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RESPONSIBLE CARE®
OUR COMMITMENT TO SUSTAINABILITY

GULF PETROCHEMICALS & CHEMICALS ASSOCIATION
الاتحاد الخليجي للبتروكيماويات والكيماويات

2023 RESPONSIBLE CARE PERFORMANCE METRICS REPORT

SUSTAINING GROWTH, EMPOWERING CHANGE THROUGH RESPONSIBLE CARE®

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FOREWORD

FROM THE SECRETARY GENERAL

The commitment to Environment, Health, Safety, and Security (EHS&S) by GPCA Responsible Care® member companies is once again evident in the results of the 2023 Responsible Care® Performance Metrics report.

This annual initiative has grown in both scale and significance, highlighting our members' steadfast dedication to advancing sustainable practices, enhancing employee safety, and minimizing environmental impact across their operations.

This year's report reflects significant investments, leadership support, and proactive efforts by chemical companies across the region to improve key performance indicators. Where areas for improvement have emerged, companies have acted swiftly, recognizing that progress requires accountability and a commitment to ongoing development. This readiness to take corrective action, share best practices, and foster transparency underscores the strong culture of Responsible Care® within our membership.

I extend my congratulations to all members for their dedicated participation and commendable achievements in 2023 and beyond. Our collective progress in sustainability should not only be celebrated but it should also serve as a catalyst for further innovation, investment, and commitment to positive change.

Dr. Abdulwahab Al Sadoun
Secretary General, **GPCA**

ACKNOWLEDGEMENT FROM THE PERFORMANCE METRICS SUBCOMMITTEE

On behalf of the GPCA Performance Metrics Subcommittee under the Responsible Care Committee, we extend our heartfelt appreciation to the companies that have participated in this report.

Your unwavering dedication to transparent reporting and continuous improvement in Environment, Health, and Safety (EHS) performance is truly commendable. Your commitment to adhering to the Responsible Care® values and embracing industry-recommended practices sets a remarkable standard for the entire chemical industry. Your transparent reporting has played a pivotal role in driving positive change, forming the foundation of our collective efforts.

By openly sharing your EHS&S achievements and challenges, you foster a culture of accountability and inspire others to strive for excellence. Your dedication to transparency reflects a genuine concern for the well-being of your workforce, communities, and the environment.

Equally noteworthy are your ongoing efforts to enhance EHS&S performance. Your proactive adoption of industry-recommended practices goes beyond compliance, underscoring your commitment to achieving the highest standards of safety and sustainability. Your willingness to embrace innovation, invest in technology, and drive operational efficiency serves as a powerful example for the entire industry. Your actions not only elevate the reputation of your individual companies, but also contribute to the advancement of the entire chemical sector. Your adherence to the Responsible Care® values illuminates the path toward a more sustainable and responsible future.

It is important to recognize that your transparent reporting and continuous improvement efforts provide the essential foundation for the insights we share throughout this report. Your contributions empower us to collectively drive positive change and shape a safer, healthier, and more sustainable industry.

Thank you for your leadership in EHS&S excellence and for upholding the principles of Responsible Care®.

Your dedication inspires us all to work tirelessly toward a better tomorrow.

RESPONSIBLE CARE PERFORMANCE METRICS (PM) – METHODOLOGY AND APPROACH

The data presented in this report is collected and analyzed from a set of 27 metrics provided by GPCA members.

n 2023, GPCA received 1,154 data entries from 39 companies, which were collected and processed in accordance with the methods and formulas prescribed by the applicable standards and procedures in the Responsible Care® program.

The individual Performance Metrics are divided in the following five categories:

- Occupational health and safety
- Process safety
- Emissions and discharges
- Resource utilization
- Distribution and products

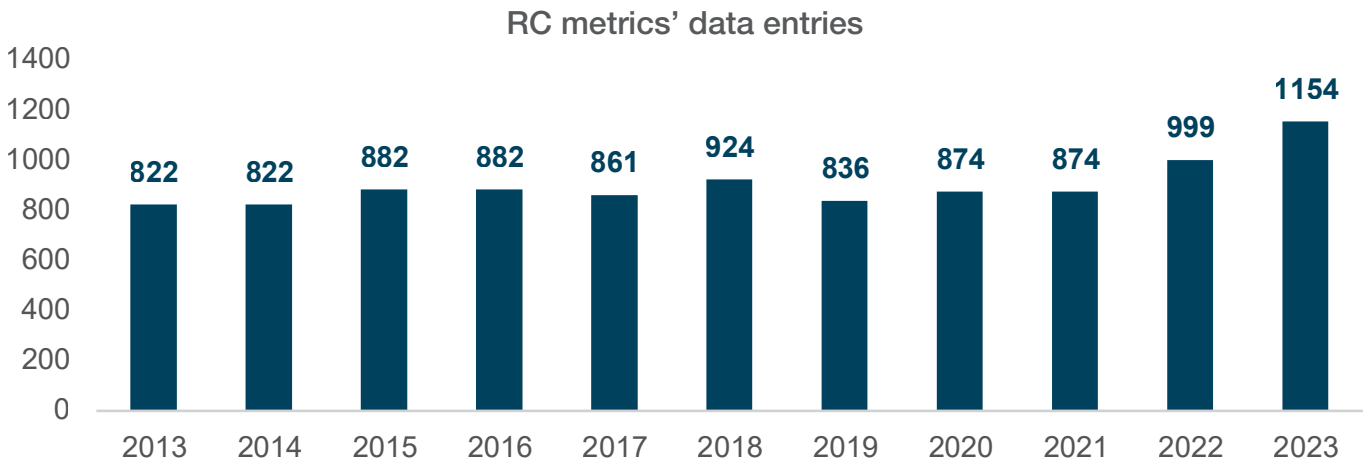
The individual definition of the performance metrics will be presented in the following paragraphs along with trend analyses of the average performance over the 11 reporting years from 2013 until 2023.

The aim of this approach is to focus on continuous improvements in all five categories and their performance metrics. The trends presented in this year's report are supported by wide ranging success stories and learnings. This year's theme emphasizes the industry's unwavering commitment to continuous improvement and the sustained progress achieved under the Responsible Care® program.

Between 2018 and 2019, several successful mergers and acquisitions within the region resulted in a reduction in the number of data entries reported. However, during 2021-2022 we introduced an additional metric for Gulf SQAS and renewable energy, leading to an increase in data inputs. In 2023, three new metrics were added — Tier II process safety incidents, volatile organic compounds (VOCs) and plastic loss — further expanding our reporting framework.

It is noteworthy that the 1,154 data inputs submitted this year represent a 100% reporting success rate by GPCA's Responsible Care® member companies.

Figure – 3-1 RC Metrics' Data entries



OCCUPATIONAL HEALTH AND SAFETY (OHS)

Why is this important?

Occupational Health and Safety (OHS) performance is intended to showcase the Environment, Health, Safety and Security (EHS&S) of companies' programs by measuring recordable injuries as a factor of the overall number of hours worked across all reporting companies. This is the ultimate test of Responsible Care® companies' performance, as it demonstrates the health and safety standards across their operations, ensuring the health and safety of their employees on a daily basis.

How is the metric calculated?

The metric is defined as the number of fatalities and recordable injuries for every 100 full-time employees per year, calculated per 2,000 working hours per employee annually.

Our member organizations are increasingly focused on measuring both leading and lagging performance metrics to achieve a comprehensive view of their health and safety performance. Leading indicators, or input measures, assess whether companies are engaging in the right preventive activities. While these indicators may vary across organizations, the ultimate goal is to ensure that these efforts translate into improved safety outcomes, with fewer incidents and injuries among the workforce.

