



Office of Land Quality

Biomass AD Registrations and Land Application Permits

Indiana Solid Waste Anaerobic Digester Regulations

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Goal

Broad overview of the how and why of the permitting program

- IDEM Organization
- Purpose of the Rule
- Biomass vs Appropriate Feedstock
- Determination of Permit Type
- Biomass Anerobic Digester Registration Process
- Land Application Permitting Process

IDEM Organization



IDEM Organization



Compliance Branch

Solid Waste

CFO

Enforcement

Industrial Waste

Hazardous Waste

Purpose of the Solid Waste Biomass AD Rule

Provide conditions for:

- Construction and expansion of Biomass AD facilities
- Storage and processing of biomass or appropriate feedstock
- Financial assurance for the cleanup and closure of facilities
- A registration program beyond 329 IAC 11

Any approval is based on protection of human health and the environment.

Biomass vs Appropriate Feedstock

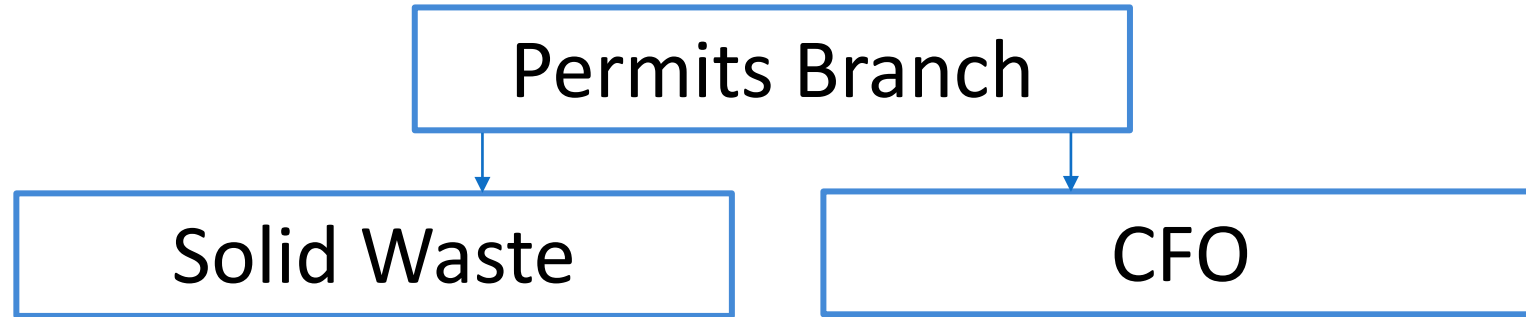
Biomass is material derived from living organisms that grow back or produce more of the material and is used as a source of energy.

- Agricultural crops
- Agricultural wastes and residues
- Wood and wood byproducts
- Animal wastes, including manure
- Aquatic Plants and algae
- Byproducts of processing agricultural crops

Appropriate feedstock is a segregated solid waste that can be processed with biomass at a biomass facility to produce useful materials or energy. Appropriate feedstock must be segregated from the general waste stream and does not include non-biodegradable waste.

- Food waste from food services or food manufacturing (FOG)
- Livestock operation residues
- Wood Pallets
- Industrial waste such as paper pulp, sewage sludge or off-spec or unused animal feed

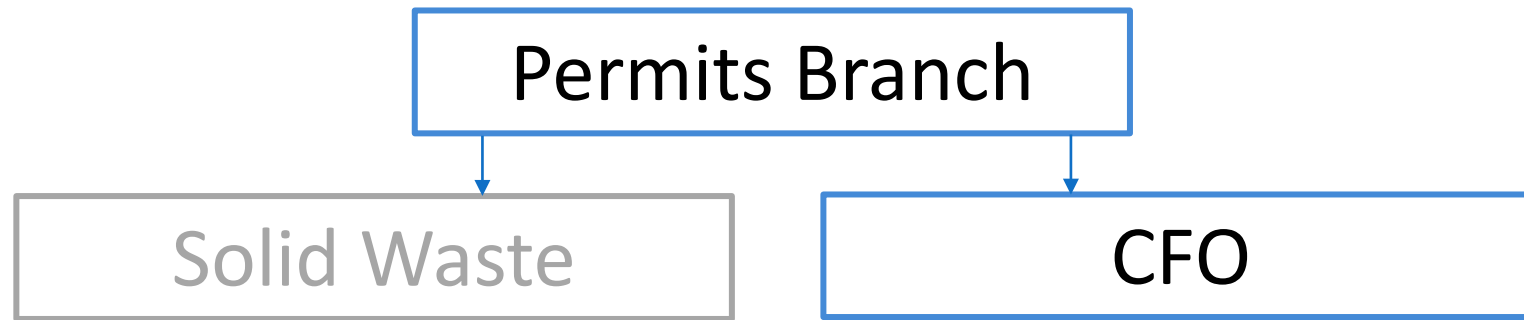
Type of approval required: **Where is biomass facility located?**
What type of waste is accepted?
How are residuals handled?



