



Mon Valley Works Clairton Plant  
**Operations and Environmental Report**

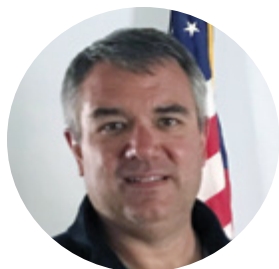


United States Steel Corporation

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# Message from the Plant Manager



**Michael S. Rhoads**  
**Plant Manager**  
**Mon Valley Works –**  
**Clairton Plant**

U. S. Steel has been a part of the Mon Valley for 120 years, providing the steel to build America made by generations of proud United Steelworkers and U. S. Steel management employees. We know that to be a good neighbor, we must also continuously improve our environmental performance.

While I am proud of the environmental progress and achievements described in this report, under U. S. Steel's commitment to its Continuous Improvement to the Environment (CITE) program, we will never waver in our efforts to improve. Not only do we employ a formal CITE program in our training, we have embedded our CITE program in our day-to-day operations, as a commitment to environmental stewardship.

Our successes are a result of our resolve to always follow our S.T.E.E.L. principles—Safety First, Trust and Respect, Environmental Stewardship, Excellence and Accountability, and Lawful and Ethical Conduct which will be discussed in more detail in this report.

2021 was a year of fast transitions. As the world regained its footing amidst the COVID pandemic, we were asked to make nimble transitions across our facilities to meet the fast-paced increase in demand for the products we produce. Coke, Iron, and steel are crucial to so many items in our everyday society. The steel production that we (the Clairton Plant) support is critical for basic essentials like tinplate aerosol cans used in many cleaning and disinfecting applications and food containers. Domestic manufacturing has been particularly critical during the pandemic, supplying many products that support national, economic and health security.

In 2021, U. S. Steel's Clairton Plant continued its relentless pursuit of environmental excellence, which I am deeply proud of, and the pages ahead summarize some of our major successes during the year. In a year where the Clairton Plant ramped up production to meet increased coke/steel demand, the plant continued to maintain its excellent environmental performance in terms of combustion stack and fugitive compliance. Furthermore, based on 2021 data, the nearby Liberty monitor was in attainment with National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. Specifically, there were no exceedances of the 1-hour 75 PPB SO<sub>2</sub> NAAQS.

In addition to the excellent environmental performance and looking ahead to the future, the Clairton plant implemented several Environmental related reliability projects at its By-Products facility in 2021. These projects included the following:

- Completed piping and tank improvement projects to improve reliability of operations.
- Upgraded the electrical system to #1 Control Room 5kV switchgear.
- Upgraded both 25cycle switchgear systems powering Flushing Liquor Pumping Systems.
- Implemented a Vibration monitoring system project for all Axial Compressors

These achievements, as well as other environmental progress demonstrate U. S. Steel's commitment to Environmental Stewardship through the implementation of the STEEL Principles and the Clairton CITE program. U. S. Steel values our shared environment, employees and the communities in which we operate. Safety and environmental performance remain our top priorities, now and into the future.



# United States Steel Corporation—S.T.E.E.L. Principles

**Our S.T.E.E.L. Principles are the foundation of a strong ethical culture at U. S. Steel. These five principles set forth clear ethical expectations for our Board of Directors, our leadership team and U. S. Steel employees worldwide. Conduct aligned with the S.T.E.E.L. Principles is essential to sustaining ethically and lawfully sound corporate citizenship, responsible environmental stewardship, and the principled management and leadership that are necessary for our continued success.**



## **S SAFETY FIRST**

U. S. Steel operates under the guiding principle that all safety-related incidents can be prevented and vests personal responsibility for operating under that principle in all its employees and contractors. Our company maintained an industry-leading safety program for many decades before the passage and implementation of government regulations, such as the Occupational Safety and Health Act and the Mine Safety and Health Act.

## **T TRUST AND RESPECT**

The success of our company depends on all of us working together to achieve our common goals. We must build strong relationships with one another that are rooted in trust and respect while driving our culture of caring. By embracing the strengths and unique differences each of us brings to our work, we respect and learn from one another, foster a high-performance environment, and encourage every employee to reach his or her full potential. We want all employees to trust that our diverse backgrounds are valued and celebrated. Our Employee Resource Groups, several of which focus on inclusion and allyship of historically underrepresented groups in the workforce, support our increasingly diverse workforce and strengthen employee engagement and connection. In addition, our Inclusion and Diversity Council, led by our CEO, drives our enterprise-level inclusion and diversity strategy across our company. Ultimately, our company is stronger—and we can serve our customers better—when we bring together our diverse experiences, backgrounds and perspectives to create inclusive, well-rounded and high-performing teams.



## **E ENVIRONMENTAL STEWARDSHIP**

Environmental stewardship and “Safety First” are inextricably linked. Just like safety, environmental stewardship is a core value of our company that is incorporated into our day-to-day operations as well as our strategic corporate decisions. We must operate our facilities in an environmentally responsible manner and take steps to protect and preserve our shared natural resources. Doing what’s right for the environment is also doing right for our business. Our commitment to environmental performance begins at the top with regular oversight by our senior leadership, and we continue to increase environmental awareness through regular training of our employees. Additionally, we are committed to establishing and maintaining documented environmental management programs that adhere to environmental laws and regulations, and many of our major facilities are ISO 14001-certified.

## **E EXCELLENCE AND ACCOUNTABILITY**

Excellence and accountability are critical to sustaining our high-performance culture. Through our pursuit of excellence, we continue to challenge ourselves to build a better, more sustainable future for our employees, customers, and communities. Accountability is critical to the success of our company. Accountability means taking initiative by proactively identifying what needs to be done, developing an action plan, and executing that plan. It also means aligning our actions to our goals, taking responsibility for our decisions, and executing on our commitments to our stakeholders in a timely manner.

## **L LAWFUL AND ETHICAL CONDUCT**

Each of us has a duty to conduct business ethically and in compliance with all applicable laws and regulations, including when interacting with our customers, suppliers, competitors, and other external parties. We must never take advantage of or provide special benefits to anyone—or even appear to do so—through manipulation, concealment, misuse of information, misrepresentation of material facts or any other unfair or improper practices. Fraud, theft, embezzlement, inflated billings, falsified expense reports and payment of kickbacks are all examples of illegal and unacceptable conduct.

**These S.T.E.E.L. principles are the foundation on which we operate; and are reflected in the environmental progress realized by the Clairton plant operations as explained below.**

# Overview of the Clairton Plant and the Mon Valley Works



*Figure 1. The Clairton Plant – the largest coke plant in the western hemisphere, is located along the Monongahela River outside of Pittsburgh.*

The Clairton Plant of the Mon Valley Works is located 20 miles south of Pittsburgh on 392 acres along 3.3 miles of the west bank of the Monongahela River.

The Plant has the capacity to produce approximately 4.3 million tons of high-grade metallurgical coke per year in 10 coke batteries comprised of 708 ovens. The Clairton Plant is the only remaining U. S. Steel coke-producing plant in the United States. This plant supplies coke needed for iron and steel production at the Mon Valley Works' Edgar Thomson Plant and other steel-producing locations. The Clairton Plant is the largest producer of high-grade metallurgical coke in the western hemisphere.

The significance of the Clairton Plant, including its products and byproducts, goes well beyond its geographical footprint. Clairton Plant's products are used as the raw material feed to other steel plants throughout the United States. In addition, its byproducts are used in chemical and manufacturing operations of many corporations.

The Clairton Plant operations have a tremendous impact on the local, regional, and national economy. The Clairton Plant employs approximately 1,400 highly skilled United Steelworker union-represented and non-represented employees. Since the Clairton Plant is the nation's largest producer of coke and coal chemicals, its operations have a multiplier effect in supporting thousands of additional steel plant, chemical, energy, transportation, and supplier jobs, not only in the Clairton area in Allegheny County, and Southwestern Pennsylvania region, but also across the United States. In fact, the Clairton Plant is an integral part of the three-plant steelmaking complex U. S. Steel calls the Mon Valley Works.

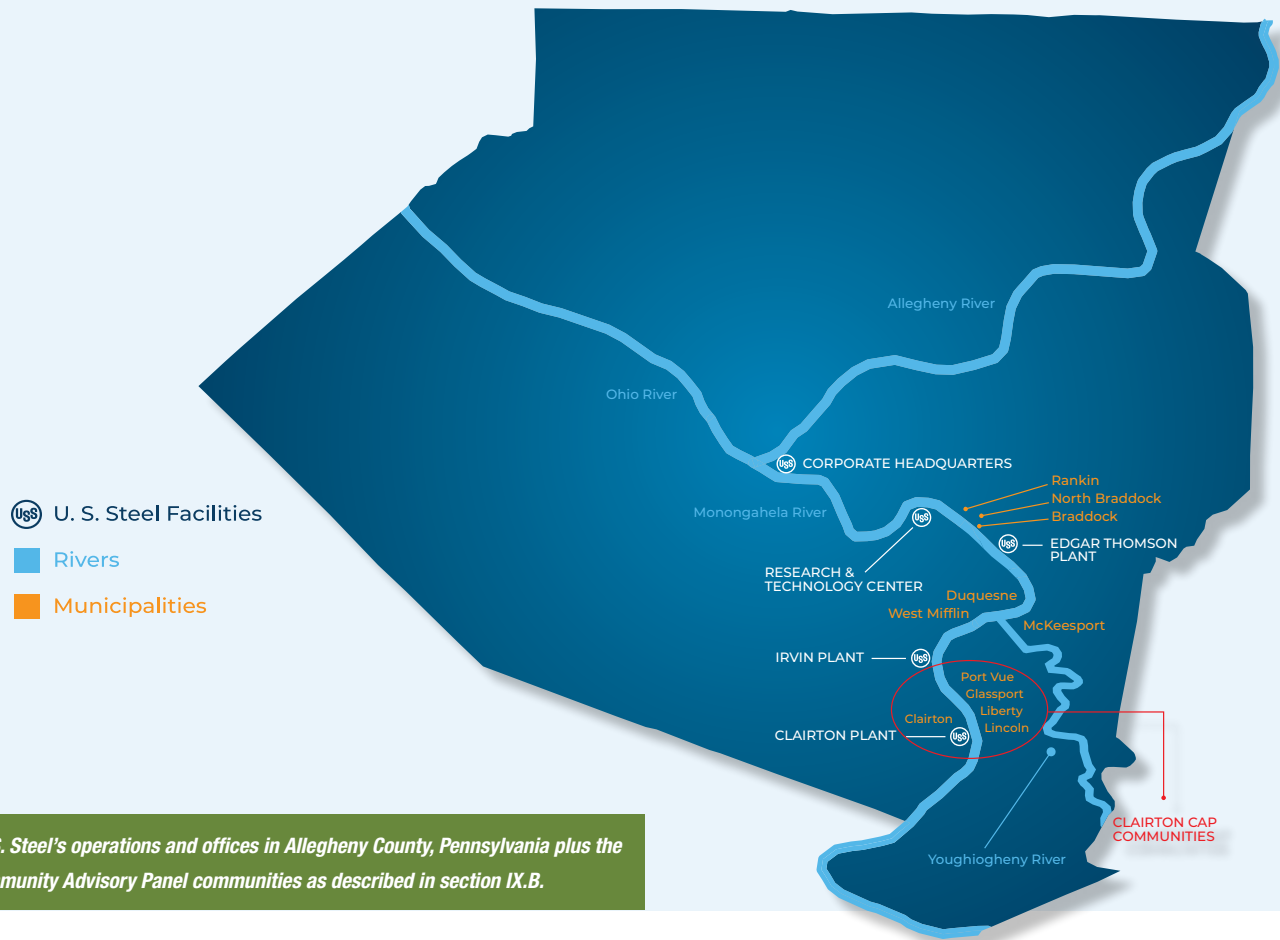


Figure 2. U. S. Steel’s operations and offices in Allegheny County, Pennsylvania plus the Clairton Community Advisory Panel communities as described in section IX.B.

The Mon Valley Works consists of:

- 1) **Clairton Plant** – which, as explained, produces coke and coke by-products;
- 2) **Edgar Thomson (ET) Plant** – produces hot iron in blast furnaces, which is then converted into steel at the Basic Oxygen Shop; and turned into slabs at our continuous caster.
- 3) **Irvin Plant** – finishes and processes steel slabs
- 4) **Fairless Plant** – includes a finishing mill, located outside of Philadelphia, Pennsylvania

The Edgar Thomson Plant and Irvin Plant rely on the Clairton Plant for its metallurgical coke (which is used as a raw material in ET’s blast furnaces) and coke oven gas which is used throughout the facilities as a clean fuel.

The economic impacts of the Mon Valley Works are significant locally as well as nationally. Steel is a critical foundation for our nation’s economy, security, infrastructure, energy independence, and downstream manufacturing capabilities. The United States must maintain the ability to mine, melt and make the steel needed to defend, build, and power our country.

In 2018, the Federal government determined that domestic steelmaking is necessary for our nation’s security production requirements and without domestic steel production we run the risk of not being able to adequately respond to a national emergency. Furthermore, the U.S. Department of Homeland Security has designated steelmakers like U. S. Steel, including its Clairton coke plant, to be a vital component of our nation’s critical manufacturing sector, which is necessary for the economic prosperity, security, and continuity of the United States. The Covid-19 pandemic has highlighted the importance of having robust domestic manufacturing capabilities to supply important products that are essential to national, economic and health security.

While the Clairton plant has been producing coke for over 100 years, it has evolved, and continues to evolve, into a state-of-the-art manufacturing facility with a proven track record of environmental performance like no other coke plant in the world. The plant has experienced significant milestones over the last century, including, more recently, many that are environmentally related, as highlighted below:

# History of Clairton Plant

## Significant Milestones

| YEAR      | TIMELINE OF EVENTS  |
|-----------|---|
| 1901      | Built by St. Clair Steel Company  |
| 1904      | Purchased by U. S. Steel  |
| 1918      | Construction of 12 Koppers Batteries with total of 768 Ovens  |
| 1948      | Maximum capacity of coke making achieved (approximately 8 million tons/year with 22 Batteries and 1,482 ovens)        |
| 1973      | Coke Oven Gas Desulfurization Plant Installed   |
| 1977      | Coke capacity reduced to approximately 5 million tons/year  |
| 1982      | B Battery commissioned  |
| 1988–1990 | Pushing Emissions Controls Installed  |
| 1991      | By-Products Plant Upgrades  |
| 2001      | Pushing Emissions Control Baghouse Improvements   |
| 2005–2008 | B Battery Through Walls Replaced  |
| 2008      | Plant status: 12 Batteries with 816 ovens in operation  |
| 2009      | 3 Batteries permanently shut down — 624 operating ovens   |
| 2010–2020 | Batteries 13–15 Major Refractory Upgrades   |
| 2010–2020 | Batteries 19–20 Through Walls Replaced  |
| 2011–2020 | Batteries 1–3 Endflues Replaced   |
| 2012      | C Battery Start-up: 10 batteries with 708 ovens with capacity of approximately 4.3 million tons of coke/year          |
| 2013      | 2 additional Low Emission Quench Towers constructed (Reductions: 1,107 tons of TSP, 301 tons of PM10, 812 tons PM2.5) |
| 2018      | Coke Oven Gas Desulfurization Vacuum Carbonate Upgrades   |
| 2020      | New High Efficiency Bags installed on Pushing Emissions Control Baghouses — completed May 2020                        |



# Safety

## Safety Policy

“Safety First” is our primary core value. To support this, U. S. Steel is committed to:

- Providing safe and healthy working conditions for the prevention of work related injury and illness in the workplace.
- Continual improvement of the occupational health & safety management system.
- Consultation and participation of workers through engagement.
- Complying with legal requirements and other requirements.
- Eliminating hazards and reducing occupational health & safety risks.

