall be applied.

[8] VHAP = Volatile hazardous air pollutant, PHAP = Particulate hazardous air pollutant.
[9] See Table 4, below, to identify level of efficiency for cyclones.

Diagram 1. Cyclone Dimension Nomenclature



H. ALLOWABLE NEW SOURCE PERFORMANCE STANDARDS and NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

1. Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (s. NR 440.207, Wis. Adm. Code).

2. Standards of Performance for Hot Mix Asphalt Facilities (s. NR 440.25, Wis. Adm. Code).

3. Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction or Modification Commenced After June 11, 1973 and Prior to May 19, 1978 (s. NR 440.27, Wis. Adm. Code).

4. Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction or Modification Commenced After May 18, 1978 and Prior to July 23, 1984 (s. NR 440.28, Wis. Adm. Code).

5. Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Storage Vessels) for Which Construction, Reconstruction or Modification Commenced After July 23, 1984 (s. NR 440.285, Wis. Adm. Code).

6. Standards of Performance for Grain Elevators (s. NR 440.47, Wis. Adm. Code).

7. Standards of Performance for Surface Coating of Metal Furniture (s. NR 440.48, Wis. Adm. Code).

8. Standards of Performance for Industrial Surface Coating: Large Appliances (s. NR 440.57, Wis. Adm. Code).

9. Standards of Performance for Petroleum Dry Cleaners (s. NR 440.68, Wis. Adm. Code).

10. Standards of Performance for Nonmetallic Mineral Processors (s. NR 440.688, Wis. Adm. Code).

11. Standards of Performance for Industrial Surface Coating of Plastic Parts for Business Machines (s. NR 440.72, Wis. Adm. Code).

12. Any New Source Performance Standard or National Emission Standards for Hazardous Air Pollutants (also known as Maximum Achievable Control Technology (MACT) Standard), where the facility or process is only subject to recordkeeping or notification requirements of that standard. [s. 285.65(3), Stats.]

13. National Emission Standards for Hazardous Air Pollutants for Area Sources controlled to a level considered to be Generally Available Control Technology Standards or GACT in 40 CFR Part 63. The following list is updated as EPA finalizes the standards:

- Oil and Natural Gas Production - Subpart HH - National Emission Standards for Oil & Natural Gas Production
- Stationary Internal Combustion Engines - Subpart ZZZZ - National Emission Standards for Reciprocating Internal Combustion Engines

H. ALLOWABLE NEW SOURCE PERFORMANCE STANDARDS and NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

- Hospital Sterilizers - Subpart WWWWW—National Emission Standards for Hospital Ethylene Oxide Sterilization

- Gasoline Distribution Stage I - Subpart BBBBBB—National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, Pipeline Facilities, and Gasoline Dispensing Facilities

- Primary Nonferrous Metal Production – Zinc, Cadmium, and Beryllium - Subpart GGGGGG - National Emission Standards for Hazardous Air Pollutants for Area Sources: Primary Nonferrous Metals: Zinc, Cadmium, and Beryllium

- Primary Copper Smelting - Subpart EEEEEE - National Emission Standards for Hazardous Air Pollutants for Area Sources: Primary Copper Smelting,

- Polyvinyl Chloride and Copolymers Production - Subpart DDDDDD - National Emission Standards for Hazardous Air Pollutants for Area Sources: Polyvinyl Chloride and Copolymers Production,

- Secondary Copper Smelting Subpart FFFFFF - National Emission Standards for Hazardous Air Pollutants for Area Sources: Secondary Copper Smelting

- Carbon Black Production - Subpart MMMMMM—National Emission Standards for Hazardous Air Pollutants for Carbon Black Production Area Sources

- Acrylic Fibers/Modacrylic Fibers Production - Subpart LLLLLL—National Emission Standards for Hazardous Air Pollutants for Acrylic and Modacrylic Fibers Production Area Sources

- Flexible Polyurethane Foam Production - Subpart OOOOOO—National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production and Fabrication Area Sources

- Lead Acid Battery Manufacturing - Subpart PPPPPP—National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources

- Wood Preserving - Subpart QQQQQQ—National Emission Standards for Hazardous Air Pollutants for Wood Preserving Area Sources

