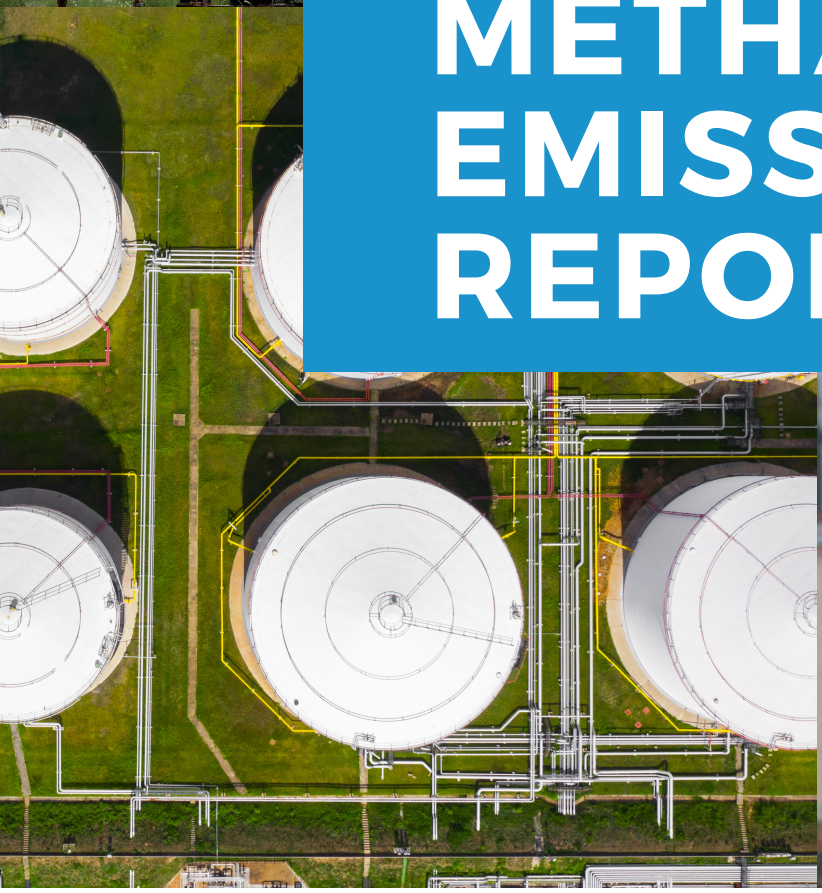
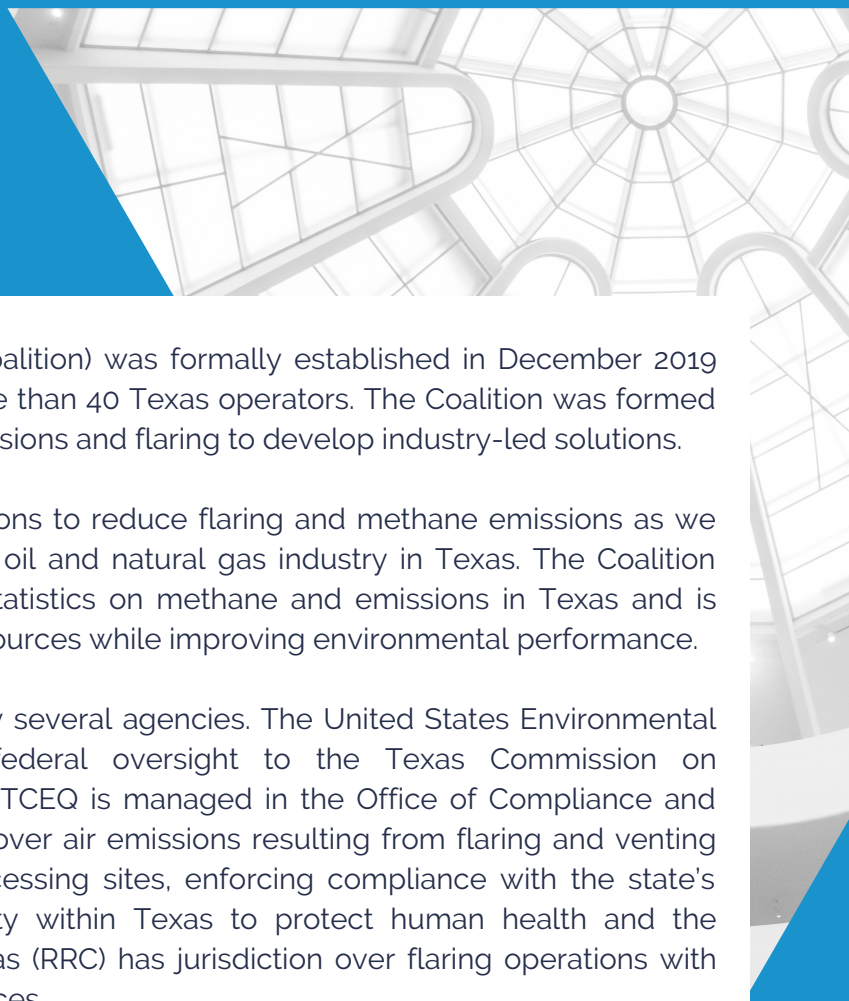
TEXAS
METHANE & FLARING
COALITION

METHANE & EMISSIONS REPORT



First Edition, September 2021

EXECUTIVE SUMMARY



The Texas Methane & Flaring Coalition (the Coalition) was formally established in December 2019 and includes seven trade associations and more than 40 Texas operators. The Coalition was formed voluntarily to assess the issues of methane emissions and flaring to develop industry-led solutions.