*In simple terms, our safety policy and primary core value is “Safety First.”*

Our program framework consists of:

**Shared Responsibility:** U. S. Steel promotes safety and industrial hygiene management as a core value by conducting operations in a safe manner and recognizing that the accountability and

responsibility for safety and industrial hygiene management extends from each individual employee to the top executive of each business unit.

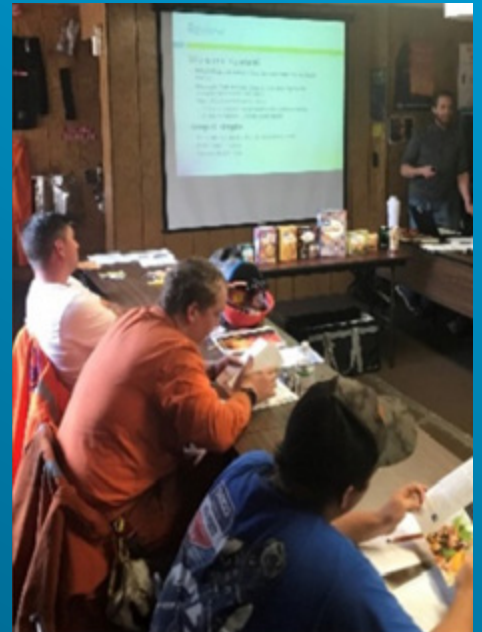
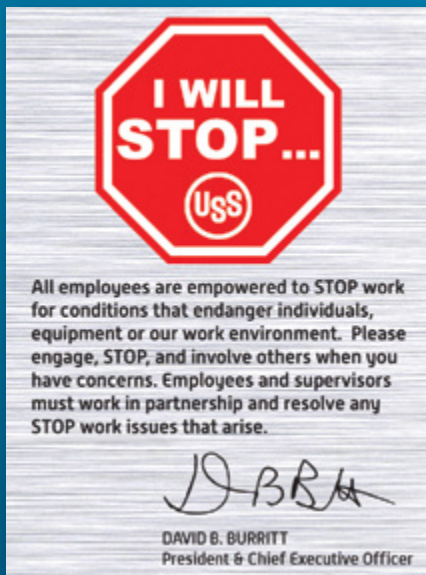
**Empowered Leadership:** U. S. Steel vests managers and supervisors with safety and industrial hygiene responsibilities and provides leadership and support to them from safety and industrial hygiene personnel.

**Intentional Design:** U. S. Steel integrates safety and industrial hygiene management systems and processes as essential elements in all functions by establishing and maintaining plans, objectives, and programs and by providing resources for implementation and program maintenance.

**Third Party Requirements:** U. S. Steel requires contractors and suppliers to conduct their activities consistent with this policy and in accordance with the U. S. Steel Contractor Safety Standard Specification.







*Figure 3. A copy of a wallet sized “Stop and Act” card, a photo of an employee signing Clairton’s 2021 Safety Banner, and a photo of a professional nutritionist brought in by the Heat Focus Team to talk to employees in a safety meeting.*

Some of the in-plant safety engagement initiatives we’ve encouraged over the last year include:

- **STOP & ACT** – Every U. S. Steel employee is empowered to STOP work for conditions that endanger individuals, equipment, or our work environment.
- **Annual Safety Commitment** – At the beginning of every year, all U. S. Steel employees are invited to give their commitment to safety by signing the plant safety banner.
- **Safety Conversations** – We have established a process in which all members of the organization can engage with one another about work practices, conditions, and/or safety concerns about a job in a non-threatening and collaborative way.
- **Safety Focus Teams** – Teams comprised of union and management employees with the goal of improving safety conditions and eliminating hazards. In 2021, teams focused on heat, strains & sprains, hands & fingers, eyes, and walking/working surfaces.
- **Safety & Environmental Seasonal Engagement Campaigns** – Spring, Summer, Fall and Winter engagement activities to encourage communication, hazard identification, and hazard elimination of various safety and environmental topics.
- **Safety Football** – Fall engagement competition to encourage safety communication and the identification and elimination of hazards throughout our plants.

# State-of-the-Art Facility

As explained in Section II, above, while the Clairton Plant has been a vital part of Allegheny County, Pennsylvania for over 100 years, it is and continues to evolve into a state-of-the-art facility. While the fundamentals of coke-making have not changed, the ancillary

operations and the technologies used have significantly evolved to be more environmentally friendly and efficient. The diagram provided below provides a high-level summary of the Clairton plant's operations:

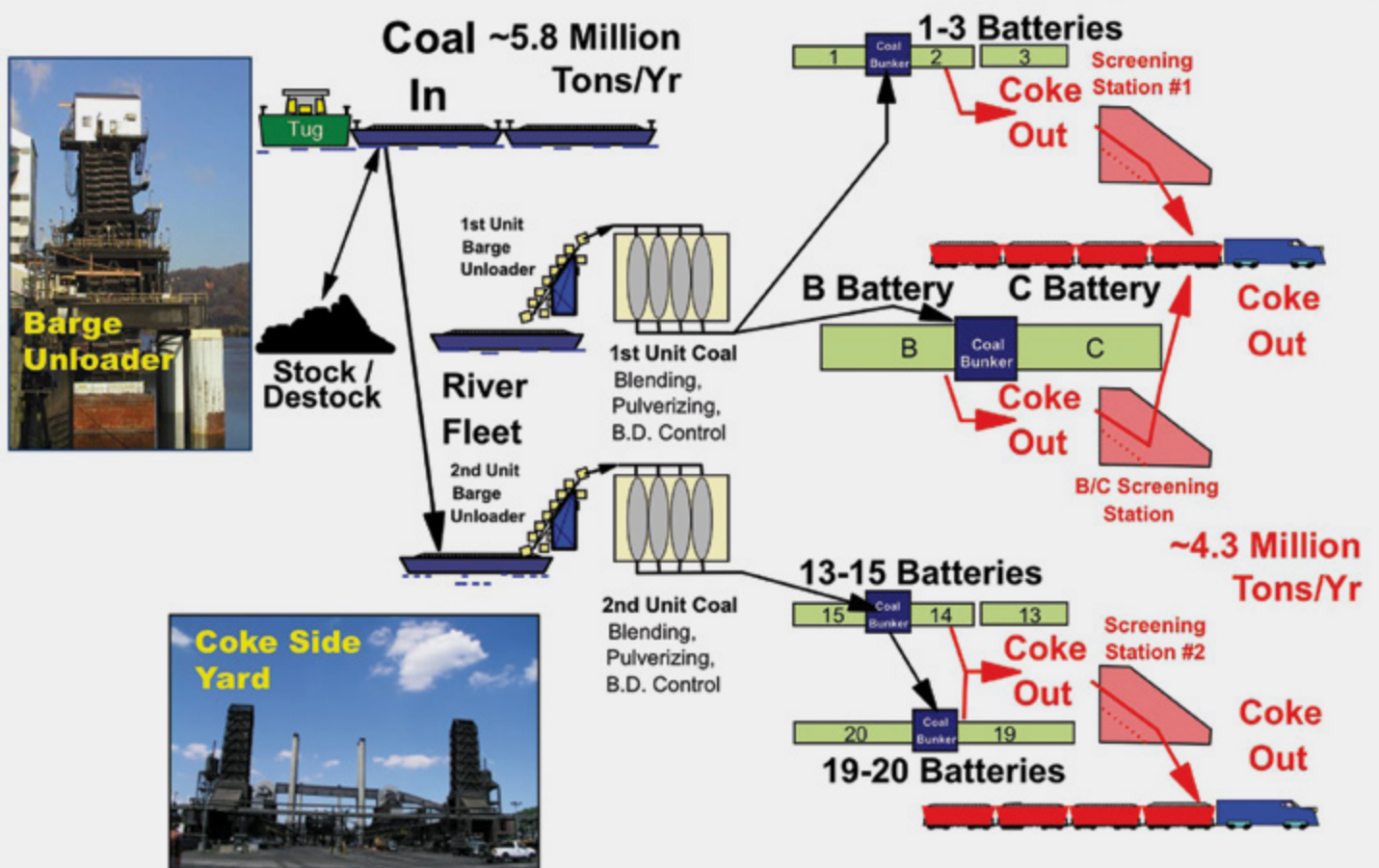


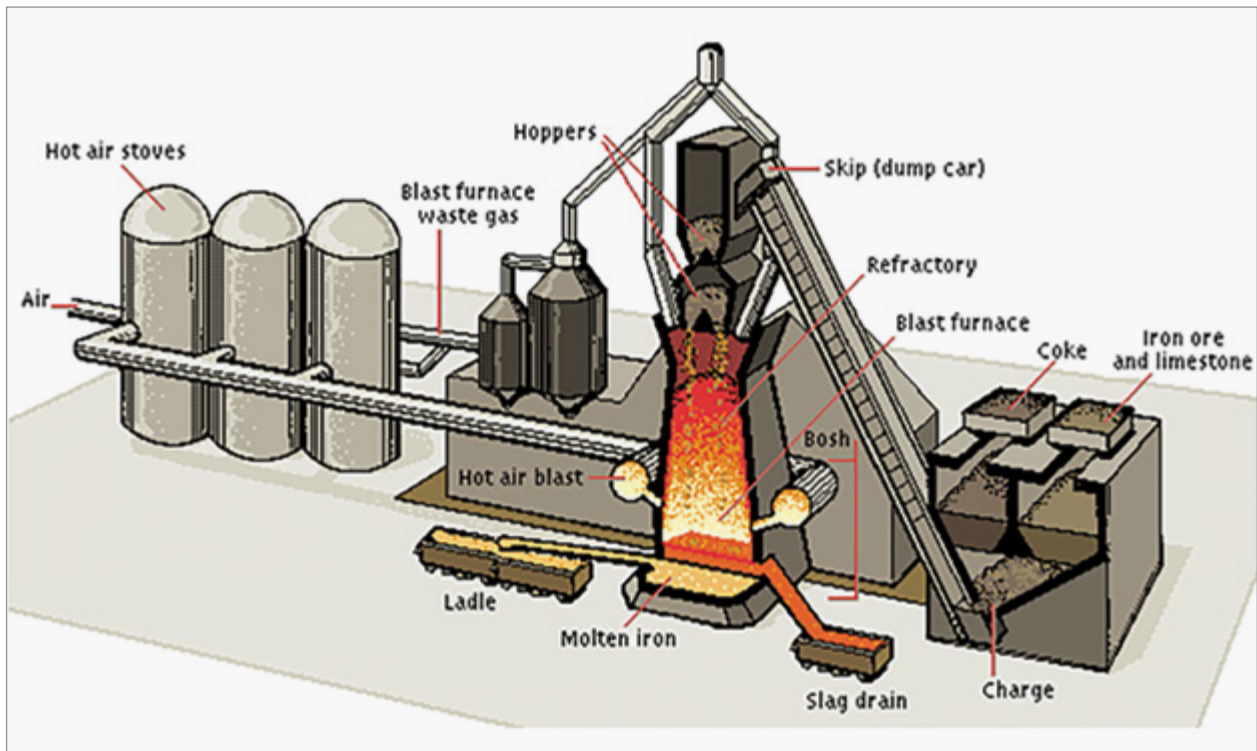
Figure 4. Clairton Plant – General Plant Process Flow Diagram: showing from left to right; the coal being brought by barge to the plant, coal blending & pulverizing operations, coal being charged to the batteries, and coke produced, screened and loaded into railcars for customer delivery.

## A. COKE BATTERIES

Coal is a mineral consisting mainly of sedimentary fossilized carbon with smaller amounts of other elements, such as sulfur, hydrogen, oxygen, nitrogen, and more. Coal is found under the earth's crust as lignite, or brown coal (the lowest ranking coal), bituminous coals, and anthracite. It is extracted either from underground by shaft mining or at ground level by open-pit mining. The bituminous coals are used at the Clairton plant to produce metallurgical coke.

According to the U.S. Energy Information Administration, in 2019, coal makes up about 23.4% of the United States electricity

generation and is also used in the production of metallurgical coke for blast furnace fuel. Some smaller blast furnaces can utilize charcoal as a carbon source, but larger blast furnaces require the strength and durability of coke. U. S. Steel operates a number of blast furnaces throughout the corporation. The coke supplied by Clairton is a key ingredient that fuels our blast furnaces to produce the iron that is refined to steel at the basic oxygen process (BOP) shops. The steel is molded into steel slabs at our continuous caster operations and sent to our various finishing facilities to be rolled and coated into the final customer-specific products.



*Figure 5. A blast furnace operations overview showing coke, iron ore, and limestone storage and charging into a blast furnace where molten iron is produced. The molten iron is then transferred to a Basic Oxygen Process to be converted from iron to steel.*



# COKE

...is a **fuel** to supply heat and a **reductant** to reduce the iron ore to elemental iron.

...**permeability** lets wind, hot blast air, travel up through the furnace.

...**supports the burden or layer** of iron ore and limestone in the furnace.

To produce the coke needed to directly reduce iron, bituminous coal is superheated under reduced oxygen conditions in oven batteries specially designed for this process. A coke battery is made up of multiple ovens. Coal is crushed and blended prior to being moved to the coal storage bunkers located on each battery unit. The coal is transferred from the coal storage bunker to each oven by a coal charging railcar called a larry car. A larry car is a specially designed railcar that transports the coal from the coal storage bunker to each oven and also includes specially designed chutes to “charge” each oven with the blended coal. Coal is dropped into the ovens through four coal charging holes. The coal is heated, or baked, at approximately 1,900 degrees F for 18 hours in the ovens. During that time, gases, including the volatiles of the coal, are driven off by the heat into the off-gas piping system to be further processed downstream. The pure carbon that remains in the oven is called “coke”.

Once the coke is produced the pusher side and coke side doors of the oven are removed. A “pusher” machine is then positioned in place where the pusher machine ram “pushes” the coke through an 18-inch-wide slot into a rail mounted catch, or quench, car. When the coke is pushed from the oven into the quench car, it is quickly moved to the battery unit’s quench towers to cool the coke and stop the burning process. The cooled coke is then dumped onto a coke wharf where it is taken to a facility to be screened and sized prior to being charged into the blast furnace. The figures below show a typical layout of a coke plant and the current coke battery configuration at the Clairton Plant:

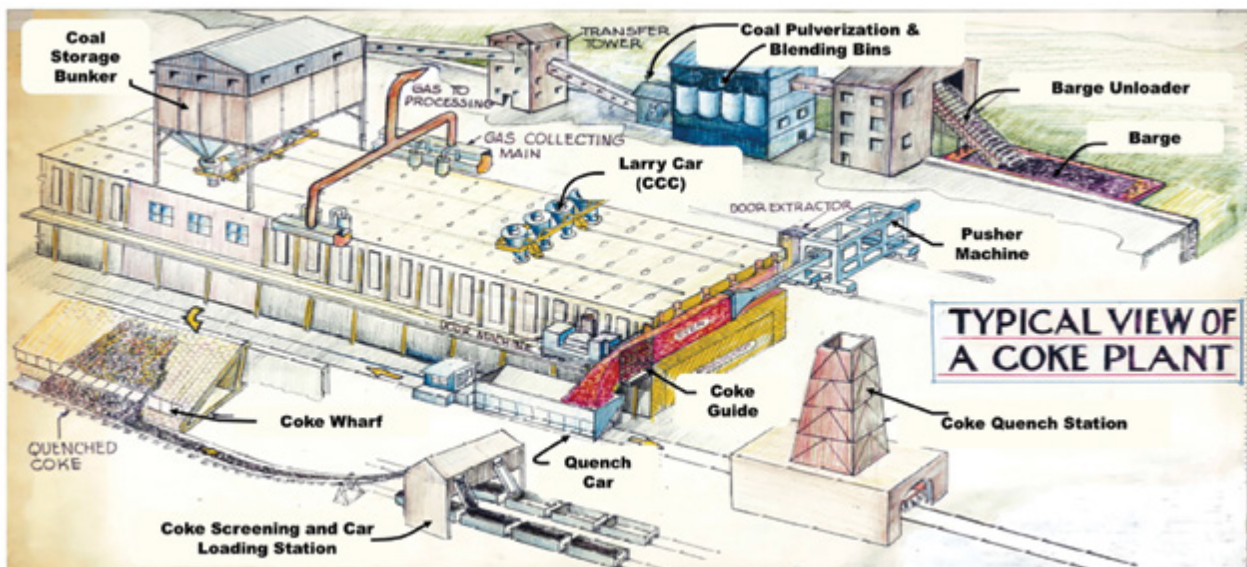


Figure 6. Overview of a typical coke plant with a side view of an oven cut-out.



