CITGO Refinery

The CITGO Refinery is committed to safety and environmental stewardship. We are proud of the industry leadership position we have attained and continue to be recognized year after year with numerous safety awards. We strive to improve the water and air quality in our community through process improvements and projects.

What We Do...

The Refinery is a strategic supplier of transportation fuels, particularly in the upper Midwest. The refinery has a crude processing capacity of 177,000 barrels per day (bpd) and manufactures several grades of gasoline, diesel, jet fuel and high-quality hydrocarbon solvents used in the production of paints, adhesives and coatings.

SAFETY

At the CITGO Refinery, we value SAFETY. We protect people, our assets and the environment through smart decisions and safe actions.

2,348 Volunteer Hours

We express **CARE** for each other and our communities. We encourage and support a healthy work-life balance. We reduce, reuse and recycle in support of the environment. We cultivate meaningful relationships, deliver exceptional experiences, and proactively address customer needs.

- 40 causes supported, including United Way of Will County, Muscular Dystrophy Association, Habitat for Humanity, and Caring for our Environment

- **95 years of Operations in unincorporated Lemont, IL**
- **177,000 BPD**
- **Finished Product (Delivered Annually)**
  - 1.2 Billion Gallons within Illinois
- **Jobs (Refinery, Terminals, Lubricants)**
  - More than 650 Employees
  - More than 500 Contractors

Odor Alert Network (OAN)

CITGO Refinery is a charter member of the Odor Alert Network (OAN), a voluntary, pioneering environmental initiative that includes Lemont, Lockport, and Romeoville with the purpose of improving air quality. This initiative has turned into a regional and national success story winning praise from the Illinois Environmental Protection Agency and other environmental professionals. This effort, the first of its kind in the United States, started in May, 2004.

The OAN, through the efforts of concerned citizens, businesses, and local government, has achieved success beyond anyone's expectations for solving nuisance odors. Less than 5% of all odor complaints in this area were resolved before the OAN began operating. For the past five years, the OAN odor complaint resolution has been over 92%.

Community Awareness Emergency Response (CAER)

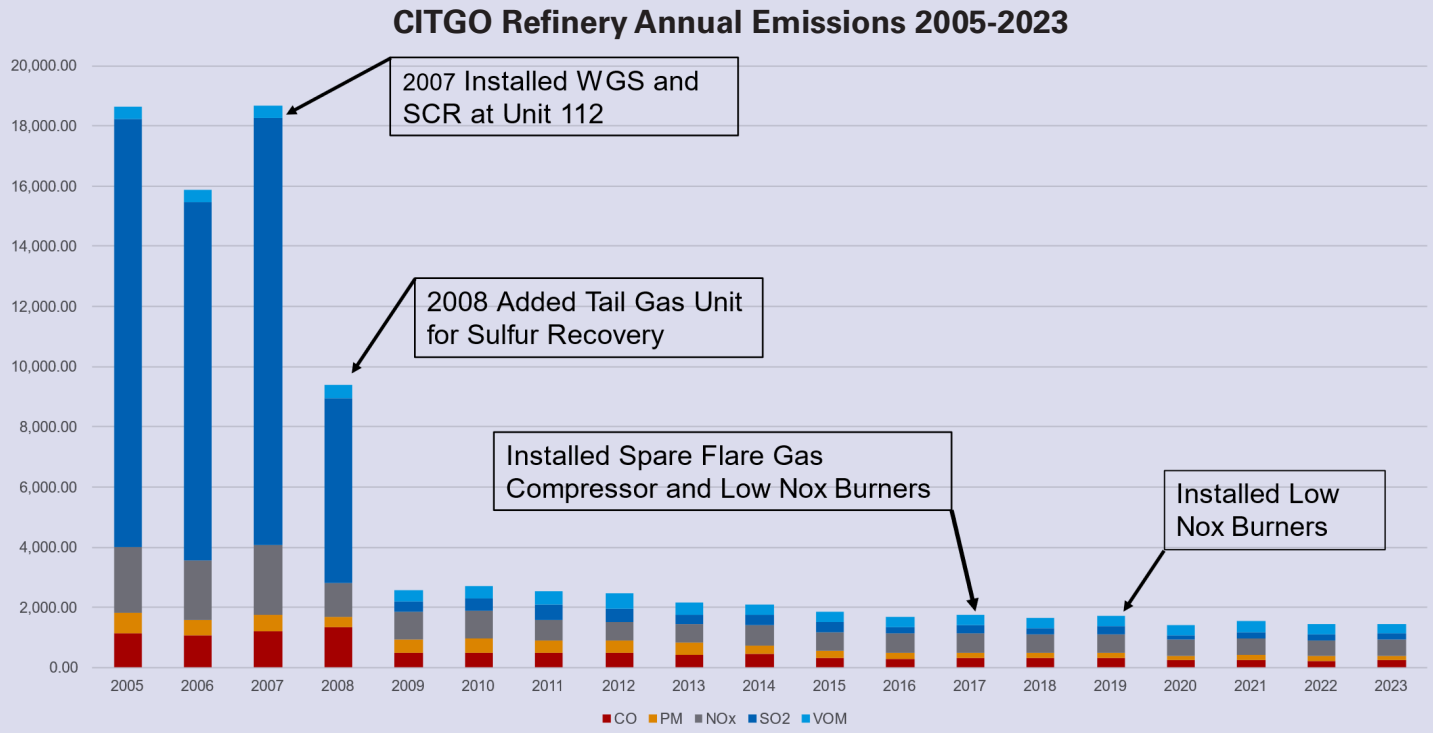
The CITGO Refinery Community Awareness Emergency Response (CAER) Council was formed in 2002 to share information and increase understanding and cooperation between CITGO, community leaders and communities regarding safety, the environment and emergency response. The council is made up of police, fire, other community leaders and refinery leadership. CAER continues to be a successful model for keeping community leaders informed on important information.