The Coalition is dedicated to developing solutions to reduce flaring and methane emissions as we recognize the leadership role expected of the oil and natural gas industry in Texas. The Coalition continues to assess the latest numbers and statistics on methane and emissions in Texas and is committed to developing our state's natural resources while improving environmental performance.

The oil and natural gas industry is regulated by several agencies. The United States Environmental Protection Agency (EPA) delegates most federal oversight to the Texas Commission on Environmental Quality (TCEQ). Enforcement at TCEQ is managed in the Office of Compliance and Enforcement (OCE). The office has jurisdiction over air emissions resulting from flaring and venting operations at oil and gas production and processing sites, enforcing compliance with the state's environmental laws, and monitoring air quality within Texas to protect human health and the environment. The Railroad Commission of Texas (RRC) has jurisdiction over flaring operations with respect to prevention of waste of natural resources.

Flares play a critical role in controlling and managing emissions at an oil and natural gas facility. They are used to combust natural gas and vapors. Flares are designed to destroy 98% or more of the methane and contaminants found in natural gas. Technology is key to monitoring emissions sources. Evaluating the devices and processes that may contribute to emissions is essential, and industry-led efforts like The Environmental Partnership (TEP) and the Oil and Gas Climate Initiative (OGCI) help develop and implement best practices to reduce and eliminate emissions.

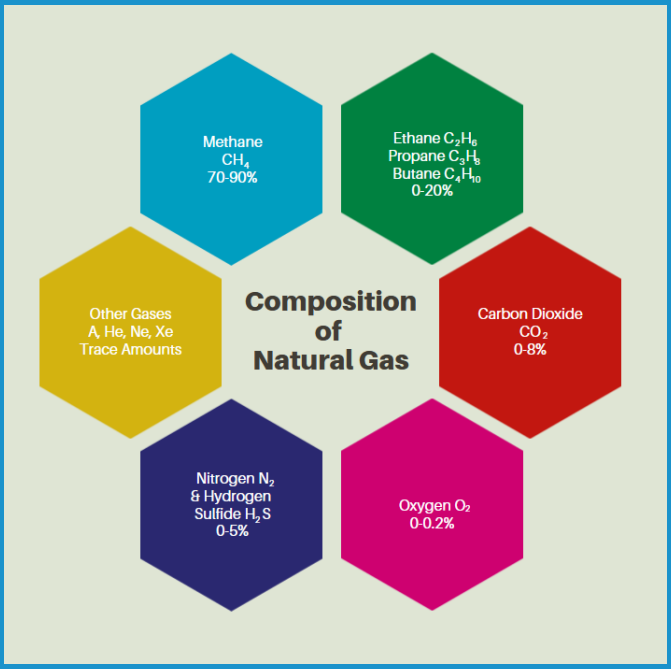
The oil and natural gas industry anchors our economy by creating high-paying jobs and generating revenues unmatched by other industries in our state. Oil and natural gas contribute greatly to products and materials that we use every day, such as plastics, medicines, computers, life-saving devices, and much more.

The oil and natural gas industry's focus on advancing and pioneering technologies has been and will continue to be the driving force of continued environmental progress. Companies are investing billions of dollars in world-class emissions control systems, including state-of-the-art facility designs, automation, and robotics to safely provide the energy and products that make modern life possible.

The following report lays out how the Texas oil and natural gas industry is working to reduce methane and other emissions.