- Chemical Manufacturing: Chromium Compounds - Subpart NNNNNN—National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources: Chromium Compounds

- Flexible Polyurethane Foam Fabrication Operations - Subpart OOOOOO—National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production and Fabrication Area Sources

H. ALLOWABLE NEW SOURCE PERFORMANCE STANDARDS and NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

- Paint Stripping Operations and Miscellaneous Surface Coating Operations - Subpart HHHHHH - National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

- Auto Body Refinishing - Subpart HHHHHH - National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

- Clay Ceramics Manufacturing - Subpart RRRRRR—National Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing Area Sources

- Iron Foundries - Subpart ZZZZZ—National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources

- Plastic Parts and Products (Surface Coating) - Subpart HHHHHH - National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

- Pressed and Blown Glass Manufacturing - Subpart SSSSSS—National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources

- Secondary Nonferrous Metals - Subpart TTTTTT—National Emission Standards for Hazardous Air Pollutants for Secondary Nonferrous Metals Processing Area Sources

- Steel Foundries - Subpart ZZZZZ—National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources

- Plating and Polishing Operations – Subpart WWWWWW - National Emission Standards for Hazardous Air Pollutants Area Source Standards for Plating and Polishing Operations

- Nine Metal Fabrication and Finishing Source Categories – Subpart XXXXXX - National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Nine Metal Fabrication and Finishing Source Categories including
    - Electrical and Electronic Equipment Finishing Operations
    - Fabricated Metal Products
    - Fabricated Plate Work (Boiler Shops)
    - Fabricated Structural Metal Manufacturing
    - Heating Equipment, except Electric
    - Industrial Machinery and Equipment Finishing Operations
    - Iron and Steel Forging
    - Primary Metal Products Manufacturing; and
    - Valves and Pipe Fittings.

H. ALLOWABLE NEW SOURCE PERFORMANCE STANDARDS and NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

14. National Emission Standards for chromium emissions from hard and decorative chromium electroplating and chromium anodizing tanks (40 CFR Part 63 subpart N) – allowed only for units that are area source or located at area sources and which are any of the following:

- Any decorative chromium electroplating operation or chromium anodizing operation that uses fume suppressants as an emission reduction technology
- Any decorative chromium electroplating operation that uses a trivalent chromium bath that incorporates a wetting agent as a bath ingredient

15. Standards of Performance for spark ignition internal combustion engines (40 CFR part 60 subpart JJJJ) – allowed only for the owner/operator of manufacturer-certified affected engines.

16. Standards of Performance for compression ignition internal combustion engines (40 CFR part 60 subpart IIII) – allowed only for the owner/ operator of manufacturer certified affected engines that are 2007 model year or later with displacements less than 30 liters per cylinder.

ATTACHMENT 1
EMISSION UNITS NOT SUBJECT TO CERTAIN REGISTRATION PERMIT REQUIREMENTS

1. Convenience space heating units with heat input capacity of less than 5 million Btu per hour that burn gaseous fuels, liquid fuels or wood

2. Convenience water heating

3. Maintenance of grounds, equipment and buildings, including lawn care, pest control, grinding, cutting, welding, painting, woodworking, general repairs and cleaning, but not including use of organic compounds as clean−up solvents

4. Boiler, turbine, generator, heating and air conditioning maintenance

5. Pollution control equipment maintenance

6. Internal combustion engines used for warehousing and material transport, forklifts and courier vehicles, front end loaders, graders and trucks, carts and maintenance trucks

