Solid Waste and Air Quality Permitting Requirements for By-Product and Biomass Material in a Combustion Process

The increased interest in the use of biomass as a combustion fuel is based on a number of interests and factors: recent legislative initiatives/requirements for renewable energy, ongoing renewable fuel development, interest in offsetting costs of fossil fuels, rising costs of traditional fuels, and potential reductions in carbon dioxide emissions when displacing fossil fuels.

Many potential sources of biomass fuel are the result of processing agricultural and forestry products. Historically, many by-products were considered wastes because there was no interest or capacity to reuse the materials as fuel within the facility's operation. However, there is a recent interest in recovering the fuel British Thermal Unit (BTU) value of many of these materials.

Under Minn. Stat. § 115A.02, it is the policy of the state of Minnesota to protect the state's land, air, water, and other natural resources and the public health by improving waste management in the state by promoting, among other things, the separation and recovery of materials and energy from waste. As such, this document describes three scenarios regarding the Minnesota Pollution Control Agency's (MPCA's) interpretation on whether a by-product is a solid waste, and how the beneficial use of solid waste program relates to the desire to utilize these by-products as a fuel. Information on the MPCA's beneficial use of solid waste program can be found at: http://www.pca.state.mn.us/waste/sw-utilization.html.

Material that is subject to the processes described in this document include all materials created by a production activity that would otherwise not be used in operations, either by the facility generating the material or any other facility, **except for an interest in burning it as a fuel** (i.e., the material is not a product or by-product that has a value to the facility's normal production or activity).

Facilities wishing to burn organic materials must follow the applicable air emissions rules and regulations. If a facility has an existing permit, in most cases an amendment to the permit will be required to allow for the facility to burn such materials as a fuel. Forms for permits and information on permitting can be found at www.pca.state.mn.us/air/permits/index.html. Future rulemaking at the federal level may result in changes to this policy since it is uncertain at this point how the U.S. Environmental Protection Agency (EPA) intends to deal with this type of material.

1. No action from the MPCA's solid waste program:

There are several types of materials that will not require any action from the MPCA's solid waste program. The MPCA has either determined that the material is not considered a solid waste or the material already has an approval from the MPCA's beneficial use of solid waste program in the form of a Standing Beneficial Use Determination (SBUD). A SBUD is a pre-approved activity, listed in Minn. R. 7035.2860, subp. 4, which is material- and use- specific.

Currently, there is one SBUD, Minn. R. 7035.2860, subp. 4(a), that addresses "biomass" fuel. This SBUD is for "Unadulterated wood, wood chips, bark, or sawdust when these materials are used as … wood fuel production." **This SBUD exempts unadulterated wood, wood chips, bark and sawdust from solid waste when it is used as fuel as long as the material is managed appropriately prior to use as a fuel; this includes proper storage in accordance with Minn. R. 7035.2855. Because this exemption is in rule, there is no further action needed from the MPCA's solid waste program when the above materials are used as fuel**. The following list includes examples of materials meeting this SBUD when they are used as fuel.

- forestry residue (wood, sawdust, bark, material from facilities making dimensional lumber, etc. that has not been adulterated with resins, paints, stains, glues, coatings, or other chemicals)
- other unadulterated wood Waste from the Forestry Product Industry (unadulterated wood, wood chips, bark and sawdust from lumber mills and paper mills)
- tree trimmings and brush

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Note: In this instance, “unadulterated” means "wood that does not contain contaminants present as a result of manufacturing or use of the wood". Examples of contaminants include paints, varnishes, stains, glues, resins or chemicals used to prevent rotting. Wood that is adulterated also includes such things as scraps and residue from composite wood products and vinyl covered window making.

Additionally, there are several other types of biomass feedstock material the MPCA’s solid waste program does not consider solid waste and therefore, require no need for further action from the beneficial use of solid waste program. Examples of these materials would include:

- agricultural crop residues traditionally managed by leaving on fields (e.g. corn stover, corn cobs, straw)
- forestry material traditionally managed by leaving in forest (logging residue)
- energy crops grown specifically for use as a fuel, e.g. switchgrass, short rotation energy crops, poplar trees, etc.