METHANE

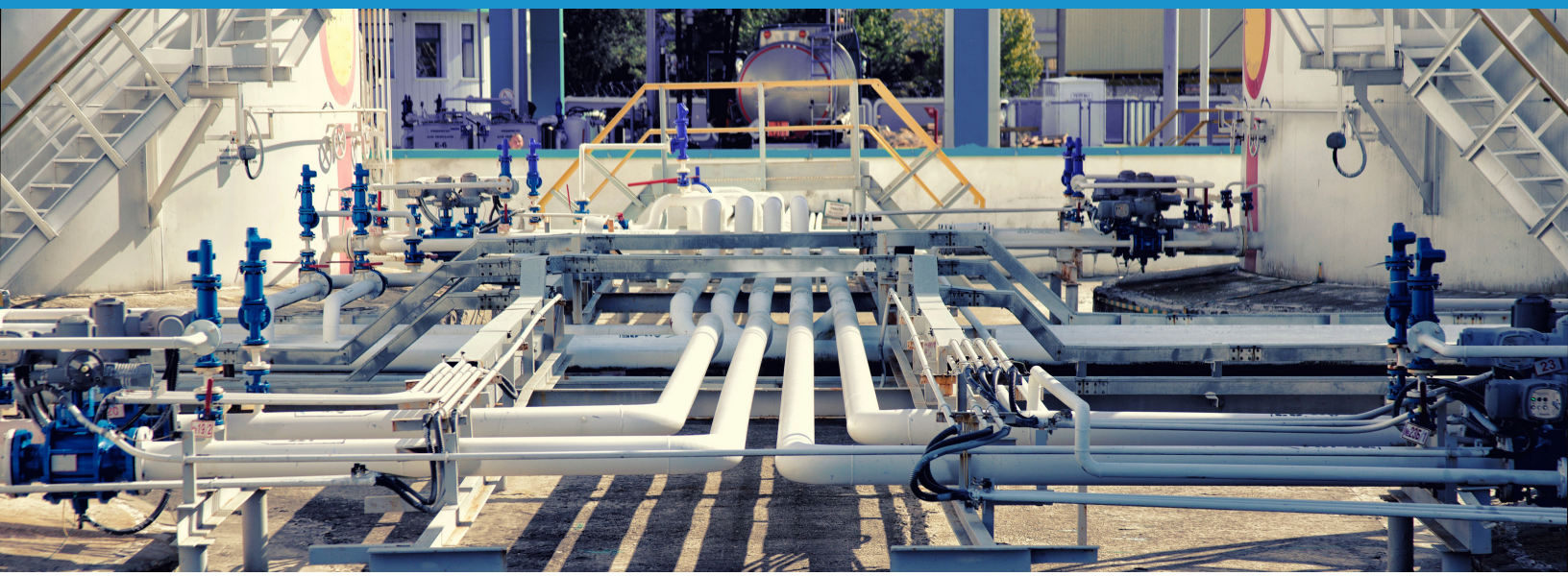
Methane is a colorless, odorless gas consisting of one carbon atom and four hydrogen atoms. Methane is critically important in today's society; it is the main component of natural gas used to fuel power generation, transportation and manufacturing, and used in our homes and businesses for cooking, staying warm in the winter, and cool in the summer.



While methane is a common gas produced by the decay of organic material, the Coalition recognizes the environmental and economic benefits of minimizing methane emissions. Industry has made and continues to make great strides in reducing methane emissions resulting from oil and natural gas operations. In fact, methane emissions from five of the largest energy-producing regions across the U.S. have fallen by nearly 70%, even as natural gas production in those regions tripled from 2011-2018, demonstrating the industry's dedication to leverage technologies to provide reliable, efficient, and lower-emissions energy to consumers.

OVERVIEW OF EMISSIONS SOURCES

Evaluating the devices and processes that may contribute to emissions is essential to environmental progress. There are a variety of sources within the oil and natural gas production process that have the potential to release emissions. The main sources of emissions include: pneumatic controllers, fugitive emissions, storage tanks, compressors, liquids loading, and dehydration units.



EMISSIONS SOURCES

Pneumatic controllers are devices used throughout the oil and natural gas industry as part of the instrumentation used to control the position of valves. These devices are sometimes powered by pressurized natural gas from the production site (i.e. natural gas-driven pneumatic devices). Natural gas-driven pneumatic devices are automated mechanisms used to maintain process operating conditions, such as liquid level, pressure differential(s), flow rate, and temperature. These devices emit natural gas to maintain process operating conditions. While pneumatic devices are installed to contain liquids and gas – like any other mechanical device – changes in pressure and temperature, or defective/loosened seals and gaskets can lead to leaks, known as fugitive emissions. Therefore, the industry strives to eliminate high-bleed pneumatic control devices and replace them with either low-bleed or no-bleed devices that can reduce emissions.

Oil and natural gas production facilities require multiple pieces of equipment for proper and efficient operation. Each piece of equipment can be comprised of numerous individual components, such as connectors, pressure relief valves, closed vent systems, flanges, meters, and thief hatches. While these devices are designed to contain liquids and gas, over time leaks may occur. Changes in pressure and temperature, mechanical problems, or defective/loosened seals and gaskets can also lead to leaks. These leaks are often referred to as **fugitive emissions**. Awareness of potential leaks has grown and so has the availability of technology to identify and fix these leaks. Coalition members utilize a variety of solutions to find and fix fugitive emissions. Solutions include audio/visual/olfactory (AVO) inspections, IR (infrared) camera monitoring and the use of LiDAR (light detection and ranging) for leak detection and mapping.

Storage tanks are aboveground vessels used to collect and temporarily store crude oil, condensates, and water. These tanks can be installed in a single unit or in a grouping of similar or identical tanks – commonly referred to as a "tank battery." Before being routed to a storage tank, production liquids are passed through separation equipment, where most of the gas entrained in the liquids is separated and routed to a sales line or control device. After separation, the liquids are directed to a storage tank where they are temporarily stored before being transferred off-site. Storage tanks are built to meet the American Petroleum Institute's standards. Storage tanks are essential for operational flexibility and safety and allow upstream operators to accumulate sufficient volumes of either oil or water before it is transferred off-site. Storage tanks also provide vital storage capacity necessary for safety in the event the accumulated fluid cannot be immediately transferred off-site.