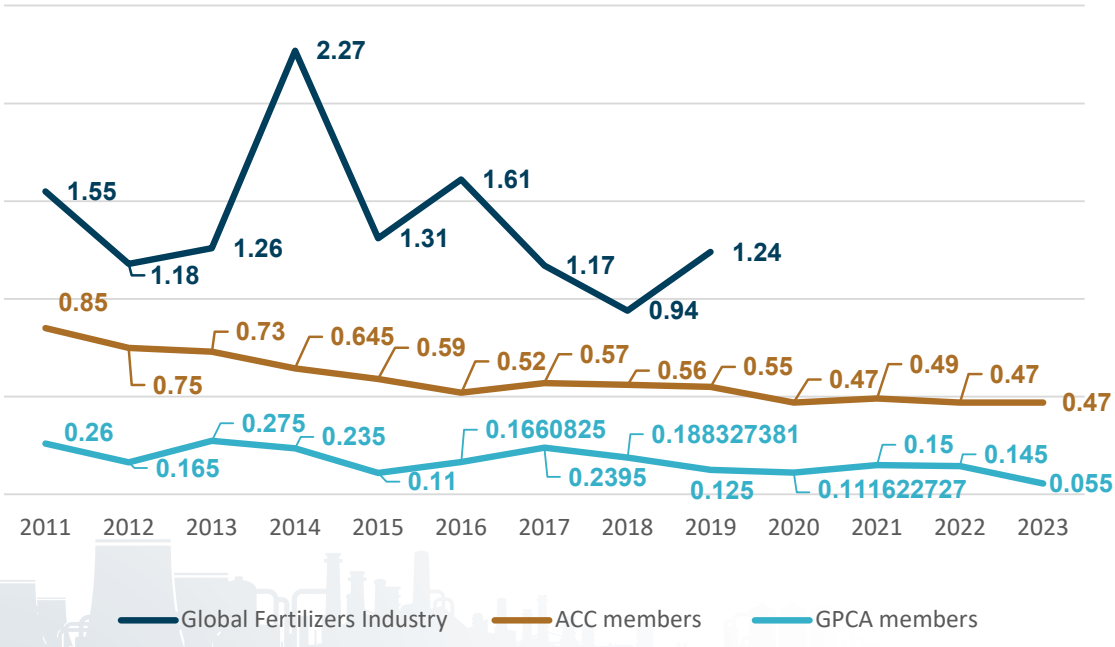
We are pleased to report that the overall health and safety performance of GPCA's Responsible Care® companies continues to demonstrate positive progress and compares favorably with that of peer associations worldwide.

At GPCA, it is our firm belief that all OHS related incidents are preventable, if we take a proactive approach and if symptoms are detected early and dealt with promptly.

In 2023, GPCA members achieved an impressive 68% reduction in combined Total Recordable Incidents (TRIs), covering incidents involving both employees and contractors. This significant achievement is benchmarked against the average Total Recordable Incident Rate (TRIR) recorded over the past decade. Additionally, a year-on-year comparison shows a remarkable 62% improvement from 2022.

This progress highlights the industry's unwavering commitment to safety and reflects the continuous efforts of GPCA's Responsible Care® companies to protect their workforce.

Figure – 4-1 Historical Average TRIR Trend - Employees & Contractors Combined



CONTRACTOR HSSE PERFORMANCE MODULE IN INTELEX TOOL – OQ

The Contractor HSSE Performance Module within Intelex is a strategic tool designed by the OQ RPI HSSE team to elevate the management of health, safety, security, and environmental (HSSE) performance among contractors. Here's a breakdown of its objectives and benefits:

Objectives of the Contractor HSSE Performance Module:

- **Fostering strong collaborative partnerships:** Establishing and nurturing partnerships with OQ RPI contractors to enhance HSSE outcomes through collaboration and shared goals.
- **Defining and enforcing minimum HSSE expectations:** Setting clear standards for HSSE performance and ensuring these are adhered to consistently across all contractors.
- **Dedicated platform for reporting HSSE events:** Providing a centralized system for reporting near misses, safety observations, incidents, and other HSSE-related events promptly and accurately.
- **Structured infrastructure for HSSE statistics submission:** Offering a systematic approach for contractors to submit comprehensive HSSE statistics, ensuring data completeness and accuracy.
- **Statistics analysis and continuous improvement:** Analyzing gathered HSSE data to identify trends, areas for improvement, and best practices, thereby driving continuous improvement in HSSE performance.
- **Efficient contract details and personnel management:** Recording and managing contract details efficiently, including key personnel contact information, to streamlinecommunication and operational efficiency.

Benefits of the module:

Reduced manual workload: Automation and centralized data management reduce the manual effort required by both the OQ RPI HSSE team and contractors, improving overall efficiency.

Improved system performance: By leveraging technology to manage HSSE initiatives, the module enhances the overall performance of HSSE systems within the organization and among contractors.

Transparency and visibility: The module's dashboard provides transparency by making HSSE performance reports accessible to relevant stakeholders, fostering accountability and informed decision-making.

Enhanced compliance and risk management: Ensures compliance with HSSE regulations and standards while effectively managing risks associated with contractor activities.

Conclusion:

The Contractor HSSE Performance Module in Intelex is a pivotal tool designed to not only monitor and analyze contractor HSSE performance, but also to foster a culture of safety, collaboration, and continuous improvement. By leveraging this module, OQ RPI aims to enhance overall HSSE outcomes, reduce administrative burdens, and promote transparency across its operations and contractor engagements.

SAFER CHEMICAL UNLOADING – EQUATE

EQUATE always strives to systematically reduce risks and improve workplace safety. The goal is always to move up the Safety Controls Hierarchy and implement the most effective controls possible. One such initiative, an Engineering Solution, which is worthwhile discussing is a safer way of unloading chemicals using a dry disconnect coupling system from portable Intermediate Bulk Containers (IBCs) / Totes.

In the manufacturing industry, portable chemicals are widely used to treat and improve process parameters, or are used as additives etc. Physical and chemical properties of each of these vary from one another. However, most of these are either having potential health hazard, environmental pollutant or are having flammability risk. In view of this, handling them safely becomes even more important.

Previously, flanged/threaded Stainless Steel (SS) hoses were used for chemical unloading from Totes and IBCs. Usually the process side remains flanged, whereas the connection to the tote/IBC is threaded. A few issues observed while using this type of fitting were:

- Potential for chemical spill due to hold up chemical
- Damages to the O-ring on the hose, which adds up to the leak potential
- Relatively hard to connect with the tote/IBCs
- Spares replacement due to damaged parts

Example of an O-Ring damage

Example of a hold up material spill

A chemical spill could result in personal injury or environmental pollution and its severity depends on the chemical's properties.

Such activities are always executed by an operator, using critical procedures and job specific PPEs.

As part of our goal toward continual improvement, a dry disconnect coupling was implemented recently (Credit: MannTek). With the newly implemented dry disconnect system the above disadvantages have been eliminated. The unique design of the bayonet coupling is equipped with a poppet valve, both on male and female couplings.

The difference in connection and disconnection in this design is that the hose unit, usually with female coupler with a handle, is pushed onto the tote/IBC unit which holds the male coupling. The female coupler is then turned clockwise by 100 degrees, during which the valve moves into the tote/IBC unit side, so that the chemical can flow. When a similar turn is made counterclockwise, the flow is stopped, and the coupler can be pulled off safely.

The following are the observed advantages of this coupling:

- Comparatively easy to use
- Protects the operator from personal injury
- Time saving due to easier way of connection/ disconnection
- No environmental spills
- Savings due to no chemical loss

Female and male coupling of various sizes

Dry disconnect coupling connected with a Tote Tank

- By investing in a safer method to transfer chemicals from tote/IBCs using dry disconnect coupling, not only has EQUATE enhanced its workplace safety and compliance, but it has also improved its operational efficiency and embarked on a path toward cost saving. This success story demonstrates the value of prioritizing safety in EQUATE's manufacturing processes.

PROCESS SAFETY

Why is this important?

Process safety is a blend of engineering and management techniques focused on preventing catastrophic accidents and near misses, particularly structural collapses, explosions, fires, and toxic releases associated with the loss of containment of energy or dangerous substances, such as chemicals or petroleum products. For GPCA, this means collecting and analyzing the number of losses of primary containment events. The metric related to process safety is directly related to the safety of personnel, should a release occur, as well as its impact on the environment. Historical events prove that serious process safety incidents can have a significant impact in terms of loss of life and asset damage. For many, this makes process safety far more significant in terms of impact than occupational safety incidents, which tend to have a singular rather than multiple impacts on people.

How is the metric calculated?

The metric is measured in accordance with the ICCA Globally Harmonized Process Safety Metrics. A process safety incident is defined as:

A. An incident where a chemical substance or a chemical process is directly involved

B. An incident which has occurred in production, distribution, storage, utility, or pilot plant within the site boundaries of a company's facility

C. A release of material or energy (e.g., fire, explosion, implosion) from a process unit

D. One or more reporting thresholds have been met

The culture of transparency embraced by GPCA member companies reflects their commitment to the core values of Responsible Care®. As shown in Figure 5-1, GPCA members have demonstrated continuous improvement in implementing robust process safety measures. 2023 marked a 38% decrease in Tier 1 process safety incidents when compared to 2022 figure. This is a testament of GPCA members' commitment towards continuously improving their Process Safety management and foster a sound safety culture.