7. Fire control equipment

8. Janitorial activities

9. Office activities

10. Fuel oil storage tanks with a capacity of 10,000 gallons or less

11. Stockpiled contaminated soils

12. Demineralization and oxygen scavenging of water for boilers.

13. Purging of natural gas lines.

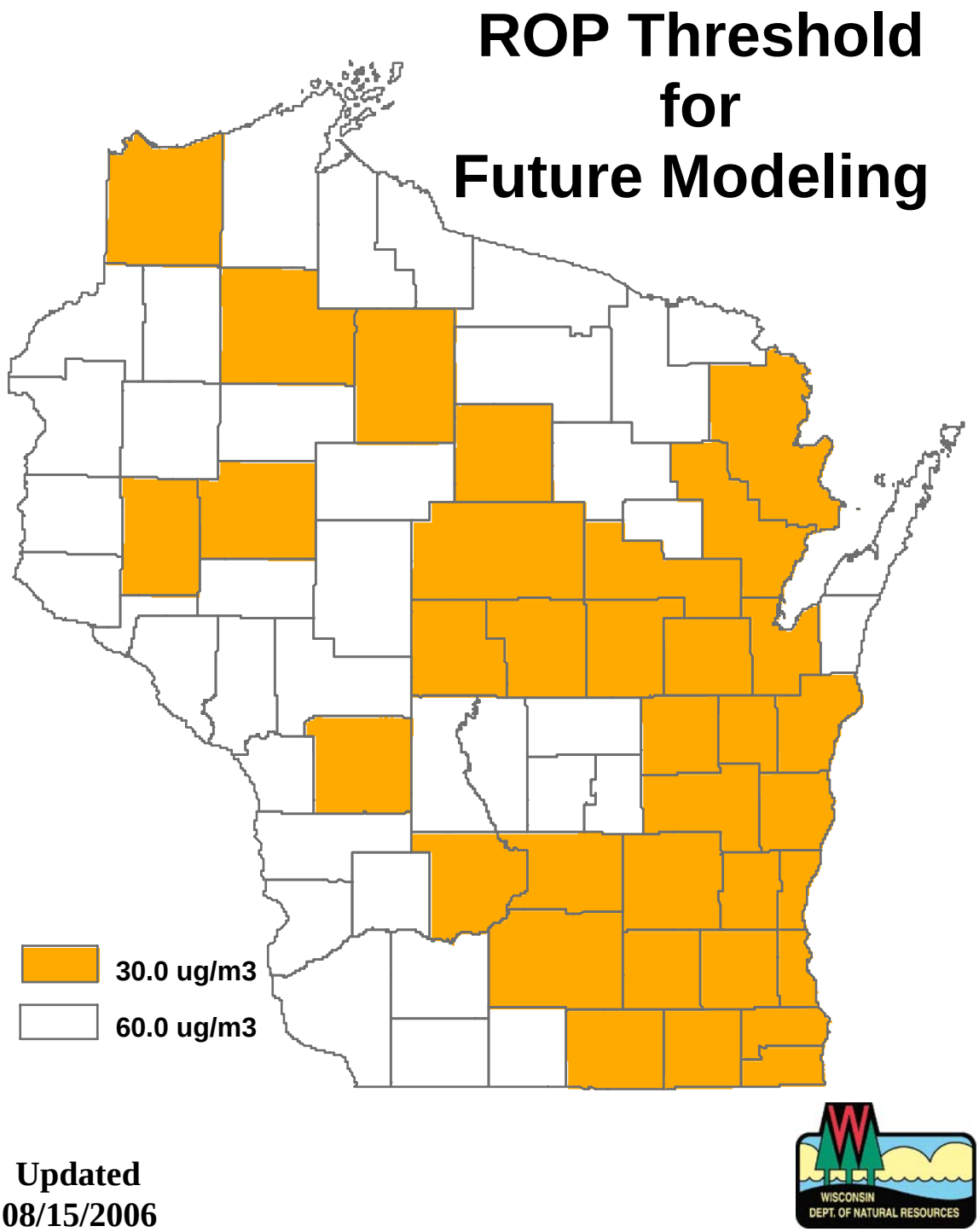
14. Any emission unit, operation, or activity that has, for each air contaminant, maximum controlled emissions that are less than the level specified in Table 3 of ch. NR 407, Wis. Adm. Code. Multiple emissions units, operations, or activities that perform identical or similar functions shall be combined for the purposes of this determination.

15. If the maximum controlled emissions of any air contaminants listed in Table 3 of ch. NR 407, Wis. Adm. Code, from all emission units, operations or activities at a facility are less than 5 times the level specified in Table 3, for those air contaminants, any emission unit operation or activity that emits only those air contaminants.

ATTACHMENT 2

Particulate Matter Modeling Threshold Concentrations by County

This map is current up to the date specified below and may be updated periodically.
Updates will be posted at http://dnr.wi.gov/air/permits/streamlining/regpermits.html



Updated 08/15/2006