Small concentrations of gas remain in the liquid directed to a storage tank. The small concentrations of gas accumulate in the space above the liquid level in the tank. This gas is often referred to as "tank vapors." Flash losses occur nearly instantaneously when the pressure of a liquid is decreased or the temperature is increased. Working losses occur when the liquid is agitated over time (e.g., filling or removing fluid from the tank). Breathing losses occur from normal evaporation of the liquid, often caused by daily temperature changes.

The primary sources of storage tank emissions are vapors that arise from the operating conditions of each vessel. These vapors can emit directly from the tank or can be routed to control devices where they can be captured or destroyed. Industry companies utilize voluntary best emissions management practices, such as vapor recovery towers, thermal oxidizers and/or flares on oil, and condensate and produced water storage tanks.

The primary source of methane emissions from **compressors** is the seal around the piston rod of a reciprocating compressor and around the spinning shaft of a centrifugal compressor. There are two types of seals for centrifugal compressors: dry seals and wet seals. In all cases, the purpose of the seal is to prevent natural gas from exiting the compression chambers and entering the atmosphere. Where reasonably practicable, rod packing on reciprocating compressors is replaced at least every 26,000 hours of operations or every 36 months. Leaks from compressors can be reduced through proper monitoring and a cost-effective schedule for replacing packing rings and piston rods.

EMISSIONS SOURCES (CONTINUED)

Managing wellbore liquid build-up in gas wells is fundamental to maintaining production, avoiding early abandonment of wells, and maximizing resource recovery. Well and reservoir flow varies during their economic life as the reservoir depletes, production declines, wellbore (tubing) velocity goes down, and **liquid loading** begins to occur in the wellbore. Liquid loading begins when the velocity at the beginning of the production string is not sufficient to lift liquids to the surface. It is the lack of sufficient velocity that causes liquids to accumulate in the wellbore (i.e., "to load/load up"). Gas well liquids unloading is a complex field of science and engineering where a large number of different technologies, tools, and practices must be specific to an individual well's characteristics at each stage of its lifecycle to most efficiently manage liquids and maintain the economic viability of the well. Operators often minimize emissions from gas well liquids unloading by "monitoring the manual unloading process on-site or in close proximity and close all wellhead vents to the atmosphere as soon as practicable."

Pipeline quality gas requires dehydration for some formations that produce a "wet" gas. To sell natural gas produced in these areas, companies invest in **dehydration units** (dehys) that remove water from the gas to avoid corrosion in the pipelines. The primary source for dehys emissions is the still vent, which boils off excess water to recycle the dehydration solution for reuse. Without this important infrastructure, the amount of flaring in these areas would increase significantly. Consistent with federal requirements, operators utilize control devices to minimize emissions from dehydration units.

While there are several potential emissions sources, industry continues a concerted effort to find and prevent emissions. The Environmental Partnership's 2020 Annual Report outlines recent industry efforts, with more than 184,000 surveys conducted and more than 116 million component inspections performed. The results indicate significant environmental and operational progress:

- More than 3,300 high-bleed pneumatic controllers replaced, retrofitted, or removed from service;
- More than 10,500 additional gas-driven controllers replaced or removed from service;
- More than 2,800 zero-emission pneumatic controllers installed at new sites; and
- Emissions minimized by monitoring more than 44,000 manual liquids unloading events.

TCEQ FRAMEWORK AND OVERSIGHT: METHANE EMISSIONS

EMISSIONS EVENTS IN TEXAS

An emissions event (EE) in Texas is defined as "any upset event or unscheduled maintenance, startup, or shutdown (MSS) activity, from a common cause that results in unauthorized emissions of air contaminants from one or more emissions points at a regulated entity." An "upset" is defined as "an unplanned and unavoidable breakdown or excursion of a process or operation that results in unauthorized emissions." An EE is reportable to TCEQ if, in any 24-hour period, it results in an unauthorized emission from any emissions point equal to or in excess of the reportable quantity (RQ) as defined in TCEQ's rules (30 TAC §101.1(89)). Any EE that in a 24-hour period does not result in an unauthorized emission from any emissions point equal to or in excess of the RQ is considered "nonreportable" or "nonrecordable."

REGULATIONS FOR OIL AND GAS OPERATIONS

The industry is regulated by several state and federal agencies. The EPA has delegated primacy over the federal Clean Air Act (CAA) to Texas, which means that TCEQ implements the federal CAA through corresponding state statutes (the Texas Clean Air Act) and regulations. In Texas, regulatory authority over the oil and natural gas industry is shared among several state agencies (i.e. TCEQ, RRC, the Texas General Land Office, and University Lands). Generally, the RRC has jurisdiction from the wellhead down below the surface and TCEQ has jurisdiction for surface activities from the wellhead that could impact the environment. For example, the RRC has responsibility for authorizing production related flaring; TCEQ is responsible for ensuring those flares are operated in an environmentally protective manner. For additional resources regarding regulations and statutes you can view a state and federal overview in Appendix A.

