

AIR PERMITTING: COMBUSTION OF BIOMASS

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Air Permitting

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□ Control levels of:

▣ Criteria Pollutants

- Particulate Matter (PM, PM-10, and PM 2.5)
- Carbon Monoxide (CO)
- Nitrogen Oxides (NO_x)
- Sulfur Dioxide (SO₂)
- Volatile Organic Compounds (VOC)

▣ Toxics - Hazardous Air Pollutants (HAPs)

(Formaldehyde, Benzene, etc. – total of 185 state toxics)

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- Types of construction air permits:
 - Minor New Source Review (minor NSR)
 - Sources with uncontrolled emissions less than 100 tons/yr of a single criteria pollutant
 - Sources with a Potential to Emit (PTE) less than 10 tons/yr of an individual HAP and/or sources with uncontrolled emissions less than 25 tons/yr of combined HAPs
 - Major New Source Review (major NSR)
 - Sources with a PTE greater than 100 tons/yr (or 250 tons/yr) of a single criteria pollutant
 - Sources with a PTE greater than 10 tons/yr of an individual HAP and/or sources with a PTE greater than 25 tons/yr of combined HAPs

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- A minor NSR permit is required if the uncontrolled emissions of a source are over these exemption thresholds:

Pollutant	New Source (tons/yr)	Modified Source (tons/yr)
PM	25	15
PM-10	15	10
PM 2.5	10	6
CO	100	100
NO _x	40	10
SO ₂	40	10
VOC	25	10

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- New Source
 - Greenfield Source – Brand new!

- Modified Source
 - A source that is already existing
 - Where any change consisting of the addition, replacement or modification of one or more emissions units

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- Process:
 - ▣ Local Governing Body Certification Approval
 - ▣ Best Available Control Technology (BACT) Analysis
 - ▣ Public Participation/EPA Review
 - Required for major sources; minor sources if there is/may be public interest
 - ▣ Protection of the National Ambient Air Quality Standards (NAAQS)

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□ Time Frames:

□ Minor NSR Permits:

- **Completeness review:** 30 days from receipt of application
- **Processing of application:** 90 days from receiving a complete application; 180 days from receiving a complete application if public participation is required

□ Major NSR Permits:

- **Completeness review:** 30 days from receipt of application
- **Public Participation:** Required application notice; 30 days public comment period; public hearing (Public Briefing and EPA and Federal Land Manager review may be required)
- **Processing of complete application:** 180-365 days

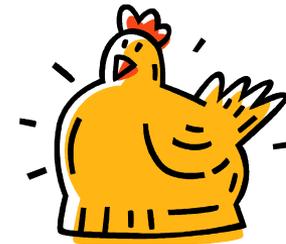
Consider requesting a pre-application meeting

Getting Applications in...the sooner the better!

Air Permitting: Virginia and Biomass

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Yes, we do permit biomass combustion units!



Air Permitting: Virginia and Biomass

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□ Legislative definition of “Biomass”

Biomass means organic material that is available on a renewable or recurring basis, including:

1. Forest-related materials, including uncontaminated mill residues, logging residues, forest thinnings, slash, brush, low-commercial value materials or undesirable species, and woody material harvested for the purpose of forest fire fuel reduction or forest health and watershed improvement;
2. Agricultural-related materials, including orchard trees, vineyard, grain or crop residues, including straws, aquatic plants and agricultural processed co-products and waste products, including fats, oils, greases, whey, and lactose;
3. Animal waste, including manure and slaughterhouse and other animal processing waste;
4. Solid woody waste materials, including landscape trimmings, waste pallets, crates and manufacturing, construction, and demolition wood wastes, excluding pressure-treated, chemically treated or painted wood wastes and wood contaminated with plastic;
5. Crops and trees planted for the purpose of being used to produce energy;
6. Landfill gas, wastewater treatment gas, and biosolids, including organic waste byproducts generated during the wastewater treatment process; and
7. Municipal solid waste, excluding tires and medical and hazardous waste.

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- Definition of “Municipal Solid Waste” (from Waste Regulations)
Household, commercial/retail, or institutional waste. Household waste includes garbage, trash and refuse discarded by residential dwellings, hotels, motels, and other similar permanent or temporary housing. Commercial/retail waste includes all solid waste discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities, and other similar establishments or facilities. Institutional waste includes materials discarded by schools, by hospitals (nonmedical), by nonmanufacturing activities at prisons and government facilities, and other similar establishments or facilities. Household, commercial/retail, and institutional waste does include yard waste. Household, commercial/retail, and institutional waste does not include used oil; sewage sludge; wood pallets; construction and demolition wastes; clean wood; industrial process or manufacturing wastes; medical waste; or motor vehicles (including motor vehicle parts or vehicle fluff).

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- Two construction permit options for biomass sources:
 - Normal Minor/Major NSR Process
 - New Biomass Pilot Test Facility General Permit

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- Biomass Pilot Test Facility General Permit
 - ▣ Only for new sources
 - ▣ Only for minor sources
 - ▣ Can't be subject to Section 129 of the Clean Air Act, i.e. can't be an incinerator
 - ▣ (i) Generate 5 MW or less of electricity, or that produces the equivalent amount of energy in the form of fuel, steam, or other energy product; (ii) that is generated or produced solely from biomass; and (iii) that is sold to an unrelated person or stationary source or used in a manufacturing process.

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- Encountered many challenges:
 - ▣ Lack of data from stack test results or emission factors for most of materials in definition
 - ▣ Emission factors are used to determine potential emissions and permit applicability
- Created a general permit to construct and test a biomass pilot test facility:
 - ▣ 18 months to construct
 - ▣ 15 months to perform all testing
 - Certified fuel test
 - Stack test
 - Visible emission evaluation
 - ▣ Based on test results, facility receives an exemption or has to submit a Form 7 application for a NSR permit

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□ General Permit:

- Approved by the Air Pollution Control Board on March 18, 2011
- Anticipating issuance May/June 2011

□ Biomass Website:

http://www.deq.virginia.gov/air/permitting/documents/Biomass_Info.pdf

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Federal Regulations Affecting Biomass:

- Maximum Achievable Control Technology (MACT)
 - ▣ Controls HAPs
 - ▣ Co-benefit of controlling some criteria pollutants

- New Source Performance Standards (NSPS)
 - ▣ Controls criteria pollutants

- Federal definitions of “biomass” and “solid waste”

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Biomass: Fuel vs. Solid Waste

- If biomass is defined as a fuel, then it's a boiler
 - Boiler MACTs
 - One for major sources of HAPs
 - One for minor (area) sources of HAPs
 - Potentially subject to Boiler NSPSs
- If biomass is defined as a solid waste, then it's an incinerator
 - NSPS for Commercial and Industrial Solid Waste Incineration (CISWI) Units
 - Multiple NSPSs for Incinerators which may apply

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Recent determinations by EPA related to biomass:

- What is Considered a Fuel:
 - ▣ Process Fats
(including both animal fats and vegetable oils)
 - ▣ Resinated Wood
- What is Considered a Solid Waste:
 - ▣ Municipal Solid Waste
 - ▣ Sewage Sludge
 - ▣ Animal waste (including manure, poultry litter, etc.)
 - Can be a fuel if it meets certain criteria

Questions?