- 329 IAC 11.5. Biomass Anaerobic Digestion Facilities And Biomass Gasification Facilities
- 327 IAC 6.1. Land Application Of Biosolid, Industrial Waste Product, And Pollutant-bearing Water

- 327 IAC 19. Confined Feeding Operations

AD Facility Located Within a CFO *Biomass Only*



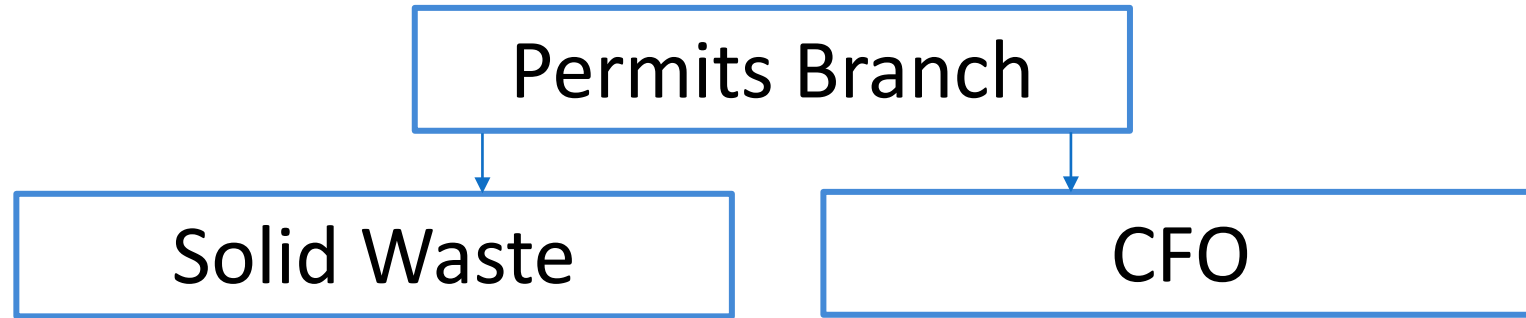
327 IAC 19. Confined Feeding Operations

- **Located** within the boundary of a CFO
- **Accepts** only biomass
- **Disposal** of digestate by application upon or incorporation into the soil via CFO permit

Contains conditions provided by 329 IAC 11.5

AD Facility Located Within a CFO

Biomass and Appropriate Feedstocks



327 IAC 19. Confined Feeding Operations

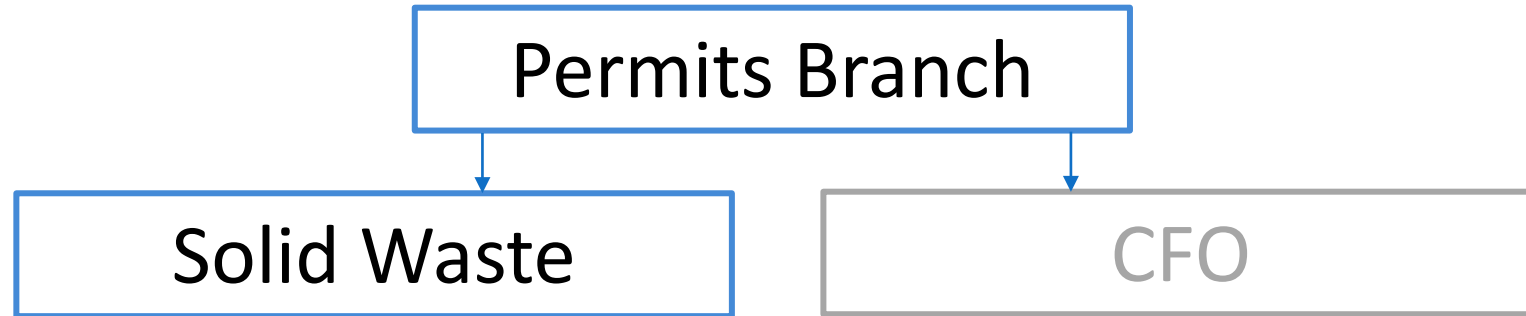
- **Located** within the boundary of a CFO
- **Accepts** biomass or appropriate feedstock