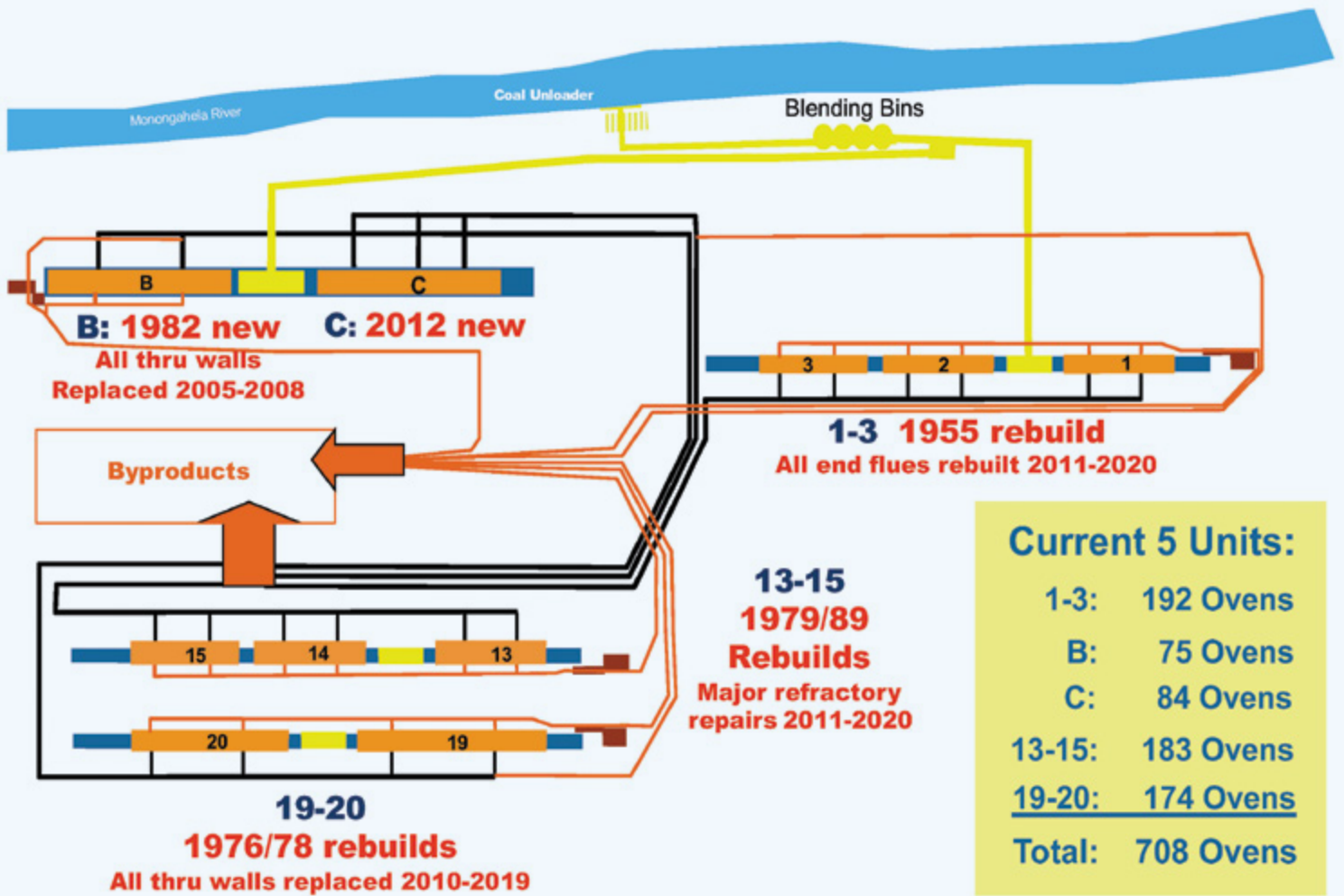


Figure 7. Clairton Plant – Battery Configuration in 2019.

## B. ENVIRONMENTAL CONTROLS—HIGHLIGHTS

As indicated above, the Clairton Plant coking facility consists of ten batteries ranging in height from 3.6 to 6 meters, which have an annual coke capacity of 4.3 million tons. There are several potential emission points throughout the coking process that U. S. Steel and the regulating agencies monitor. Specifically, emissions are monitored during the process of charging coal into the ovens, during the pushing of the coke out of the oven and into the quench car, during the travel of the coke-filled quench car to the quench tower, at the doors on each side of each oven, at the lids that cover the charging port the coal enters the oven through, at the offtake piping on each oven that carries the off-gases to be processed, and at the combustion stacks from which the by-products of combustion from natural gas and coke oven gas exit the batteries after the heat is used to bake the coal. While each battery is unique, air emissions are minimized at each potential emission point either through the installation of control equipment, such as the pushing emissions control baghouses, or the implementation of advanced employee work practices.

### Stage Charging—Batteries 1–3, 13–15, 19–20 and B

We have installed gravity-discharge larry cars and screw conveyor larry cars to more evenly charge the coal into the ovens. Larry cars operate on top of the batteries delivering coal to each oven. The coal is brought over to each of the batteries via conveyor systems. The act of delivering coal into each of the ovens is called, “charging”.

Stage charging involves the planned sequential release of fixed amounts of coal from the hoppers of the larry car in conjunction with high-pressure steam aspiration and leveler bar operation. Stage charging is a detailed charging procedure that evenly distributes the coal into the oven, aimed at reducing charging emissions, reducing the number of passes made by the leveler bar and keeping the tunnel head open to the gas collecting main. Without a clear path for the off-gases to travel, the oven pressure increases, and the gases may escape out of the lids or the doors providing for a higher likelihood of emissions. To complete the charge properly, lidmen, who are trained to remove and replace oven charging hole lids, replace the lids as soon as the coal charging hopper runs empty to minimize air infiltration and visible charging emissions.

Coke oven door design and improved operating and maintenance techniques continue to improve with the Clairton Plant being a leader in innovation. Coke oven doors are taken off and put back on each oven after a coking cycle is complete. Clairton has its own door repair shop onsite with the expertise to repair doors more efficiently than taking them offsite for repair. Door coordinators continually stop door leakage and make door adjustments to minimize door leakage around the clock.

### Clairton Innovative Coke Battery Door Design Project

U. S. Steel has worked with a third party to design and trial an innovative adjustable door seal technology for use at its Clairton Plant. A unique adjustable door seal has been designed for the coke side and pusher side doors of 1–3 Batteries, 13–15 Batteries, 19–20 Batteries and B Battery. The design includes an improved new seal arrangement and new seal components made of more durable and flexible material. The new design allows the door to seal better than the current door design. Clairton continues to look for opportunities through alternative designs and materials to improve door sealing on all units and is currently trialing a second unique design on several batteries to evaluate its performance.

*Figure 8. Lidman replaces the lid after the coal has been charged into the battery*





*Top: Figure 9. Left: Above is a picture of the new door seal that is adjustable, seals better, and allows for better maintenance.*

*Middle: Figure 10. Central Door Repair Shop where doors are repaired, and the new design is implemented.*

*Bottom: Figure 11. New Door Plug. Door plugs fit into the oven and are used to reduce emissions while lowering heat losses from the oven chamber through the door.*

Automatic door and jamb cleaners are installed on the coke side of all batteries to further reduce emissions. The door and jamb cleaners will remove any buildup or debris where the face of the door mates with the battery. This ensures proper seating. The positioners, or locators, on the door machines ensure that the doors are placed back in the proper place for each oven.

Heating effects the quality and quantity of the coke produced from the destructive distillation of the coal but also impacts potential emissions. Even and controlled heating through each oven and each battery is essential. Clairton has been a leader in developing flue temperature monitoring to ensure consistent heating.

Due to the fluctuations of extreme temperatures (thermal shock) over time, there are occasions when the refractory brick will need to be patched/repared. Again, Clairton has been a leader in the development of advanced patching practices including wet slurry, dry gunning, fused silica dry gunning, and ceramic welding patching techniques.

*Figure 12. Regenerator Cleanout in Progress.*



### **13–14 Battery Regenerator Project**

Clairton has undertaken a capital improvement project to clean out regenerators on 13 and 14 Batteries. The regenerators preheat ambient air that is mixed with coke oven gas to heat each oven wall. Cleaning of the regenerators will improve air flow into the flues and improve coke oven gas combustion and oven heating efficiency. Over time, debris which falls to the base of the flue will fall into the air-ports and down into the regenerator chamber. Blocks of 3 ovens at a time are required to be out of service and gas sources isolated from both heating walls of the regenerator to be cleaned. Then, the regenerator brick has to be mined out as deep as the center pusher side and coke side division wall and rebuilt. This project has a positive environmental impact on push, travel, and battery stack performance.

### **Cryogenic Coke Oven Gas Process**

To our knowledge, the Clairton Plant has the only cryogenic coke oven gas (COG) separation facility in the world. While many coke plants throughout the world do not employ any coke oven gas desulfurization, the Clairton Plant has enhanced the cryogenic process. Per the Association for Iron and Steel Technology (AIST), the desulfurization process at the Clairton Plant provides the lowest hydrogen sulfide, clean coke oven gas on the North American Continent. The hydrogen sulfide gas content of the cleaned coke oven gas is well under half the hydrogen sulfide content of those coke plants that desulfurize coke oven gas through other processes and is approximately 90% lower than those that do not desulfurize coke oven gas.

As discussed below in the by-products section, the cryogenic process produces much cleaner and consistent coke oven gas, which is a benefit for the combustion users including the battery heating.



## Pushing Emissions Control Systems

Once the coking cycle is complete, the coke is “pushed” out of the oven via a “pusher” machine. Emissions from the pushing process are captured by the Pushing Emission Control Systems (PECs). PECs are installed on all 10 Batteries. PECs on 9 of the batteries use a traveling canopy hood over the coke cars to capture pushing emission and a baghouse to control emissions. The pushing emissions on B battery are captured and controlled by a fixed coke-side shed and baghouse as opposed to the traveling canopy hood.



Figure 13. PEC Baghouse for #1 Unit (Batteries 1–3).



Figure 14. PEC Baghouse Infrastructure and PEC Baghouse Batteries 13–15 showing the coke guide enclosure, PEC hood and 13–15 & 19–20 PEC, or second unit, baghouse.

As noted above, the Clairton plant has five Pushing Emissions Control (PEC) baghouses to capture and control particulate matter emissions from “pushing” the coke out of the battery ovens after the coal-to-coke oven cycle is complete. These five baghouses capture and control the pushing emissions from all 10 batteries.

U. S. Steel Clairton plant has committed to improving the emissions control performance of all five PEC baghouses by installing new cages and upgrading the systems by using high control efficiency bags. These improvements were completed in 2020. The high control efficiency bags are 92% efficient at removing the particulate matter 2.5 microns or less (PM2.5). The previous baghouse bags were approximately 80% efficient at removing PM2.5. This is a 15% increase in capture at all five baghouses resulting in a significant emissions reduction of PM2.5.



### C. LOW EMISSIONS QUENCH TOWERS (LEQT)

Once the coke is pushed out of the oven, the coke is quenched at quench towers to stop the coke from burning. While the coke from all batteries is quenched, Low Emissions Quench Towers (LEQTs) have been installed for C Battery, Batteries 13–15, and Batteries 19–20. As shown below, LEQTs are much higher, have a much larger cross-sectional area, and have a state-of-the-art double baffle configuration that leads to significant reductions of particulate emissions during the coke quenching operation. A photo of the new LEQTs for Batteries 13–15 (Quench Tower 5A) and Batteries 19–20 (Quench Tower 7A) is provided below. Quenching coke from C Battery is also conducted in an LEQT.

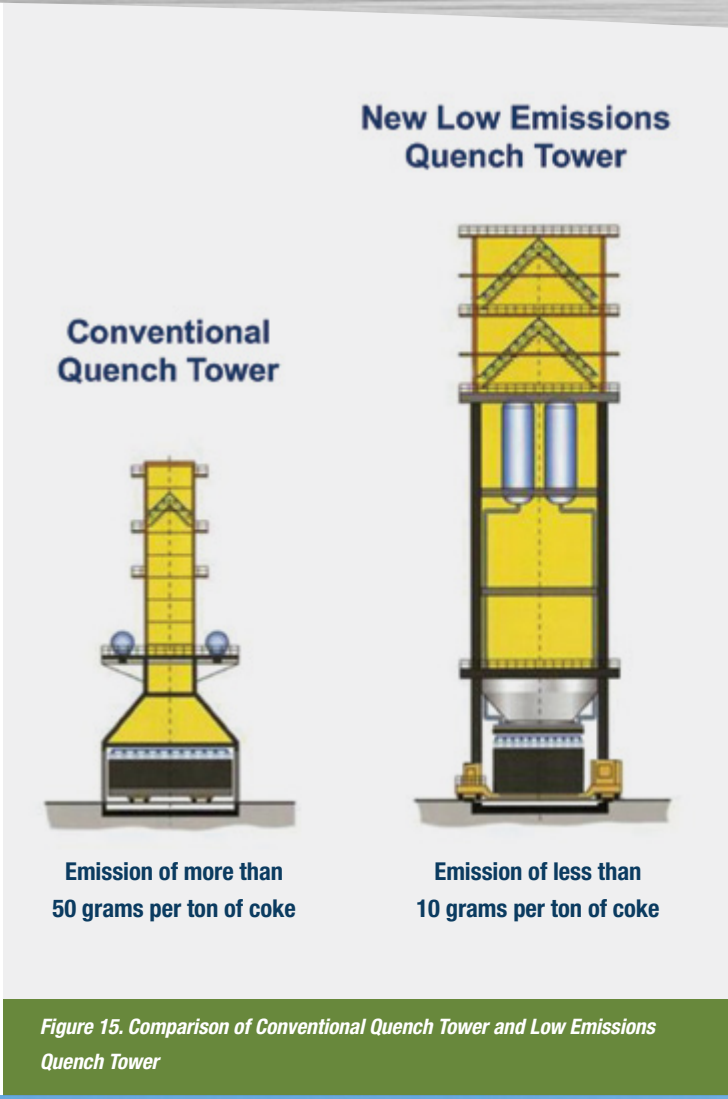


Figure 15. Comparison of Conventional Quench Tower and Low Emissions Quench Tower

Figure 16. 5A and 7A LEQT – installed in 2013



## D. C BATTERY

C Battery is the most advanced by-product battery in the United States. It was installed and commenced operation in November 2012. It consists of 84 large ovens with dimensions of 6 meters in height x 18 inches wide (average) x 16.7 meters in length. Each oven is made with specially designed refractory brick. The brick is designed to withstand temperatures as high as 2,650 degrees F.

