



# TCEQ Oil and Gas Industry Emissions Event Workshop

Texas Commission on Environmental Quality



October 31, 2019

# Mission Statement:

The Texas Commission on Environmental Quality strives to protect our state's public health and natural resources consistent with sustainable economic development. Our goal is clean air, clean water, and the safe management of waste.

# Staff and Budget

- TCEQ is the environmental agency for the state.
- Approximately 2,800 employees
- 16 regional offices (~ 750 employees)
- \$400 million operating budget

\$327.8 million from program fees

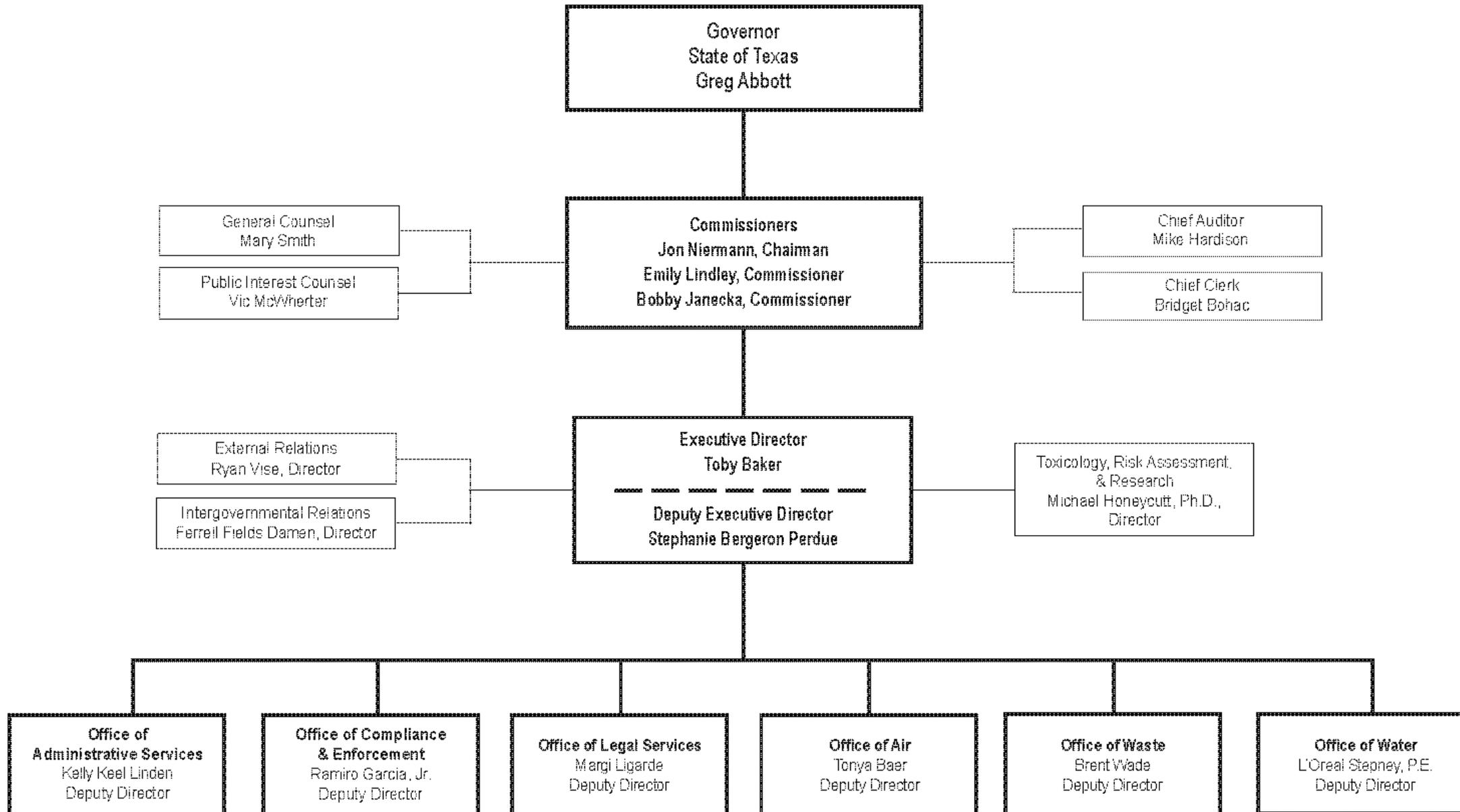
\$ 36.8 million from federal funding

\$ 25.9 million from general state revenue

\$ 9.5 million from other sources

# TCEQ ORGANIZATION

September 16, 2019





# TCEQ's Regulatory Role

The Railroad Commission of Texas (RRC) has primary regulatory jurisdiction over the oil and gas (O&G) industry.



