Directions for using Engine.xls to determine permit necessity

If you have a diesel, gas, or 4-stroke natural gas reciprocating engine or a natural gas turbine, the following directions apply. However, if you have a different type of engine or utilize different or multiple fuels, you will have to use other emission factors. Contact the Minnesota Small Business Assistance Program (SBAP) at (800) 657-3938 or (651) 282-6143 for more information.

In this spreadsheet there is a separate tab for each engine that you may have. Emission factors will automatically be entered into the tables depending on the options you choose. The sum of the engines' potential emissions will automatically be calculated on the "Total Emissions" tab.

Additionally, if you are installing a generator for non-emergency purposes and find that you need to apply for a permit or permit amendment, you will also need to complete Screen3 modeling to determine the appropriate stack height for your generator. The factors used in this modeling can be found on Part 2 of the Minnesota Pollution Control Agency (MPCA) Form EC-03. This form can be found at the following web site: http://www.pca.state.mn.us/air/permits/ec-03.pdf. The EPA software for the screen modeling of ambient air impacts can be found at: http://www.epa.gov/scram001/tt22.htm#screen3. If you would like assistance with this process, contact the Small Business Assistance Program at the number listed above.

Calculate the Potential Emissions (PTE)

Step 1

- Select the "Engine 1" tab.

- Enter the "Facility Name" and select the "Engine and Fuel Type" from the drop-down box.

- Next, indicate whether the engine is used for routine (which includes peak-shaving) operation or if your generator is used only on an emergency basis. This will automatically enter in the "Hours for PTE Calculation" found in column e of the table.

- Fill in your horsepower rating. For diesel fueled engines, different emission factors will automatically be entered in column c of the table depending on whether the rated mechanical output is greater than or less than 600 horsepower.

- Enter in the sulfur content of the fuel if applicable or known to be different than what is listed.

- Repeat this process for each engine by going to the appropriate tab.

Step 2

Assuming these are your only emissions units, compare the calculated PTE value with the listed permitting thresholds found on the "Total Emissions" tab to determine if a permit is required. If you have other emission sources at your facility you will need to total the PTEs for all of the emission units before comparing the value to the threshold. If your value is above the threshold, you will need a permit. Also, if your generator is capable of burning

more than one fuel, you will need to compare the worse case fuel per pollutant with the permitting threshold. For example, natural gas generally has the highest NO_x emissions while fuel oil has the highest SO_2 emissions. Therefore, you would compare the natural gas PTE to the NO_x permitting threshold and the fuel oil PTE to the SO_2 permitting threshold.

Calculate the Actual Emissions

Step 3

To calculate your actual emissions, enter in the "Total Number of Hours Operated" found below the sulfur content on each Engine tab. The sum total of the "Actual Emissions" can be found on the lower table of the "Total Emissions" tab.

Step 4

Be sure to save a copy of your calculations either electronically or as a printout. If you need a permit, you will have to submit a copy of this with your permit application. Otherwise, this is your proof that you do not need a permit. Note that if your operations change you will have to reevaluate your need for an air emissions permit.

The Environmental Protection Agency (EPA) is currently in the process of developing a National Emission Standard for Hazardous Air Pollutants (NESHAP) that applies to Reciprocating Internal Combustion Engines. This regulation is based on a Maximum Achievable Control Technology (MACT) that is being established by the EPA. According to available information (found at http://www.epa.gov/ttn/atw/combust/engine/ricepg.html and http://www.epa.gov/ttn/atw/112j/info/112(j)-table2.html), in its current draft status, this regulation will apply to the following facilities/emission sources (please note, this may be subject to change):

The NESHAP would APPLY to:

1. Existing* 4 stroke rich-burn (4SRB) reciprocating internal combustion engines (RICE) above 500 HP located at major HAP sites.
2. All new* 2 stroke lean-burn (2SLB). 4 stroke lean-burn (4SLB), 4SRB, and compression ignition (CI) RICE above 500 HP located at major HAP sites.

* *New* applies to units where construction begins on or after the rule proposal date (expected to be 11/02).
* *Existing* means not new.

The NESHAP would NOT APPLY to:

1. RICE located at area source sites.
2. RICE used in emergency service.
3. RICE used less than 50 hours/year in non-emergency service.
4. RICE that burns predominately landfill and digester gas.

Because this NESHAP has not been promulgated (finalized) by May 15, 2002, it is subject to a provision known as the "MACT hammer". This means that if a facility is subject to this MACT, they are required to apply for a Part 70 (federal) permit by May 15, 2002. This can be done by completing MPCA Form GI-112(j) *Part 1 MACT Hammer Notification*. This notification form will act as Part 1 of the permit application. Part 2 will not be due until May 15, 2003, and will only be needed if this NESHAP has not yet been promulgated.

New units that are subject to the MACT and installed after the proposed date but before promulgation, may require a case-by-case MACT determination. Contact the MPCA for further assistance prior to construction.