Air Emissions

EPA Consent Decree Closure

- The 2017 Consent Decree (CD) was closed in 2024 in the U.S. Circuit Court for the Northern District of Illinois after the the the United States Environmental Protection Agency (U.S. EPA) reviewed and acknowledged that CITGO has completed all requirements of the CD.
- Since March of 2000, the U.S. EPA negotiated CD settlements with 112 U.S. refineries representing 85% of refining capacity in the United States. The U.S. EPA is currently reviewing the refining and chemical industries for compliance with NESHAP Subpart FF; the CITGO Refinery is cooperating with the U.S. EPA in this effort.
- The consent decree was an agreement between CITGO and the U.S. EPA whereby CITGO agreed to additional controls and limits beyond the requirements of current federal regulations.
- CITGO Refinery was not singled-out; this process was an enforcement initiative by the U.S. EPA and affected most refineries in the United States.

Our Commitment to Cleaner Air



Nearly $1.3 Billion Invested for Clean-Air Improvement

The following is a list of emission reduction projects undertaken by the refinery since 1997.

1997 **Clean Burners I**
Low NO_x burners installed on coker heaters

1999 **Clean Tank**
Domes installed on storage tanks

2000 **Clean Burners II**
Low NO_x burners installed on crude heaters

2003 **Clean Gasoline Unit**
ISAL Gasoline Desulfurization

2006 **Clean Burners III**
Low NO_x burner installed on Auxilliary Boiler

2007 **Clean Stack**
Wet Gas Scrubber and Selective Catalytic Reduction Unit

2008 **Clean Sulfur Stack**
Tail Gas Unit for sulfur recovery

2010 **Clean Diesel Unit**
Ultra Low-Sulfur Diesel

2015 **Clean Stack Upgrade**
Wet Electrostatic Precipitator Improvements

2015 **Process Water Improvement**
Provide closed system for water transfers

2016 **Refinery Flare Upgrade**
Steam & Natural Gas Measurement & Control

2017 **Spare Flare Gas Recovery Compressor**
Install new Spare Flare Gas Recovery Compressor

2017 **Clean Burners III**
Ultra Low NO_x Burners & CEMS installed on Diesel Hydroeater Heaters

2018 **Sample Spot Upgrade**
Installed closed loop samples spots refinery units

2019 **Clean Burners IV**
Ultra Low NO_x Burners & CEMS installed on Catalytic Reformer Heater

What You See Boils Down to Steam

The Wet Gas Scrubber, "The Clean Stack," is a plume of steam that stretches several hundred feet across the sky. Just like the steam that comes from your teapot, a steam iron or a sauna, the Clean Stack plume is nothing more than tiny droplets of condensed water vapor. Nearly all of the pollutants from the vapor are cleansed before it is released into the air.

What is Clean Stack?