Charging emissions are reduced by using a screw feed larry car to allow for more controlled charging of coal into the ovens. C Battery is the only battery in the United States equipped with the state-of-the-art Pressure Oven Regulated system or PROven® technology. PROven® is an electronic control system that individually controls the pressure in each oven depending on the stage of coking that oven is experiencing. The collector main is maintained at a negative pressure to draw the off gases released during charging and coking thus reducing emissions, and high spikes in oven pressure are reduced significantly. In addition, a low NOx heating system reduces the amount of coke oven gas per ton of coal charged as compared to traditional batteries.

The Pushing Emission Control (PEC) system consists of a hood that is integral to the door machine to reduce pushing fugitive emissions whenever a door is opened. U. S. Steel has also installed a Low Emission Quench Tower to significantly reduce particulate emissions during the coke quenching operation.

C Battery replaced three older batteries (Batteries 7–9 which were permanently idled) and resulted in reductions of hundreds of tons of particulate matter.

## E. BY-PRODUCTS PLANT AND EMISSIONS CONTROLS

The Clairton Plant maintains and operates a state-of-the-art by-products plant that recovers tar, ammonia, light oil (benzene, toluene, and xylene), and elemental sulfur from the coke oven gas (COG). The general process flow diagram below provides a high-level summary of the by-products plant.

The by-products plant utilizes axial compressors to draw the raw coke oven gas into the battery topside collecting mains and through

the primary coolers where tar, naphthalene, and water are recovered.

The raw coke oven gas is drawn through the #1 Control Room axial compressors and then pushed through the U. S. Steel patented PHOSAM process to recover ammonia before being processed at the #2 Control Room cryogenic gas separation plant.

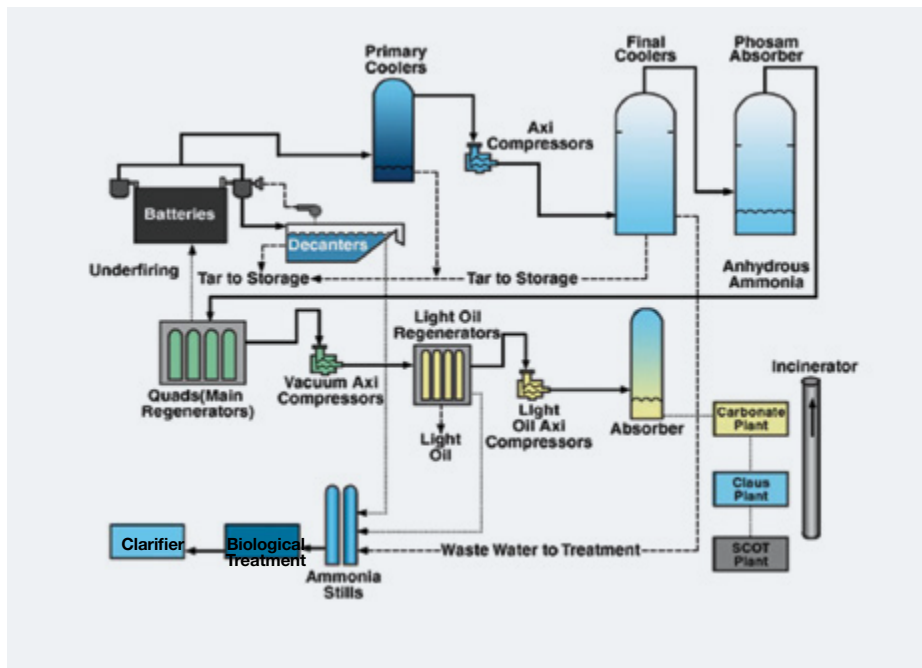


Figure 17. Clairton Plant By-Products Process Flow Diagram.

The cryogenic gas separation plant utilizes vacuum compressors to pull and push the raw coke oven gas through the main regenerators which removes and concentrates the hydrogen sulfide and light oil from the raw coke oven gas. The light oil is recovered in a separate heat transfer, separation, and cryogenic process at #2 Control Room.

The #5 Control Room desulfurization plant converts the concentrated hydrogen sulfide through catalytic technology into elemental sulfur in molten form.

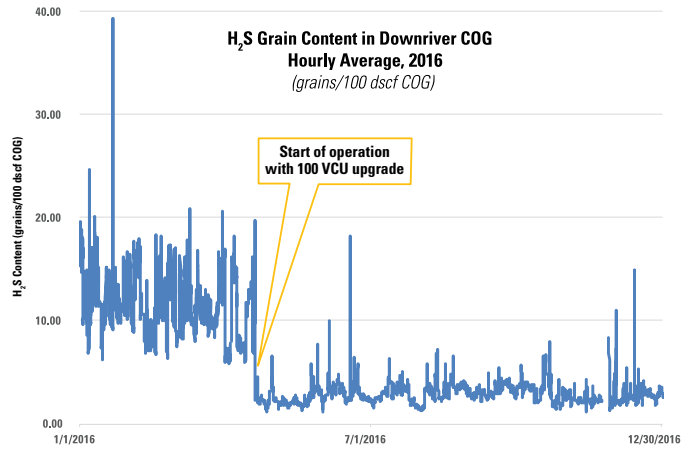
The contaminated water treatment plant is responsible for processing all contaminated water generated by the coke oven gas cleaning process. Here, it is treated to meet technological and water quality-based effluent limitation limits before discharging into the Monongahela River.

**A few facts about the Clairton by-products facility:**

The cryogenic gas separation facility for coke oven gas is the only one of its kind in North America and, to our knowledge, in the world providing a high-quality gaseous fuel. The facility is capable of removing significantly more light oil than traditional by-products facilities.

The Clairton by-products facility, especially the desulfurization facility, is capable of removing more hydrogen sulfide than traditional by-product desulfurization units. At the Clairton Plant's state-of-the-art desulfurization plant, the process removes the coke oven gas hydrogen sulfide content to a level that is well less than half of traditional desulfurization process and well over 90 percent less than the majority of coke plants which do not desulfurize coke oven gas.

In 2016, upgrades were made to Clairton Plant's coke oven gas (COG) desulfurization process, specifically an innovation at the Vacuum Carbonate Unit (VCU) that reduces the concentration of hydrogen



*Figure 18. The above figure, as depicted in the September 2017 Allegheny County Health Department (ACHD) State Implementation Plan (SIP) Revision shows hourly H<sub>2</sub>S grain content in COG in 2016, before and after the desulfurization process upgrades. The upgrades were completed on April 20, 2016, leading to significant decreases in sulfur content in COG. We continuously monitor the results to demonstrate continuous efficient operation of the desulfurization process.*

sulfide (H<sub>2</sub>S) in the coke oven gas. Within the VCU, the COG passes through a soda ash solution in a trayed absorber column. The H<sub>2</sub>S is absorbed by the soda ash, and the desulfurized gas exits the absorber column as a desulfurized fuel. The COG processed through the desulfurization process is combusted across multiple units throughout the Mon Valley Works plants (Clairton, Edgar Thomson, and Irvin).





In addition to its superior efficiency and hydrogen sulfide removal, the state-of-the-art Clairton desulfurization process includes redundancy which allows maintenance to be performed without losing the ability to desulfurize COG whereas traditional by-product facilities require a two to three-week maintenance outage at which time such facilities are not desulfurizing coke oven gas.

In North America, according to the most recent AIST data, there are 12 coke plants operating. Of the 12 metallurgical coke plants in the United States, only four of them currently desulfurize coke oven gas. Of the 4 that desulfurize, USS Clairton has the highest efficiency from an H2S removal standpoint.

#### Products from Coke Batteries and By-Products Plant

While the By-Products Plant provides a significant environmental benefit by cleaning the coke oven gas (COG), which reduces emissions when the COG is combusted, the materials recovered in the Clairton by-products facility are sold as product and not disposed of as solid waste, providing a benefit to the environment. The quantity of coal charged and each of the by-products recovered is shown below in table below.

- **Metallurgical Coke** is a fuel and reducing agent in blast furnaces.
- **Coal Tar** is a feedstock for producing electrode binder pitch, roofing pitch, road tar, and numerous basic chemicals.

- **Light Oil** is an important source of aromatic chemicals, principally benzene, a chemical essential to the production of materials such as polystyrene and ABS plastics.
- **Anhydrous Ammonia** is a high-quality agricultural fertilizer and a chemical feedstock.
- **Sulfur** is a basic industrial chemical commodity, and
- **Coke Oven Gas** is a high-quality fuel similar to natural gas at half the heating (MMBtu/scf) value.

|                             | Daily   | Annual     | Units   |
|-----------------------------|---------|------------|---------|
| Coal Charged                | 15,918  | 5,810,204  | Tons    |
| Coke Produced               | 11,700  | 4,270,500  | Tons    |
| Tar Recovered               | 119,388 | 43,576,531 | Gallons |
| Light Oil Recovered         | 44,571  | 16,268,571 | Gallons |
| Anhydrous Ammonia Recovered | 44      | 15,978     | Tons    |
| Elemental Sulfur Recovered  | 42      | 15,397     | Tons    |
| Coke Oven Gas Recovered     | 192,612 | 70,303,469 | MCF     |

**Table 1: Coke Batteries and By-Products Plant Recoveries**

By producing these products, the advantages of employing a state-of-the-art by-products facility are not only realized locally, but these benefits are also felt throughout the country.





*Figure 19. By-Products Piping and Tank Improvements.*

### **2021 By-Products Improvement Projects**

By-Products piping and tank improvement projects were completed in 2021 to improve reliability of operations.

In 2021, the Clairton plant upgraded the electrical system to #1 Control Room 5kV switchgear. The project replaced equipment that was difficult to get replacement parts with modern technology. In addition, the Clairton Plant also upgraded both 25 cycle switchgears powering Flushing Liquor Pumping Systems with modern equipment. These projects provide improved reliability within the By-Products operations.

The Clairton Plant implemented a Vibration monitoring system project for all Axial Compressors to supply real time diagnostic information, improve reliability and add additional level of safe guards to the machines.

The Clairton Boiler House received a facelift in 2021. The Boiler House is the most visible building at Clairton from the Glassport Bridge and Route 837 across the Monongahela River. The repainted Boiler House demonstrates the pride U. S. Steel has in the Clairton Plant.



*Figure 20. No. 1 Control Room and 25-Cycle Switch Gear Projects.*



*Figure 21. Axial Compressor Vibration Monitoring System.*

# Environmental Training



*Figure 22. U. S. Steel Clairton plant's current ISO 14001 Certificate of Registration.*

U. S. Steel invests significant resources to ensure that its employees are properly trained in all aspects of their responsibilities to ensure, among other things, that environmental compliance is achieved. This is conducted in many different ways, including one-on-one training as well as more comprehensive training programs, such as those related to ISO 14001.

## **A. ENVIRONMENTAL MANAGEMENT SYSTEM AND ISO14001 (2015)**

The Clairton Plant is firmly committed to environmental compliance, beginning with the incorporation of International Organization for Standardization (ISO) 14001 into our environmental management systems.

ISO 14001 standards seek to assist a company or an organization to “minimize harmful effects on the environment caused by its activities, and to achieve continual improvement to its environmental performance.”

The Clairton Plant is certified in compliance with this standard and has been since 1998, having become the first coke plant in the country to obtain certification.

There were two ISO 14001 surveillance audit events in 2021, one in February and one in August, and the Mon Valley Works achieved unconditional approval of the ISO 14001 Environmental Management System as a result of each audit.



# CONTINUOUS IMPROVEMENT TO THE ENVIRONMENT

*Figure 23. Clairton Plant's Environmental Policy.*

## **B. CONTINUOUS IMPROVEMENT TO THE ENVIRONMENT (CITE)**

The Clairton road to environmental responsibility and excellence begins by focusing on people and encouraging each employee to participate fully. This is being achieved through a comprehensive training approach—the Continuous Improvement to the Environment training program.

CITE Training is a classroom program with the addition of practical field training focused on environmental practices and improvement at the Clairton plant. The training program is an eleven-part program that touches on all aspects of the coking process, their environmental impact, procedures, and best-practices to mitigate environmental impacts from each potential emission point in the coke-making process. This program consists of environmental impact awareness training, learning relationships between processes and equipment, and the ways specific workers' actions and operating conditions affect upstream and downstream operations. Environmental regulations are reviewed as well as the role of the employee in maintaining the plant in compliance with the regulations.

The CITE programs includes, but is not limited to the following:

- Environmental Awareness for Air, Water, and Waste regulations and permits
- Coal Handling Operations and Procedures including coal crushing, screening, blending, and transport
- Larry Car Operations and the charging of batteries
- Lidman Procedures and other top-side battery operations
- Pusher Machine Operations for pushing the coke out of the ovens into the quench cars
- Door Machine Operations for removing doors, cleaning the door and door jambs, and replacing the doors
- Heating Procedures to review proper battery heating techniques
- Patching Procedures for minor oven wall repairs
- Repair and Maintenance of the various process and ancillary coke-making equipment
- And other miscellaneous equipment and procedure reviews

This program reiterates to employees that the environment is everybody's responsibility and that procedures must be followed for U. S. Steel to meet its environmental requirements. U. S. Steel requires that all employees who work at the coking operations at the Clairton plant are trained in the CITE program. Implementation of this program has helped Clairton workers improve their environmental awareness and work practices which results in a culture of environmental awareness. In 2021, U. S. Steel continued to provide our "Continuous Improvement to the Environment" program to all employees/workers assigned to work at the coking operations at the Clairton plant.



# Environmental Performance — Air

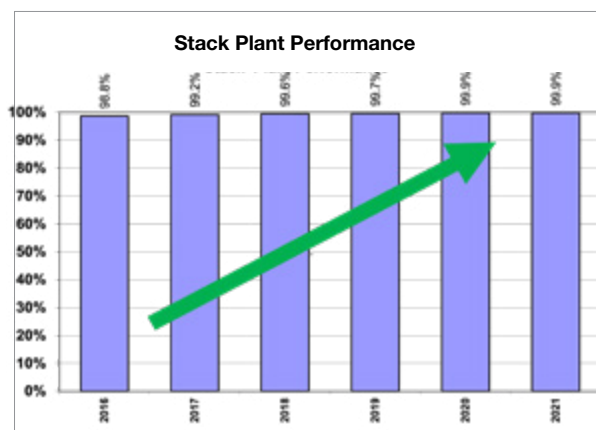
The Clairton Plant is subject to federal, state, and local (Allegheny County Health Department (ACHD) air regulations). The ACHD regulates and closely monitors the environmental compliance of the Plant. In addition to periodic monitoring, U. S. Steel continuously monitors many of its sources for environmental performance and compliance at the Plant. These monitors include continuous opacity monitors (COMS), continuous emissions monitors (CEMs), and various continuous parametric monitoring systems throughout the Plant, which read and record thousands of compliance monitoring data values every day. In addition to reviewing the plant's reports and compliance records, ACHD maintains coke oven battery inspectors at the plant five days per week. The certified inspector conducts daily visible emission observations of plant operations.

**U. S. Steel continuously monitors many of its sources for environmental performance and compliance at the Plant. These monitors include continuous opacity monitors (COMS), continuous emissions monitors (CEMs), and various continuous parametric monitoring systems throughout the Plant, which read and record thousands of compliance monitoring data values every day.**

In addition to the ACHD inspector, ACHD employs a third-party visible emissions observation contractor that is on-site every day of the year. The third-party contractor implements the USEPA required Method 303 opacity readings (for which U. S. Steel reimburses ACHD) to monitor visible emissions from every battery on a daily basis at the Plant, to determine compliance with Federal Maximum Achievable Control Technology (MACT) Standards pursuant to Method 303 as well as to provide ACHD with data to determine compliance with Article XXI standards.