TCEQ ENFORCEMENT INFORMATION

Regulatory enforcement at the state level is managed in the Office of Compliance and Enforcement at TCEQ. The office enforces compliance with the state's environmental laws, responds to emergencies and natural disasters that threaten human health and the environment, oversees dam safety, and monitors air quality within Texas. In addition, the office oversees the operations of 16 regional offices and one special-project office across the state.

The Enforcement Division protects human health and the environment through enforcement of TCEQ rules, regulations, and permits. The division develops formal enforcement cases in accordance with state statutes and agency rules and consistent with the agency's philosophy on enforcement. The division also drafts proposed enforcement orders that include appropriate penalties and ordering provisions for the commission's consideration and approval. TCEQ takes the following into consideration when drafting orders: nature, circumstances, extent, duration and gravity of the violation, severity of the impact on human health and the environment, compliance history, culpability, good faith effort to comply, economic benefit, deterrence, and other factors.

IMPORTANT ISSUES REGARDING METHANE

ROUTINE FLARING

The Coalition supports industry's continued progress to end routine flaring and shares a goal of ending this practice by 2030, with some companies striving to reach the goal even sooner.

Based on an extensive review of regulatory requirements and operational best practices that include maintaining the accessibility of flaring for safety and environmental protection, the Coalition considers routine flaring to be flaring of natural gas from new and existing wells/facilities during normal production operations when gas gathering, processing, and infrastructure are insufficient or unavailable.

UNLIT FLARES

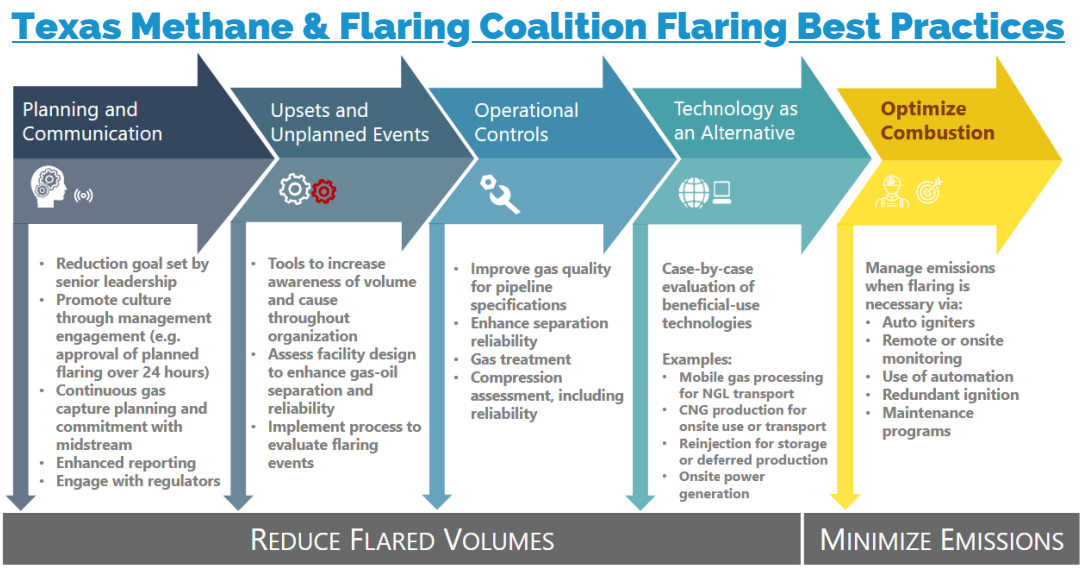
Flares play a critical role in controlling and managing emissions at an oil and natural gas facility. They are used to combust natural gas and vapors. Flares are designed to destroy 98% or more of the methane, volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) found in the natural gas. VOCs are any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. HAPs are toxic air pollutants that can cause health effects.

Description	Example Compounds
Volatile Organic Compounds (VOCs)	Propane, Butane, Ethanol
Hazardous Air Pollutants (HAPs)	Benzene, Formaldehyde

An unlit flare occurs when its flame fails to ignite or when the flame is extinguished, preventing combustion and causing gas to be vented. When unlit flares occur, it is typically due to high winds, or flare equipment malfunction. To improve flare performance and minimize the occurrence of unlit flares, operators engage in proper planning, strive to optimize the operation of equipment, utilize remote monitoring technology, conduct inspections, and perform lease operator training.

Recent data have shown a potential link between unlit flares and methane emissions. Unlit or improperly operated flares may be a source of methane emissions. State and federal law require that flares be properly operated to meet air permit parameters.

Operators face several operational and external obstacles to ensuring that flares remain lit and operating properly and work to improve flare performance through a variety of methods, such as pre-production planning, equipment and facility improvements, remote monitoring, and lease operator training. When flaring is necessary, they reduce or prevent incomplete combustion by optimizing combustion efficiency and operation of flares. Managing emissions when flaring is necessary via auto igniters, remote or on-site monitoring, use of automation, redundant ignition, and maintenance programs. For more information, review The Coalition's Flaring Recommendations and Best Practices Report.