327 IAC 6.1. Land Application Of Biosolid, Industrial Waste Product, And Pollutant-bearing Water

- **Disposal** of digestate by application upon or incorporation into the soil via a land app permit

Contains conditions provided by 329 IAC 11.5

AD Facility Located Without a CFO *Biomass and Appropriate Feedstocks*



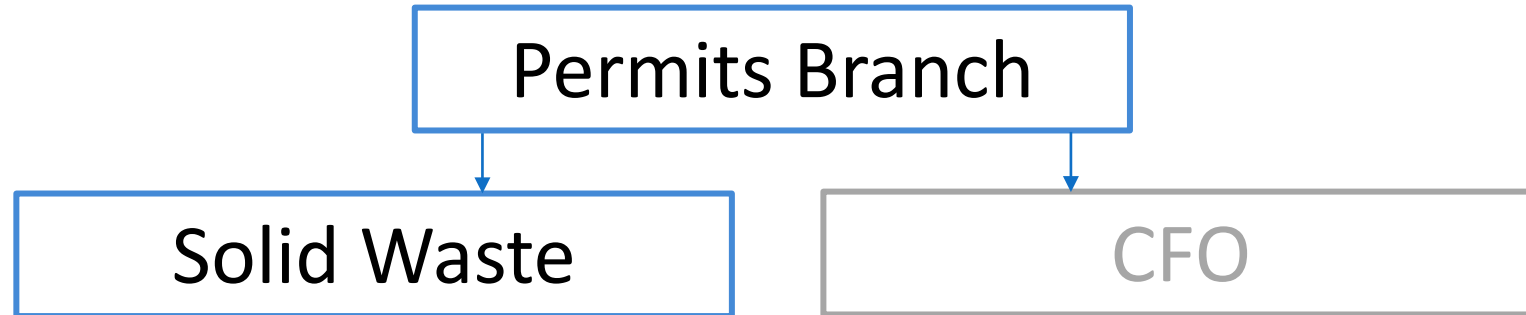
329 IAC 11.5. Biomass Anaerobic Digestion Facilities And Biomass Gasification Facilities

- **Located** at its own property
- **Accepts** biomass or appropriate feedstock

327 IAC 6.1. Land Application Of Biosolid, Industrial Waste Product, And Pollutant-bearing Water

- **Disposal** of digestate by application upon or incorporation into the soil via a land app permit

AD Facility Located Without a CFO *Biomass Only*



329 IAC 11.5. Biomass Anaerobic Digestion Facilities And Biomass Gasification Facilities

- **Located** at its own property
- **Accepts** biomass

355 IAC 8 Fertilizer Material Use, Distribution, and Record Keeping

- **Disposal** of digestate by application upon or incorporation into the soil via a land app permit

Permitting Process

11.5. Biomass Anaerobic Digestion

- No fee to apply
- Encourage a pre-application meeting with permitting and engineering staff
- Application will be reviewed by Permits Engineering staff.
- Permit issued will be five years in length.
- Modifications are required for a change to the process, location, amounts of biomass and any expansion of the permitted facility

Engineering Review Considerations

- Biomass and appropriate feedstock screening procedures
- Plot plans and construction plans
- Descriptions of the storage, processing, treatment and final disposal of inputs and residues
- Descriptions of procedures accounting for any residue, leachate or wastewater and surface water controls
- Contingency plans
- Financial assurance documentation

Permitting Process

327 IAC 6.1. Land Application

- No fee to apply
- Application will be reviewed by Solid Waste Permits staff.
- The first permit issued will be five years in length and renewals are usually ten years.
- Application includes considerations for treatment, residual quality and application site characteristics, among others.

Land Application of AD Residuals

327 IAC 6.1. Land Application Of Biosolid, Industrial Waste Product, And Pollutant-bearing Water

How much can be applied?

- Nitrogen

Can the material be applied?

- Heavy metals
- PCBs

Where can the material be applied?

- Site conditions
- Setback from features

Can the material still be applied?

- Cumulative loadings tracked by field



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