**Method 303 is the USEPA method to determine visible emissions from by-product coke oven batteries.**

U. S. Steel focuses on continuously improving environmental performance. The combustion stacks are one of the more significant sources of emissions that environmental performance has been continuously improving at the Clairton plant. Combustion products



**Figure 23. 2016 thru 2021 Clairton plant facility-wide combustion stack performance.**

generated by Clairton Plant's batteries during the coke making process are directed to coke battery combustion stacks. Each coke battery combustion stack is equipped with a continuous opacity monitoring system (COMS), which continuously measures the degree to which smoke, dust or other particles block light at any given time, or the opacity of the gases exiting the stack. Any combustion issue with the batteries can result in visible emissions from these stacks. According to the Allegheny County Health Department, environmental violations occur anytime this opacity is greater than 20% for more than three minutes aggregated in any given hour, or any instantaneous reading over 60%. Stack performance is calculated daily for all 10 coke batteries in the plant, and just one three-minute period in an hour could cause a 20% stack violation and put that battery at a 97.9% performance for the day.

**Each hour, on every battery stack, there exists the opportunity for one or both violations to occur. Each year has a potential for 175,200 violations.**

In 2020, the Clairton Plant achieved monthly, quarterly, and annual compliance records for battery combustion stack performance. Stack compliance at Clairton Plant continued to be 99.9% in 2021, detailing Clairton's continued commitment to environmental stewardship (Figure XX). To reach the level of performance the Clairton Plant team achieved, there were many days in 2021 where all ten batteries recorded a compliance rate of 100%.



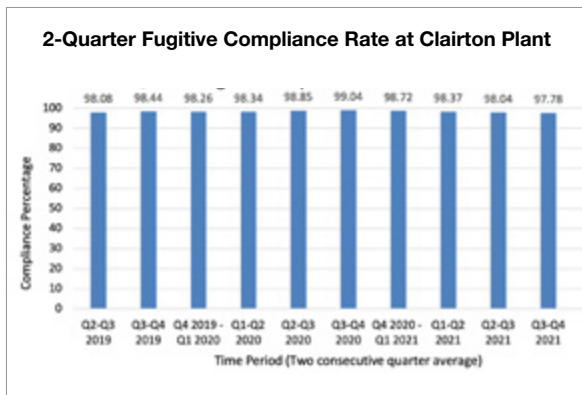


Figure 24. Clairton plant two-quarter fugitive compliance performance.

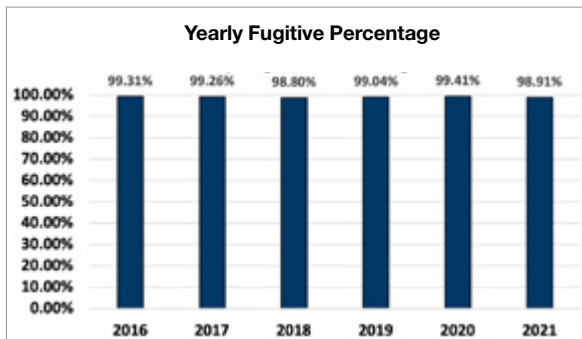


Figure 25. Clairton Fugitive Compliance Including All Inspections.

Stack performance is considered a key indicator of the overall environmental performance of the coke batteries both internally and by U. S. Steel's regulating agency. That is why there is a strong emphasis placed on this compliance rate, and why this record-breaking performance is so important.

In addition to stack performance, two-consecutive quarter fugitive compliance rates at the Clairton Plant are shown in Figure X, detailing Clairton's continued commitment to environmental stewardship. Figure X includes the results of fugitive visible emissions observations performed by ACHD and a third party ACHD Method 303 contractor in accordance with the June 2019 Settlement Agreement and Order. This figure does not include 3rd party push and travel observations that are conducted daily at the plant in accordance with the Pushing, Quenching, Battery Stacks MACT federal rule. For a more representative picture of Clairton's fugitive emission compliance see Figure XX below.

## A. NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

National Ambient Air Quality Standards (NAAQS) were developed for pollutants considered, in certain amounts, harmful to sensitive populations and the environment. The EPA has set NAAQS for several pollutants, including particulate matter (including  $PM_{10}$ , and  $PM_{2.5}$ ),  $SO_2$ ,  $NO_2$ , ozone, CO, and lead. These standards are developed to be protective of public health for the most sensitive populations. USEPA air monitors operated by the ACHD and located in the Liberty/Clairton area measure the ambient air quality, which accounts for emissions attributable from a variety of background sources, mobile sources, and the Clairton Plant. The Clean Air Act requires the EPA to set NAAQS, and to periodically review the science upon which the NAAQS are based, as well as the NAAQS themselves. Reviewing the NAAQS is a lengthy undertaking and generally takes years for each individual pollutant. While the air quality continues to improve, the EPA has recently lowered the NAAQS further for certain pollutants, including  $PM_{2.5}$ , ozone and  $SO_2$ .

The EPA continues to lower the NAAQS levels, but U. S. Steel has a history of success. While the air quality improves and the Clairton plant continues to reduce emissions, the NAAQS continue to become more stringent. In response, each time a standard gets lowered, U. S. Steel, with its commitment to environmental progress and innovation of its employees, rises to the challenge.

### $PM_{10}$ , $NO_2$ , Carbon Monoxide, Ozone and Lead NAAQS

Including 2021 monitor data, Allegheny County and the Liberty/Clairton area has now attained the  $PM_{10}$  NAAQS for 26 consecutive years; the  $NO_2$  NAAQS for 37 years (including unclassifiable/attainment with the 2010 100 ppb NAAQS); the carbon monoxide (CO) standard for 33 consecutive years; the 2015 Ozone ( $O_3$ ) standard for 5 years; and the lead standard since its latest promulgation in 2008.

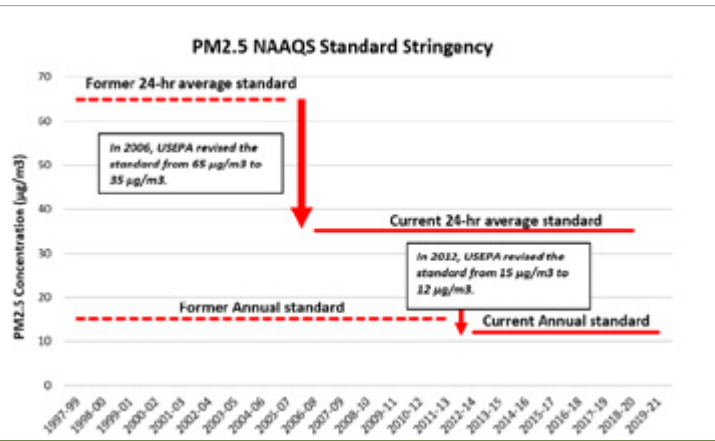


Figure 26. History of PM<sub>2.5</sub> 24-hour average NAAQS.

### PM<sub>2.5</sub> NAAQS

The following figure depicts how the PM<sub>2.5</sub> NAAQS has become more stringent over time. In 2006, the 24-hour standard was reduced from 65 µg/m<sup>3</sup> to 35 µg/m<sup>3</sup>. In 2012, the annual standard was reduced from 15 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup>. Attainment of the annual standard had been achieved in 2012 before the limit was reduced in December of 2012. Based on 2021 data, Allegheny County attained both the annual and 24-hour standards for PM<sub>2.5</sub> for the second consecutive year.

While the Liberty/Clairton monitor has met the PM<sub>2.5</sub> hourly standard based on recent monitor data, it is currently designated as nonattainment with the 2012 PM<sub>2.5</sub> annual NAAQS based upon older monitoring data, including periods of time before our major investments. The nonattainment designation was made in 2015. On September 11, 2019, the ACHD Board of Health unanimously approved the PM<sub>2.5</sub> State Implementation Plan (SIP) for Allegheny County. A SIP is a state plan created for a pollutant non-attainment area (i.e. PM<sub>2.5</sub>) intended for complying with the Federal Clean Air Act (CAA) by containing new rules to reduce emissions. In this case, ACHD created the PM<sub>2.5</sub> SIP, and then shared it with the Pennsylvania Department of Environmental Protection (PADEP) for approval. The PM<sub>2.5</sub> SIP was then submitted to the USEPA. On June 12, 2020, USEPA published a proposed rule in the Federal Register to fully approve most elements of the PM<sub>2.5</sub> SIP, and conditionally approve others.

As part of the ACHD's SIP submittal, U. S. Steel installed new Low-Emission Quench Towers (LEQT) 5A and 7A as the main quench towers for Batteries 13–15 and Batteries 19–20, respectively, replacing the older Quench Towers 5 and 7 that now serve

as emergency/backup quench towers. The new LEQTs were instrumental in demonstrating attainment with the standard for Allegheny County.

2020 data from the Liberty monitor shows attainment on the 3-year (2018–2020) 98th percentile daily average (32 µg/m<sup>3</sup> vs. 35 µg/m<sup>3</sup>) and 3-year annual average (11.1 µg/m<sup>3</sup> vs. 12 µg/m<sup>3</sup>) for the PM<sub>2.5</sub> NAAQS. The ACHD submitted early certification of data and requested a Clean Data Determination from the USEPA. On September 3, 2021, the USEPA proposed their determination that the Allegheny County, Pennsylvania nonattainment area has clean data for the 2012 annual PM<sub>2.5</sub> NAAQS. This proposed Clean Data Determination under the EPA's Clean Data Policy is based upon quality assured, quality-controlled, and certified ambient air quality monitoring data showing that the area has attained the 2012 PM<sub>2.5</sub> NAAQS based on 2018–2020 data available in EPA's Air Quality System database. Based on the proposed Clean Data Determination, the EPA also proposed to determine that the requirements for Pennsylvania to make submissions to meet certain Clean Air Act requirements related to attainment of the NAAQS for this area are not applicable for as long as the area continues to attain the 2012 annual PM<sub>2.5</sub> NAAQS. After the clean data determination is made final by the EPA, the ACHD will submit a re-designation request to the EPA for the area to be classified as attainment in 2021.

2021 data from the Liberty monitor continues to show attainment for the 3-year (2019–2021) 98th percentile daily average (32 µg/m<sup>3</sup> vs. 35 µg/m<sup>3</sup>) and the 3-year annual average (11.3 µg/m<sup>3</sup> vs. 12 µg/m<sup>3</sup>) for the PM<sub>2.5</sub> NAAQS.

A study analyzing emission source impacts at the Liberty monitor and area traffic data **found that there was a 40% decrease in PM<sub>2.5</sub> emissions concentrations** when comparing readings from before and after the COVID-19 stay-at-home order in Spring 2020. Over the period reviewed, there was no change in production at the Clairton Plant, while the number of total vehicles on southwestern Pennsylvania roadways in the area fell by 50%. The data review opportunity afforded by these unique circumstances, suggests a direct, significant correlation between the amount of vehicle traffic and Liberty monitor PM<sub>2.5</sub> concentrations, and further study is required.

## SO<sub>2</sub>

The following figure depicts how the SO<sub>2</sub> NAAQS has become more stringent over time. In 1971, the SO<sub>2</sub> standard was 140 ppb for 24-hour. In 2010, a new 1-hour standard of 75 ppb was promulgated, and the 24-hour standard was revoked. Attainment had been reached for 10 consecutive years prior to the new 2010 primary 1-hour NAAQS. The Liberty area is currently designated in nonattainment based upon pre-2010 ambient air quality data, although the controls currently in place have been shown to demonstrate attainment.

The USEPA approved ACHD's SO<sub>2</sub> SIP in late April 2020 with the final rule becoming effective on May 26, 2020.

U. S. Steel implemented the following projects and restrictions to reduce SO<sub>2</sub>:

- Installation of VCU trays – direct reduction of SO<sub>2</sub> emissions from Coke Oven Gas
- Reroute of Shell Claus Off-gas Treatment (SCOT) Plant Tail gas – eliminates a source of high SO<sub>2</sub> Coke Oven Gas during planned/unplanned SCOT Plant outages
- Required to be and were in compliance with SO<sub>2</sub> emission limits throughout the Mon Valley operations by October 4, 2019

SO<sub>2</sub> data from the Liberty monitor shows attainment of the standard based on the 3-year (2019–2021) 99th percentile (59.3 ppb vs. 75 ppb standard). This value supports a finding that the current SO<sub>2</sub> SIP is working as U. S. Steel's SIP controls were implemented in late 2018, and the Liberty monitor is now demonstrating SO<sub>2</sub> attainment for the first time since the SO<sub>2</sub> standard was revised from 140 ppb, 24-hr average to 75 ppb, 1-hr average in 2010. The Liberty SO<sub>2</sub> monitor has not recorded an exceedance of the hourly SO<sub>2</sub> standard since March 28, 2019. As had been done for PM<sub>2.5</sub>, U. S. Steel expects the ACHD to submit a Clean Data Determination (CDD) request to the EPA; a critical step for the nonattainment area to be redesignated to attainment. The CDD request from the ACHD to the USEPA seeks review and approval of the Liberty Monitor SO<sub>2</sub> data from 2019–2021 as quality assured, quality-controlled, and certified ambient air quality monitoring data that demonstrates the Allegheny County, Pennsylvania nonattainment area has clean data for the 2010 hourly SO<sub>2</sub> NAAQS and is attainment with the SO<sub>2</sub> NAAQS.

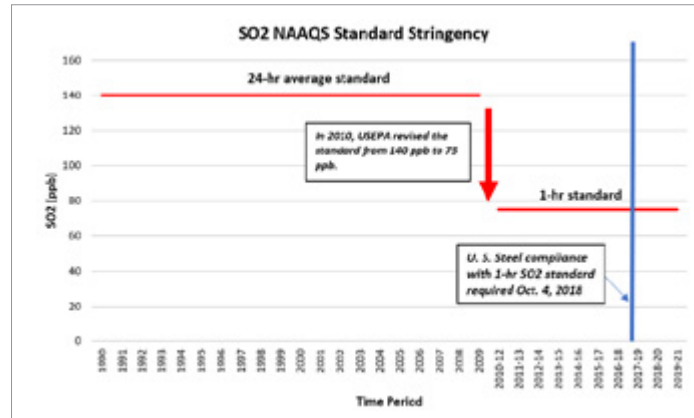


Figure 27. History of SO<sub>2</sub> NAAQS demonstrating change from a 24-hour average to a much lower 1-hour standard.

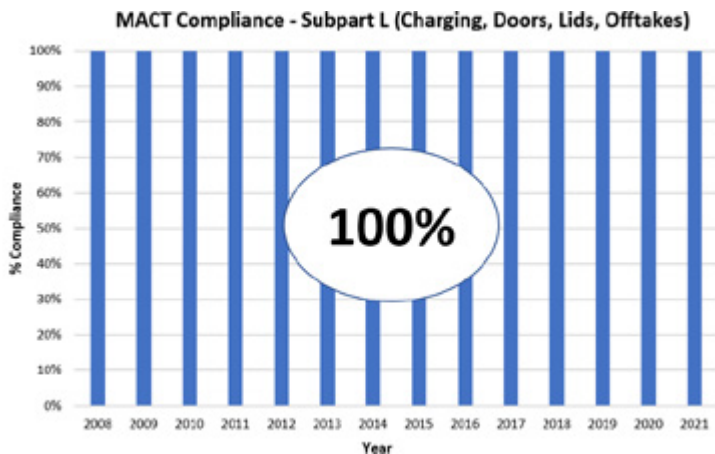
## B. NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS/MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (NESHAP/MACT) REQUIREMENTS

The Federal Clean Air Act (CAA) requires the USEPA to regulate emissions of hazardous air pollutants for listed sources via National Emission Standards for Hazardous Air Pollutants (NESHAP). Hazardous air pollutants are also known as toxic air pollutants or air toxics. They are pollutants that have been found to cause or may cause cancer or other serious health effects or adverse environmental and ecological effects. The USEPA is required to control 187 hazardous air pollutants, or HAPs.