As of 2023, members have reported Tier I and Tier II incidents in alignment with the guidelines set by the International Council of Chemical Associations (ICCA).

Figure – 5-1 Total Tier 1 & 2 PS incidents

TIER 3 LOPC TOOL – PETRO-RABIGH

Petro Rabigh has always maintained a robust process for investigating Tier 1 and Tier 2 Process Safety Events (PSE). This is done through traditional multi-disciplinary team investigations with five or more team members utilizing the root cause analysis technique.

However, the company faced a challenge with investigating Tier 3 Process Safety Events involving minor loss of primary containment (i.e., leaking gasket, mechanical seal failure, etc.). Applying the traditional detailed investigation in such events, often resulted in a prolonged investigation process and delay in identifying lessons learned that could prevent the occurrence of Tier 1 and Tier 2 events. Therefore, Petro Rabigh came up with a simple tool that would lead to a more efficient yet effective investigation of Tier 3 LOPC events.

In coming up with this tool, Petro Rabigh referred to the Center of Chemical Process Safety Publication (CCPS) "Guidelines for Risk Based Process Safety" which suggests that companies may adopt the concept of less formal investigation or Apparent Cause Analysis to address minor process safety events.

Accordingly, Petro Rabigh developed a simple tool using a customized Excel sheet template. Information filled into this sheet includes a basic description of the event, mode of operation (i.e., normal, startup, shutdown, etc.), and actions taken. A small team (comprised of two to four members) led by the unit supervisor with the participation of the safety engineer and process engineer, would then do a quick investigation, including site verification, to identify apparent causes of the event using a predefined drop-down list in the sheet. Recommendations generated from these investigations are recorded on the sheet and then uploaded in the SAP Process Safety Near Miss module for tracking.

The outcome of all Tier 3 LOPC investigations would then be consolidated and analyzed into a monthly dashboard. This dashboard identifies trends, repeated failures, common causes, and other information. This dashboard is shared with managers and section heads and is reviewed by the Process Safety Management Subcommittee which is chaired by the Manufacturing Senior Vice President.

The Tier 3 LOPC Investigation and Analysis Tool has been commended by senior management for being innovative and insightful. It has improved frontline workers' engagement and knowledge, increased reporting of Tier 3 LOPC events, and helped prevent escalations to more severe process safety events.

Lastly, Petro Rabigh was awarded 2nd place in the category of Process Safety at the GPCA Responsible Care Excellence Awards in 2023. Petro Rabigh was named the runner-up after SABIC and ahead of 10 other petrochemical and chemical companies from the Arabian Gulf.

ENHANCING & SUSTAINING PROCESS SAFETY MANAGEMENT SYSTEM IN QAFCO

Over the last three years, QAFCO has been enhancing Process Safety Management (PSM) with the aim of preventing major incidents, improving employee health and safety, enhancing the work environment, improving equipment and process reliability, and reducing production costs. As part of the PSM program enhancement, QAFCO has focused on three key aspects that strongly contribute to the sustainable process safety management system: Process Safety Indicators Reporting, Walk The Line, and Enhancement of Management of Change (MOC) & Pre-Start Up Safety Review (PSSR).

Process safety indicators

Prevention of major accidents can be achieved by focusing on reporting, analyzing, and taking action for any process safety event that provides learning value in preventing the escalation of a minor event to a disaster. QAFCO has adhered to API 754: Process Safety Performance Indicators for refining and petrochemical industries. It has successfully developed and deployed a management system, accordingly, conducting training and coaching for all staff involved.

QAFCO established a system for reporting all minor leaks, activation of Safety Instrumented Function, activation of pressure relief mechanical devices, malfunction and/or activation of fire and gas or fire protection, and activation of emergency shutdown, as well as function failure of safety protection during testing.

Furthermore, Management of Change (MOC), Pre-Start Up Safety Review (PSSR), and the Walk The Line program (WTL) are also integral parts of the process safety indicators to ensure compliance and the effectiveness of this program. As part of the process safety indicators, dedicated efforts have been made to standardize critical safety and execution of the Preventive Maintenance (PM) plan, including pressure relief devices, an emergency shutdown system, and an instrumentation and fire & safety system. These process safety indicators are presented to different management levels, up to the Chief Executive Officer (CEO), on a monthly basis to ensure commitment and provide necessary guidance.

Walk The Line (WTL) program

"Walk The Line" program is a process safety initiative that focuses on conducting thorough inspections and audits of QAFCO operations to identify potential hazards and ensure compliance with safety procedures. The primary goals include enhancing the overall safety culture within the organization and preventing accidents that could lead to harm to personnel, damage to equipment, or environmental incidents. The program addresses issues such as short bolting, damaged cables/improper termination, and damaged insulation/fireproofing.

"Walk The Line" program is divided into three parts, covering campaigns, routine audits, and operation discipline. To prevent leaks and small fires, campaigns are carried out to ensure the labelling of critical bleeders/drains, as well as conducting bi-annual audits of end plugs/caps/blinds installed at hazardous services. Additionally, a regime is developed for P&ID/checklist walk-down audits by the 2nd operator/supervisor prior to start-up to prevent the unnecessary flow of energy. Finally, efforts are made to enhance the effectiveness of area operator first-hour rounds and shift handover/takeover practices.

As part of "Walk The Line" program, we conducted training to improve the quality of the application of Root Cause Analysis (RCA) methodology, giving greater consideration to human factor causes. We instituted a practice of reviewing all Tier 1 and Tier 2 RCAs to standardize the quality of cause maps and corrective actions. The result of program is a significant reduction in human errors, fires, and leakages.

ENHANCING & SUSTAINING PROCESS SAFETY MANAGEMENT SYSTEM IN QAFCO

Management of Change and Pre-Start Up Safety Review (PSSR)

Enhancing Management of Change (MOC) and Pre-Start Up Safety Review (PSSR) is the core element of process safety management at QAFCO. Various initiatives were taken, involving top management and third-party subject matter experts to identify deficiencies within the QAFCO system and develop a long-term improvement plan.

To facilitate a better understanding of the MOC program among contractors and all employees, relevant examples were incorporated into the MOC procedure. Additionally, training sessions were conducted for respective employees. QAFCO also developed a simple checklist to serve as a guideline for the MOC reviewer.

In addition to these efforts, the scope of MOC was expanded to include Long Term Defeat management. A checklist for human factors and facility siting, as part of the Process Hazard Analysis (PHA) procedure, was developed. Respective trades were trained through third-party workshops as part of the enhancement program.

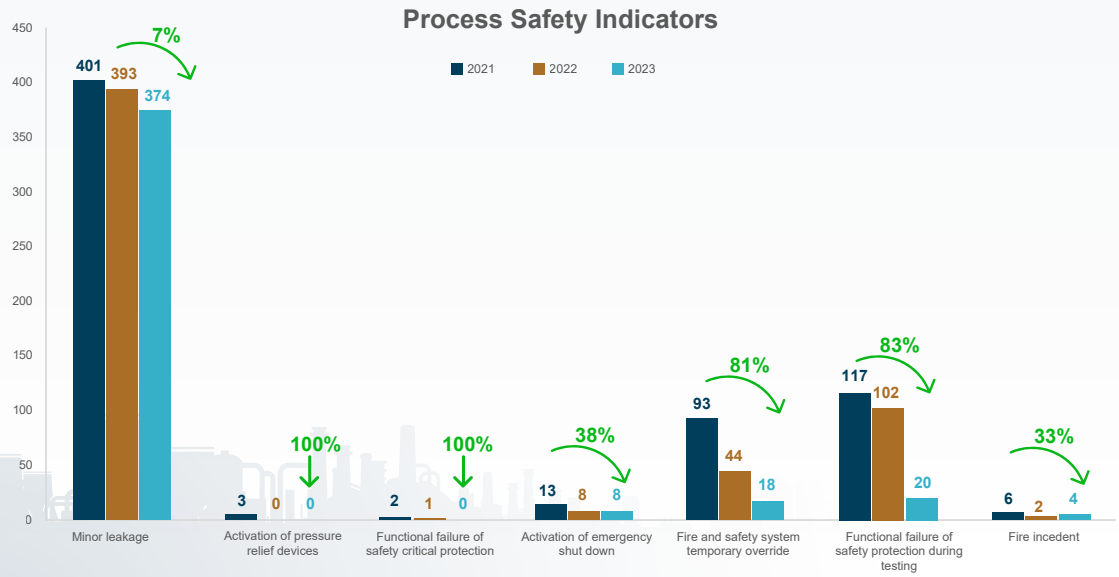
As a result of the MOC and PSSR enhancement efforts, QAFCO observed fewer operational upsets related to improper commissioning or designing.