- TCEQ is responsible for regulating air emissions from O&G and for ensuring air quality, as well as any potential impact to water.
- Investigations performed in response to oil and gas activities in multiple programs:
  - air quality
  - water quality
  - public water supply
  - wastewater collection and treatment
  - solid waste disposal
  - illegal dumping
  - dust control
  - surface water usage
  - water rights

October 31, 2019

# Compliance Tools



## Small Business and Local Government Assistance

**Publications**

**Regulatory  
Workshops**

**TCEQ  
Websites**

**Guidance  
Documents**



**General Education  
Events**

**Telephone  
Hotlines**

**Permitting  
Guidance & Workshops**

**On-site/Off-site Facility Assistance**

**“Environmentors”**

# Office of Compliance and Enforcement

## Critical Functions

- Conduct Compliance Investigations
- Investigate Complaints
- Review Emission Events Reported to TCEQ
- Issue Notices of Violation
- Issue Enforcement Orders
- Conduct ambient monitoring of air quality
- Respond to environmental incidents



# TCEQ Investigation Types

- Regularly scheduled investigation
- Complaint response investigation
- U.S. EPA or TCEQ initiative
- Spill response or emergency response
- Referral from another governmental entity



# Complaint Response

- TCEQ responds to all complaints received under its jurisdiction:
- Considered a core mission of the agency
- Complaints are assigned a priority with corresponding investigation timeline
- Alleged health related issues are considered our highest priority

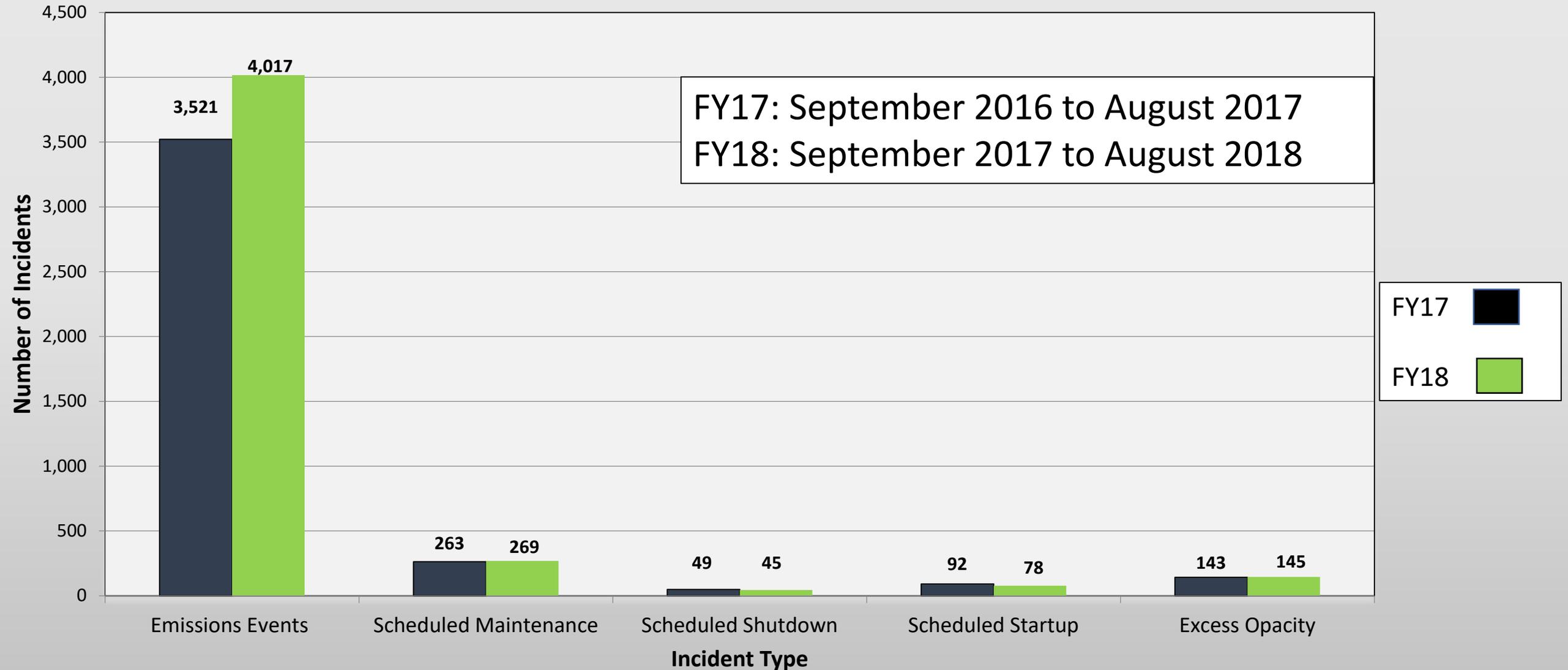
# Reporting Emissions Events



# Presentation Outline

1. Background and Definitions
2. Recording and Reporting Emissions Events
3. Regional Review
  - Excessive Emissions Events
  - Affirmative Defense
4. Emission Inventories Requirements
5. Situations – Frequently Ask Questions