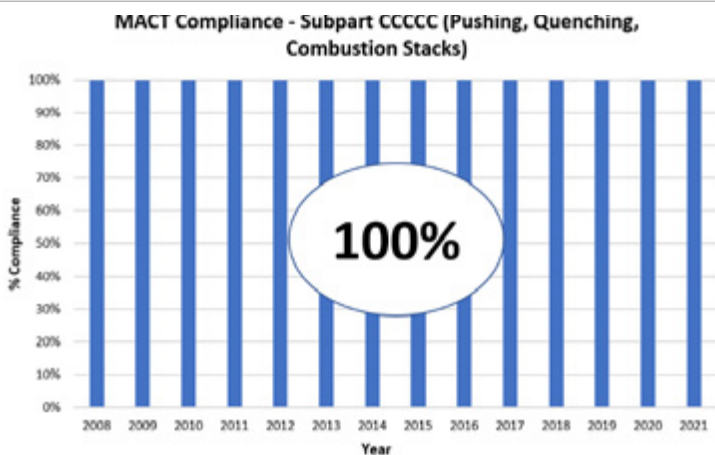
40 CFR Part 63 Subpart L is a NESHAP entitled “National Emission Standards for Coke Oven Batteries” and is applicable to the Clairton Plant. In 1992, the USEPA proposed national emission standards for the control of emissions from new and existing coke oven batteries. This action promulgated the national emission standards and visible emissions observation standards, Method 303, for the determination of visible emissions from by-product and nonrecovery coke oven batteries. U. S. Steel is 100% compliant with the requirements of Subpart L.

40 CFR Part 63 Subpart CCCC is a NESHAP entitled “National Emission Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching and Battery Stacks” and is applicable to the Clairton Plant. The USEPA issued a final rule to reduce emissions of toxic air pollutants from coke oven batteries in 2003. This rule applies to each new or existing coke oven battery at any coke plant that is considered a major source of toxic air emissions. Major sources are those that emit 10 tons per year or more of a single





**Figure 25. Clairton plant facility-wide Subpart L, National Emission Standards for Coke Oven Batteries, maximum achievable control technology compliance rate from 2008 to 2021.**



**Figure 26. Clairton plant facility-wide Subpart CCCCC, National Emission Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching and Battery Stacks, maximum achievable control technology compliance rate from 2008 to 2021.**

toxic air pollutant, or 25 tons or more of a combination of toxic air pollutants. The CAA requires the USEPA to identify categories of industrial sources that emit one or more listed 188 toxic air pollutants, of which coke oven emissions is one. U. S. Steel is 100% compliant with the requirements of Subpart CCCCC.

The CAA requires the USEPA to assess the risk remaining after application of the final air toxics standards. This is known as a residual risk assessment, or Risk and Technology Review. Based on the completion of this risk assessment, including available health information and associated uncertainties, the EPA determines

whether the risks from the source sector are acceptable or not and whether the current standards provide an ample margin of safety to protect public health. During the residual risk assessment and as required by the CAA, the EPA will review and revise the maximum achievable control technology (MACT) standards as necessary, considering developments in practices, processes and control technologies since the standards were first issued in 2003.

In August 2015, the USEPA began an Information Collection Request (ICR) for the Risk and Technology Review (RTR) for 40 CFR Part 63 Subpart CCCCC, otherwise known as the Coke MACT, which includes the residual risk assessment from Pushing, Quenching and Battery Stacks. The USEPA continues to work on the risk and technology analysis. U. S. Steel expects the USEPA to propose an updated rule in early 2022.

40 CFR Part 61 Subpart L is a NESHAP, not to be confused with Part 63 Subpart L, entitled “National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants” and is also applicable to the Clairton Plant. These standards are applicable to the equipment associated with the by-products recovery plant (tar decanters, tar storage tanks, light-oil condensers, light-oil sumps, etc.) including pumps, valves, exhausters, pressure relief devices, sampling connection systems, open-ended valves or lines, flanges or other connectors, and control devices.

40 CFR Part 61, Subpart FF for Benzene Waste Operations is also applicable to the Clairton Plant because the Plant operates a coke by-product recovery plant with benzene-containing hazardous waste.

### C. ALLEGHENY COUNTY HEALTH DEPARTMENT (ACHD) STANDARDS

In addition to certain federal regulations, the Clairton Plant is subject to the Allegheny County Health Department requirements, which include performance metrics that, in most instances, are much more stringent than the corresponding federal standards.

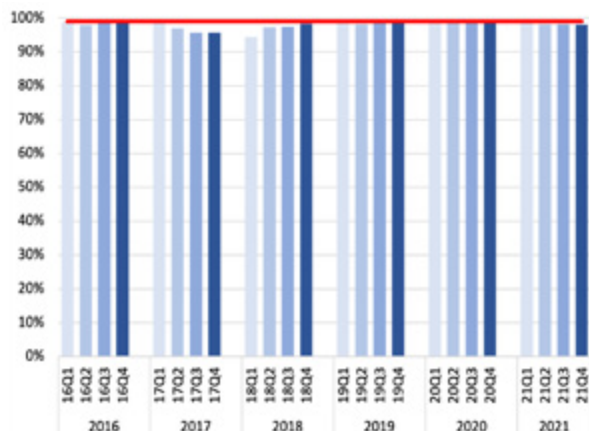
The ACHD has recognized that it has promulgated the most stringent air regulations for coke plants in the country. The regulations, found in Article XXI, in most cases, are much more stringent than corresponding USEPA regulations and are enforceable by the ACHD as well as the USEPA as part of the State Implementation Plan. The regulations apply to various coke plant operations, including:

- **Charging** – visible emissions when charging coal into an oven
- **Doors** – any visible emissions from the door areas during the coking process. In addition, during ACHD inspections, each emission’s opacity is read. Opacity is read because there is

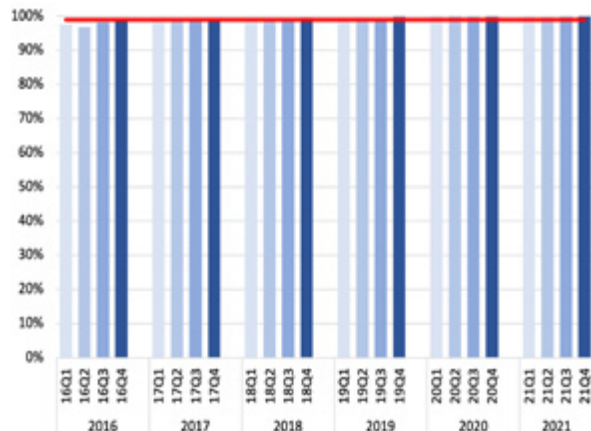
a “high opacity door” limit of 30% for C Battery and a limit of 40% for all other Batteries.

- **Charging ports** – visible emissions from the charging ports or charging seals on the battery top.
- **Offtakes** – visible emissions from the offtake piping on the battery top.
- **Pushing** – visible fugitive pushing emissions or emissions from the pushing emission control device outlet.
- **Traveling** – visible emissions from the transport of hot coke from the oven to the quench tower.
- **Combustion stacks** – all 10 Battery stacks have Continuous Opacity Monitors (COMS) used to record opacity. There is a 20% aggregate opacity limit and an instantaneous 60% opacity limit.
- **Soaking** – uncombusted emissions from a standpipe.
- **Quenching** – emissions must be vented through baffles to control PM and water must be equivalent or better than the water quality standards established for the Monongahela River.

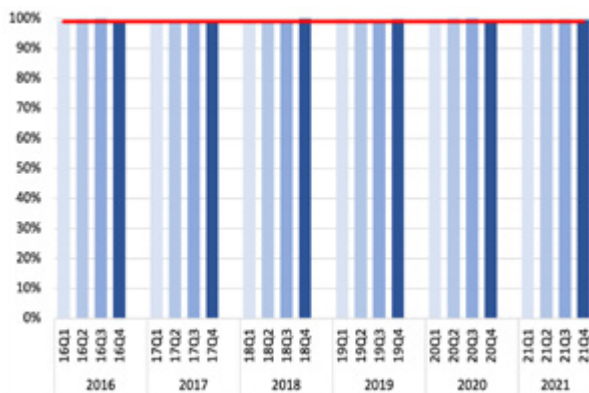
Charging



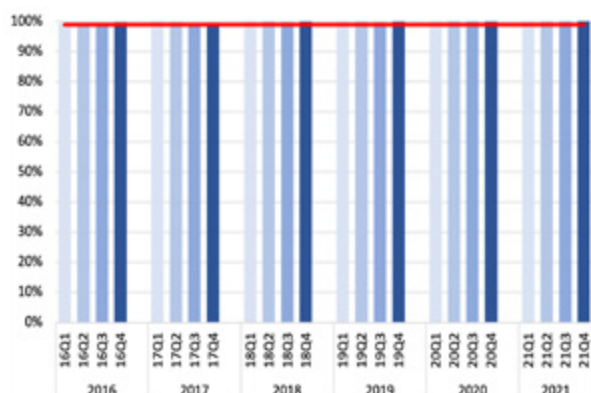
20% Stacks



Doors



60% Stacks



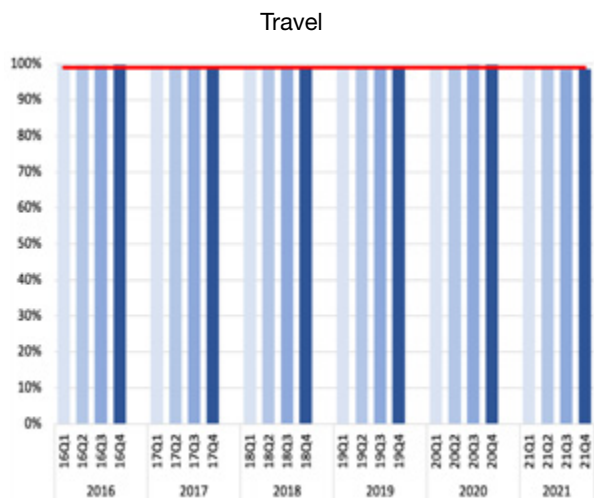
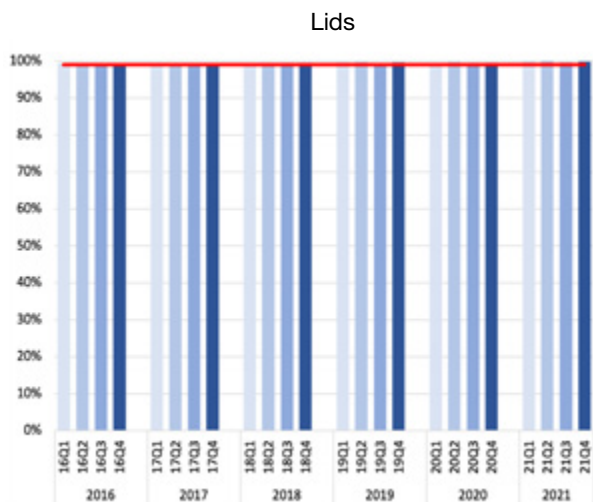
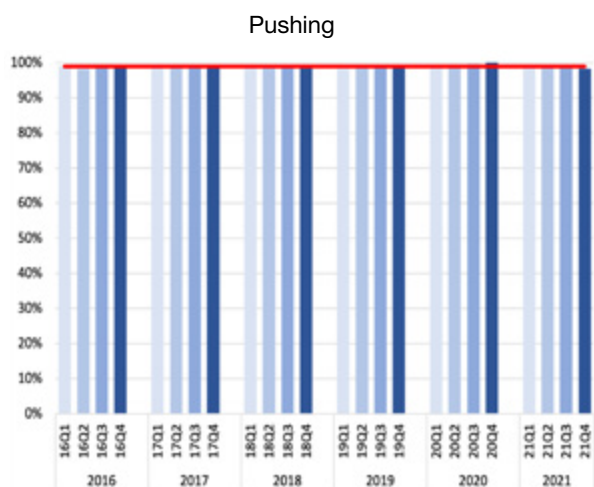
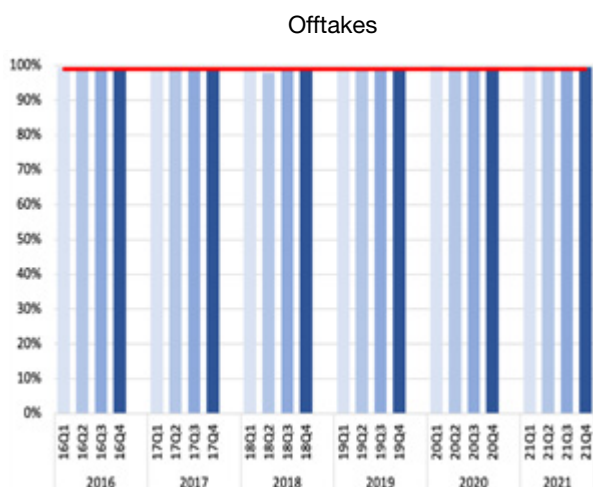
The Clairton Plant was issued a Title V operating permit from the ACHD. Title V permits are required for larger facilities by Title V of the Clean Air Act. The permit is enforceable by the ACHD and the USEPA. The Title V permit is unique to Clairton, is comprehensive, and includes “all applicable requirements” under the Clean Air Act and underlying regulations that apply to the Clairton plant. The permit, issued on March 27, 2012, is voluminous, consisting of 259 pages, and includes emissions limits, standards, and work practice requirements, as well as air pollution control equipment, stack testing, monitoring, recordkeeping, and reporting requirements. U. S. Steel is required to provide periodic monitoring reports to the ACHD and the USEPA and certify compliance at least annually, identifying any deviations from any of the applicable requirements.

The current Title V permit is administratively extended because U. S. Steel submitted a Title V Permit Renewal Application to the ACHD on September 26, 2016. The ACHD submitted an updated Clairton Title V Permit for a 45-day public comment on January 13, 2022.

U. S. Steel’s Clairton Plant has maintained nearly 100% compliance rate with the Federal Standards and has demonstrated an unprecedented high compliance rate with the ACHD standards that apply to charging emissions, door leaks, battery combustion stack opacity (20% and 60%), offtakes, lids, pushing (cannot exceed 10% at any time), and travel (cannot exceed 10% at any time). U. S. Steel’s compliance with these standards are highlighted below.

#### D. JUNE 2019 SETTLEMENT AGREEMENT AND ORDER #190606 UPDATE

On June 27, 2019, a Settlement Agreement and Order (SAO) was entered into between U. S. Steel and ACHD. U. S. Steel is currently in compliance with all requirements of the SAO.





# Environmental Performance — *Water*

## A. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES PERMIT) AND PERFORMANCE

The quality of water discharged into the Monongahela River and Peters Creek is governed by a National Pollutant Discharge Elimination System (NPDES) Permit which was issued on September 28, 2012. An application for renewal was submitted in March of 2017, which administratively extends the permit until the PADEP can reissue it. There are eight (8) outfalls at the Clairton Plant that discharge a combination of process and noncontact cooling water. These outfalls are sampled once a week at all of the outfalls associated with the processes. There are also six (6) outfalls associated with emergency overflows, with a sample frequency of twice per discharge event. The Clairton Plant has achieved greater than 99% compliance since 2015 with the NPDES permit limits.

### Non-contact Cooling Water

Water discharged through Clairton's outfalls include both non-contact cooling water as well as treated process water. Approximately 23,593,600,000 gallons of non-contact cooling water pass through the outfalls each year. This water is used for cooling various processes and equipment. Since non-contact cooling water does not physically mix with other process waters, it remains uncontaminated. The only difference is the temperature increase from when it was withdrawn from the Monongahela River. Clairton has strict thermal limits placed at the outfalls that protect aquatic life.