Supporting evidence

Enhancement of Process Safety Management from 2021 to 2023, including “Walk The Line” program to reduce operator error, process safety indicator standardization to ensure dedicated effort against preventive maintenance and effective reporting, MOC & PSSR program to avoid design and commissioning related errors resulting in considerable process safety improvement in QAFCO.

The following are other major improvements noted in the last three years:

- ZERO injury against process safety event in 2023
- 33% reduction in fire incidents
- 7% reduction of leakage
- 100% reduction of activation of pressure relief devices
- 100% reduction of function failure of safety critical protection
- 38% reduction of activation of emergency shutdown
- 81% reduction of fire and safety system temporary override
- 83% reduction of functional failure of safety protection during testing



RESPONSIBLE CARE® SUCCESS STORY – Q-CHEM

Process Safety Recognition Award

RC 14001- Responsible Care® management system technical specification:

Section 5.1 Leadership and commitment:
l) actively promoting a visible culture of Responsible Care®/Environment, Health, Safety and Security continual improvement throughout the organization; and, m) encouraging openness in raising concerns and identifying opportunities for improvement.

Objective:

Process safety is a critical aspect of process unit operations. QCHEM handles hazardous materials and processes that pose significant risks to employees, contractors, and the environment. Employees are often the first line of defense when it comes to identifying hazards. When employees do not participate in the process safety program, they may not be able to identify hazards in their work environment.

This can lead to increased risks and potential accidents and a decrease in safety culture within the organization. Thus, it is essential to develop a culture of identifying and timely reporting of process safety deficiencies to sustain progress on the journey to zero process safety events. This program is tailored to encourage and involve all company staff, including contractors to contribute and continuously improve process safety and asset integrity.

Process Safety Contribution – For The People… By The People

Eligibility criteria:

The following data inputs are used to evaluate and recognize employees and contractors on a quarterly basis at Q-Chem:

- Identified, reported, and mitigated a process safety deficiency which has prevented a Tier I/ II/III Process Safety Event.
- Significant gap identified during PSSR, pre commissioning walk down, or mechanical completion walk down etc., which could have resulted in a PSE.
- Prompt response in an abnormal or emergency condition to prevent PSE.
- Reporting of unusual smell, vibration, leaks, thermal radiation etc., during field rounds which could have resulted in a PSE.
- Timely identified/reported chemicals/energy presence on the equipment which was released for maintenance.
- Lead and complete the job safely having a significant process safety hazard.
- Identify, report, and fix the significant deficiencies/inaccuracies in the “Process Safety Information-PSI” documents.

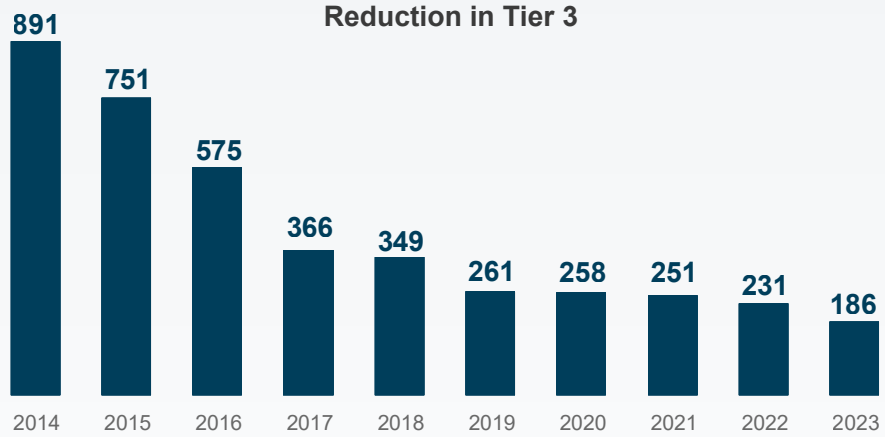
RESPONSIBLE CARE® SUCCESS STORY – Q-CHEM

Results:

- Process Safety Recognition Award Statistics Year 2022: 53 people recognized for their process safety contribution/observation.
- Process Safety Recognition Award Statistics Year 2023: 36 people recognized for their process safety contribuiton/observation.

Tangible benefits:

- The program has helped to reinforce the importance of process safety. Employees' and contractors' contributions are more valued, and they are now more engaged in the process safety improvement.
- The program has provided employees and contractors with a sense of accomplishment and motivation to continue improving process safety results. It has encouraged everyone to do quality rounds and identify process safety deficiencies during field visits. This results in increased participation in safety activities by employees and contractors. They feel more motivated to improve safety performance and to take ownership of their role in maintaining a safe work environment.
- The program has helped to identify and reward behaviors that contribute to process safety, such as reporting near misses and process safety issues. This has helped in the reduction of Process Safety Events and improved overall safety performance.
- The program has helped to improve productivity by minimizing downtime, reducing repairs, and avoiding costly events.



EMISSIONS AND DISCHARGE

Why is this important?

Environmental issues affect everyone. By adopting sustainable practices within our organization and across the industry, we can contribute to the preservation of the planet's natural resources for future generations. The core principle of pollution prevention is simple: reducing the production of hazardous waste minimizes risks to both people and the environment. Beyond environmental benefits, pollution prevention also enhances safety and lowers disposal costs.

Pollution prevention involves using materials, processes, and practices that minimize or eliminate the generation of pollutants at their source. This is achieved by improving the efficiency of raw materials, energy, water, and other resources, or by conserving natural resources through sustainable practices. Since launching its Responsible Care® program in 2009, GPCA has been collecting and reporting data on key aspects of the chemical industry's environmental performance. Measuring and monitoring emissions and discharges — while benchmarking against industry standards and past performance — are essential to reducing our environmental impact. Our ultimate goal is to drive a long-term, significant reduction in waste generation, as well as in the release of contaminants and pollutants.

How is the metric calculated?

- Hazardous and non-hazardous actual disposable waste is reported in metric tons
- Wastewater discharged to the aquatic environment is represented in m3/year
- Sulphur oxide (SOx) and Nitrogen oxide (NOx) is measured in metric tons/year
- Metric tons of CO_2 emissions per metric ton of production is calculated for CO_2 intensity
- Volatile Organic Compounds (VOC) reported as Tons (1,000 Kilograms) of VOC per year

Some of the graphs and trends shown in this section are developed with reference to the production of the reporting members for each specific year to provide insight into the emission levels per ton of production.

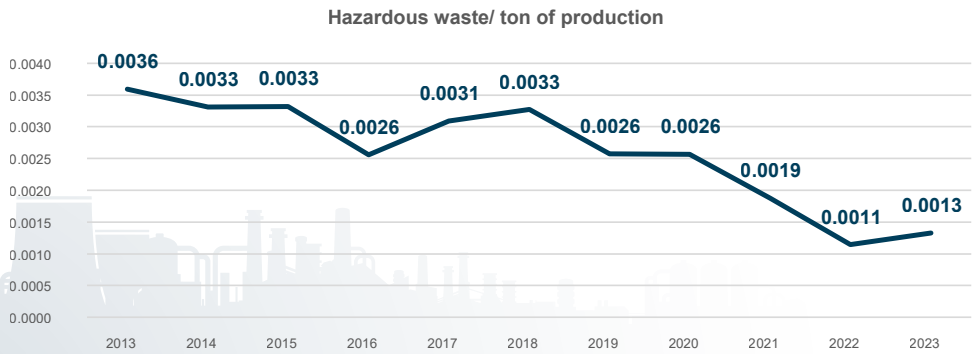
Waste generation

In 2023, hazardous waste per ton of production increased by 16%, highlighting the need for responsible waste management. Upon reviewing the cause of this increase, we identified that several members were undergoing major turnaround activities, which typically occur every five to six years. Additionally, the availability of licensed and operational waste disposal facilities remains a critical factor, emphasizing the importance of regulatory support to ensure uninterrupted waste treatment capabilities.

