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# A Review of Air Construction Permit Requirements for Pellet Production Facilities

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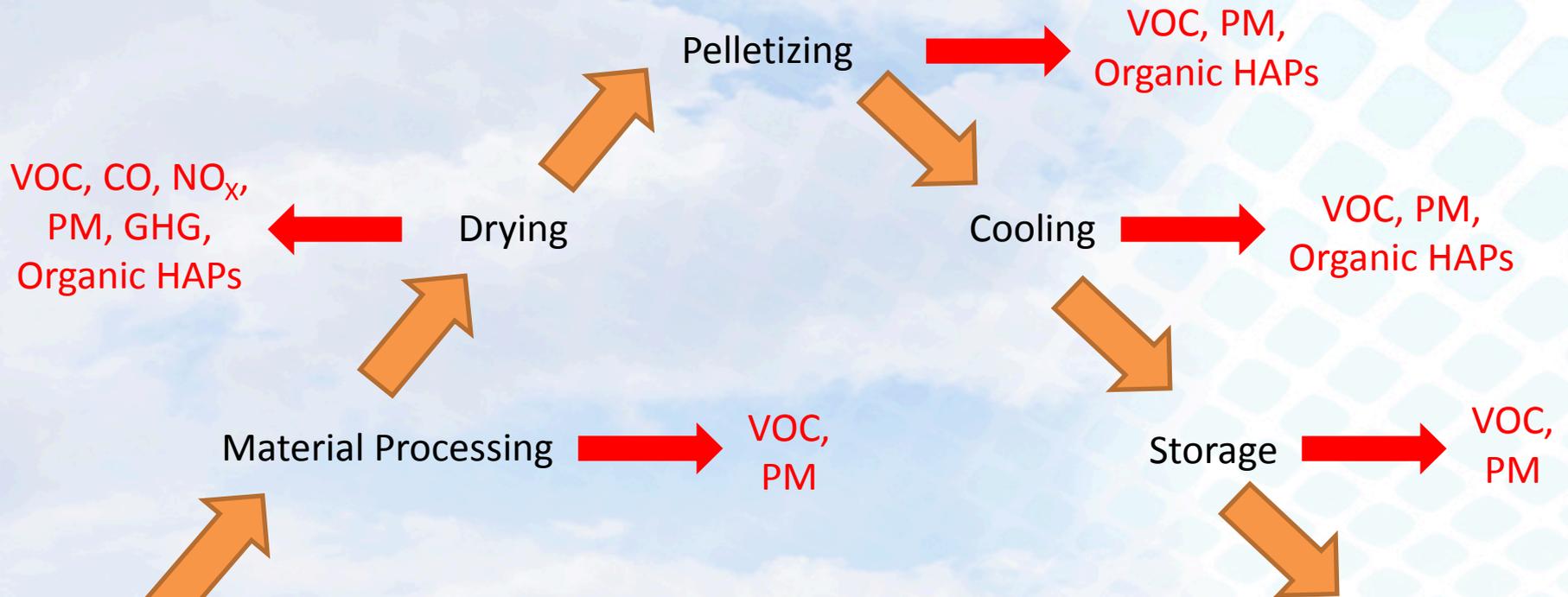
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4. Environmental Software
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# Construction Permitting Agenda

- > U.S. Air Regulations and Permitting Applicability Affecting Plant Design
- > Recent Facility Plant Design Changes Required for Permitting
- > VOC Issue Affecting Permitting and Compliance for Existing Facilities

# Where are Emissions Generated?



# New Source Review Permitting Applicability

- > Where is the pellet plant location?
  - ❖ Assume rural - attainment area
- > Pellets production is not on “List of 28”
- > Is the facility existing or new?
- > What are PSD pollutants?
  - ❖ Non-GHG PSD regulated pollutants
  - ❖ GHG (CO<sub>2</sub>e) pollutants (BACT only)
  - ❖ Does not include hazardous air pollutants
  - ❖ Include fugitive emissions?