# Emission Events, Why the Concern?



# Breakdown of Number of Reported Incidents – FY18

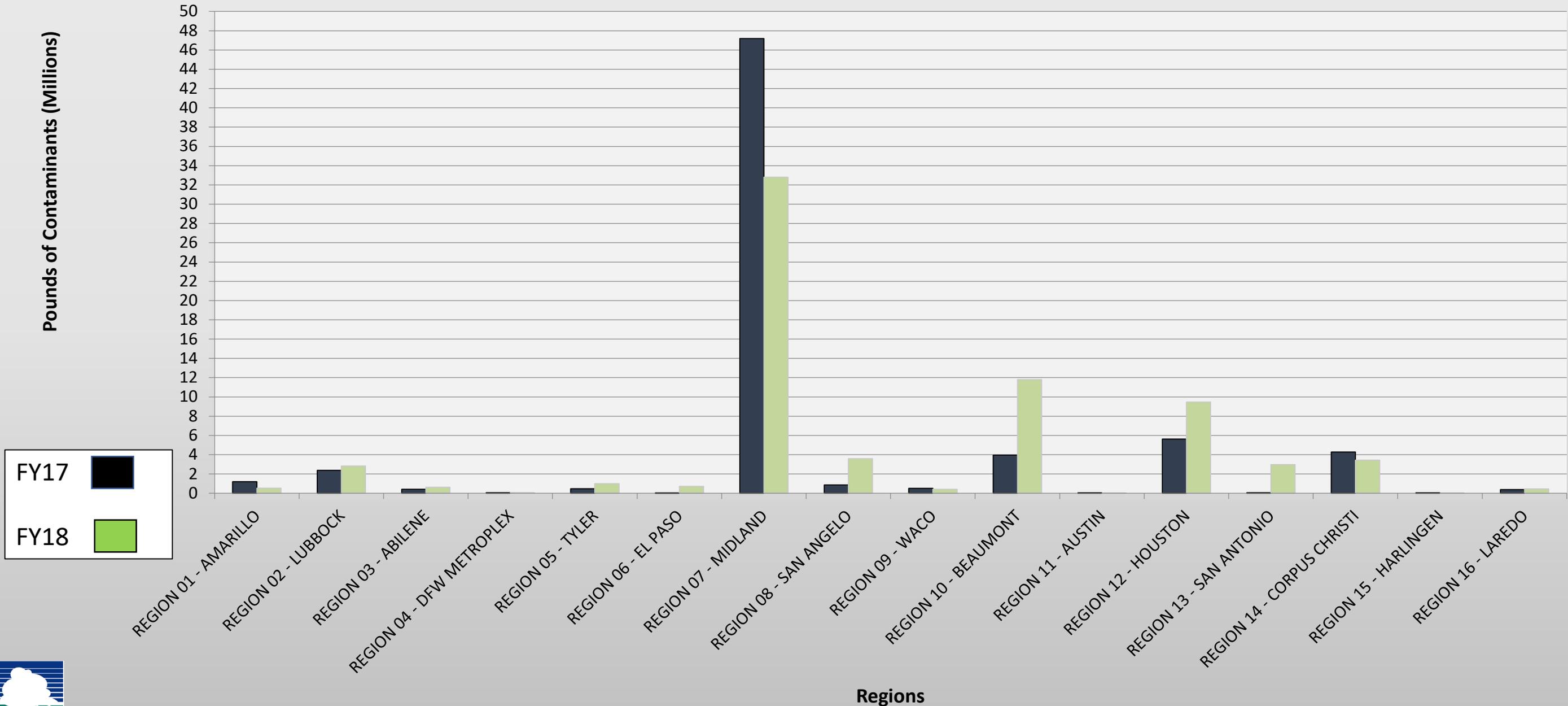
Region	Emissions Events	Scheduled Maintenance	Scheduled Shutdown	Scheduled Startup	Excess Opacity	Total
REGION 01 - AMARILLO	64	12	2	1	3	<b>82</b>
REGION 02 - LUBBOCK	135	16	0	0	0	<b>151</b>
REGION 03 - ABILENE	51	3	2	1	2	<b>59</b>
REGION 04 - DFW METROPLEX	44	101	0	0	14	<b>159</b>
REGION 05 - TYLER	54	5	3	2	25	<b>89</b>
REGION 06 - EL PASO	8	1	0	0	1	<b>10</b>
REGION 07 - MIDLAND	2,631	51	6	2	8	<b>2,698</b>
REGION 08 - SAN ANGELO	156	1	2	0	1	<b>160</b>
REGION 09 - WACO	32	4	2	3	10	<b>51</b>
REGION 10 - BEAUMONT	202	2	3	10	38	<b>255</b>
REGION 11 - AUSTIN	12	0	0	0	4	<b>16</b>
REGION 12 - HOUSTON	424	48	5	27	12	<b>516</b>
REGION 13 - SAN ANTONIO	48	2	0	0	19	<b>69</b>
REGION 14 - CORPUS CHRISTI	109	20	20	32	8	<b>189</b>
REGION 15 - HARLINGEN	6	0	0	0	0	<b>6</b>
REGION 16 - LAREDO	41	3	0	0	0	<b>44</b>
<b>Total</b>	<b>4,017</b>	<b>269</b>	<b>45</b>	<b>78</b>	<b>145</b>	<b>4,554</b>