MONITORING AND EMISSIONS REDUCTIONS

Monitoring of emissions is a key tool in identifying leaks and emissions sources. As technology continues to evolve, industry proactively evaluates technological solutions, such as flyovers via planes, drones, and helicopters; satellite monitoring; and ground mobile and handheld monitoring via specialized cameras. Interested stakeholders utilize these types of technologies to identify emissions and explore data to reduce and eliminate emissions. Environmental regulators like EPA and TCEQ also use these tools to show data and trends in Texas and work with companies that may have violations.

EMERGING OIL AND NATURAL GAS TECHNOLOGIES

The Coalition developed an Emerging Oil and Natural Gas Technologies paper that reviews several different technologies that help meet environmental goals and operational best practices. This compilation of technologies is not comprehensive but provides an overview of the innovative technologies and practices that are being developed and implemented by industry participants.

COALITION'S INDUSTRY BEST PRACTICES RECOMMENDATIONS

While the Coalition will continue to engage with TCEQ regarding reductions and enforcement for emissions and emissions events, the Coalition offers the following voluntary best practices that industry members can utilize for emissions reductions.

TEXAS METHANE & FLARING COALITION

METHANE & EMISSIONS BEST PRACTICES

Eliminate high bleed pneumatic control devices	Eliminate high bleed pneumatic control devices and replace with either low bleed or no bleed devices.
Conduct voluntary inspections	Conduct voluntary LDAR and/or AVO inspections using OGI, Method 22, aerial Inspections or new innovative technologies.
Voluntary best emissions management practices	Utilize voluntary use of emissions reductions equipement such as vapor recovery towers, thermal oxidizers, flares on oil, and condensate and produced water storage tanks.
Replace rod packing	Replace rod packing on reciprocating compressors not subject to federal requirements when practicable, at least every 26,000 hours of operations or 36 months.
Best planning and management practices	Practice good planning and management to ensure gas transportation and utilization is available and adequate.
Flare optimization	Reduce or prevent incomplete combustion by optimizing combustion efficiency of flares.

BEST PRACTICES IN DEPTH

ELIMINATE HIGH-BLEED PNEUMATIC CONTROL DEVICES
Industry has taken voluntary efforts in eliminating high-bleed pneumatic control devices and replacing them with either low-bleed or no-bleed devices that can reduce emissions.

CONDUCT VOLUNTARY INSPECTIONS
Operators can conduct inspections in many different ways, including conducting LDAR (leak detection and repair) or AVO (audio/visual/olfactory) inspections using OGI (optical gas imaging), Method 22 visual determination of fugitive emissions, aerial inspections or other new or innovative technologies to help pinpoint fugitive emissions sources and allow operators to quickly address them.

VOLUNTARY BEST EMISSIONS MANAGEMENT PRACTICES
Beyond state and federal requirements, operators equip facilities with emissions reduction equipment and utilize voluntary use of emissions reduction equipment. For example, operators strive to voluntarily optimize and utilize vapor recovery towers (which aid in the process of reducing flash gases being sent to the storage tanks), vapor recovery units (which help send gas to the sales line instead of being vented or combusted), and combustion devices, such as thermal oxidizers, vapor combustion units, or flares – which are combustion devices used to burn gases, such as VOCs and HAPs for environmental, operational, and safety reasons.

VOLUNTARILY REPLACE COMPRESSOR ROD PACKING
Where reasonably practicable, replace rod packing on reciprocating compressors where not required by federal regulation, at least every 26,000 hours of operations or 36 months. Leaks from compressors can be reduced through proper monitoring and cost-effective scheduling for replacing packing rings and piston rods. Rod packing systems are used to maintain a tight seal around the piston rod, preventing the gas compressed to high pressure in the compressor cylinder from leaking, while allowing the rod to move freely. Compressor rod packing consists of a series of flexible rings that fit around the shaft to create a seal against leakage. The packing rings are lubricated with circulating oil to reduce wear, help seal the unit, and draw off heat.

BEST PLANNING AND MANAGEMENT PRACTICES
Implement good planning and management practices to ensure gas transportation and utilization is available and adequate before a well is brought online. These proactive practices help minimize the need to flare and is in line with the Coalition's stance on ending routine flaring.

FLARE OPTIMIZATION
When flaring is necessary, reduce or prevent incomplete combustion by optimizing combustion efficiency and operation of flares. Managing emissions when flaring is necessary via auto igniters, remote or on-site monitoring, use of automation, redundant ignition, and maintenance programs. For more information, review the Texas Methane & Flaring Coalition's Flaring Best Practices.

CONCLUSION

The Texas oil and natural gas industry is a crucial component to modern life as we know it. Anchoring our economy, creating high-paying jobs, generating revenues unmatched by other industries in our state, and contributing greatly to products and materials that we use every day are only a handful of the many benefits of the robust industry that Texans enjoy each day.

As the world looks to a cleaner energy future, pioneering technologies advanced by this very industry will continue to be the driving force of environmental progress. The Texas Methane & Flaring Coalition will continue to dedicate time, dollars and resources toward developing solutions to reduce flaring and methane emissions to ensure the Texas oil and natural gas industry can continue to serve as a leader in resource development, not only in our state, but across the nation and around the world.