Figure 6-1 illustrates the trend in hazardous waste generation over the past decade, showing an overall reduction of 63% compared to 2013. Furthermore, hazardous waste generation in 2023 reflects an impressive 54% decrease when measured against the average levels recorded over the previous 10 years (2013–2022).

This significant progress demonstrates the industry's proactive efforts to adopt cleaner production technologies and implement more efficient waste management practices. The data-driven insights serve as a valuable reference for setting future environmental goals and further underscore GPCA's commitment to fostering a more sustainable and environmentally responsible chemical industry.

Figure – 6-1 Hazardous waste/ ton of production



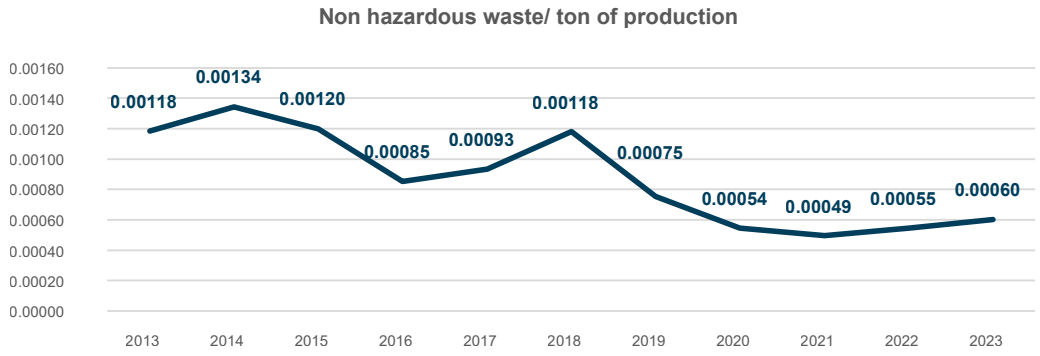
EMISSIONS AND DISCHARGE

From 2013 to 2023, GPCA members have consistently shown a commendable effort in reducing non-hazardous waste generation per ton of production. The values have progressively decreased over the years, indicating a growing commitment to environmental sustainability within the industry.

However, in 2023, there was a deviation from this positive trend. The data recorded a 10% increase in non-hazardous waste generation compared to the previous year. While this may raise some alarms, it is essential to view this as a temporary setback rather than a reversal of progress.

Looking at the broader picture, data from 2013 to 2022 reveal an impressive 36% reduction in non-hazardous waste generation. This achievement highlights the industry's persistent efforts toward improving waste management practices and underscores the value of sustainable approaches adopted by GPCA members.

Figure – 7-2 Non hazardous waste/ ton of production



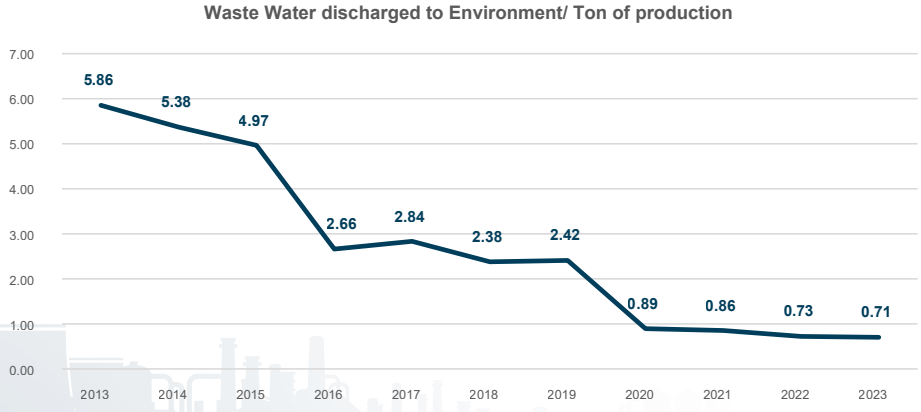
Waste water discharge

The data presented in Figure 6-3 highlights a consistent and impressive downward trend in wastewater discharge per ton of production over the past decade.

GPCA members have continuously improved their wastewater management practices, reflecting their commitment to environmental stewardship. In 2013, wastewater discharge to the environment per ton of production was recorded at 5.86. This figure steadily declined over the years, reaching 0.89 by 2020 and further decreasing to 0.86 in 2021.

In 2023, GPCA members reported a new record low of 0.71, marking an extraordinary 88% reduction from the 2013 baseline. This achievement underscores the effectiveness of ongoing efforts to optimize water use, reduce environmental impact, and adopt sustainable production practices.

Figure – 6-3 Waste Water discharged to Environment/ Ton of production



EMISSIONS AND DISCHARGE

NOx and SOx emissions

The indicators presented in Figures 6-4 and 6-5 reflect the total emissions of nitrogen oxides (NOx) and sulfur oxides (SOx) per unit of production. Both metrics show significant improvements, with NOx emissions decreasing by 46% and SOx emissions decreasing by an impressive 82%, compared to the average emissions reported over the previous 10 years.

These reductions highlight the positive impact of GPCA members' efforts to enhance emission controls and adopt cleaner production practices, reinforcing the industry's commitment to minimizing environmental impact.

Figure – 6-4 NOx per ton production

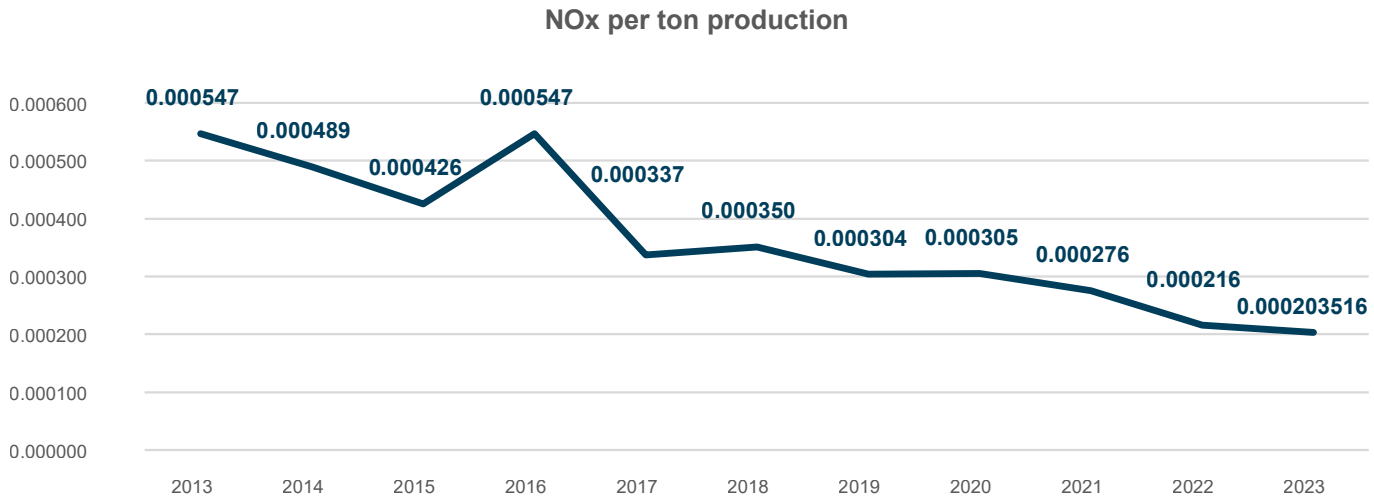
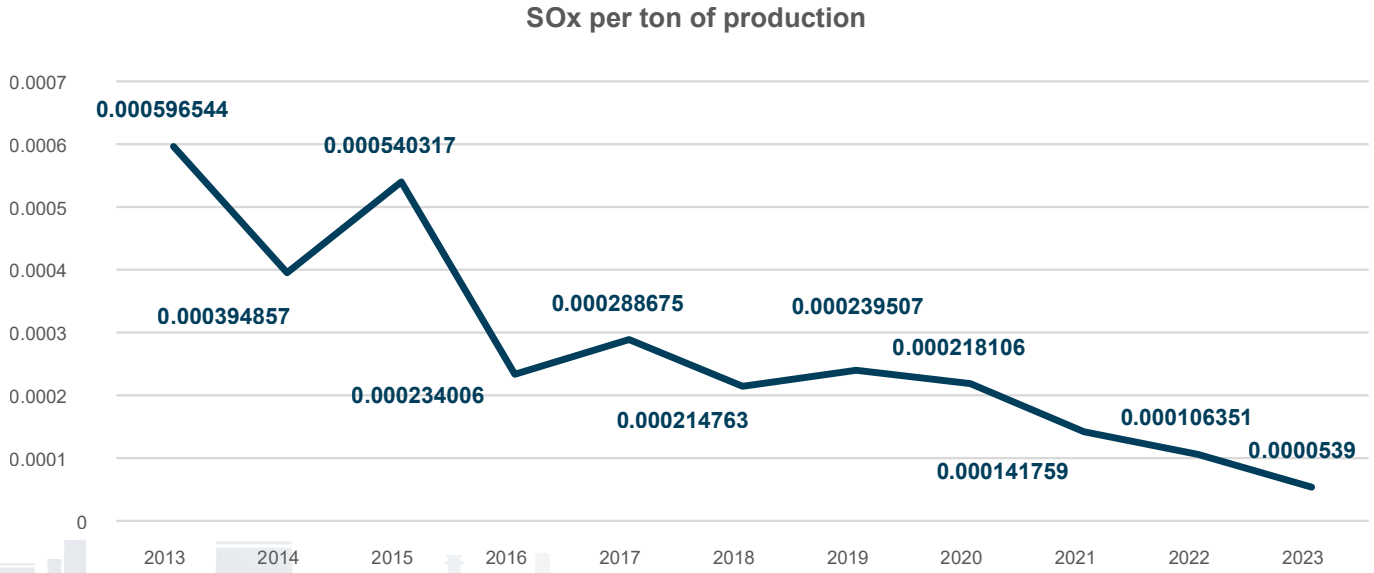