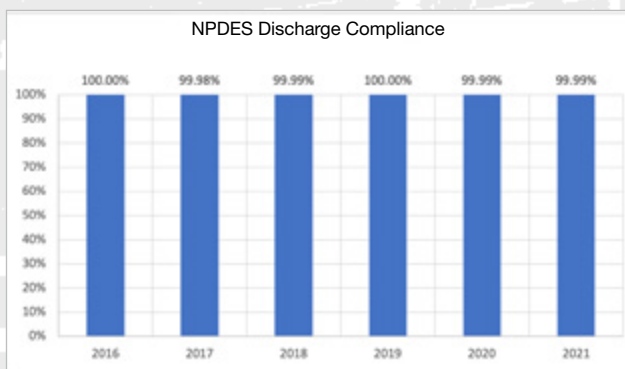


Figure 27. 2016 thru 2021 Clairton Plant NPDES discharge compliance percentages.

### Process Water

Approximately 699,705,000 gallons of the water discharged is process water. Clairton's raw material, coal, contains a significant amount of natural moisture that is removed during the process. Additional water is generated by chemical reactions, byproducts recovery, and other operations. The Clairton Plant is continuously upgrading its technology and improving operating practices with the goal of minimizing impacts from plant discharges. All process water is treated prior to discharge. All of the water treatment and chemical additives used in water and wastewater treatment are subject to Pennsylvania Department of Environmental Protection (PADEP) approval before they are used.

The Contaminated Water Treatment Plant (CWTP) utilizes free and fixed ammonia distillation stills to remove ammonia and acid gases and a biological oxidation system to further treat the water. The biological treatment occurs in two aeration basins. This type of treatment utilizes microbiological organisms to consume and eliminate toxic chemicals in the wastewater. The microorganisms utilize these chemicals as sources of food and energy. Solids are then settled out in the clarifiers and the treated water is then discharged to the Monongahela River.



Figure 28. Biological Plant Ammonia Stills and Clarifier.



*Figure 29. Clairton Plant's Coal Storage Area storm water collection and treatment system include solids and metals removal and pH adjustment prior to discharge to the Monongahela River.*

## **B. STORM WATER MANAGEMENT**

All storm water discharges at the Clairton Plant are regulated under their NPDES Permit. The NPDES permit which was issued on September 28, 2012, by the PADEP requires monitoring at 11 storm water only outfalls twice per month during precipitation events. The NPDES Permit also requires that the Clairton Plant maintain a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP identifies potential pollutant sources as well as best management practices (BMPs) to mitigate those sources. A comprehensive site compliance evaluation is done annually in addition to quarterly inspections.

In addition to BMPs, Clairton also has a storm water treatment plant that treats all storm water from the coal storage area prior to discharge to the Monongahela River. Approximately 10,920,000 gallons of storm water is treated each year. The storm water is first collected in two sedimentation basins to allow the majority of solids to drop out. The storm water is then pumped to a

secondary treatment system that consists of pH adjustment, polymer addition, and clarification to remove both suspended solids and metals. The treated water is then discharged to the Monongahela River. The solids that are removed during this process (mostly coal fines) are recycled and become part of the metallurgical coal used to make coke at Clairton.

### **Quench Water**

The water used for the quenching of the hot coke comes directly from the Monongahela River. This water is recycled and normally there is no discharge due to the high evaporation rates associated with this process. The evaporated steam is vented through quench towers. In the event of a discharge, all of the cooling water must meet stringent discharge limits that are set by the PADEP and permitted through our NPDES.

# Environmental Performance — *Recycling*

## A. UTILIZATION OF CLEAN COKE OVEN GAS

We reduce the amount of waste generated and emissions produced by reusing the by-product gas produced at our coke batteries. This reuse is good for the environment and good for business.

By using coke oven gas generated by our coke batteries, approximately 160 million MMBtu from 2017–2021, we have avoided consuming enough natural gas and other fuels to heat over 1.1 million households each year from 2017 to 2021.

### Mon Valley Works as an “Alternative Energy System”

U. S. Steel Mon Valley Works is one of the most energy efficient integrated Iron and Steel facilities in the world. The Mon Valley Works reuses gases from the blast furnaces and coke ovens to support combustion processes at Clairton, Edgar Thomson, and Irvin as well as to generate electricity at the Edgar Thomson and Clairton Plants.

The Mon Valley Works is a certified Alternative Energy System recognized by the Pennsylvania Department of Environmental Protection (PADEP).

The generation of electricity at the Clairton and Edgar Thomson facilities allows the Mon Valley Works to purchase less electricity, thus reducing its carbon footprint. Working with one of our largest electricity suppliers, U. S. Steel has been able to secure Emission Free Energy Certificates to meet all of its purchased power needs through December 2024 for the three Pittsburgh-area Mon Valley facilities (Clairton, Edgar Thomson, and Irvin).

## B. RECYCLING PROJECTS

Clairton generates process residues from the recovery of coal tar and light oil in the by-products recovery plant. Rather than dispose of these residues, Clairton recycles the materials by blending them with the coal feedstock to the coke ovens for recovery in the by-products plant.

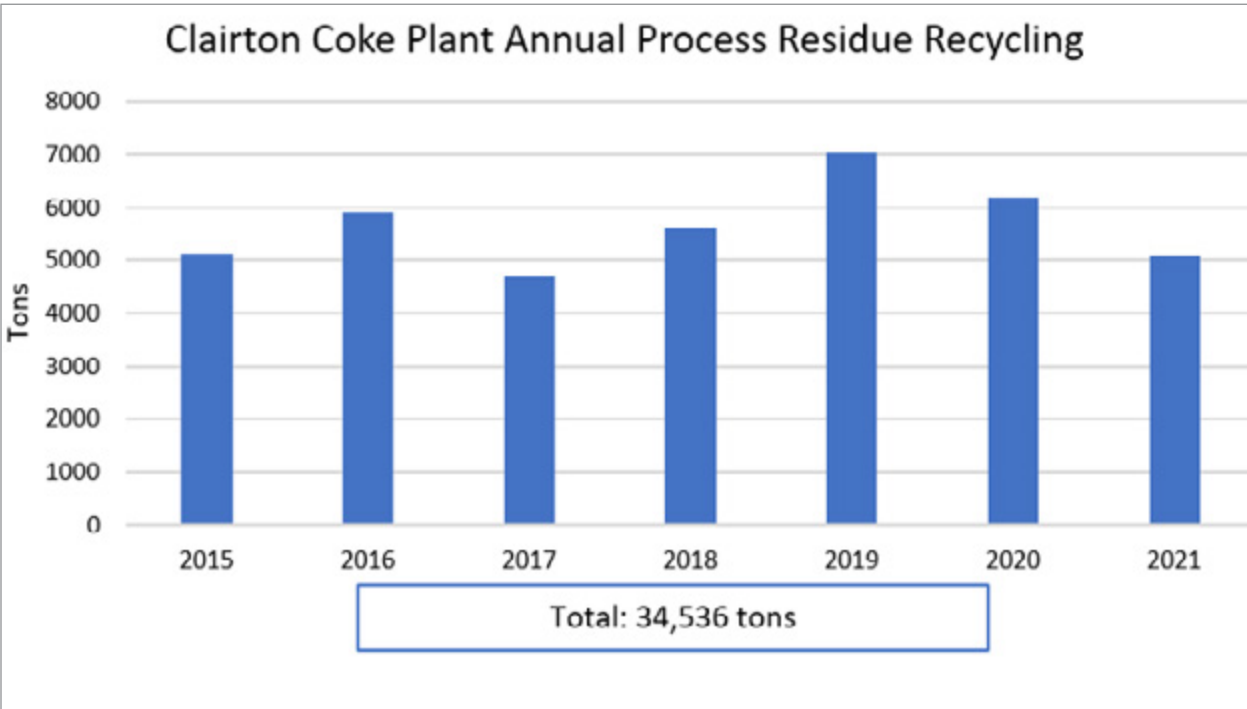


Figure 30. 2015 thru 2021 tons per year of process residue recycling.



# Community Involvement

Community is important to U. S. Steel. We take pride in being a part of the Clairton community. From employees' volunteer work to corporate contributions providing support for important projects, U. S. Steel is engaging and supporting our neighbors and employees in strengthening our communities.

## A. COMMUNITY PROJECTS

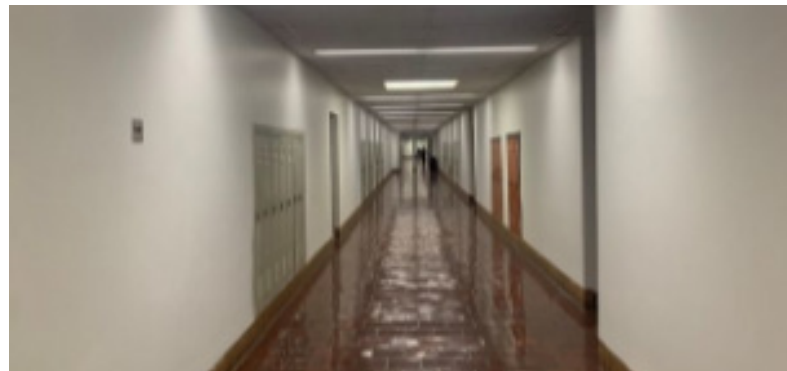
In 2021, U. S. Steel demonstrated its commitment to the communities it operates in by providing thousands of volunteer hours and financial support to a variety of projects and local organizations benefitting education, recreation, and families. Some of these contributions and volunteer efforts are highlighted.

### U. S. Steel partners with Clairton City School District

Volunteers from U. S. Steel's Mon Valley Works and corporate headquarters dedicated more than 2,000 hours this summer volunteering to paint hallways and the high school gymnasium, restore office space, and install carpet in time for the start of the academic year.

U.S. Steel's involvement in this major project, with the Clairton City School District, began last fall. As students were set to return to school in September 2020, a water main break devastated the building's elementary classrooms. Insurance coverage ensured the damaged area of the building would look like new, but Superintendent Dr. Ginny Hunt worried the middle and high school students educated on the building's upper floors would be returning to areas that would look dated by comparison.

Mike Rhoads, Plant Manager at Mon Valley Works' Clairton Plant, has developed a strong working relationship with Dr. Hunt in recent years, and together, they devised a plan to spruce up other areas of the building so all students would be able to return to a better learning environment for the 2021–22 school year.



*Figure 31. Above: New Mural in Gymnasium, New carpet in Library, Remodeled hallway*



### New Mural Unveiled at the Clairton Education Center

As part of the refurbishment effort completed by U. S. Steel volunteers at the Clairton Education Center, which is located near our Mon Valley Works' Clairton Plant, a brand-new mural was commissioned and unveiled in September 2021. The mural is installed near the main entrance of the building and welcomes students, teachers, and visitors to the school.

Pittsburgh artist and sculptor, Tyler Podomik, created the mural, which features eight prominent figures with social, cultural, and historical achievements meant to inspire students. The featured individuals, from left to right, are:

- Maya Angelou: Poet, memoirist, and civil rights activist
- Lauryn Hill: Singer, songwriter, rapper, record producer, actress, and civil rights activist
- Tyler Boyd: NFL wide receiver for the Cincinnati Bengals and Clairton City School District alumnus
- Nina Simone: Singer, songwriter, musician, and civil rights activist
- Frida Kahlo: Artist
- Hayao Miyazaki: Animator, director, producer, screenwriter, author, and manga artist
- James Baldwin: Novelist, playwright, essayist, poet, and activist
- Malcom X: Minister and human rights activist

QR codes mounted beneath each portrait link to websites that provide more details about the lives and legacies of each subject.

### U. S. Steel Contributes to Mon Valley-Area River Rescue Team

Mike Rhoads presented a corporate contribution totaling \$26,732.24 to the Vigilant Hose Company at the August, Port Vue Borough Council Meeting.

Chief Brandon Hale and members from the 237 Dive Program accepted the check. They will use it to outfit their new rescue boat with diver equipment such as regulators, masks, fins, and more to support their river rescue efforts.



Figure 32. Above: Mike Rhoads (Clairton Plant Manager) and mural artist Tyler Podomik.



Figure 33. Above (L to R): Lt. Matthew Odenthal, Safety Officer James Borkowski, Albert Csorba, Chief Brandon Hale, Port Vue Council President Mark Tortorice, Port Vue Council member Deborah Thomas, Michael Pasko, Mike Rhoads, Lt. Shawn Chapman, Port Vue Mayor Brien Hranics.

The Vigilant Hose Company is a fire station that serves community members in Port Vue, located near U. S. Steel's Clairton Plant. This grant is part of U. S. Steel's ongoing support for the Port Vue community and its residents.





*Figure 34/35. Above (left): William Denne (Lincoln Borough Council), Mike Rhoads, Tammy Firda (Lincoln Borough Council/Assistant Borough Secretary). Above (right): Drew Martin (Manager—Security & Fire Protection), Mike Rhoads, and Chad Rager (Elizabeth Fire Chief).*

### **Clairton Plant Provides Financial Support for Two Community Safety Initiatives**

Mike Rhoads presented a check for \$27,030 to members of the Lincoln Borough Council. This money will be used to rehabilitate the borough’s salt shed. This will keep the salt supply protected from the elements, ensuring there is sufficient supply to help residents travel safely during the unpredictable Western Pennsylvania winters.

Mike then met with members of the Elizabeth Borough Volunteer Fireman’s Association to present a check for \$49,000 in support of their rescue boat. These funds will specifically be used to equip the boat with advanced sonar search and rescue capability.

### **Partnering to Combat Food Insecurity Through Summer Lunch Program**

U. S. Steel partnered in 2020 and 2021 with the American Heart Association, the Greater Pittsburgh Community Food Bank, and the Clairton City School District for a program to fight food insecurity among students on summer vacation. U. S. Steel’s contribution of \$60,000 per year funds a summertime supply of meals for children 18 years old and younger who live in the city of Clairton. This was especially critical in 2020 as the resources of families and nonprofit organizations were stretched to meet community needs associated with COVID-19. In addition to the meals, the program provided activities and resources to promote physical activity, including yoga mats, jump ropes, mini vegetable growing kits, and more. Overall, this program will improve the physical and mental health of children in communities where our employees live and work.



*Figure 36. Jennifer Zgurich, Director of Corporate and Community Giving for the Greater Pittsburgh Food Bank, accepts the “big check” donation from U. S. Steel’s Mike Rhoads, Plant Manager Mon Valley Works – Clairton Plant.*

### **U. S. Steel Mon Valley Works Donates Money and Time to Local Food Bank**

November is a time for giving thanks and for giving back. With a generous donation of \$10,000 plus volunteer time to distribute food purchased with that money, employees from U. S. Steel’s Mon Valley Works are ensuring that our neighbors will have plenty of turkey, dressing and all the fixings this Thanksgiving.

Mon Valley Works made the donation to the Greater Pittsburgh Community Food Bank. The donation was part of the food bank’s Turkey Drive and funded the purchase of turkeys and a box full of essential food items for a Thanksgiving dinner for 500 area families.



Part two of Mon Valley Works' donation involved volunteer time on Nov. 18 to distribute the food made possible by the company's donation. Employees quickly "gobbled up" all eight volunteer spots and spent more than two hours handing out food and smiles.



Figure 38. Volunteers hard at work.



Figure 37. Steve Zelenski, John Michaud, Dave Phillians, Pennsylvania State Rep. Austin Davis, Mike Rhoads, Matt DeLiberio, John Chornak, and Beata Herold.



By partnering with Feeding America, government agencies, local retailers, food manufacturers and farms, and through community donations such as U. S. Steel's, the Greater Pittsburgh Community Food Bank provides distributes approximately 45 million meals and 12 million pounds of produce annually across 11 counties in southwest Pennsylvania.

**Clairton Plant ERG Members "SERVE" Meals to those in Need on Easter Sunday**

Shepherd's Heart Fellowship and Veteran's Home offers local veterans, including those who may be homeless, a variety of assistance. Clairton's SERVE chapter has developed a partnership with the non-profit to aid their mission in several ways.

Volunteers helped prepare and serve meals to residents. Our volunteers also provided residents with treat bags and gift cards.

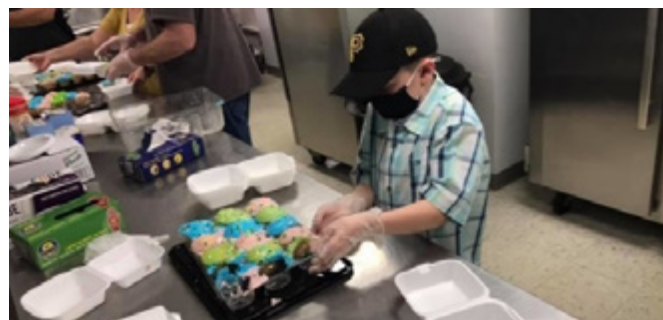
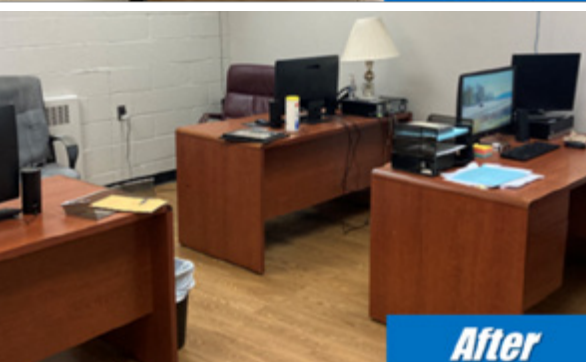
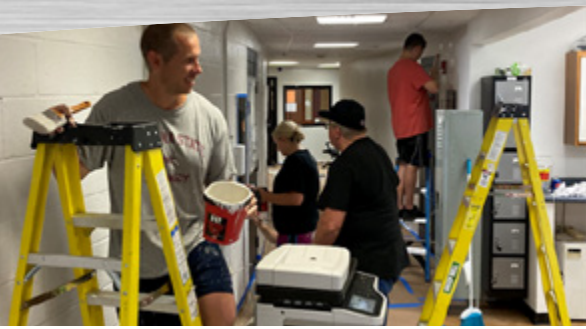


Figure 39. Above (in various photos): Mike Cossell, Dave & Kim Laing, Dustin, Alana, Dustin II & Layla Pierce, Mike & Christian Rhoads



### **Pittsburgh-Area U. S. Steel Employees Spruce Up Local Police Station**

Volunteers from U. S. Steel's Mon Valley Works, Corporate Headquarters, and Research & Technology Center recently dedicated approximately 250 hours to painting the City of Clairton's Police Station.

The volunteers were led by Drew Martin (Security & Fire Protection Manager for Mon Valley Works) and Dave Phillians (Coal Prep & Services Area Manager for Mon Valley Works' Clairton Plant). From Aug. 30 through Sept. 2, our volunteers painted the station's entrance, squad room, holding cell area, hallways, Sergeants' Office, and Police Chief's Office. They also repainted all the station's doors, jambs, and trim over the four days. This minor refurbishment will assist the Clairton Police Station with an upcoming certification process.

### **Mon Valley LEAD ERG Chapter Launches "Project Homework Help" with Local School**

Students and teachers alike have had to adapt their lives to depend on technology and virtual teaching since the start of the COVID-19 global pandemic. To help local middle and high school students navigate this change, Mon Valley Works LEAD Location Chair and Senior Manager of Maintenance at Clairton Plant, Owen Weston, developed "Project Homework Help," a virtual tutoring program offered to students in the Clairton City School District who need extra help with Science, Technology, Engineering and Mathematics (STEM) assignments.

The "Project Homework Help" team has two functional groups to ensure a smooth implementation. The Administration team is responsible for developing and maintaining operating guidelines and procedures, while the Homework Helpers volunteer their personal time to conduct weekly virtual tutoring sessions using Zoom. To date, the program has more than 20 student participants!

Carrie Auld, a teacher at Clairton City Middle School, had this to say about Project Homework Help: "This program provides students with the opportunity to be exposed to various careers which they may not

*Figure 40. U. S. Steel volunteers hard at work painting the City of Clairton Police Station, along with a few "after" photos of their handy work.*



have had access to otherwise. Additionally, students are provided with the opportunity to gain academic support in areas where they may be struggling. During an in-service day, I took time to call each of the students who had tutoring [the night before]. I heard nothing but positive comments from everyone's parents. Once again thank you all for everything you are doing."



### **Mon Valley Works Provides Accreditation Support to City of Clairton Police**

The team at U. S. Steel's Mon Valley Works Clairton Plant recently showed appreciation for their local police force by providing support for their upcoming Pennsylvania State Accreditation.



Drew Martin, Manager of Security & Fire Protection, recently presented a check for \$5,089 to Clairton Mayor Rick Lattanzi and Police Chief Robert Hoffman to purchase and install specialized door hardware on the main access doors in the station's cell block area. There are 150 standard elements of the accreditation process, and this is just one component.

### **Veterans Memorial Receives Additional Beautification from SERVE ERG**

On May 15, Mon Valley Works' Clairton Plant employees from our SERVE ERG and their families dedicated another Saturday to beautifying the Memorial Hill Veterans Memorial in Clairton, PA.

Their efforts this time included cutting grass, weed whacking, trimming existing shrubs, removing dead bushes, and planting flowers and shrubs in the walkway roundabout.







### **SERVE ERG Continues Beautification of Clairton Veterans Memorial**

Twelve SERVE Employee Resource Group (ERG) members and their family members worked together to landscape the memorial by cutting grass, weed whacking, cleaning up tree branches and raking leaves. They also successfully painted the memorial's pavilion, laid block and installed fascia board.

Over the last couple of years, Clairton Plant's SERVE chapter has frequently dedicated time to beautify this memorial, often ahead of the Memorial Day holiday when the park will see more visitors.

### **Mon Valley Team Answers the Donation Call from Clairton Plant's SERVE ERG**

The photos above show the generous donations made by members of the Mon Valley Works team in the first donation drive benefitting Shepherd's Heart Fellowship and Veterans Home. The Clairton SERVE chapter thanks everyone for their generosity!

Shepherds Heart Mission provides transitional housing, rehabilitation, counseling, and food for homeless Veterans until they are stable and prepared for independent housing. They also provide a drop-in center for homeless men and women which provides meals, clothing, networking, and services. They provide transportation for Veterans to the VA hospital, medical appointments, government offices and other non-profit agencies. Finally, they provide a food pantry, resource center, emergency fund and cold weather shelter for women.



### **Clairton Plant Employees Spread Holiday Cheer to Local Families**

In December 2021, employees from U. S. Steel's Clairton Plant bought, wrapped, and delivered gifts to low-income families for the holidays through a partnership with the Southwestern Pennsylvania Human Services, Inc.'s Monessen Family Center's Adopt-A-Child program and Go Time Ministries, Clairton mission. The effort allowed our employees to extend their generosity to children and families in the Clairton, Monessen, Donora, Belle Vernon, and Charleroi areas.

Clairton Plant employees stepped up and provided gifts to more than 126 children and nearly 50 families. Many employees adopted multiple children and some employees even took on families with five or six members. Their kindness helped the Monessen Family Center and Go Time Ministries, meet the needs of program participants, and improve many peoples' holidays. In addition, with the additional funds collected, 200 hats, gloves, and socks were purchased and donated for the agencies to distribute during the winter season.

Mike Rhoads said that he is "humbled by the outpouring of generosity and the willingness of so many to give back to our neighbors in need. I thank all who participated very much.



*Figure 41/42. Top (left to right): Brian Pritz, Steve Zelenski, Beata Herold, Jessica Anderson (SAFE Program Coordinator) and other volunteers deliver toys at the Monessen Family Center.*

*Bottom (left to right): Pastor Brent Furlong, Beata Herold and Steve Zelenski deliver toys to Go Time Ministries, Clairton mission.*



## B. COMMUNITY ADVISORY PANEL (CAP)

In June of 2019, the Clairton Plant established a Community Advisory Panel (CAP). A CAP is commonly defined as a group of representatives from area communities who meet periodically with representatives from a major employer to discuss issues of common interest. The purpose of the CAP is to proactively communicate, to foster a collaborative relationship and to facilitate an understanding of community expectations and concerns. The Clairton CAP consists of key members of the Clairton Plant team along with community members of Clairton, Glassport, Liberty, Lincoln, Jefferson Hills, McKeesport and Port Vue. The quarterly meetings have included tours of the Plant, discussions of current events, Plant compliance, and content/information requested by the communities. In each meeting, the CAP is also educated on the operations of the Clairton Plant. The CAP members, most of which hold local government office, are then better able to answer constituent questions.

### Mayor Richard Lattanzi, City of Clairton



I have lived in Clairton for 58 years and the Clairton Plant was always a big part of our city. From the time I was a child till now, I have witnessed so many changes and upgrades. My family would sit around and tell mill stories and how we won World War 1 and 2 with Clairton-

made steel. Many Clairton people feel the same proud heritage. I remember the mill doing volunteer projects and supporting our town for many years; they are responsible for almost a third of our tax base.

As a child, I personally remember that the river water was so murky, you couldn't see what you caught when fishing until it was out of the water. Today it is much cleaner, and there was even a national bass masters fish tournament in front of our mill. There is large, mountain-like rock formations across the river and it was bland and cold. Today that area is full of vegetation, and it is very picturesque! There has been so much improvement and it is remarkable what can be done to a 100-year-old mill.

The Clairton Plant continues to show exceptional results with stack performance, fugitive and with SO<sub>2</sub> compliance. They (US Steel) continue to be in compliance with PM 2.5 standards for the last few years now, and the proof is the data collected from the Monitoring

Stations. Zero SO<sub>2</sub> Exceedance of the 1-hour standard, they are meeting or exceeding the National Ambient Air Quality Standard.

So, I have been the mayor here in Clairton for 3 terms (or 12 years) and just won another term. The highest percentage of people in Clairton trust and believe in me and my work on environmental issues, and any city-related issue. I am the longest tenured mayor in Clairton in the last 100 years: I am a people person and I understand what is real and what is a personal agenda!

### Elaina Skiba, Glassport Borough



We are now halfway through our second year working with the Community Advisory Panel, (CAP). What a positive experience it has been. The education and services provided to the CAP by the USS Clairton Plant have been immeasurable. As an elected official of Glassport Borough,

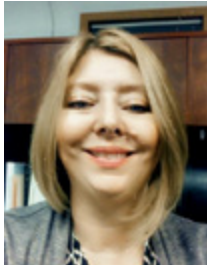
I am very pleased with the CAP experience. The representatives from the Clairton Plant are not just there to educate us, in turn allowing us to take this knowledge back to our residents, but they offer us many services.

We have been given tours of the plant, instructed on the operations of the plant, the safety measures in place for the employees, the measures taken to make sure the Clairton Plant is in compliance with all of the regulations put in front of them, and many other topics. Even during this challenging time dealing with COVID-19 restrictions, the CAP was still a priority to the plant. We continued to have our meetings whether it was initially virtual or later, in person with social distancing. It is obvious that the Clairton Plant team involved with the CAP is dedicated to continuing to educate its surrounding communities with as much knowledge of the processes and outcomes of the Plant as possible.

Speaking for Glassport, we have benefited from USS Clairton Plant's commitment to continue to be a good neighbor. Whether it be offering a tutoring program, staffed with Plant employees, to our students in the South Allegheny School District, helping Glassport continue to expand our own Safety Committee or providing our Police Dept with disturbance gear, we know that we can rely on the Clairton Plant and its employees to help in our community and school district. I am looking forward to being involved with the CAP for a long time to come.



### Tammy Firda, Lincoln Borough



Local government officials always have a huge burden when making decisions with limited funding for what is best for their community. What comes first, the road that needs desperately paved, the dilapidated building that need demolished or a new municipal

vehicle for the police or public works? Wait a minute...what about recreation? It always takes a back seat but is very needed. The needs are always great, and the funds limited. Even with grants available through other sources it is competitive and most of the time requires a local match. The Community Benefit Trust has made a huge difference for the allover betterment to the five communities that it serves. If you look at the projects that have been accomplished by the communities, it speaks volumes. We are all thankful for the help the Community Benefit Trust has provided through U. S. Steel and look forward to what the future brings.

### Lee Lasich, City of Clairton Council

I wanted to just say that U. S. Steel, Clairton Coke Works has been so important to Clairton in the past years. We have relied on U. S. Steel in so many areas that the workers don't even get recognition for. U. S. Steel has made strides in cleaning up its own environment (plant) so that standing on the hillside in Clairton, you can see into the plant itself. At one time, that wasn't a possibility. Even though there's always negativity, U. S. Steel has shown us positivity in how it operates. U. S. Steel is making an impact on the surrounding areas.

## C. COMMUNITY BENEFIT TRUST

In early 2020, U. S. Steel established a Community Benefit Trust as part of an agreement with the Allegheny County Health Department to resolve the company's appeal of enforcement orders issued by the ACHD against the Company. As part of the settlement, it was of the highest importance for U. S. Steel to represent the voices of the local communities where many of our employees live and work. At our urging, 90% of the disputed penalty and 90% of any future stipulated penalties are placed into the Trust to directly benefit the following localities: Clairton, Liberty, Lincoln, Glassport and Port Vue.

Per the terms of the Trust, distributions from the Trust must benefit the localities or the local environment through supplemental projects, and the projects must be anticipated to improve, protect,

or reduce the risk to public health or the environment. Such projects may include providing funding to improve physical community infrastructure (such as the creation or renovation of parks, green spaces, or playground spaces), or fostering the creation or expansion of programs that are aimed at directly improving the well-being of residents, and need not be air quality-related, as long as an environmental and/or public health benefit can be recognized. Any project proposals submitted must demonstrate a reasonable probability that the project will be successful.

The trustee, Smithfield Trust Company, is totally independent from U. S. Steel. The trust instrument requires that the trustee administer investments, issue funds for projects by the Trust Distribution Board (which is a board made up of members representing the five community beneficiaries) and prepare periodic reports and financial documents. U. S. Steel nor the trustee has any role in screening or approving projects, as that role is the sole responsibility of the Trust Distribution Board.

The Trust Distribution Board has elected a President and Vice President. In 2021, grant applications have been submitted and approved for the communities of Clairton, Glassport, Liberty, Lincoln and Port Vue. Some of the items included in the applications are as follows:

- Upgrades to parks, playgrounds, and recreational facilities
- Purchase of a new police vehicle, body & vehicle cameras, and a SAM (Speed Awareness Monitor) trailer
- Repair of buildings, sidewalks, crosswalks, and roads
- Purchase of Firehose nozzles, breathing pressure equipment and AEDs for fire departments and public works departments
- Funding for demolition of blighted properties
- Purchase of a new community center, warming center, salt shed, public works dump truck, and solar powered cameras





# Commitment to the Environment and Community — Now and in the Future

**As shown throughout this 2021 report, U. S. Steel is strongly committed to environmental stewardship and to serve the communities in which we operate**

As we move into 2022, we remain committed to:

- Our S.T.E.E.L. principles
- Developing and implementing innovative projects to improve environmental performance
- Providing support to the communities in which we operate
- Assisting the company in achieving the Corporate GHG Reduction Goal to reduce its global greenhouse gas emissions intensity by 20 percent, as measured by the rate of carbon dioxide (CO<sub>2</sub>) equivalents emitted per ton of finished steel shipped by 2030, based on 2018 baseline levels.





**United States Steel Corporation**

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