WHO WE ARE

TXOGA
TEXAS OIL & GAS ASSOCIATION | SINCE 1919

PPRA
PANHANDLE PRODUCERS & royalty OWNERS ASSOCIATION

Texas Pipeline Association

TIPRO

steer
South Texas Energy & Economic Roundtable

TEXAS Alliance of Energy Producers

PBPA
PERMIAN BASIN PETROLEUM ASSOCIATION

40
Over 40 Texas oil and natural gas companies

APPENDIX A: TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) STATE REGULATIONS FOR OIL AND GAS OPERATIONS

Below is a table that illustrates the regulatory authority that TCEQ has over oil and gas operators in Texas. This list is comprehensive but not exhaustive of the regulations in Texas.

REGULATED SOURCE	REGULATORY DESCRIPTION	REGULATORY CITATION
OIL AND GAS HANDLING AND PRODUCTION FACILITIES	State permitting requirements used to authorize operations and establishes operating standards for emission sources located at oil and gas facilities.	30 TAC 106.352
TEMPORARY OIL AND GAS FACILITIES	State permitting requirements used to authorize operations and establishes operating standards for emission sources located at temporary oil and gas facilities.	30 TAC 106.353
SALTWATER DISPOSAL FACILITY	State permitting requirements used to authorize operations and establishes operating standards for saltwater disposal and water injection facilities.	30 TAC 106.351
PLANNED MAINTENANCE, STARTUP AND SHUTDOWN (MSS) ACTIVITIES	State permitting requirements used to authorize emissions and establishes operating standards associated with planned maintenance, startup, and shutdown activities performed at oil and gas facilities.	30 TAC 106.359
FLARES	State permitting requirements used to authorize operations and establish operating standards for flares.	30 TAC 106.492
ENGINES AND TURBINES	State permitting requirements used to authorize operations and establishes operating standards for engines and turbines.	30 TAC 106.512
GENERAL REQUIREMENTS FOR PERMITTING BY RULE: EMISSION LIMITS	State permitting requirements used to authorize and establish emissions limits for oil and gas facilities claiming a permit-by-rule.	30 TAC 106.4
GENERAL REQUIREMENTS FOR PERMITTING BY RULE: RECORDKEEPING	State permitting rule establishing recordkeeping requirements for oil and gas facilities claiming a permit-by-rule.	30 TAC 106.8
OIL AND GAS FACILITIES (STANDARD PERMITS)	State permitting requirements used to authorize operations and establish operating standards for emissions sources located at oil and gas facilities.	30 TAC 116.620
EMISSION EVENTS (EE)	General state rule establishing emissions event limits, reportable quantities (RQ), reporting, and recordkeeping requirements.	30 TAC 101.201
EE: SCHEDULED MAINTENANCE, STARTUP AND SHUTDOWN	General state rule establishing reporting and recordkeeping requirements for emissions events resulting from scheduled maintenance, startup, and shutdown activities.	30 TAC 101.211
EE: OPERATIONAL REQUIREMENTS	General state rule establishing operational requirements for emissions capture and abatement equipment.	30 TAC 101.221
EE: DEMONSTRATIONS	General state rule establishing requirements for executive director to determine when emissions events are excessive.	30 TAC 101.222
EE: REDUCTION OF EXCESSIVE EMISSIONS	General state rule requiring operators, if emission event is determined excessive, to provide a corrective action plan (CAP) and/or actions taken to reduce emissions.	30 TAC 101.223
FLARES, VCU, VRUS, THERMAL OXIDATION, PROCESS REBOILERS, HEATERS OR FURNACES	State standardized guidance outlining design, operational, monitoring, recordkeeping and testing requirements by types of control devices (flares, vapor combustion units, vapor recovery units, etc.), and the control efficiency claimed.	TCEQ Control device requirement for Oil and Gas facilities

Additional TCEQ Resources: NSR Guidance for Flares and Vapor Combustors

ENVIRONMENTAL PROTECTION AGENCY (EPA) FEDERAL REGULATIONS FOR OIL AND GAS OPERATIONS

The U.S. Environmental Protection Agency (EPA) holds federal regulatory oversight authority over oil and gas operations in Texas. Below is a table that illustrates and links to those regulations. This list is comprehensive but may not be exhaustive of all federal regulations.