Figure – 6-5 SOx per ton of production



EMISSIONS AND DISCHARGE

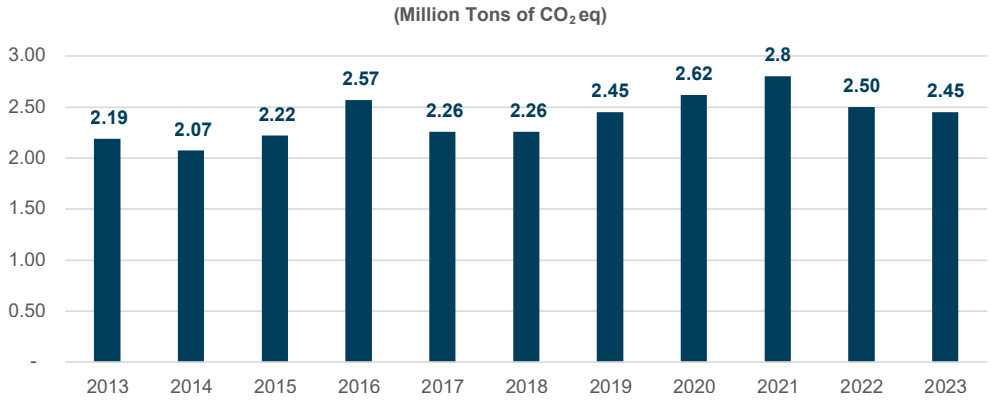
Greenhouse gas emissions

GPCA members have been continuously improving their carbon-neutral operations, as evidenced by the average greenhouse gas (GHG) intensity reported in 2023 at 2.45. This represents a 2% decrease from 2.50 in 2022 and a 13% decrease from 2.80 in 2021.

These improvements are particularly noteworthy given the context of the past decade, during which production has increased from 102 million tons to 156 million tons—a 53% increase in production volume.

This reduction in GHG intensity, despite the rise in production, underscores the industry's commitment to sustainability and effective carbon management. GPCA members are implementing various initiatives to reduce their carbon footprint, including advanced monitoring systems, engineering controls, and energy-saving measures. Additionally, they are actively engaged in carbon offsetting programs, such as developing mangrove plantations, which contribute to environmental preservation and enhance sustainability efforts.

Figure – 6-6 Avg GHG emissions (Million Tons of CO2 eq)

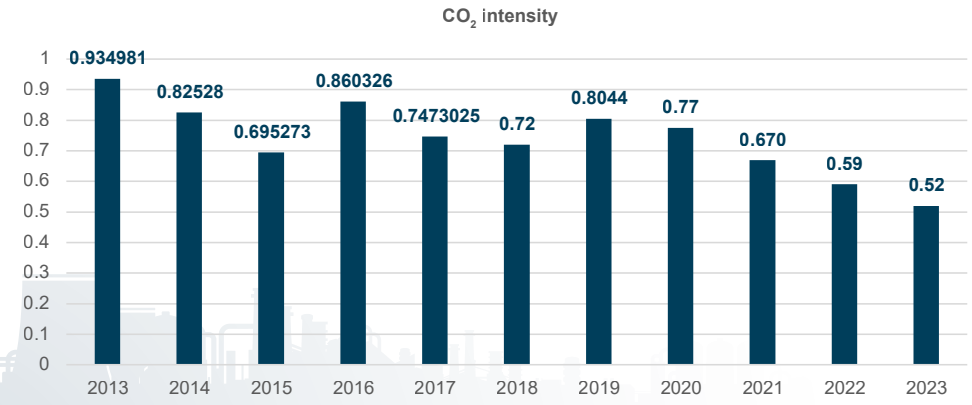


CO_2 intensity

GPCA member companies have implemented numerous initiatives over the years to optimize CO_2 intensity and reduce GHG emissions. Many of these efforts have been highlighted as success stories in previous Responsible Care® performance reports, in addition to those shared here.

In 2023, GPCA Responsible Care® member companies reported an average CO_2 intensity of 0.52, representing a 12% reduction compared to 2022 and a 32% reduction when benchmarked against the overall average of the last decade.

Figure – 6-7 CO_2 intensity



EMISSIONS AND DISCHARGE

Volatile organic compounds (VOCs)

In this edition, for the first time, we requested our members to report their Volatile Organic Compounds (VOC) emissions. VOCs are organic chemical compounds with high vapor pressure under normal conditions, enabling them to vaporize easily and enter the atmosphere. Given the broad nature of this definition, national interpretations of VOCs should be applied where available, as they may vary across countries.

A total of 22 companies reported their VOC emissions, with an average of 0.0000366 tons of VOC released per year per unit of production. This data establishes a valuable baseline for tracking and improving performance in future reporting cycles.

WASTE MANAGEMENT ELECTRONIC SYSTEM – S-CHEM

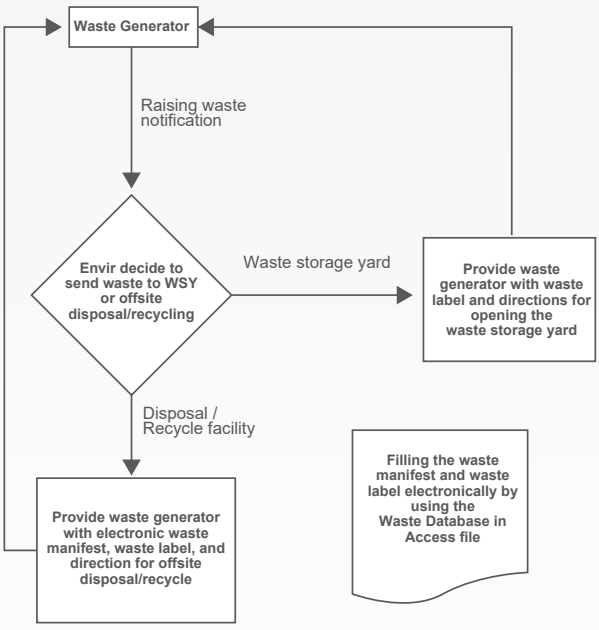
Purpose:

The primary aim of the Electronic Waste Notification System is to streamline the process of filling waste labels and manifests electronically. This system is designed to minimize human error, ensure compliance with environmental regulations, and save the waste generator's time by reducing repetitive manual entries for each waste container (drum, tote, etc.).

Waste system (past and present):

As part of the continuous efforts in improving waste management , S-Chem created an electronic waste system. Historically, waste management at S-Chem was handled manually, which required significant effort and time from operations and was prone to errors. In our recent turnaround at SCP-JCP 2024, the electronic waste system was tested with over 1,000 waste notifications processed without errors.

