# M E 433

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Lecture 09

#### Today, we will:

- Continue to discuss **flux chambers**, and do an example problem
- Discuss EFs for tank-filling applications, and if time, do an example problem

**Flux Chamber** = an enclosure around a source of air pollutant with which we measure the source strength  $S_i$  of the pollutant.



#### **Example: Methane from a Manure Tank**

**Given**: Methane (CH<sub>4</sub>) is emitted from a 2 m  $\times$  1 m manure tank in a barn. A flux chamber is built on top of the tank to measure the emission rate. The following quantities are measured:

- $c_{j,a} = 0.0020 \text{ mg/m}^3$  (ambient mass concentration of CH<sub>4</sub> in the barn)
- $Q_a = 0.18 \text{ m}^3/\text{s}$  (bulk air flow rate into the flux chamber)



•  $c_{j,ss} = 1.5 \text{ mg/m}^3$  (steady-state mass concentration of CH<sub>4</sub> leaving the flux chamber)

**To do**: Generate an emission factor, EF, for methane from a manure pile.

### Solution:

