Air & Waste Management Association
Kentucky Chamber

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Louisville, KY ♦ November 10, 2017

Evolution of Trinity Consultants

1974

- One person, one office
- Air quality specialty

2017

- Approximately 600 employees
- 48 offices in North America, the UK, the Middle East, and China
- Serve more than 1,400 clients annually
- EHS consulting services with a focus on air quality
- ISO 9001 quality management system, certified in Dallas HQ

TRINITY CONSULTANTS OFFICE LOCATIONS

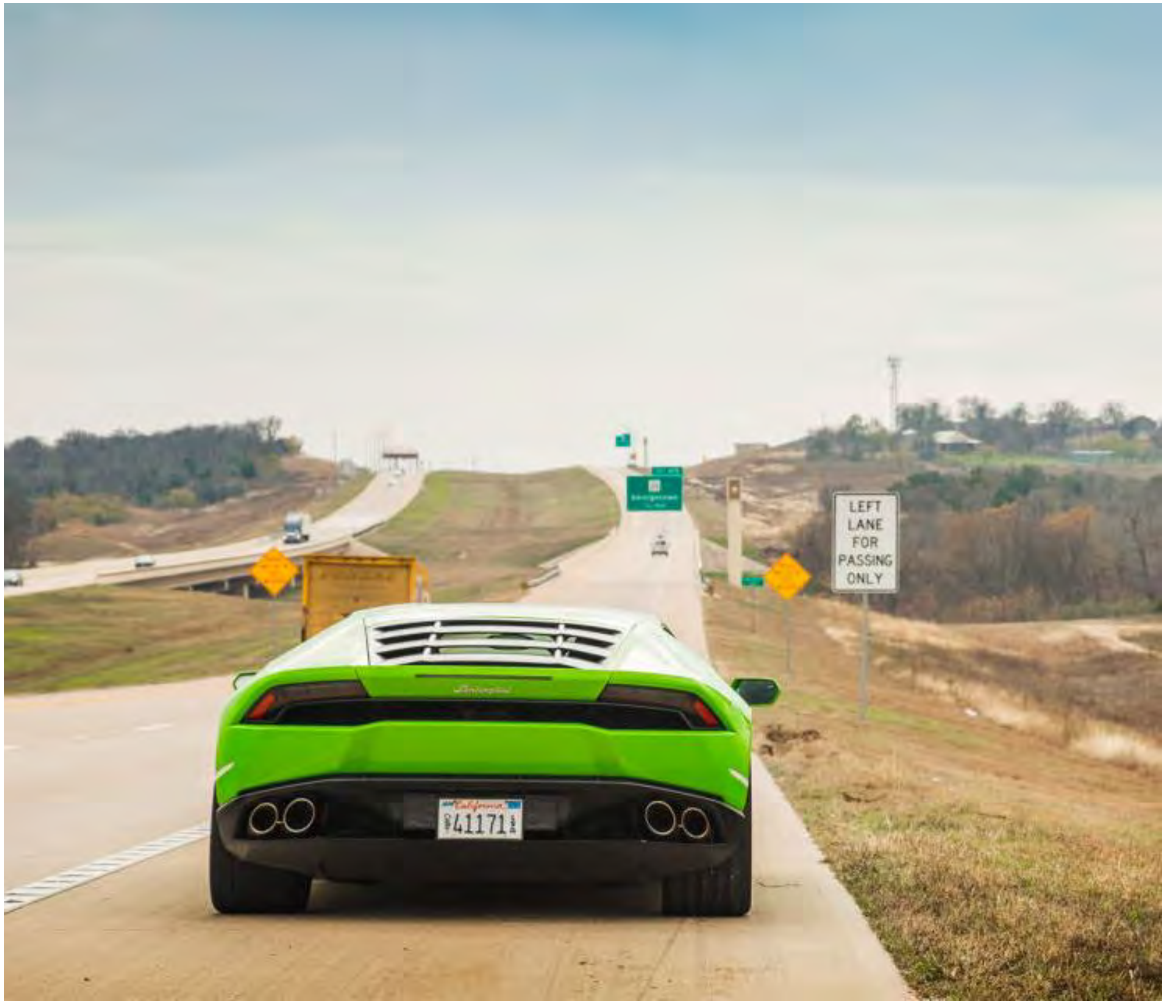
Trinity's Services and Products

- EHS Regulatory Consulting
  - Air quality services
    - Air permitting and compliance
    - Air dispersion modeling
    - Source testing/emissions monitoring support
    - Ambient and meteorological monitoring
  - Waste management
    - Industrial and solid waste management
    - Beneficial use and alternate fuels
  - Water quality services
    - Water quality permitting and compliance
    - Water monitoring, sampling, and treatment analyses
  - NEPA/EIA support
  - Noise and odor analysis
  - Risk Management Planning/Process Safety Management
  - Environmental reporting
  - Industrial siting
  - Client advocacy
  - Litigation support

Trinity's Services and Products

- **EHS Specialty Consulting**
  - EHS performance and assurance
  - EHS information technology solutions – T3
  - Air quality and transportation planning – sierra research AIR POLLUTION RESEARCH & CONTROL ENVIRONMENTAL PROJECT MANAGEMENT A Trinity Consultants Company
  - Vehicle and engine manufacturer support –
  - Aquatic sciences – minnow environmental inc.
  - Occupational health science & toxicology – SafeBridge® CONSULTANTS, INC. A TRINITY CONSULTANTS COMPANY
  - EHS staffing services – TRISPYRIAN RESOURCES
- **Environmental Modeling Software - breeze**
- **Field Monitoring - MSi Meteorological Solutions Inc. A Trinity Consultants Company**
- **Professional EHS Training**

How fast did you drive here?



Evan Klein, Road and Track
http://www.roadandtrack.com/car-culture/a25775/almost-infamous-2015-lamborghini-huracan/

Mass Balance

Exhaust Gases

m_{Exh} (lb/hr Exhaust) = m_{Fuel} (lb/hr gasoline) + m_{Intake} (lb/hr air)

n_{Exh} (lb-mol/hr Exhaust) = m_{Exh} (lb/hr Exhaust) / MW_{Exh} (lb/lb-mol)

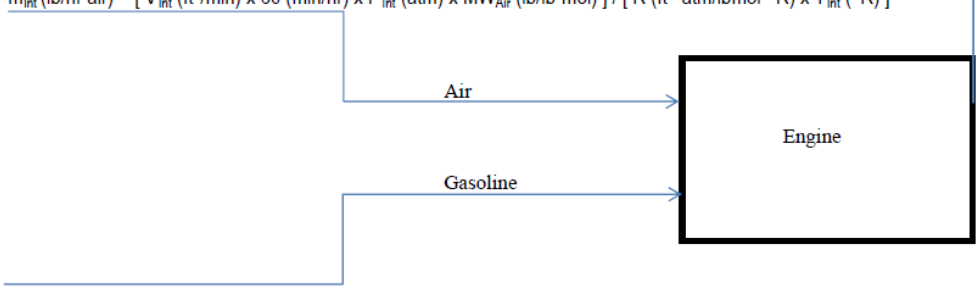
E_{CO} (lb/hr) = m_{Exh} (lb/hr Exhaust) / MW_{Exh} (lb/lb-mol) x MW_{CO} (lb/lb-mol) x C_{CO} (ppmv) / 10^6 (parts)

V_{Exh} (acfm) = [n_{Exh} (lb-mol/hr) x R (ft^3-atm/lbmol-°R) x T_{Exh} (°R)] / [P_{Exh} (atm) x 60 (min/hr)]

m_{Exh} (lb/hr air) = [V_{Exh} (ft^3/min) x 60 (min/hr) x P_{Exh} (atm) x MW_{Air} (lb/lb-mol)] / [R (ft^3-atm/lbmol-°R) x T_{Exh} (°R)]

V_{air} (acfm) = [η_v x n (rev/min) x V_{disp} (liters) x 0.0353 (ft^3/liters)] / [K] at ambient conditions

m_{Int} (lb/hr air) = [V_{Int} (ft^3/min) x 60 (min/hr) x P_{Int} (atm) x MW_{Air} (lb/lb-mol)] / [R (ft^3-atm/lbmol-°R) x T_{Int} (°R)]

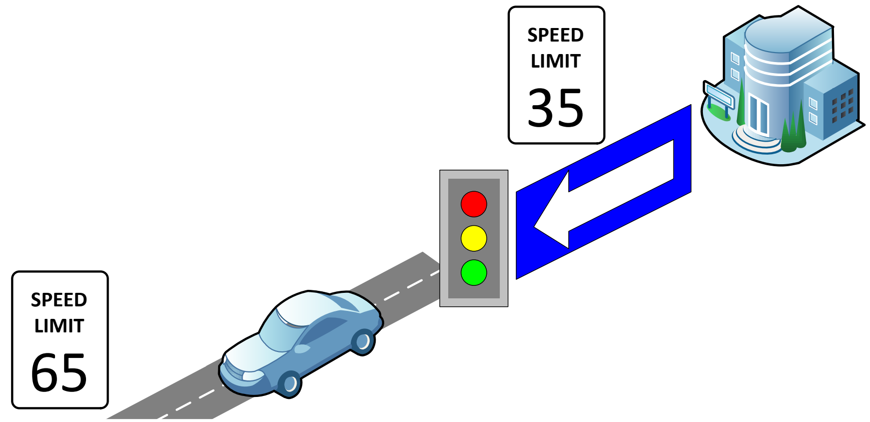


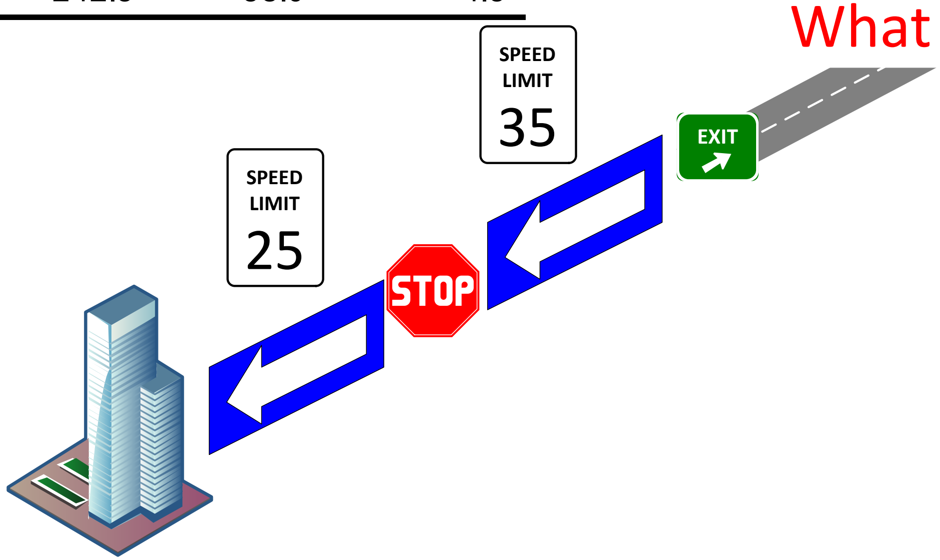
m_{Fuel} (lb/hr gasoline) = m_{Int} (lb/hr air) / A/F

Q_{fuel} (gal/hr) = $Mass_{fuel}$ (lb/hr) x ρ_{Fuel} (lb/gal)

How fast did you drive here?

Distance D (mi)	Speed R (mi/hr)	Time T (hr)
17.5	35.0	0.5
195.0	65.0	3.0
17.5	35.0	0.5
12.5	25.0	0.5
242.5	53.9	4.5



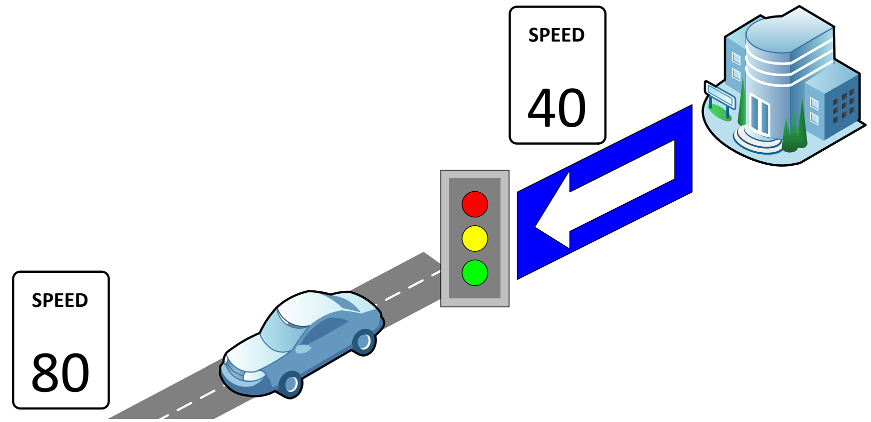


What is the potential to emit (PTE)?

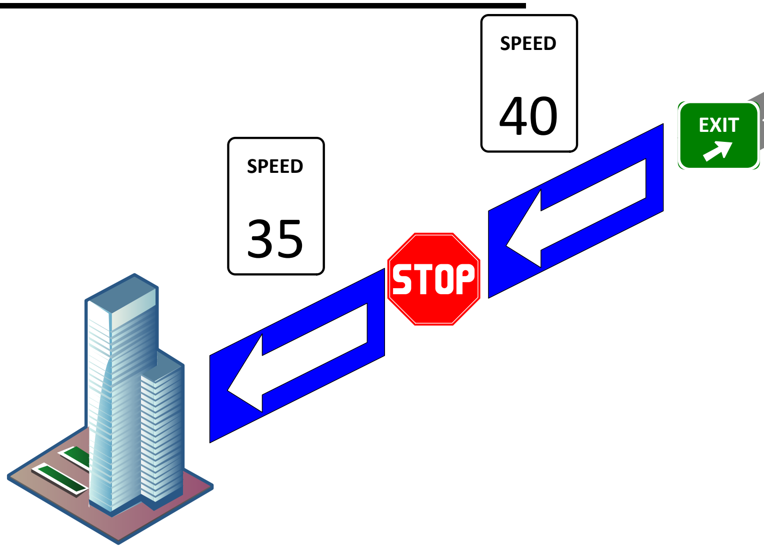
Distance (mi)	Emission Factor (g/mi)	CO Emissions (lbs)	
17.5	6.400	0.247	
195.0	9.500	4.084	
17.5	6.400	0.247	
12.5	6.300	0.174	
242.5	9.061	4.8 lb/yr	At 4.5 hr/yr

How fast did you drive here?

Distance D (mi)	Speed R (mi/hr)	Time T (hr)
17.5	40.0	0.4
195.0	80.0	2.4
17.5	40.0	0.4
12.5	35.0	0.4
242.5	66.1	3.7



What is the potential to emit (PTE)?

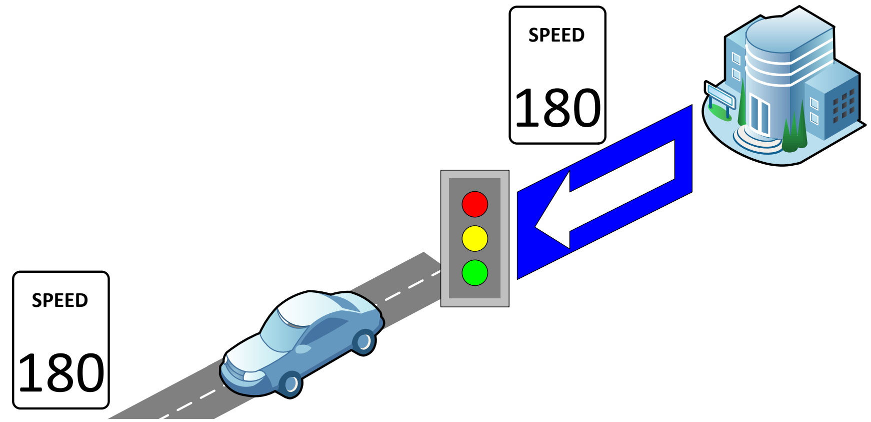


Distance (mi)	Emission Factor (g/mi)	CO Emissions (lbs)	
17.5	6.900	0.266	
195.0	16.000	6.878	
17.5	6.900	0.266	
12.5	6.400	0.176	
242.5	15.138	7.6 lb/yr	At 3.7 hr/yr

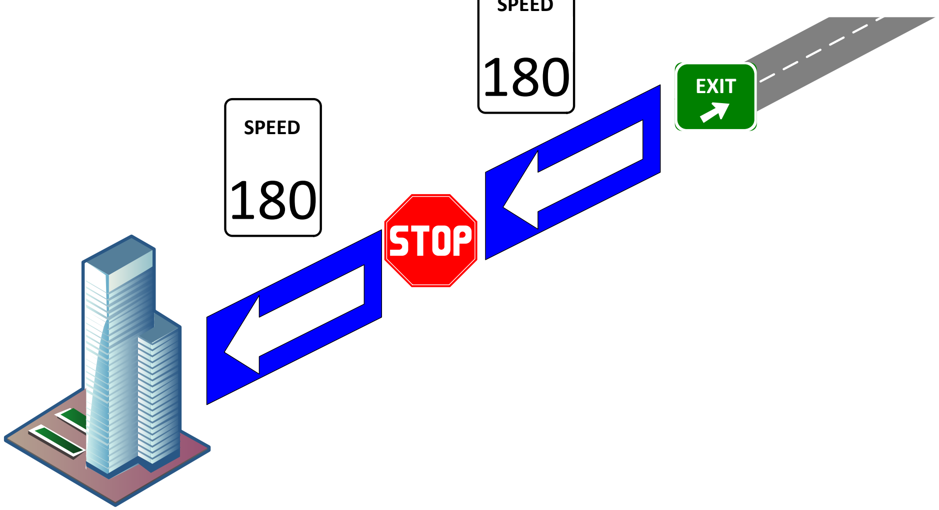
Evan Klein, Road and Track
http://www.roadandtrack.com/car-culture/a25775/almost-infamous-2015-lamborghini-huracan/

How fast did you drive here?

Distance D (mi)	Speed R (mi/hr)	Time T (hr)
17.5	180.0	0.1
195.0	180.0	1.1
17.5	180.0	0.1
12.5	180.0	0.1
242.5	180.0	1.3



What is the potential to emit (PTE)?



Distance (mi)	Emission Factor (g/mi)	CO Emissions (lbs)	
17.5	60.00	2.315	
195.0	60.00	25.794	
17.5	60.00	2.315	
12.5	60.00	1.653	
242.5	60.00	32.1 lb/yr	At 1.3 hr/yr

How fast did you drive here?

Distance D (mi)	Speed R (mi/hr)	Time T (hr)
17.5	35.0	0.5
195.0	65.0	3.0
17.5	35.0	0.5
12.5	25.0	0.5
242.5	53.9	4.5

Distance D (mi)	Speed R (mi/hr)	Time T (hr)
17.5	40.0	0.4
195.0	80.0	2.4
17.5	40.0	0.4
12.5	35.0	0.4
242.5	66.1	3.7

Distance D (mi)	Speed R (mi/hr)	Time T (hr)
17.5	180.0	0.1
195.0	180.0	1.1
17.5	180.0	0.1
12.5	180.0	0.1
242.5	180.0	1.3

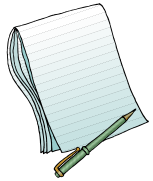
What is the potential to emit (PTE)?

Distance (mi)	Emission Factor (g/mi)	CO Emissions (lbs)
17.5	6.400	0.247
195.0	9.500	4.084
17.5	6.400	0.247
12.5	6.300	0.174
242.5	9.061	4.8 lb/yr
Potential Emissions =>		9,250 lb/yr
		4.6 tpy

Distance (mi)	Emission Factor (g/mi)	CO Emissions (lbs)
17.5	6.900	0.266
195.0	16.000	6.878
17.5	6.900	0.266
12.5	6.400	0.176
242.5	15.138	7.6 lb/yr
Potential Emissions =>		18,112 lb/yr
		9.1 tpy

Distance (mi)	Emission Factor (g/mi)	CO Emissions (lbs)
17.5	60.00	2.315
195.0	60.00	25.794
17.5	60.00	2.315
12.5	60.00	1.653
242.5	60.00	32.1 lb/yr
Potential Emissions =>		208,576 lb/yr
		104.3 tpy

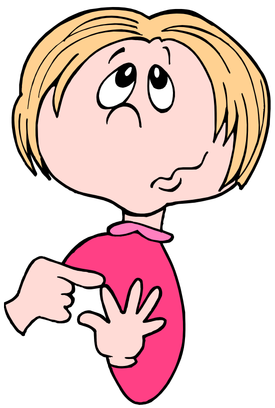
Importance of Source Classification



- First question in determining applicability to air regulations and/or permitting requirements:
  "What is my source classification?"
- Key concepts to understand to answer:
  - Meaning of term "source"
  - Distinguish between source classification based on
    - <u>date of construction/modification</u>
    - <u>emissions</u>

Definition of “Source” in Air Regulations

- “Source” generally refers to a group of emission units regulated together as one entity, e.g.:
  - Facility
  - Group of similar processes regulated together
  - Individual emission units
- Typical criteria considered in defining source:
  - Industry classification
  - Equipment proximity (e.g., contiguous/adjacent)
  - Relationship of owners (e.g., common control)
  - Type or size of process



Multiple Uses of Term "Source"

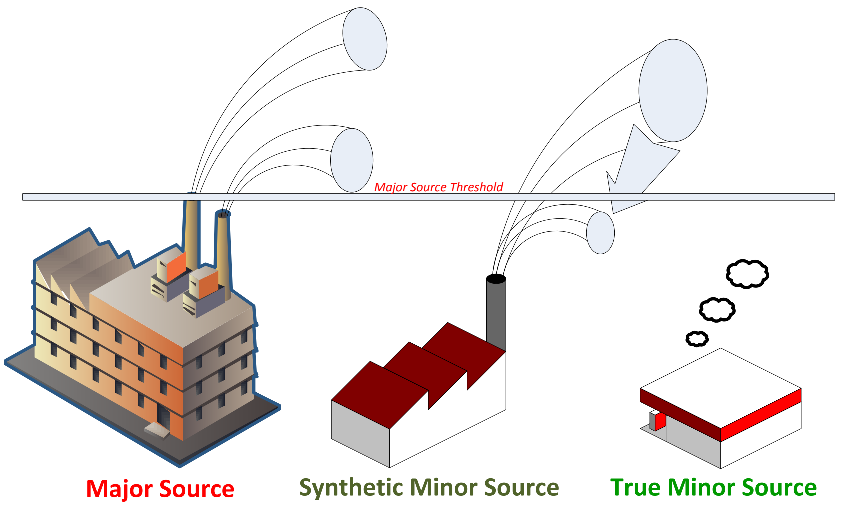
- Different criteria for different regulatory programs
- Need to understand the underlying regulation or permitting program being considered
  - In context of air permitting programs, "source" typically refers to the facility
  - In context of particular air regulations (e.g., NSPS, NESHAP), "source" typically refers to specific subset of equipment at a facility (affected facility)

Source Classification with Respect to Construction Date

- Source classification tiers for facilities, processes, or individual emission units:
  - New Source
  - Existing Source, Not Grandfathered
  - Existing Source, Grandfathered
- Each regulatory program will have its own criteria for defining these classifications
- Key date is generally when regulation is <u>proposed</u>

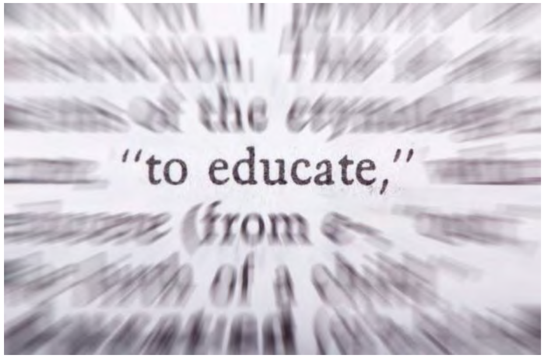
Source Classification with Respect to Emissions

- Three general source classification tiers for facilities as a whole:
  - Major
  - Synthetic Minor
  - True Minor



- Each regulatory program can have its own thresholds
- "Potential to Emit" compared to thresholds

General Provisions Definitions

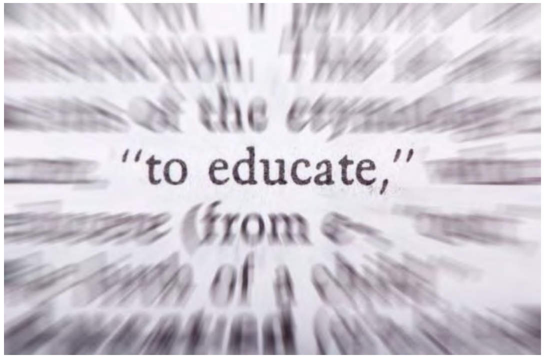


Per Regulation 1.02, Section 1.61 (Referenced in Reg 2.03 & 2.17)

Potential to emit (PTE) means the *maximum capacity* of a *stationary source* **or** an *affected facility* to emit a pollutant under its physical and operational design.

Any physical or operational limitation on the capacity of the *stationary source* **or** *affected facility* to emit a pollutant, including air pollution control equipment and restrictions on the hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is *federally enforceable*. *Secondary emissions* **do not** count in determining the potential to emit of a stationary source or affected facility.

Construction Definitions Major Sources



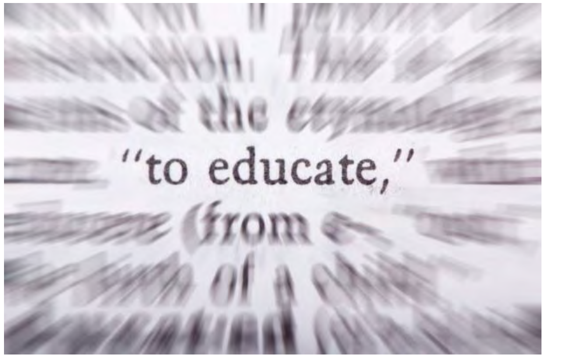
Per Regulation 2.04, Section 2.2.4

Potential to emit means the *maximum capacity* of a *stationary source* to emit a pollutant under its physical and operational design.

Any physical or operational limitation on the capacity of the *source* to emit a pollutant, including air pollution control equipment and restrictions on the hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is locally and *federally enforceable*.

Secondary emissions **do not** count in determining the potential to emit of a stationary source.

Title V Permits Definitions



Per Regulation 2.16, Section 1, 1.31

Potential to emit means the *maximum capacity* of a *stationary source* to emit any air pollutant under its physical and operational design.

Any physical or operational limitation on the capacity of a *source* to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is *federally enforceable* by the EPA.

This term does not alter or affect the use of this term for other purposes of the Act, or the term "capacity factor" as used in the Acid Rain Program.

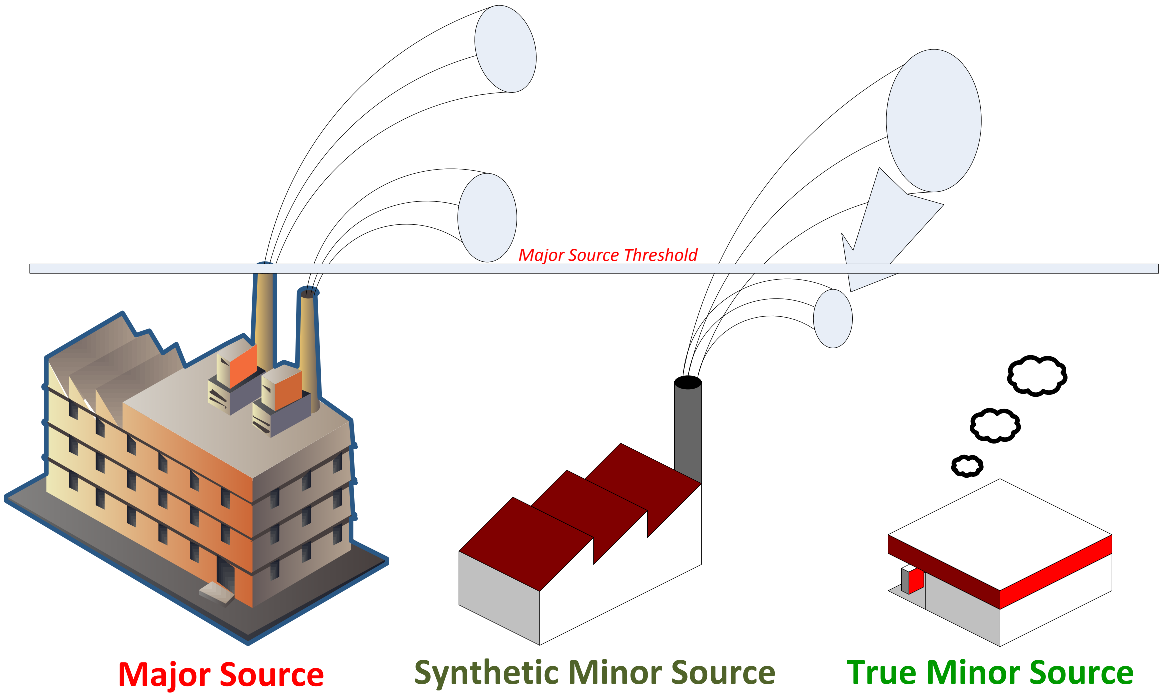
Potential to Emit

- Maximum capacity to emit
- May be limited by:
  - Physical and operational limits
  - Air pollution control equipment
  - Restricted hours of operation
  - Type or amount of material combusted, stored, or processed
- Limitations must be enforceable

Enforceable Limitations - How?

- Two qualifiers
  - Operating and/or emission limits in an air permit undergoing public notice
  - Appropriate testing, monitoring & recordkeeping to ensure compliance can be demonstrated

Actual vs. Potential



How to Calculate PTE

1. Conduct a facility-wide inventory of emission sources
2. Identify any legally enforceable limitations
3. Choose emission calculation methodologies
4. Gather necessary process data
5. Calculate PTE for each emission source
6. Calculate total site-wide PTE for the facility

Potential to Emit
Example - Steam Boiler (1 of 2)

- Specifications
  - Equipped to fire fuel oil
  - Maximum design heat input rating of 50 MMBtu/hr
  - Equipped with a caustic scrubber
- Boiler operating and test data
  - PM from stack testing measured at 0.05 lb/MMBtu
  - Boiler fired 2 million gallons of oil in 2010
  - Oil heating value is 0.148 MMBtu/gal
- Permit conditions
  - Boiler is subject to a PM emission standard of 0.1 lb/MMBtu
  - No other restrictions on operations

Potential to Emit Example - Steam Boiler (2 of 2)

- Does actual fuel usage (utilization) or true emission factor matter?
- Does actual uptime operating hours matter?
- Do you have to consider emissions from other fuels?
- How do you account for PM control from the scrubber?

Potential to Emit Example - Steam Boiler

- Actual PM emissions for 2010:

$$\left(\frac{2\times10^{6}\ \mathrm{gal}}{\mathrm{yr}}\right)\left(\frac{0.148\ \mathrm{MMBtu}}{\mathrm{gal}}\right)\left(\frac{0.05\ \mathrm{lb}}{\mathrm{MMBtu}}\right)\left(\frac{\mathrm{ton}}{2000\ \mathrm{lb}}\right)=7.4\ \mathrm{tpy}$$

$$\left(\frac{296{,}000\ \mathrm{MMBtu}}{\mathrm{yr}}\right)\left(\frac{0.05\ \mathrm{lb}}{\mathrm{MMBtu}}\right)\left(\frac{\mathrm{ton}}{2000\ \mathrm{lb}}\right)=7.4\ \mathrm{tpy}$$

- Potential to Emit for PM:

$$\left(\frac{50\ \mathrm{MMBtu}}{\mathrm{hr}}\right)\left(\frac{8760\ \mathrm{hr}}{\mathrm{yr}}\right)\left(\frac{0.1\ \mathrm{lb}}{\mathrm{MMBtu}}\right)\left(\frac{\mathrm{ton}}{2000\ \mathrm{lb}}\right)=21.9\ \mathrm{tpy}$$

$$\left(\frac{438{,}000\ \mathrm{MMBtu}}{\mathrm{yr}}\right)\left(\frac{0.1\ \mathrm{lb}}{\mathrm{MMBtu}}\right)\left(\frac{\mathrm{ton}}{2000\ \mathrm{lb}}\right)=21.9\ \mathrm{tpy}$$

“True Minor” Source

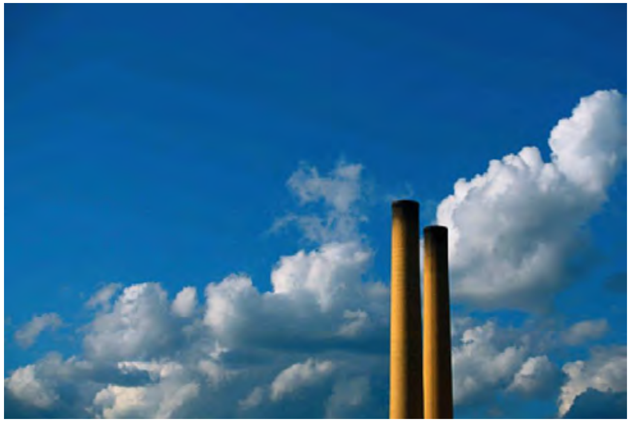
- Source’s Potential To Emit is less than the major source threshold, even without any federally enforceable limits on emissions and/or operations
  - Sometimes referred to as a “natural minor”

“Synthetic Minor” Source

- Actual emissions are less than major source levels but Potential to Emit is greater than major source levels
- A synthetic minor source is one that has ***chosen*** to reduce its PTE to minor source levels from major source levels by accepting enforceable limits on emissions and/or operations
- Regulation 2.17 - Federally Enforceable District Origin Operating Permits

Major Source

- Source’s PTE exceeds major source thresholds
- Source can not or chooses not to propose limits on emissions and/or operations to reduce its PTE



Example: Title V Program Major Source (40 CFR 70.2)

- Major Source Criteria:
  - Contiguous/adjacent, common control, same 2-digit SIC code
- Major Source Thresholds:
  - > 100 tpy for any air pollutant, or
  - > 10 tpy for any single HAP, or > 25 tpy in aggregate
- Fugitives: Include only for certain source categories

Example: Title V Program Major Source (40 CFR 70.2)

Update…

- As of June 23, 2014,** The U.S. EPA **will no longer** apply or enforce federal regulatory provisions or provisions of the EPA-approved Title V programs that require a *stationary source* to obtain a Title V permit solely because the source emits or has the PTE GHGs above the major-source thresholds (e.g., the regulatory provision relating to GHG under the definition of "subject to regulation" in 40 CFR 71.2)

** See http://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/ghg/epa-ghg-memo.pdf

Example: NESHAP Program Major Source (40 CFR 63.2)

- Major Source Criteria:
  - Stationary source or group of stationary sources located within a contiguous area and under common control
- Major Source Thresholds:
  - > 10 tpy for any single HAP, or
  - > 25 tpy for any combination of HAPs
- Fugitives: Include in calculation

Major Stationary Source Under NSR/PSD Program

> Stationary sources that have potential to emit (PTE) one or more regulated NSR pollutants exceeding:

Threshold	Criteria
100 tpy	If on "List of 28" named source categories • Hard coded in Clean Air Act at 42 USC 7479 • e.g., Reg 2.16, 1.25.2, includes "Chemical process plants" as a category
250 tpy	If NOT on "List of 28"

Note: If major for one pollutant, then plant is treated as a major source for all pollutants

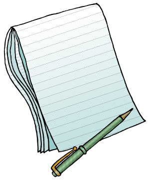
List of 28 (100 tpy Threshold)

1. Coal cleaning plants (with thermal dryers)
2. Kraft pulp mills
3. Portland cement plants
4. Primary zinc smelters
5. Iron and steel mills
6. Primary aluminum ore reduction plants
7. Primary copper smelters
8. Municipal incinerators capable of charging more than 250 tons of refuse per day
9. Hydrofluoric acid plants
10. Sulfuric acid plants
11. Nitric acid plants
12. Petroleum refineries
13. Lime plants
14. Phosphate rock processing plants
15. Coke oven batteries
16. Sulfur recovery plants
17. Carbon black plants (furnace process)
18. Primary lead smelters
19. Fuel conversion plants
20. Sintering plants
21. Secondary metal production plants
22. Chemical process plants
23. Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels
24. Taconite ore processing plants
25. Glass fiber processing plants
26. Charcoal production plants
27. Fossil fuel-fired steam electric plants of more than 250 million British thermal units (BTU) per hour heat input
28. Fossil-fuel boilers (or combination thereof) totaling more than 250 million BTU/ hour heat input

PSD Applies if…

- New Sources: Plant will be a new major stationary source
  - New Source PTE ≥ 100 or 250 tpy (depending on List of 28 status)
- Existing Minor Sources: Make a modification that in itself is "major"
  - Project emissions increase for one pollutant ≥ 100 or 250 tpy
    - Note that in this case, applicability threshold for other pollutants drops to Significant Emission Rates
    - No netting allowed
- Existing Major Stationary Sources: Make a modification that exceeds PSD Significant Emission Rates
  - 15 tpy for PM_{10}, 10 tpy for $PM_{2.5}$, 40 tpy for VOC, NO_X, or SO_2, 100 tpy for CO, etc.
  - May attempt "net-out" of PSD review with contemporaneous decreases

"Regulated NSR Pollutant"



- Pollutant covered by NAAQS or precursor
  - PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, Pb, O_3, VOC
- Pollutant covered by a NSPS
  - H_2S, TRS, H_2SO_4, Fluorides, etc.
- Ozone depleting substances
- Any pollutant that otherwise is "subject to regulation under the Act"
- HAPs are excluded unless regulated as constituent or precursor of above categories

Case Study Examples

Source Classification Part 1

(1 of 2)

- Resin Manufacturing Plant with following annual emissions, in tons per year:

	Actuals	PTE
$PM/PM_{10}/PM_{2.5}$:	0.2	10
VOC:	9.9	99
Individual HAP:	0.5	9.9
Total HAPs:	0.9	20
GHGs (as CO_2e):	1,300	100,001

- Major Title V source?
- Major HAP source (with respect to NESHAP)?

Source Classification Part 1 - Answer (1 of 2)

- Facility is **not** a major source under Title V as PTE of a regulated pollutant is below 100 tpy
- Facility is a minor source of HAP since PTE of HAPs are less than 10 tpy (single) and 25 tpy (combined)
- Check on applicability of “area source” NESHAPs (e.g., SUBPART VVVVVV: Chemical Manufacturing Area Sources)

Update…

- Prior to the supreme court ruling, meaning earlier than March 2014, this facility would have been required to submit a Title V permit.

Source Classification Part 2

(1 of 2)

- Resin Manufacturing Plant with following annual emissions, in tons per year:

	Maximum	PTE
❖ PM/PM_{10}/$PM_{2.5}$:	2.0	10
❖ VOC:	65.0	600
❖ Individual HAP:	8.9	250
❖ Total HAPs:	10.5	500
❖ GHGs (as CO_2e):	10,300	100,001

- Major Title V source?
- Major HAP source (with respect to NESHAP)?

Source Classification Part 1 - Answer (2 of 2)

- Source classification does not depend on maximum actuals!!!!!!
- Facility is a major source under Title V as PTE of a regulated pollutant is above 100 tpy.
- Facility is a major source of HAP since PTE of HAPs are greater than 10 tpy (single) and 25 tpy (combined).
- As a chemical manufacturing company, various NESHAPs could apply:
  - SUBPART EEEE: Organic Liquids Distribution (Non-Gasoline)
  - SUBPART JJJ: Group IV Polymers and Resins
  - Subpart FFFF: Miscellaneous Organic Chemical Manufacturing (MON)
  - Subpart DDDDD: Industrial, Commercial, and Institutional Boilers and Process Heaters

Potential to Emit Limitations

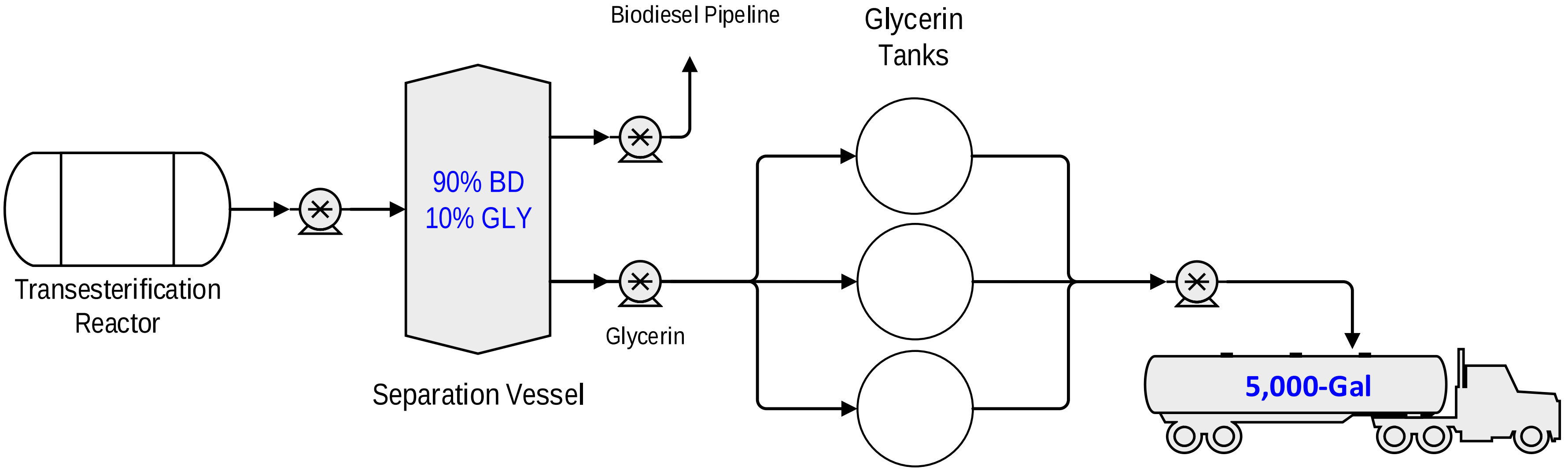
- Key Definitions:
  - Continuous Operation- Processes for which feed and product output happen simultaneously
  - Batch Operation- Processes for which production occurs in discrete batches

Physical and Operational Limitations

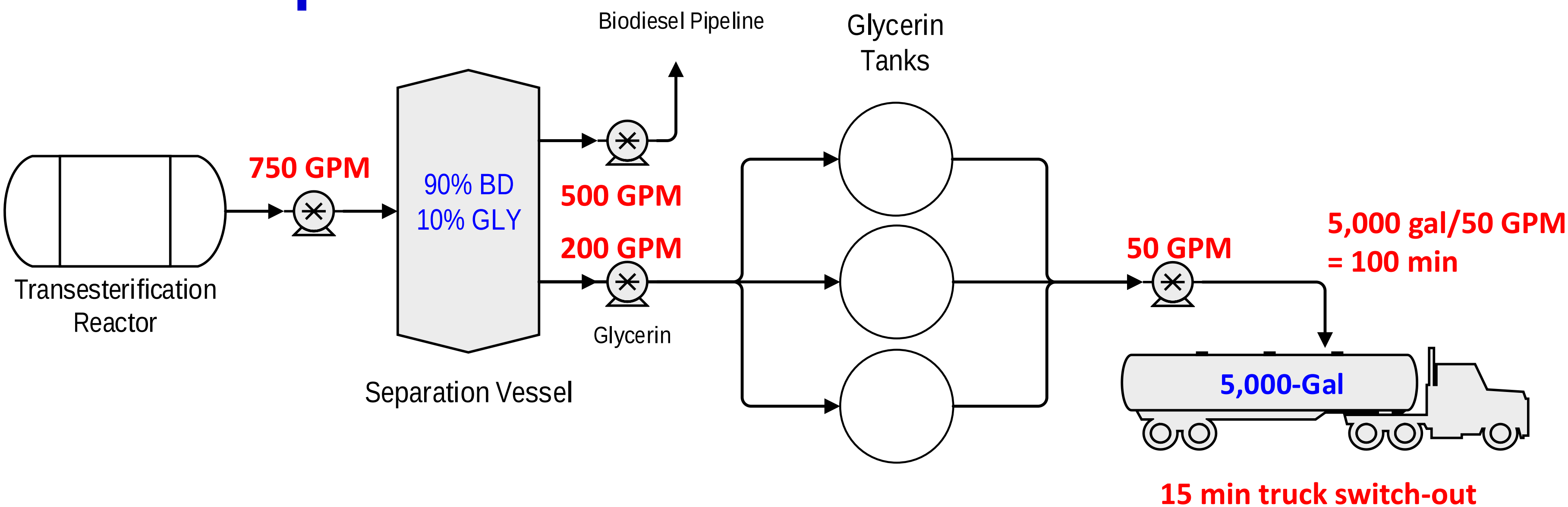
- Physical and operational limitations must be equipment-based and not market-based
  - Operational bottlenecks are a justifiable reason to limit PTE
  - Not having enough customers to operate 3 shifts per day is not a limit to PTE

Example 1 - PTE Limitations

> Biodiesel production (continuous)



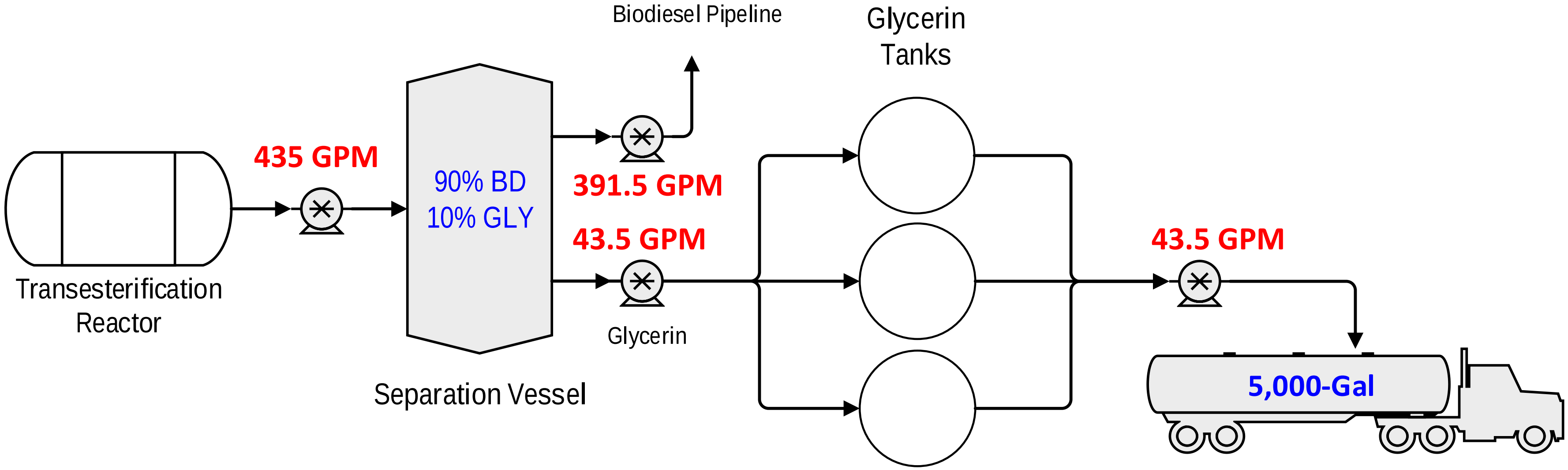
Example 1 - PTE Limitations



- Based on pumping capacities alone, the transesterification reactor throughput is 750 gpm
- The biodiesel pipeline pump limits the transesterification reactor to 550 gpm
  - 500 gpm biodiesel / 90% biodiesel reactor output = 550 gpm
- The glycerin tank loading truck limits the transesterification reactor to 500 gpm
  - 50 gpm glycerin / 10% glycerin reactor output = 500 gpm
- Truck loading
  - Including the switch-out, it takes 115 minutes to load a truck
    - 5,000-gal truck / 50 gpm + 15 min switch-out = 115 minutes
  - Therefore, truck loading limits the transesterification reactor to 435 gpm
    - 5,000 gal / 115 min / 10% glycerin reactor output = 435 gpm

Example 1 - PTE Limitations

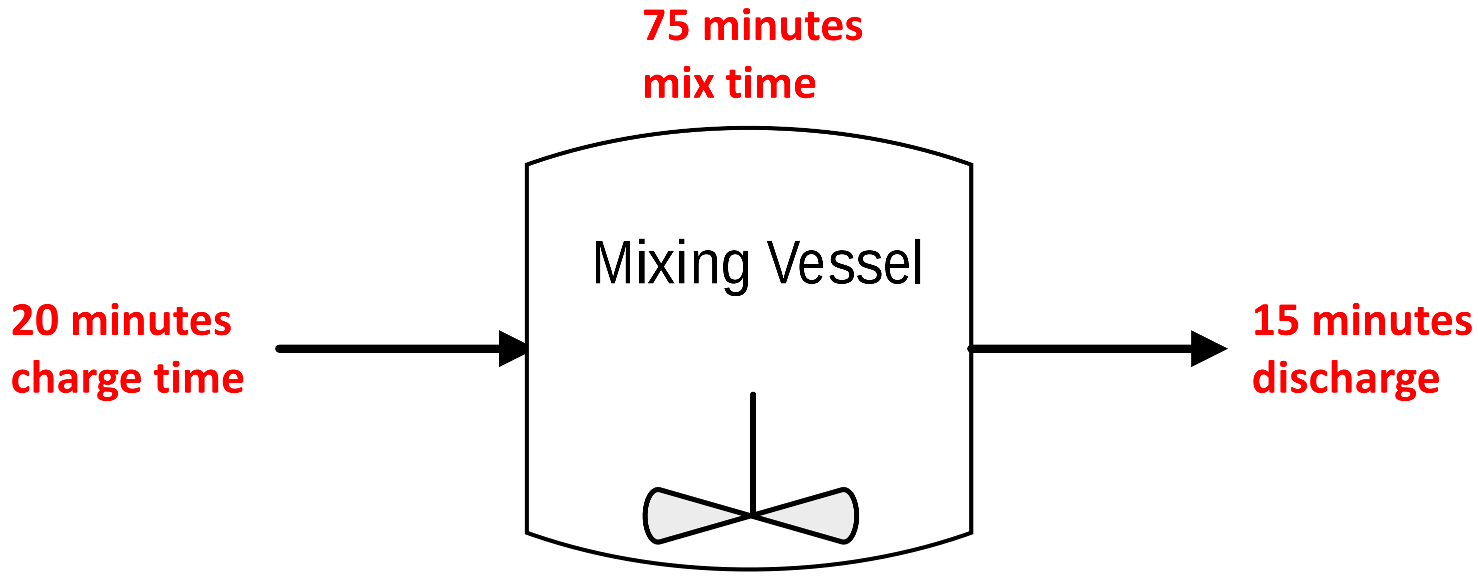
> Biodiesel production (continuous)



Batch Process Limitations

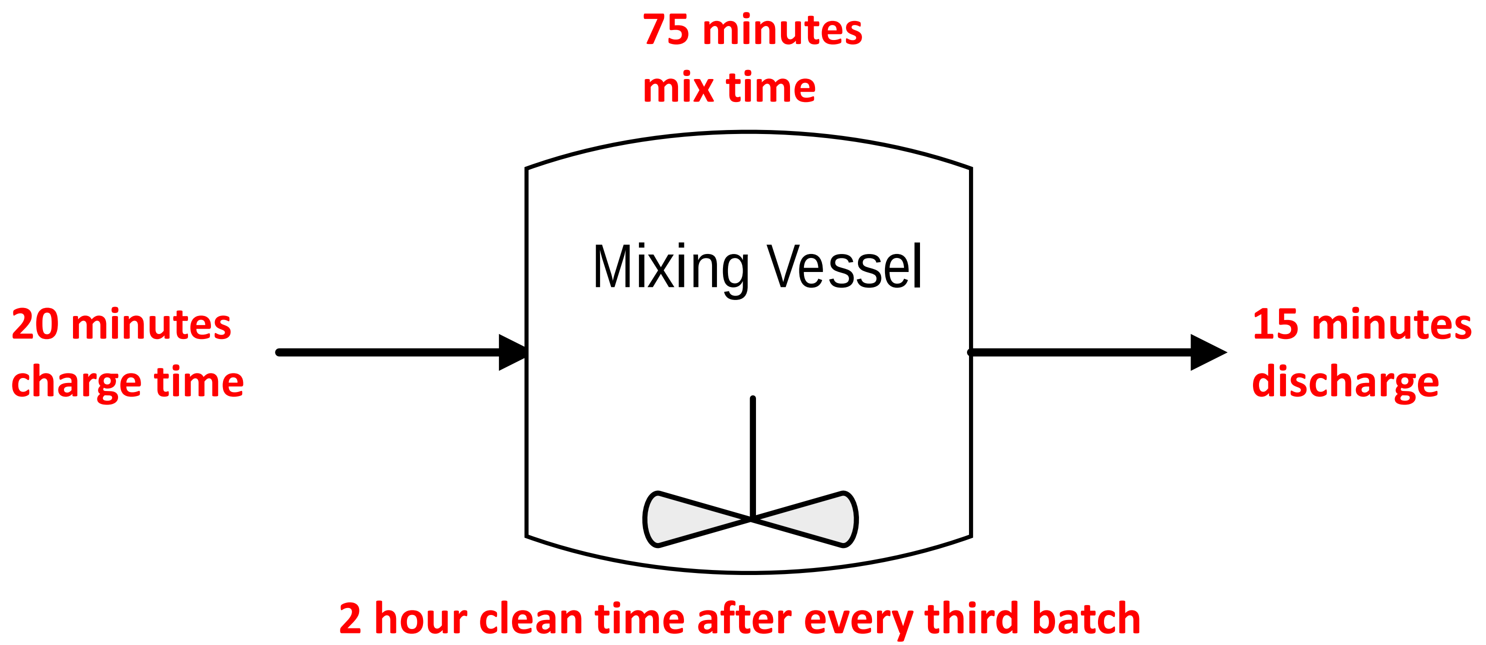
- Batch process limitations are operational limitations
  - i.e., due to the nature of batch production, there are inherent bottlenecks to a process or equipment train
  - Batch processes cannot receive raw material and produce products simultaneously- so how do we account for the non-production time?

Example 2 - Batch Processes



- If a batch is 500 gallons, the maximum throughput is 273 gph
  - 500 gal batch / 110 min x 60 min/hr = 273 gph

Example 2 - Batch Processes



- In order to produce 3 500-gal batches, 450 min is necessary
  - 110 min x 3 + 120 min per cleaning = 450 min
- Thus, the production rate is 200 gph
  - 1,500 gal in 3 batches / 450 min x 60 min/hr = 200 gph

Batch Processes - Worst Case Emissions

- Batch process calculations become more complicated when dealing with variations that often accompany batch production
  - How do you handle processes that have 10, 20 or 30+ different raw materials that change depending on the product?
  - What if different products require different peripheral equipment set-ups?

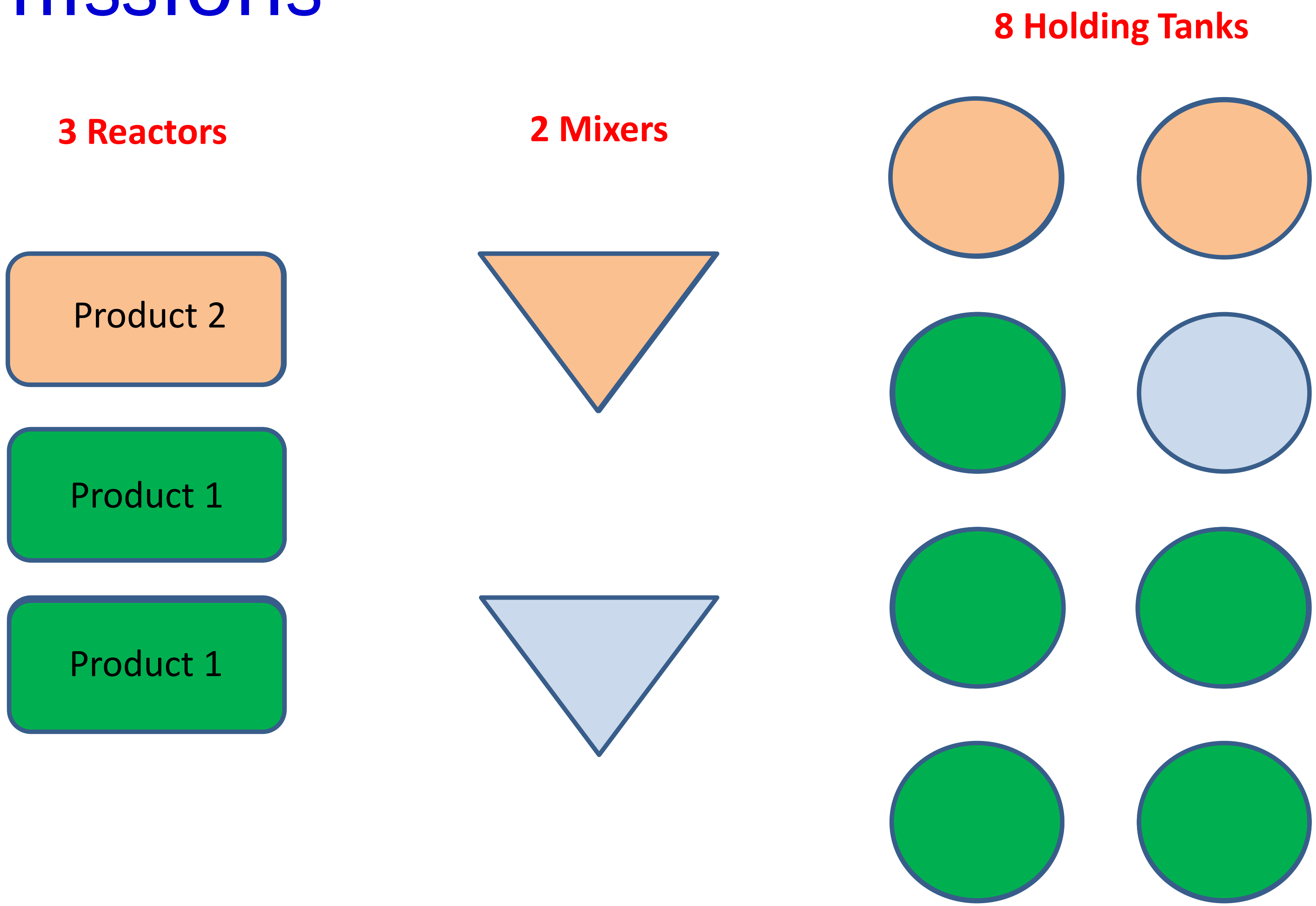
Batch Processes - Worst Case Emissions

- Multiple products that are processed in the same equipment
  - Employ the “Frankenstein” approach
    - i.e., quantify emissions by assuming you run the worst-case VOC-emitting product for every batch
    - Repeat that process for each regulated criteria pollutant, HAP, etc.
    - Combine them all together for a worst-case emissions profile

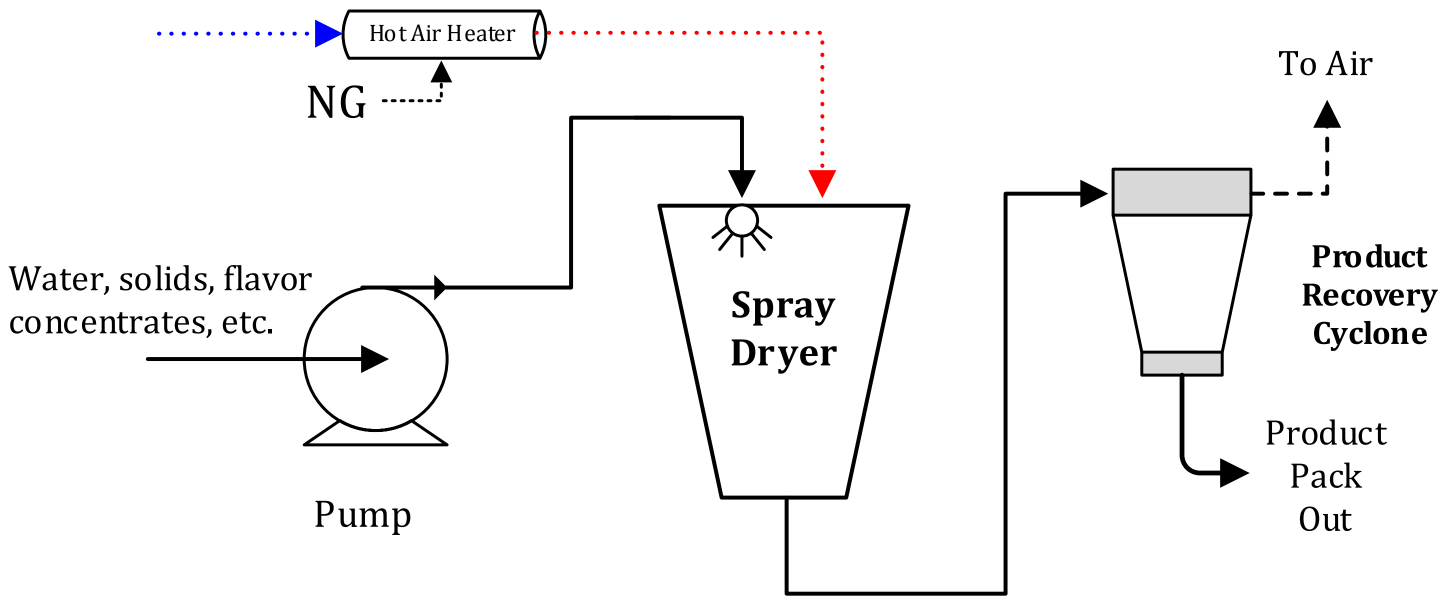
Batch Processes - Worst Case Emissions

- Equipment Utilization
  - Likely the most complicated batch process PTE calculation, but can be performed by analysis of batch sheets
  - Involves calculating PTE for each criteria pollutant and HAP by hypothetically configuring all available equipment in the way that will maximize emissions

Batch Processes - Worst Case Emissions



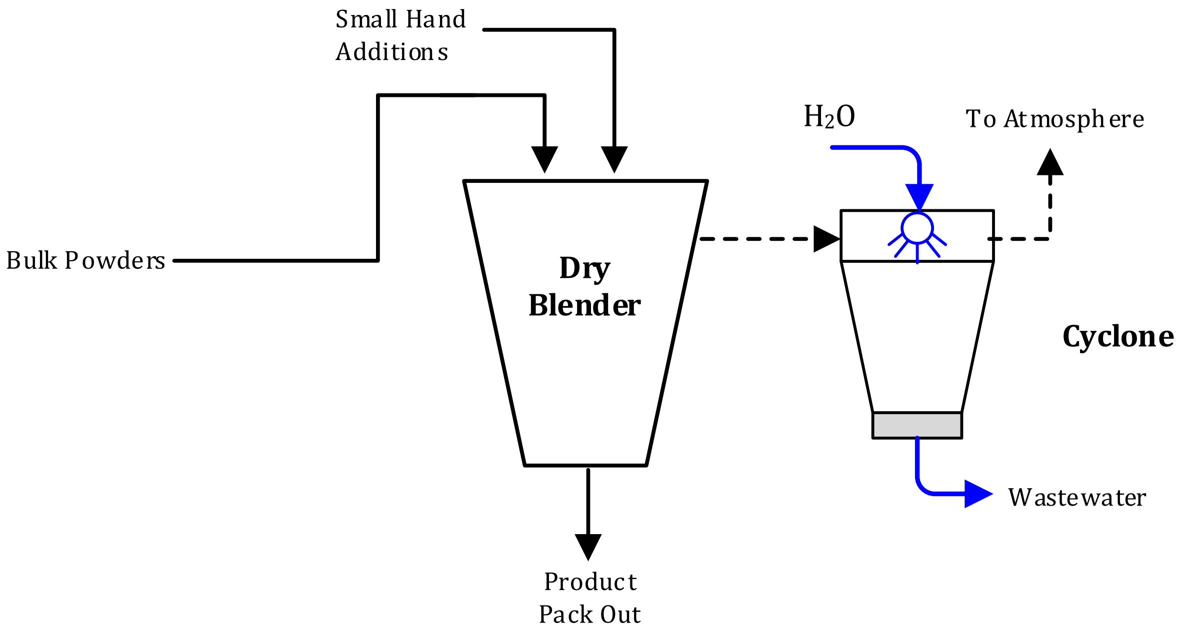
Real World Examples



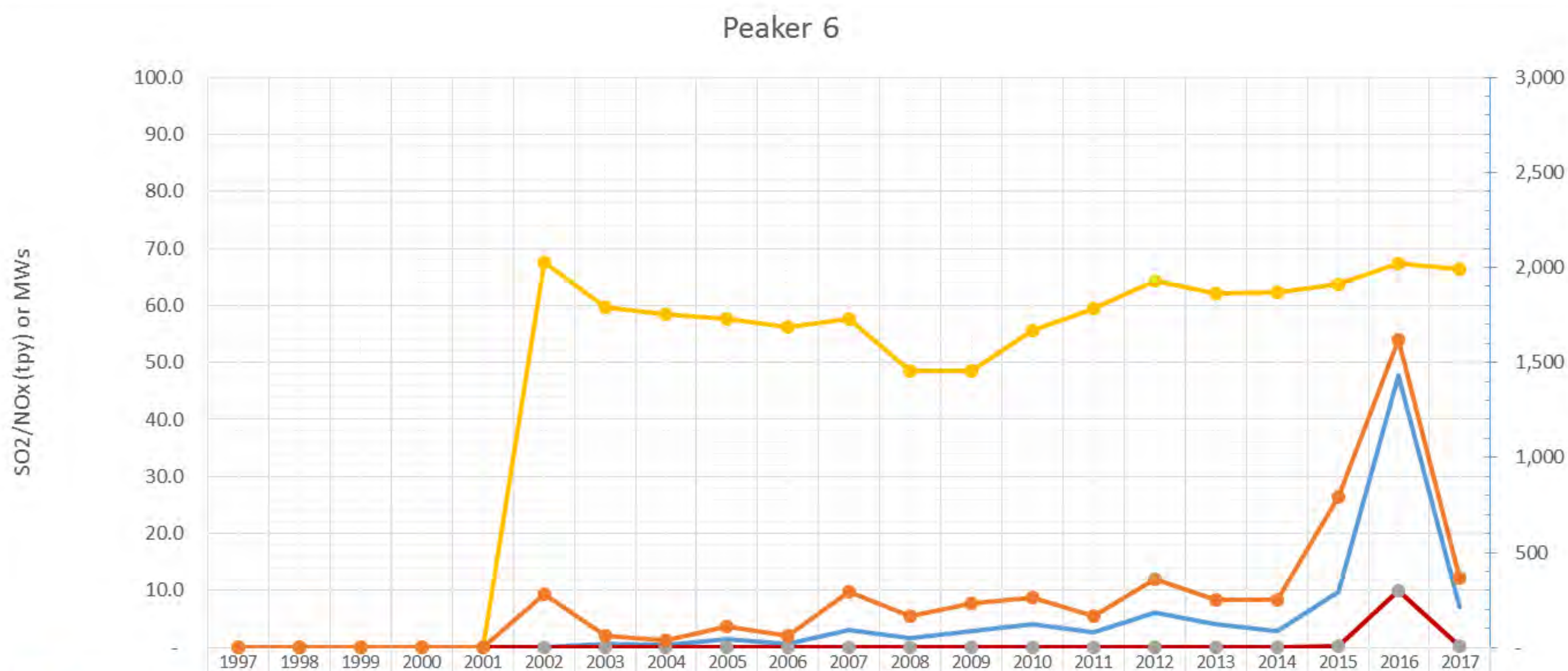
- "Frankenstein" Approach at a flavor plant
  - The pump has a capacity of 100 gpm of slurry (i.e., water, solids, etc.) to the spray dryer
  - Conducted a thorough product formulation sheet review of the hundreds of potential products
  - The products with the highest level of solids input were chosen to estimate PM PTE
  - The products with the highest level of solvents (e.g., ethanol) were chosen to estimate VOC emissions

Real World Examples

- The dry blenders may produce many different products, but each have the same production rate
  - Thus, the PM emissions would not vary from product to product
  - As a batch process, the necessary cleaning time was incorporated in to the PTE production rate calculation
  - In order to assess emissions, we used a combination of AP-42 and process data to create a mass balance



Real World Examples



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NOx (tons)	-	-	-	-	-	-	0.6	0.5	1.4	0.6	3.2	1.7	3.0	4.1	2.6	6.2	4.1	2.9	9.7	47.7	7.3
SO2 (tons)	-	-	-	-	-	0.070	0.014	0.008	0.025	0.014	0.066	0.034	0.042	0.059	0.037	0.088	0.060	0.058	0.190	10.05	0.331
MWs	-	-	-	-	-	67.6	59.7	58.5	57.7	56.3	57.6	48.4	48.5	55.6	59.4	64.3	62.2	62.4	63.7	67.4	66.3
Operating Time	-	-	-	-	-	279.7	60.7	36.9	113.7	61.6	293.3	168.4	230.6	263.1	162.9	359.2	249.1	249.7	790.9	1,617	365.2

Questions?

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