Workflow mechanism



Benefits and outcome:

- Error prevention: An electronic system reduces the risk of human errors associated with manual data entry.
- Compliance assurance: Ensures that all waste notifications comply with environmental regulations.
- Time efficiency: Saves time by eliminating the need for repetitive manual filling of waste labels and manifests.
- Record keeping: Maintains a comprehensive electronic file of all waste notifications, providing an easily accessible history of waste management activities.
- By implementing the Electronic Waste Notification System, S-Chem aims to enhance operational efficiency, improve compliance with regulatory standards, and facilitate better waste management practices.

Sustainability:

Continuous monitoring and optimization of the electronic waste system are ensured. All changes have been implemented to maintain an optimized system.

INSTALLATION OF ULTRA LOW NO_x BURNERS FOR REDUCTION OF NO_x EMISSIONS – QAFAC

QAFAC's boilers were installed and commissioned in 1999. After enforcement of Law No 30 of 2002. NOx emission limits for combustion sources (>25MW) were revised in the State of Qatar. QAFAC took initiative to bring utility package boilers (B-3201 & B-3202) limits under 125mg/Nm3. In the revised law, the Ministry of Environment & Climate Change set a regulatory limit of 125mg/Nm3 (62.5ppm), i.e. for the sources those are installed before 2002.

QAFAC engaged with an engineering consultant and technology provider for the study and subsequently implement Original Equipment Manufacturer (OEM) recommendations for reducing the NOx emissions from utility boilers. The project was executed during the 2023 turnaround by:

1. Installing, testing, and commissioning the four (two for each boiler) ultra-low NOx burners.
2. Installing, testing, and commissioning the two main (one for each boiler) and four individual (two for each boiler) fuel gas skids.
3. Installing, testing, and commissioning the Wobbe Index Analyzer for the online measurement of the varying fuel gas mixture's specific gravity, higher heating value (HHV), CARI and the Wobbe Index.
4. Replacing the old and installing the new baffles in the wind box of both boilers.
5. Logic changes in the Burner Management System (BMS) and the Boiler Master Control (BMC).

As a result of the utility boilers revamp project commissioning, both boilers are running with the mixed fuel gas (natural gas + gas from the MTBE plant), NOx values now range from 105 to 110 mg/Nm3, at a boiler load of 114 to 120 tons/hour for both boilers which is within the MoECC's allowable limit of 125 mg/Nm3 – a significant reduction in NOx emissions.

SUCCESS STORY 2023 – FARABI

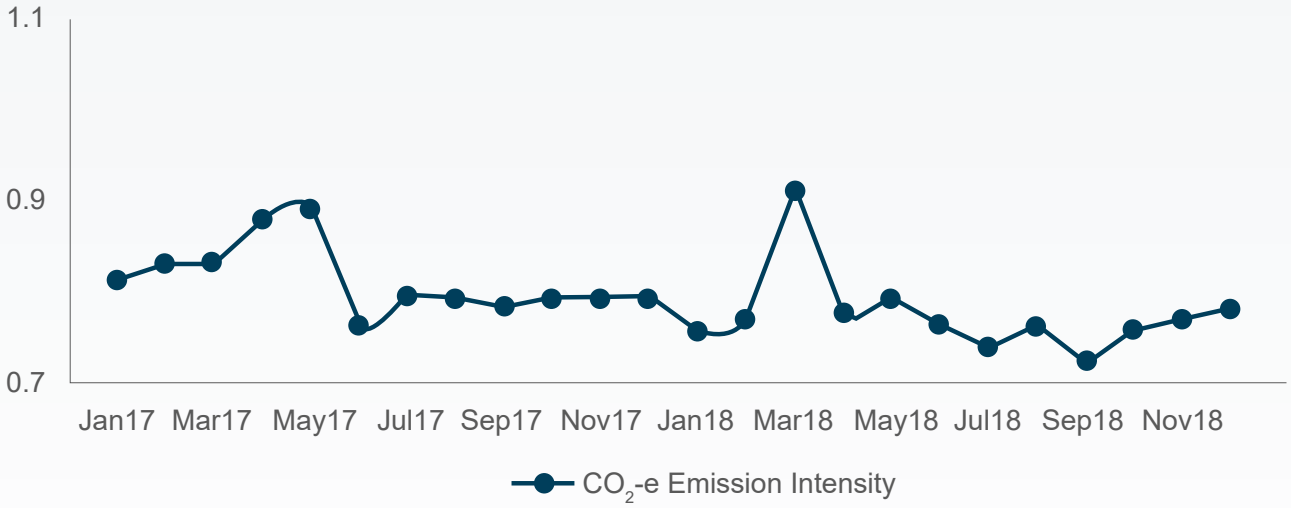
Waste oil commercialization:

The waste oil which was initially burnt is now being sold and is used in making new products. This was a core development of technical and marketing teams. Farabi did a R&D study with J-RICH for this enhancement, and it was published in all leading publications in Saudi Arabia.

At the beginning, Farabi had completed the basic engineering with M/s Sulzer and pre-qualification with SABIC for further value-added products from waste streams. This innovative thought for the year 2018 has helped Farabi convert its 50% waste oil into value added products in the following years and have successfully reduced 4,475 MT of CO_2-eq emissions.

Farabi's Jubail site waste oil that was collected and being disposed of are gone through the above treatment and recycling process after its analysis and classification; and now being completely (100%) sold as various value-added products. This innovation brings an increase in Farabi product portfolio and creates positive add-value to the company's revenue. Additionally, it reduces approximately >8,000 MT of CO_2-eq emissions annually.

CO_2 Emission Intensity VS Waste oil sales



REDUCTION OF ENVIRONMENTAL IMPACT & IMPROVEMENT OF SUSTAINABILITY PROCESS – SABIC

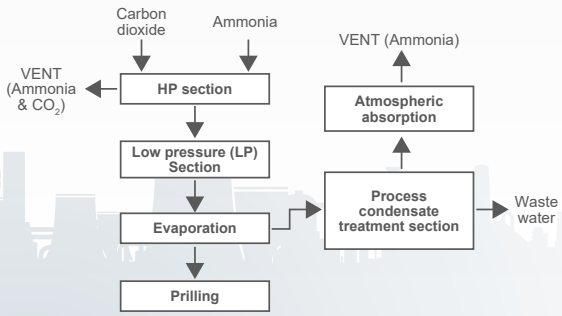
Ammonia & GHG emission reduction to atmosphere and Water Recovery Project

Background:

At the outset, the ALB Urea plant is one of the predominant and long-standing SABIC Agri-Nutrients (SABIC AN) manufacturing facilities in Al Jubail Industrial City, Kingdom of Saudi Arabia. It was integrated in April 2018 to improve excellency in achieving SABIC Agri-Nutrients Manufacturing strategies in line with SABIC Corporate strategies. ALB Urea plant was commissioned in 1983 with Stamicarbon Process Technology having significant ammonia and CO2 emissions from High Pressure Section (HP) Unit Process Operation frequently to the atmosphere along with ammonia wastewater discharge to Marafiq, a utility service provider and industrial wastewater treatment services company. In addition, this urea plant process is affecting the specific consumption factors of raw materials and associated requiring utilities. 45 M³/h ammonia wastewater with an ammonia content of ≤ 50 ppm is generated through ALB Urea Plant and discharged for treatment through Marafiq. The detailed unit process block diagram is illustrated in Figure 6-8 below.

As part of SABIC AN's commitment toward strategies, including environment and sustainability, SABIC AN conducted an assessment and sustainability study in 2013. Ammonia & GHG emission reduction to the atmosphere and Water Recovery Project was executed and commissioned in 2023 which significantly improved emission of ammonia and GHG to the atmosphere, recovery of wastewater, and the sustainability performance KPI meaningfully along with cash flow to the company.