# Incidents Reported by Industry Classification – FY18

NAICS	Emissions Events	Scheduled Maintenance	Scheduled Startup	Scheduled Shutdown	Excess Opacity	Total
<b>211111: Crude Petroleum and Natural Gas Extraction</b>	1,990	32	3	3	1	2,029
<b>211112: Natural Gas Liquid Extraction</b>	435	34	7	9	6	491
<b>325199: Basic Organic Chemical Manufacturing</b>	224	22	43	22	9	320
<b>32411 and 324110: Petroleum Refineries</b>	259	14	10	5	15	303
<b>324122: Asphalt Shingle and Coatings Manufacturing</b>	3	92	0	0	0	95
<b>48621 and 486210: Pipeline Transportation of Natural Gas</b>	86	7	0	0	0	93
<b>221112: Fossil Fuel Electric Power Generation</b>	24	12	3	1	29	69
<b>325211: Plastics Material and Resin Manufacturing</b>	45	1	1	0	1	48
<b>325181: Alkalis and Chlorine Manufacturing</b>	24	13	3	1	0	41
<b>325110: Petrochemical Manufacturing</b>	31	2	2	0	0	35



# Total Quantity of Emissions Reported Statewide – FY18



# Definitions

# 30 TAC Chapter 101.1. Definitions

(28) **Emissions event**-Any upset event or unscheduled maintenance, startup, or shutdown activity, from a common cause that results in unauthorized emissions of air contaminants from one or more emissions points at a regulated entity.

# 30 TAC Chapter 101.1. Definitions

(110) **Upset event**--An unplanned and unavoidable breakdown or excursion of a process or operation that results in unauthorized emissions. A maintenance, startup, or shutdown activity that was reported under §101.211 of this title (...), but had emissions that exceeded the reported amount by more than a reportable quantity due to an unplanned and unavoidable breakdown or excursion of a process or operation is an upset event.

# 30 TAC Chapter 101.1. Definitions

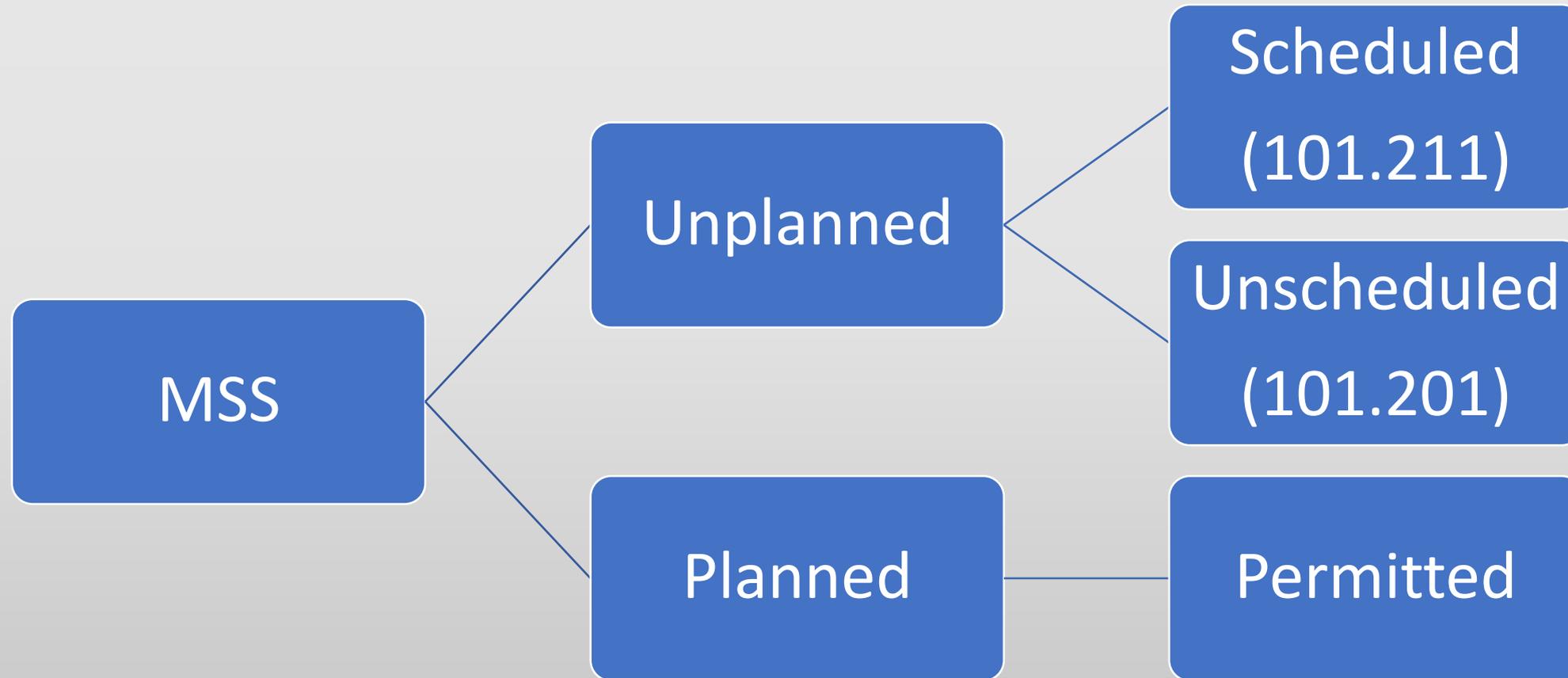
(108) **Unauthorized emissions**--Emissions of any air contaminant except water, nitrogen, ethane, noble gases, hydrogen, and oxygen that exceed any air emission limitation in a permit, rule, or order of the commission or as authorized by Texas Health and Safety Code, §382.0518(g).

