

Air Permit Basics

Western Washington Wood Energy and Forest Biomass Workshop

1

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Regulated Air Pollutants



2

- **Pollutants of Concern**

- **Criteria Pollutants (CAPs)**

- ✦ Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Lead, Sulfur Dioxide (SO₂), Ozone precursors – NO_x and Volatile Organic Compounds (VOC), Particulate Matter (PM₁₀ and PM_{2.5})

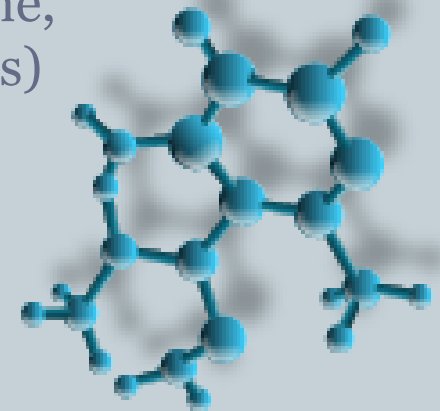
- **Hazardous Air Pollutants (HAPs)**

- ✦ 187 Federally-listed chemicals and chemical classes (e.g., acetaldehyde, formaldehyde, benzene, dioxins/furans, polycyclic aromatic hydrocarbons)

- **Toxic Air Pollutants (TAPs)**

- ✦ Hundreds of chemicals and chemical classes (includes HAPs), SWCAA and WA similar

- **Carbon Dioxide (CO₂) and Greenhouse Gases**



Air Quality Standards



3

- **National Ambient Air Quality Standards (NAAQS)**
 - 100 ppb NO₂ (1-hr)
 - 35 µg/m³ PM_{2.5} (24-hr) and 12.0 µg/m³ PM_{2.5} (3-yr annual avg)
- **Federal Emission Standards**
 - 40 CFR 60 Subpart Dc
 - ✦ ≥ 10 MMBtu/hr, natural gas or ≥ 30 MMBtu/hr, wood
 - 40 CFR 63 Subparts DDDDD and JJJJJJ (major vs non-major)
 - ✦ < 10 MMBtu/hr: reporting and periodic tune-up
 - ✦ ≥ 10 MMBtu/hr: emission standards, testing, and reporting
- **TAP Requirements**
 - SWCAA jurisdiction: WAC 173-460 (1998 version)
 - Other Air Agencies: WAC 173-460 (2009 version)

Air Permit Types



4

- Permits issued on Potential-to-Emit (PTE) basis
- May have multiple permits
 - SWCAA
 - ✦ Air Discharge Permit (ADP)
 - ≥ 1 ton/yr, sum of CAPs or TAPs; other air agencies may have different thresholds
 - ✦ Title V Air Operating Permit (AOP)
 - ≥ 100 ton/yr any CAP
 - ≥ 25 ton/yr sum of HAPs or ≥ 10 ton/yr any single HAP
 - WA State Department of Ecology
 - ✦ Prevention of Significant Deterioration (PSD) Permit
 - ≥ 250 ton/yr any CAP; CO₂ also considered if $\geq 10,000$ ton/yr
 - Implemented and enforced by SWCAA

ADP Application



5

- **Components of an ADP application (generally)**
 - Process flow diagrams and facility layout
 - Specific info about each emission unit (e.g., make, model, capacity)
 - Emission calculations for each emission unit, including assumptions, emission factors, or formulas (show your work!)
 - Demonstration that emission controls meet the definition of Best Available Control Technology (BACT), i.e., Top-down BACT
 - Applicability review of federal, state, and local regulations
 - Demonstration that no NAAQS or State air quality standards will be exceeded; may require air quality modeling
 - Monitoring/testing to demonstrate compliance with air permit

ADP Timeline



6

- **Process for obtaining an ADP**
 - Pre-application conference (recommended)
 - State Environmental Policy Act (SEPA) or Environmental Impact Statement (EIS)
 - Submit ADP application – SWCAA determines if complete
 - Public review
 - ✦ 30 day public comment period (likely)
 - ✦ Public meeting/hearing (less likely, but possible)
 - Final ADP appealable for 30 days to Pollution Control Hearings Board
 - Plan on a minimum of 90 days – *highly dependent* on completeness of application
- **The ADP is a *pre-construction* and operating permit**



Permitting a Biomass-fired Boiler

7

- **Considerations During the Application Process**
 - Involve the public early on in the project
 - Avoid incomplete application and inadequate budgeting of time
 - NAAQS compliance – short-term NO₂ and PM may be a challenge
 - TAPs/HAPs likely will need to be modeled
 - Project should include air pollution control equipment, (e.g., baghouse [minimum], Electrostatic Precipitator [ESP])
 - Impacts to sensitive groups (e.g., children, sick, elderly, athletes)
 - Impacts due to increased vehicle traffic (diesel exhaust PM)
 - Storage of biomass, dust, compostable material, water runoff
 - Any additional equipment that needs to be permitted (e.g., engines, dryers, grinders)



Permitting a Biomass-fired Boiler

8

- **Project Considerations and Questions**
 - Do you need a specific or variable turndown ratio?
 - What are your alternate or startup fuels?
 - Will you use O₂ trim or other combustion control devices?
 - How often is soot blowing or grate cleaning needed?
 - What type of ash handling system are you using?
 - What is your demand during summer months?
 - Will you be generating power?
 - Is your control equipment operable during startup/shutdown?
 - Will you have any pre-processing of fuels on site (e.g. dryers, grinders, pelletizers) that may require additional permitting?
 - Any emergency engines or other fuel burning equipment?



QUESTIONS?

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Permitting Help and Resources



10

- **SWCAA resources**
 - Call, write, e-mail, or web
 - ✦ Website includes forms, rules, regulations, pollutant lists, staff contacts and expertise list
- **Washington State resources**
 - WA Department of Ecology, (360) 407-6000
 - Office of Regulatory Assistance (<http://www.oria.wa.gov/>)
- **Environmental Protection Agency resources**
 - New Source Review manual (www.epa.gov/ttn/nsr/gen/wkshpman.pdf)
 - Technology Transfer Network (www.epa.gov/ttn)
 - Applicability Determination Index (<http://cfpub.epa.gov/adi>)