REGULATED SOURCE	SUBPART TITLE	REGULATORY CITATION
FLARES	Federal rule establishing flare operational and performance requirements.	NSPS 40 CFR Part 60 Subpart A - General Provisions
NATURAL GAS PROCESSING PLANTS	Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011.	NSPS 40 CFR Part 60 Subpart KKK
NATURAL GAS PROCESSING PLANTS	Standards of Performance for SO2 Emissions from Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011.	NSPS 40 CFR Part 60 Subpart LLL
STORAGE VESSELS, PNEUMATIC CONTROLLERS, RECIPROCATING AND CENTRIFUGAL COMPRESSORS, EQUIPMENT LEAK STANDARDS AT ONSHORE NATURAL GAS PROCESSING PLANTS, HYDRAULICALLY FRACTURED GAS WELLS COMPLETIONS	Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015.	NSPS 40 CFR Part 60 Subpart OOOO
STORAGE VESSELS, PNEUMATIC CONTROLLERS, RECIPROCATING AND CENTRIFUGAL COMPRESSORS, EQUIPMENT LEAK STANDARDS AT ONSHORE NATURAL GAS PROCESSING PLANTS, HYDRAULICALLY FRACTURED OIL AND GAS WELLS COMPLETIONS, PNEUMATIC PUMPS AND FUGITIVE WELL SITES AND COMPRESSOR STATIONS	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015.	NSPS 40 CFR Part 60 Subpart OOOOa
STATIONARY SPARK IGNITION (SI) INTERNAL COMBUSTION ENGINES	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.	NSPS 40 CFR Part 60 Subpart JJJJ
STATIONARY COMPRESSION IGNITION (CI) INTERNAL COMBUSTION ENGINES	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.	NSPS 40 CFR Part 60 Subpart IIII
STORAGE VESSELS	Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978.	NSPS 40 CFR Part 60 Subpart K
STORAGE VESSELS	Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978 and Prior to July 23, 1984.	NSPS 40 CFR Part 60 Subpart Ka
STORAGE VESSELS	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984.	NSPS 40 CFR Part 60 Subpart Kb

REGULATED SOURCE	SUBPART TITLE	REGULATORY CITATION
TURBINES	Standards of Performance for Stationary Combustion Turbines.	NSPS 40 CFR Part 60 Subpart KKKK
GAS TURBINES	Standards of Performance for Stationary Gas Turbines.	NSPS 40 CFR Part 60 Subpart GG
FUGITIVE EMISSION SOURCES	National Emission Standards for Equipment Leaks (Fugitive Emission Sources).	NESHAP 40 CFR Part 61 Subpart V
GLYCOL DEHYDRATORS	National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities.	NESHAP 40 CFR Part 63 Subpart HH
EQUIPMENT LEAKS	National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.	NESHAP 40 CFR Part 63 Subpart H
TRANSMISSION AND STORAGE FACILITIES	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities.	NESHAP 40 CFR Part 63 Subpart HHH
STATIONARY COMBUSTION TURBINES	National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines.	NESHAP 40 CFR Part 63 Subpart YYYY
STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.	NESHAP 40 CFR Part 63 Subpart ZZZZ
INDUSTRIAL BOILERS AND PROCESS HEATERS	National Emission Standards for Hazardous Air Pollutants for Industrial for Institutional, Commercial, and Industrial Boilers and Process Heaters.	NESHAP 40 CFR Part 63 Subpart DDDDD
OIL-WATER SEPARATORS	National Emission Standards for Oil-Water Separators and Organic-Water Separators.	NESHAP 40 CFR Part 63 Subpart VV

FEDERAL TITLE V OIL AND GAS OPERATING PERMITS

MAJOR SOURCE OIL AND GAS OPERATING FACILITIES (TITLE V PERMITTING)	Federal Permitting Requirements And Authorization Program Used For Oil And Gas Operations Defined As Major Sources.	**GOP No. 511 Oil and Gas General Operating Permit**
MAJOR SOURCE OIL AND GAS OPERATING FACILITIES (TITLE V PERMITTING)	Federal Permitting Requirements And Authorization Program Used For Oil And Gas Operations Defined As Major Sources.	**GOP No. 513 Oil and Gas General Operating Permit**
MAJOR SOURCE OIL AND GAS OPERATING FACILITIES (TITLE V PERMITTING)	Federal Permitting Requirements And Authorization Program Used For Oil And Gas Operations Defined As Major Sources.	**GOP NO. 514 OIL AND GAS GENERAL OPERATING PERMIT**

Compliance Guide for Oil and Natural Gas Sector concerning the new 40 CFR Part 60, Subpart OOOOa: This New Source Performance Standard (NSPS) regulates both volatile organic compound (VOC) and methane emissions from specific sources within the oil and natural gas industry which include new, modified, and reconstructed storage tanks, compressors, gas pneumatic controllers, gas pneumatic pumps, well completions, fugitive emissions from well sites and compressor stations, and equipment leaks at natural gas processing plants. The final policy amendment in Fall 2020 removed the transmission and storage segment as one of the source categories in the 2012 and 2016 NSPS rules, rescinded the methane emissions requirements and retained requirements for VOC for sources found in the production and processing segments. The final technical amendment in Fall 2020 made several improvements around LDAR monitoring, recordkeeping and reporting, and storage tank applicability determination. The Congressional Review Act June 2021 rescinded the Fall 2020 policy amendment which reinstituted methane requirements. However, portions of the 2020 technical amendments not affected involved storage tanks and sweetening units which were not regulated for methane. In EPA's preparation efforts to propose amendments to OOOOa for new and modified sources and develop a guideline rule for existing sources by Fall 2021, they have been gathering input via public listening sessions, an open public docket, and small business outreach.

Actions and Notices about Oil and Natural Gas Air Pollution Standards

REFERENCES

- https://theenvironmentalpartnership.org/annual-reports/2020-annual-report/
- https://theenvironmentalpartnership.org/what-were-doing/manual-liquids-removal/
- https://www.glossary.oilfield.slb.com/en/terms/w/wet_gas
- 30 TAC §101.1(28)
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