Texas Clean Air Act: Health and Safety Code: Chapter 382, Section 382.003(2) "**Air contaminant**" means particulate matter, radioactive material, dust, fumes, gas, mist, smoke, vapor, or odor, including any combination of those items, produced by processes other than natural.

# 30 TAC Chapter 101.1. Definitions

(28) **Emissions event**--Any upset event or unscheduled maintenance, startup, or shutdown activity, from a common cause that results in unauthorized emissions of air contaminants from one or more emissions points at a regulated entity.

# Maintenance/Startup/Shutdown



# Recording and Reporting

# Requirements

- No later than 24 hours **after discovery** of an emissions event, owner/operator must:
  - Determine if the event is a reportable emissions event
  - Notify the region and local air pollution control agencies

30 TAC §101.1(88) **Reportable emissions event**--Any emissions event that in any 24-hour period, results in an unauthorized emission from any emissions point equal to or in excess of the reportable quantity as defined in this section.

# Reportable Quantity (RQ)

- 40 CFR 302, Table 302.4 – Hazardous Substances and RQ  
Example: benzene – 10 pounds
- 40 CFR 355 – Extremely Hazardous Substances  
Example: hydrogen sulfide – 100 pounds
- 30 TAC 101.1 (89) – Texas Specific Compounds/Mixture RQs  
Example: oxides of nitrogen - 200 pounds in ozone nonattainment, ozone maintenance, early action compact areas, Nueces County, and San Patricio County, and 5,000 pounds in all other areas of the state, which should be used instead of the RQs for nitrogen oxide and nitrogen dioxide provided in 40 CFR Part 302, Table 302.4, the column "final RQ";
- Default = 100 lbs. (if not listed in one of the 3 lists above)

# What about emissions events that don't exceed a RQ?

The owner or operator of a regulated entity experiencing an emissions event shall create a final record of all reportable and non-reportable emissions events as soon as practicable, but no later than two weeks after the end of an emissions event.

# When Should You Report an Excess Opacity Event?

- As soon as practicable, but not later than 24 hours after the discovery of an excess opacity event, ..., where the owner or operator was not already required to provide an initial 24-hour notification under subsection (a)(2) or (3) of this section, ....
- What substance caused the opacity? Is it authorized or not? If unauthorized then this would be an emission event for that substance(s), not an excessive opacity event.
- If it is an excess opacity event then the opacity should be at least 15 additional percentage points above an opacity limit to be reported.

# Who does all of this apply to?

- §101.1 (86) **Regulated entity**--All regulated units, facilities, equipment, structures, or sources at one street address or location that are owned or operated by the same person. The term includes any property under common ownership or control identified in a permit or used in conjunction with the regulated activity at the same street address or location.

**Owners or operators of pipelines, gathering lines, and flowlines under common ownership or control in a particular county may be treated as a single regulated entity for purposes of assessment and regulation of emissions events.**

# The Initial STEERS Report

- Submit the initial report via the State of Texas Environmental Electronic Reporting System (STEERS), within 24 hours of discovery of the event.
- Meet the reporting requirements of 30 TAC §101.201(a).
- Regulated Entity number, common name of unit/area/facility involved, date and time of discovery, duration, best know cause of the event, pollutants involved and amounts that equaled or exceeded a RQ, actions taken, etc.

# The Final STEERS Report

- Due two weeks after the end of the event.
- Meet the reporting requirements of 30 TAC §101.201(b)
- If a final is not submitted within two weeks after the end of the event, the initial becomes the final.
- No final report for excessive opacity events is required.
- Include all pollutants from all emissions points as a result of the event.
- The quantity value required to be reported is the quantity above zero, not the quantity above any applicable limit that may be imposed through rule or permit.

After I file my initial notification and final report, what happens?