# PSD Applies If....

- > New Sources: Plant will be a major source
  - ❖ > major source threshold of 250 tpy for non-GHG PSD pollutants
- > Existing Minor Sources: Make a modification that in itself is “major”
  - ❖ > major source threshold of 250 tpy for non-GHG PSD pollutants
- > Existing Major Sources: Make a physical change or change in method of operation that exceeds *de minimis* levels (also called PSD Significant Emission Rates); a “major modification”
  - ❖ Existing major sources may “net-out” of PSD review

# GHG Tailoring Rule - Decision

- > June 23, 2014, U.S. Supreme Court invalidated portion of rule
  - > Cannot trigger PSD permitting alone via Tailoring Rule
  - > > major source threshold of 100,000 tpy for GHG (CO<sub>2</sub>e) at new or existing minor source
  - > > major source threshold of 75,000 tpy for GHG (CO<sub>2</sub>e) at existing major source
- > Anyway sources (triggering for other PSD pollutant) still applicable
  - > BACT analysis for GHG still applicable

# Impact of VOC on PSD Applicability

- > Initial facility designs did not account for pre-dryer or post-dryer VOC emissions
- > Testing conducted at several pellet mills indicated emissions from the pre-dryer and post-drying process - hammermills, pelletizing and storage
- > Facilities may require PSD permitting with BACT, or consider VOC controls/operation changes for PSD avoidance

# Pellet Plant Design - PSD Avoidance

- > Furnace/Dryer Stack
  - ❖ WESP - PM controls (high moisture)
  - ❖ RTO - VOC, Organic HAPs, CO, NO<sub>x</sub>
- > Hammermills/Pellet Mills/Pellet Coolers
  - ❖ Baghouse or Cyclone - PM controls
  - ❖ RTO or RCO - VOC and Organic HAPs



Source: EPCON

# Pellet Plant Design - PSD Avoidance

- > Operation limitations
  - ❖ Production limit
  - ❖ Operating hours
- > Design incorporation (VOC reduction)
  - ❖ Utilizing one control device for all pre-dryer, dryer, and post-dryer exhaust
  - ❖ Routing exhaust from operations back into dryer
- > Testing results
  - ❖ Utilize site- or company-specific data
  - ❖ Other facility performance testing results

# Pellet Plant #1 - Regulations Design Impact

- > Greenfield site
- > Originally permitted as PSD minor source
- > Testing revealed VOC emissions from post-dryer sources not previously expected
- > Received Consent Order and installed VOC control devices on post-dryer sources to remain PSD minor source
- > Incurred enforcement action for non-compliance

# Pellet Plant #2 - Regulations

## Operation Impact

- > Conversion of existing wood product facility into wood pellet production
- > Originally permitted as PSD minor source
  - ❖ Required to be confirmed with performance testing
- > Operation limitations accepted to avoid PSD permitting
  - ❖ No VOC emissions controls for dryer or post-dryer operations
  - ❖ Routing post-dryer operations exhaust into dryer for incineration

# Pellet Plant #3 - Regulations

## Design Impact

- > Modification to an existing wood pellet plant
- > Previously permitted as PSD synthetic minor source
- > Revised permitting based on testing data from other owned facility for post-dryer VOC emissions for PSD avoidance
  - ❖ Requires VOC controls for post-dryer operations
- > Revise permitting for vacatur of Tailoring Rule Biomass Deferral
  - ❖ Natural gas usage in addition to biomass for combustion sources for PSD avoidance (CO<sub>2</sub>e)

# Existing PSD Minor Facilities - Permitting Path Scenarios

- > What if Determined Actual VOC Emissions > 250 tpy?
  - ❖ Enforcement Action/Consent Order
  - ❖ Allowed to Continue to Operate
- > Permitting Compliance Options
  - ❖ PSD Avoidance Permitting Scenario
    - ◆ Control device addition
    - ◆ Production or operation limitation
  - ❖ Retroactive PSD Permitting Scenario
    - ◆ Identify BACT control device is not feasible
    - ◆ Or BACT does require control device

# U.S. Air Regulations Applicable to the Wood Pellets Industry

## > NSPS

- ❖ Subpart Db (Steam Generating Units) or Subpart Dc (Small Steam Generating Units) potentially applicable if heat source uses steam to heat dryer or if it creates steam for other process operations
- ❖ Subpart IIII - engines applicability

## > NESHAP

- ❖ Subpart DDDD (PCWP MACT) - not applicable since adhesives not used for pellet formation
  - ❖ Boiler MACT or Boiler GACT - potentially applicable to heat source used to generate steam
  - ❖ RICE MACT - generators or emergency fire pumps
- > CAM - potentially applicable for control devices
- > Toxics - state-specific modeling or analysis

# Thanks you!

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