2. Case specific beneficial use determination process for by-products:

There are other by-product materials that a facility may wish to use as fuel that could be considered solid waste. Some of these materials, with proper handling and management, are candidates for obtaining a Case Specific Beneficial Use Determination (CSBUD) from the MPCA.

The MPCA has developed rules detailing what an application for a CSBUD must include. To constitute a beneficial use, the standards listed in Minn. R. 7035.2860, subp 2 must be met. Proposals for CSBUD must include the information outlined in Minn. R. 7035.2860, subp. 5. Further, for a material to qualify for a CSBUD, the facility wishing to use the material as a fuel must not be using the combustion process as a disposal method for the material. In addition, the facility must demonstrate that the material has value as a fuel, i.e. the heating value should be a minimum of 5000 BTU/lb. The MPCA will use the information in the application to make a determination whether or not to issue a CSBUD. If the MPCA issues a CSBUD, the by-product material, if it would normally be considered a waste, will still remain a solid waste until the time it is used as a fuel, which means when it is put into the combustion unit. **Once the CSBUD is issued, the materials that have been designated as being beneficially used are not treated as a waste, and are still not a waste**. **Therefore, the combustion unit will not be subject to the waste combustor requirements**. The facility burning the material must still follow all applicable air emissions rules and regulations. Therefore, until the time of the CSBUD is issued, the material must be managed in accordance with the solid waste rules in Minn. R. ch. 7035.

In order to obtain a CSBUD, a generator of the waste material would need to apply to the MPCA’s Beneficial Use of Solid Waste Program for a CSBUD. The requirements for a CSBUD application can be found in Minn. R. 7035.2860, subp. 5. A generator of the material may be granted a CSBUD; the user of the material, i.e. the facility which will be burning the material, must apply for, and obtain, the applicable air emissions permit or amendment. In addition to the information required for the air permit application, the MPCA will require facilities to complete form GI-10 (http://www.pca.state.mn.us/publications/forms/aq-f1-gi10.pdf).

The following is a list of by-products and biomass material that would need to obtain a CSBUD **prior to use as a fuel**:

- agricultural processing residues (e.g. residue from agricultural products, such as hulls and chaff, husks, process residues from canning operations, malting grains, etc.) that have not been adulterated
- sludges and slurries from food canning, etc.
- Production residues. Some ethanol production residues are managed as wastes while others are not. Treatment of the different residues varies from facility to facility. They are included in this memo to insure that, when used as a fuel, the unit in which they are burned will not be regulated as a waste combustor.

3. Minnesota waste combustor rules will be applicable to other solid waste materials:

If a by-product material is not covered under the SBUD rules, or cannot be issued a CSBUD (the processes detailed above), then the material is considered to be solid waste. The facility will be subject to the waste combustor requirements, Minn. R. 7011.1201, subp. 49 and 7011.1215 for its air emissions permit, and the solid waste management rules listed in Minn. R. ch. 7035.

Below is a list of some example materials that are considered solid waste and subject to applicable solid waste and waste combustor requirements:

- solid waste and refuse
- urban biomass (yard waste, etc.) unadulterated wood has the standing beneficial use exemption
- Other scrap from cabinet-making, window manufacture that has been adulterated with materials such as laminates, paints, stains, etc. The adulterated material also includes such things as scraps and residue from composite wood products and vinyl covered window making.
- railroad ties
- telephone poles
- treated seed
- used animal bedding
- poultry litter

Note: Some facilities have previously been permitted to burn material described above that would be required to be approved through the CSBUD program or that would be considered solid waste. Facilities that are currently permitted to burn this material are grandfathered in and do not need to make any changes at this time. However, at the time of permit reissuance for the air permit, the facility should follow the applicable procedures described above.