# Initial Regional Review

- Verify the initial report meets the reporting requirements of 30 TAC §101.201(a)
- Check to see if pollutants exceeding a RQ above permitted limits, rules, or orders
- Determine if an immediate on-site investigation is warranted based on possibly - citizen complaints or impact to immediate surrounding.

# Final Report Review

- Verify that the report is a Reportable Emissions Event
- Meets the reporting requirements of 30 TAC §101.201
- Verify that emissions are speciated by compound descriptive type of all individually listed compounds or mixtures as allowed in the RQ definition
- Evaluate emissions event to determine if it is considered an Excessive Emissions Event, if not then evaluate for Affirmative Defense

# Excessive Emissions

# Excessive Emissions Events

Region decides if an emissions event is excessive based on the six criteria found in 30 TAC §101.222(a)

- (1) - frequency of the facility's emissions events – how and why. Past emissions events that occurred within one year prior to this event. Causes of previous incidents and whether the prior incidents were from a related cause and the overall time period that the events occurred.
- (2) - cause of the emissions event – how and why. Malfunctioning equipment, operator error, poor maintenance, a scheduled activity that became an emissions event.
- (3) - the quantity and impact on human health or the environment of the emissions event. Any Federal or State standards that were exceeded, such as, NAAQS, MACT, NSPS, etc.; whether any ambient effects were documented from the emissions event including any modeling performed.

# Excessive Emissions Events

(4) - Duration of the emissions event- duration based on the facility's annual operating hours and the percentage of time the emissions event impacted the facility's operating hours

(5) - Percentage of the facility's total annual operating hours during which emissions events occur - how and why -the percentage per facility identification number; if reviewing more than one emissions event, the percentage for all the events.

(6) - Need for startup, shutdown, and maintenance activities- how and why -whether start up, shut down, or maintenance activities could have prevented the cause of one or more of the events.

- The event is reviewed by the TCEQ EEE Review Team.
- If an EEE, then company must submit a Corrective Action Plan.

# Affirmative Defense

Depending on the type of Emissions Event, all of the relevant demonstration criteria in 30 TAC §101.222 have to be met to qualify for the Affirmative Defense

- Submit notifications and reports as required
- Emissions were caused by sudden, unavoidable breakdown of equipment, beyond the control of the owner/operator
- Activity/event could not have been foreseen and avoided or planned for and could not have been avoided by better operation and maintenance or technically feasible design
- Equipment was maintained and operated in a manner consistent with good practice for minimizing emissions and reducing the number of emissions events
- Prompt action was taken to achieve compliance and repairs were made as expeditiously as practicable
- The amount and duration of emissions and any bypass of control equipment were minimized and all possible steps were taken to minimize the impact of the unauthorized emissions on ambient air quality

# Affirmative Defense (cont.)

- All emission monitoring systems were kept in operation if possible
- Actions in response to the event were documented by operation logs
- Emissions were not part of a frequent or recurring pattern indicative of inadequate design, operation, or maintenance
- Percentage of a facility's total annual operating hours during which emissions event occurred was not unreasonably high
- The emissions did not cause or contribute to an exceedance of the national ambient air quality standards, prevention of significant deterioration increments, or to a condition of air pollution

# Maintaining Affirmative Defense Eligibility

- Know RQs & Process Stream Composition
- MSS reasonable / defensible estimates
- If in doubt submit Initial Notification
- Initial notification within 24 hours of discovery
- Final Report within 14 days of event end
- Be prepared with FAX as backup

# Frequently Asked Questions (FAQ)

Q: What do I do if STEERS reporting is not available (off-line)?

A: Fax your emissions event report to the region.

- Reportable Event/Activity Notification/Reporting Form  
[https://www.tceq.texas.gov/assets/public/compliance/field\\_ops/fod\\_forms/upset/form\\_10360.pdf](https://www.tceq.texas.gov/assets/public/compliance/field_ops/fod_forms/upset/form_10360.pdf)
- TCEQ Guidance – Form 10360  
[https://www.tceq.texas.gov/assets/public/compliance/field\\_ops/fod\\_forms/upset/eef\\_guide.pdf](https://www.tceq.texas.gov/assets/public/compliance/field_ops/fod_forms/upset/eef_guide.pdf)
- Electronic notification and reporting is not required for small businesses.

## FAQ

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Q: Once I report an EE in STEERS, am I done?

A: No, other reporting requirements may apply such as the emissions inventory (see 30 TAC §101.10) and deviation reporting (see 30 TAC §122). Also, create a final record of the event within two weeks.

## FAQ

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Q: Do I only report unauthorized emissions?

A: No, report total emissions.

## FAQ

October 31, 2019



Q: How are non-reportable EE handled during Title V investigations?

A: A portion are reviewed against recordkeeping requirements and to ensure the event didn't exceed an RQ.

## FAQ

October 31, 2019



Q: Are the only emission limits that apply to emissions events those in New Source Review lb/hr limits?

A: No, emission limits may be in permits, rules, or orders (remember the definition of unauthorized emissions we discussed at the start).