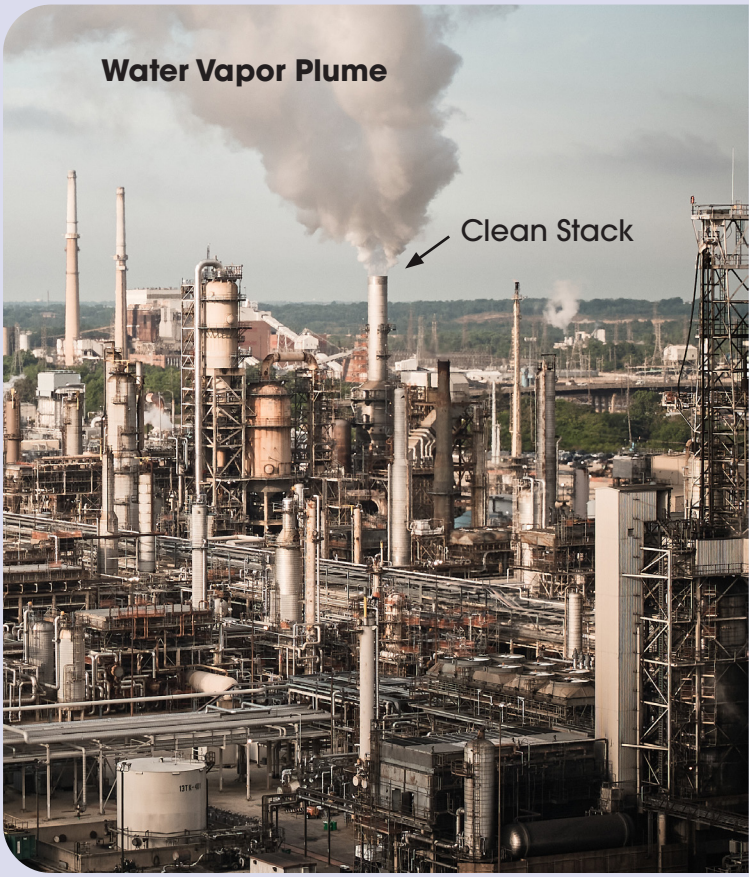
- It's a combination of two high-tech units: the Selective Catalytic Reduction Unit and the Wet Gas Scrubber.
- Together, they reduce the emissions that result from the manufacture of gasoline for your car.
- These improvements represent a $142 million investment and a continuing commitment to our environment.

What does it do?

- First, chemical reactions take place that eliminate certain compounds from refinery gases.
- Next, stack gases are scrubbed, much as rain washes pollen and fine dust particles from the air.

What are the benefits to you and the enviroment?

- 98% reduction of emissions of sulfur dioxide (SO_2)
- 94% reduction of emissions of nitrogen oxide (NO_x.)
- 96% reduction of emissions of particulate matter (dust)



Another Source of Steam - Cooling Towers

Several cooling towers are used in the refinery to provide cooling to various process streams. You will notice cooling towers by water vapor plume exiting the tower.

A cooling tower is a specialized heat exchanger in which air and water are brought into direct contact with each other in order to reduce the water's temperature. As this occurs, a small volume of water is evaporated, reducing the temperature of the water being circulated through the tower.

Benzene Fenceline Monitoring

In 2018, the U.S. EPA began requiring all refineries in the United States to implement a Benzene Fenceline Monitoring (BFM) program. Fenceline monitoring requirements are meant to provide additional assurance to U.S. EPA and the public that existing refinery emissions estimates are accurate and confirm that fugitive emissions are not affecting public health.

As part of this program U.S. EPA set an action level for benzene emissions measured at the fenceline of 9 ug/m3. If a refinery's monitoring data shows that it exceeded the action level on an annual basis, an investigation to identify the cause is required, and action must be taken to remedy the issue. **The majority of the refinery fenceline monitors are 90% below the action level with the combined annual average 57% below.**

The U.S. EPA has established a Reference Concentration (RfC) for benzene of 30 ug/m3. The benzene RfC is an estimate of a continuous inhalation exposure to the human population at or below which adverse health effects are not likely to occur. The map shows the refinery monitoring locations, **and the actual results remain well below the U.S. EPA benzene RfC concentrations by a factor of 10 and are comparable to the general background levels of benzene that are present throughout the environment.** The U.S. EPA benzene RfC and benzene fenceline monitoring action level are set well below levels that could cause adverse health effects in humans, even for sensitive and vulnerable groups, such as children.

Water

The refinery takes raw waters from the Chicago Sanitary and Ship Canal (CSSC) and returns treated water back to the CSSC per the requirements of the refinery National Discharge Elimination System (NPDES) permit issued by the Illinois Environmental Protection Agency (IEPA). The refinery NPDES permit requires rigorous testing, record keeping and monthly reporting requirements that meet applicable Federal and State requirements.

CITGO Refinery works closely with IEPA to remain aware of upcoming issues and was an early adopter of Best Management Practices (BMPs) to ease the impact of road salt to the waterway.

Agencies We Work With

Illinois Environmental Protection Agency · EPA United States Environmental Protection Agency · IDPH Illinois Department of Public Health · OSHA · FEMA · Illinois Emergency Services Management Association

CARE SAFETY INTEGRITY RESPECT ACCOUNTABILITY

www.CITGO.com