## FAQ

October 31, 2019



- Q: What about fugitive components and heat exchangers
- A: Fugitive components may be the subject of an emissions event. Emissions from a fugitive component that are considered “leaks” are authorized under conditions of a permit or rules for leak detection and repair (LDAR). A complete failure of a component is not considered a leak under LDAR permit conditions or rules and would be considered upset emissions and subject to the emissions events rules.
- Like fugitive components, heat exchangers may suffer a catastrophic failure. When this occurs, the facility owner or operator will follow the requirements for emissions events, including claims for affirmative defense.

## FAQ

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Q: If an investigator determines an event met the affirmative defense criteria, can a violation still be cited?

A: Yes. The emissions event affirmative defense criteria apply to state permits, rules, orders; violations may be cited for federal rules.

## FAQ

October 31, 2019



Q: What is the RQ for crude and natural gas?

A: For natural gas (excluding carbon dioxide, water, nitrogen, methane, ethane, noble gases, hydrogen, and oxygen) or air emissions from crude oil: 5,000 pounds or 100 pounds of hydrogen sulfide / mercaptans, whichever occurs first.

## FAQ

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# Example for Natural Gas RQ Calculation

Chemical Composition of Natural Gas	mole %				MW	grams	lbs
methane	94.9	0.94	1.26428	1.1884232	16.04	19.06231	0.042025
ethane	2.5	0.025	1.26428	0.031607	30.07	0.950422	0.002095
nitrogen	1.6	0.016	1.26428	0.02022848	14.007	0.28334	0.000625
carbon dioxide	0.7	0.007	1.26428	0.00884996	44.01	0.389487	0.000859
oxygen	0.02	0.0002	1.26428	0.000252856	15.99	0.004043	8.91E-06
hydrogen	trace						
propane	0.2	0.002	1.26428	0.00252856	44.095	0.111497	0.000246
iso - butane	0.03	0.0003	1.26428	0.000379284	58.12	0.022044	4.86E-05
n - butane	0.03	0.0003	1.26428	0.000379284	58.12	0.022044	4.86E-05
iso - pentane	0.01	0.0001	1.26428	0.000126428	72.15	0.009122	2.01E-05
n - pentane	0.01	0.0001	1.26428	0.000126428	72.15	0.009122	2.01E-05
hexane +	0.01	0.0001	1.26428	0.000126428	86.18	0.010896	2.4E-05
							0.000407

1 cubic foot/lb nonexemption compounds	=	X cubic foot/5,000 lbs
(5,000 * 1) / 0.000407	=	12,285,012.29

12.285 million cubic feet of natural gas would have to be release to meet RQ

- Q: Weather (heavy rains, high winds, drought or freeze, etc.) caused an upset that resulted in a reportable emissions event. Does the event meet the affirmative defense?
- A: It depends, facilities should be designed and operated to withstand typical weather extremes for the area.

## FAQ

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- Q: A divestiture separated two production units into two companies that share a flare. Who reports emissions events when the flare is the EPN?
- A: The company that holds the permit for the flare is responsible for reporting emissions from the EPN.

## FAQ

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- Q: The process flare was observed smoking. What documentation is required?
- A: If the smoking event was due to an emissions event note that the flare was smoking as part of the recordable / reportable documentation.  
If the smoking was for more than 5 minutes in a 2-hour period estimate the quantities of air contaminants released and document accordingly.

## FAQ

October 31, 2019

Q: For pipelines, sites without a permit, or a site authorized by a PBR without an hourly limits required how is RQ calculated?

A: All emissions should be considered.

Remember the definition of Regulated Entity states: "Owners or operators of pipelines, gathering lines, and flowlines under common ownership or control in a particular county may be treated as a single regulated entity for purposes of assessment and regulation of emissions events."

## FAQ

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# EE and SMSS Reporting in Emissions Inventory

# What is reported in the EI?

- The number of site-wide reportable and non-reportable EE, SMSS, and excess opacity events
- The emissions on a path-level, from reportable and non-reportable EE, and SMSS



# The Number

Report the site-wide number of reportable, non-reportable EE, SMSS, and excess opacity events in the **Site Quantifiable Event Totals** section.

The screenshot shows the TCEQ STEERS AEIR web application. The browser address bar displays the URL: <https://www3tst.tceq.texas.gov/steers/index.cfm?fuseaction=aeirmanualupload.editaccountsite&AcctId=908519362002087...>

The page header includes the Texas Commission on Environmental Quality logo and navigation links: Help >>, Contact Us >>, Logout >>. Below the header is a menu with options: Error Log, Tracking, Work Area, EIQ Entry, Upload File, Inventory Detail, and STEERS Home.

The main content area is titled "Edit Site Information" and shows "Today's Date: 08/16/2017" and "14:52". The "STEERS" logo is also present.

Site Information:

RN Number:	RN100226794	Current Emissions Inventory Year:	2017
Account Number:	AF0010F	Last Emissions Inventory Year:	2016
Site Name:	IMAGINARY BUSINESS LOCATION	Emissions Inventory Status:	EXTRACTED
Organization Name:	NOT A REAL COMPANY LLC		

Site Detail:

Primary SIC:	4922	Primary SIC Name:	NATURAL GAS TRANSMISSION
UTM Zone:	14	UTM North Meters:	3874074.000
		UTM East Meters:	283919.000

Verify or update new value and save.

Attribute Name	Previous Value	New Value
Hours Per Day	24	<input type="text" value="24"/>
Days Per Week	7	<input type="text" value="7"/>
Weeks Per Year	52	<input type="text" value="52"/>
Annual Operating Hours	8760	<input type="text" value="8760"/>
Spring Percentage	25	<input type="text" value="25"/>
Summer Percentage	25	<input type="text" value="25"/>
Fall Percentage	25	<input type="text" value="25"/>
Winter Percentage	25	<input type="text" value="25"/>
Annual Number of Reportable Emission Events	0	<input type="text" value="0"/>
Annual Number of Non-reportable Emission Events	0	<input type="text" value="0"/>
Annual Number of Reportable SMSS Events	0	<input type="text" value="0"/>
Annual Number of Non-reportable SMSS Events	19	<input type="text" value="19"/>
Annual Opacity Event Total	0	<input type="text" value="0"/>

\* Mandatory field

Attribute Name	Previous Value		New Value
Hours Per Day	24	*	<input type="text" value="24"/>
Days Per Week	7	*	<input type="text" value="7"/>
Weeks Per Year	52	*	<input type="text" value="52"/>
Annual Operating Hours	8760	*	<input type="text" value="8784"/>

Annual Operating Hours must be between 0 and 8760.

Spring Percentage	25	*	<input type="text" value="25"/>
Summer Percentage	25	*	<input type="text" value="25"/>
Fall Percentage	25	*	<input type="text" value="25"/>
Winter Percentage	25	*	<input type="text" value="25"/>

Annual Number of Reportable Emission Events	0	*	<input type="text" value="0"/>
Annual Number of Non-reportable Emission Events	0	*	<input type="text" value="0"/>
Annual Number of Reportable SMSS Events	0	*	<input type="text" value="0"/>
Annual Number of Non-reportable SMSS Events	19	*	<input type="text" value="19"/>
Annual Opacity Event Total	0	*	<input type="text" value="0"/>

Save Cancel

\* Mandatory field

# The Emissions

- Report the **path-level emissions** from SMSS and EE.
- Remember—there is no de minimums for EE or SMSS reporting!
- Report both the reportable and non-reportable quantities.

**TCEQ STEERS AEIR - Edit**

Secure | <https://www3tst.tceq.texas.gov/steers/index.cfm?fuseaction=aeirmanualupload.emissiondetail&log=48048&AcctId=908519362002087&rn=RN100...>

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Help >> Contact Us >> Logout >>

Error Log Tracking Work Area EIQ Entry Inventory Detail STEERS Home

Edit Emissions Information Today's Date: 08/16/2017 14:49

**STEERS**

RN Number: RN100226794 Current Emissions Inventory Year: 2017  
 Account Number: AF0010F Last Emissions Inventory Year: 2016  
 Site Name: IMAGINARY BUSINESS LOCATION Emissions Inventory Status: EXTRACTED  
 Organization Name: NOT A REAL COMPANY LLC

**Emissions Detail**

FIN: ENG Name: AUXILIARY ENGINE  
 EPN: A-1 Name: AUXILIARY STACK

7 Contaminant(s) Exist.

Emissions for all contaminants must be updated. Click 'Rollover' if emissions are unchanged from previous value. Only newly added contaminants may be removed.

Code	Contaminant	Determination Method	Previous Annual (TPY)	Previous Annual (TPY)	Previous Ozone (PPD)	Previous Ozone (PPD)	SMSS (TPY)	EE (TPY)	Remove
10000	PART-U	AP-42	0.0021	<input type="text"/>	0	<input type="text"/>	0	0	Rollover
20000	PM10 PART-U	AP-42	0.0021	<input type="text"/>	0	<input type="text"/>	0	0	Rollover
39999	TOTAL PM2.5 PARTICULATE	AP-42	0.0021	<input type="text"/>	0	<input type="text"/>	0	0	Rollover
50001	VOC-UNCLASSIFIED	AP-42	0.014	<input type="text"/>	0	<input type="text"/>	0	0	Rollover
70400	NITROGEN OXIDES	AP-42	0.0294	<input type="text"/>	0	<input type="text"/>	0	0	Rollover
70510	SULFUR DIOXIDE	AP-42	0.0019	<input type="text"/>	0	<input type="text"/>	0	0	Rollover
90300	CARBON MONOXIDE	AP-42	0.0063	<input type="text"/>	0	<input type="text"/>	0	0	Rollover

Add Contaminant Save Cancel

\* Mandatory field



# Questions

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