Figure 6-8 before project



SABIC AN has committed and implemented this project with a clear objective to achieve environmental and sustainability strategies:

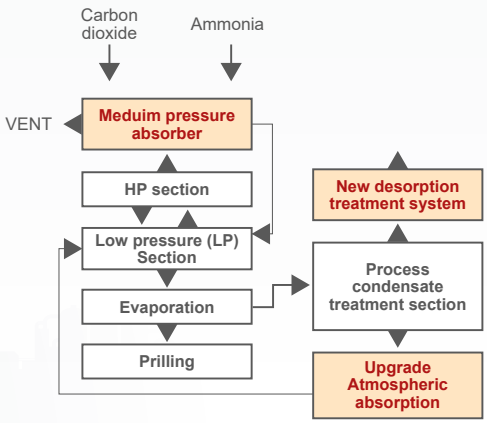
- Reduce ammonia and carbon dioxide emission from the urea plant
- Capture ammonia and carbon dioxide emissions and recycle back to process
- Improve wastewater quality and utilize it as boiler feedwater

Project execution plan:

SABIC AN Technical team was formed to conduct Engineering Study and Design. The outcomes of this study actions are executed with Best Available Technique (BAT) to recover venting gases to atmosphere and converted wastewater to boiler feedwater as part of newly introduced in this unit process. In addition, ammonia recovery absorber units are installed. The specific new desober is provided with existing unit process for recovering the wastewater to meet the RCER requirements. The detailed unit process block diagram is illustrated in Figure 6-9 below. The major modification involved in this project included as below:

- Installation of Medium Pressure (MP) Absorber
- Upgradation of Atmospheric Condenser & Absorber
- Installation of desorption treatment system to treat condensate

Figure 6-9 After Project



REDUCTION OF ENVIRONMENTAL IMPACT & IMPROVEMENT OF SUSTAINABILITY PROCESS – SABIC

Ammonia & GHG emission reduction to atmosphere and Water Recovery Project

Project benefits (realized & documented):

At the outset, the ALB Urea plant is one of the This project was implemented successfully and below are the realized benefits with respect to environment and sustainability:

1. Dramatically minimized ammonia and CO_2 venting (Recovered 25 KMT/Y CO_2 as raw material and GHG, 10 KMT/Y ammonia saving)
2. Significant minimization of wastewater generation (345 Km3/Y wastewater to boiler feed water)
3. Improved specific ammonia consumption factor 0.583 to 0.574
4. Improved CO_2 specific consumption factor 0.763 to 0.734
5. Water consumption factor 0.72 to 0.22

25 KMT/Y CO_2 saving (98%) 10 KMT/Y ammonia saving (98%) 345 Km3/Y water saving (100% from conversion of wastewater)

17.5 MSAR Annually 4.66 M$ annually

Improved specific ammonia consumption factor 0.583 to 0.574. Improved CO_2 specific consumption factor 0.763 to 0.734 Water consumption factor 0.72 to 0.22

RESOURCE UTILIZATION

Why is this important?

Chemical production processes are inherently resource-intensive, requiring significant amounts of energy, fuel, and water. Investing in process and technology improvements is crucial to reduce overall consumption, enhance energy efficiency, and optimize resource use across production operations.

Energy efficiency plays a vital role in lowering operational costs, reducing greenhouse gas emissions, and improving the environmental footprint of the industry. By upgrading equipment, implementing energy management systems, and adopting energy efficient solutions, companies can minimize energy waste and improve productivity. Technologies such as heat recovery systems, advanced catalysts, and digital monitoring tools allow for continuous optimization of energy flows, ensuring that production facilities operate at peak efficiency.

In addition to improving energy efficiency, GPCA members are also focusing on venting and flaring reduction programs, recovery of waste gases, and implementing fuel-switching initiatives. These efforts, combined with continuous monitoring, help to achieve long-term sustainability goals while maintaining high production performance.

The transition to more energy-efficient processes demonstrates the industry's commitment to Responsible Care® principles and supports the global drive toward carbon neutrality and sustainable growth.

How is the metric calculated?

Energy efficiency

Total energy consumed at GPCA member company facilities. This includes purchased non feedstock power and energy from combustion of waste or by product streams. Energy recovered from the process is not considered as consumed energy. Expressed as Tons of Fuel Oil Equivalent (TOE) which is defined as 41.868 GJ (Giga joules or 109 joules).

Specific Energy is calculated by TOE consumed per metric ton of production. Production should be counted for that portion of a corporation or company that is used to determine GPCA membership. Production includes intra-company transfers of products but excludes wastes, and recycled materials.

The following energy efficiency metrics are once again reported for the 12 months of year 2023:

- Energy Consumption (TOE)
- Specific Energy (TOE per metric ton of production)

Process water consumption

GPCA members report the consumption of millions of cubic meters of water in their manufacturing processes. This includes the total volume of water pumped, piped, or otherwise brought on-site for use in production activities and not returned to its original source. The reported water consumption reflects only the net usage, excluding any stormwater (e.g., rainwater) collected.

Efficient water management is essential to minimizing the environmental impact of industrial activities. Members are continuously working to optimize water usage by adopting advanced recycling systems, wastewater treatment technologies, and water reuse initiatives to reduce freshwater dependency.

These efforts not only help preserve valuable water resources but also align with broader sustainability goals aimed at reducing the industry's environmental footprint.

Energy consumption

The primary measure of process efficiency within member companies is total energy usage, expressed in tons of fuel oil equivalent (TOE). This metric serves as a valuable indicator of overall efficiency across production processes, providing insight into how effectively energy resources are utilized.

However, energy usage can be influenced by various factors, including fluctuating process conditions, seasonal demands, and production volumes. As a result, improvements in this metric are not always directly attributable to a single action or initiative. External variables such as equipment upgrades, process optimizations, and energy recovery efforts may collectively contribute to efficiency gains, making it challenging to isolate specific impacts.

Despite these challenges, monitoring total energy usage remains a critical component of resource management, allowing companies to benchmark performance, identify trends, and implement targeted improvements aligned with their sustainability goals.

Figure 7-1 Average TOE trend - GPCA member companies

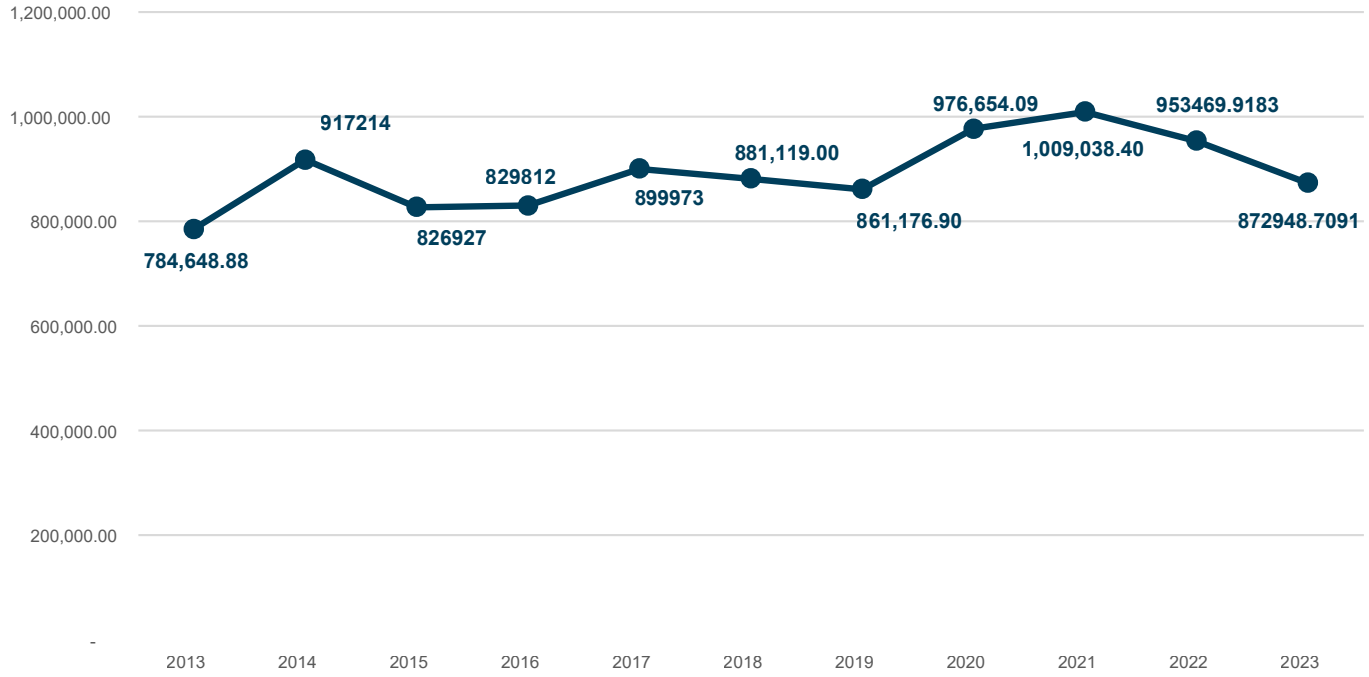
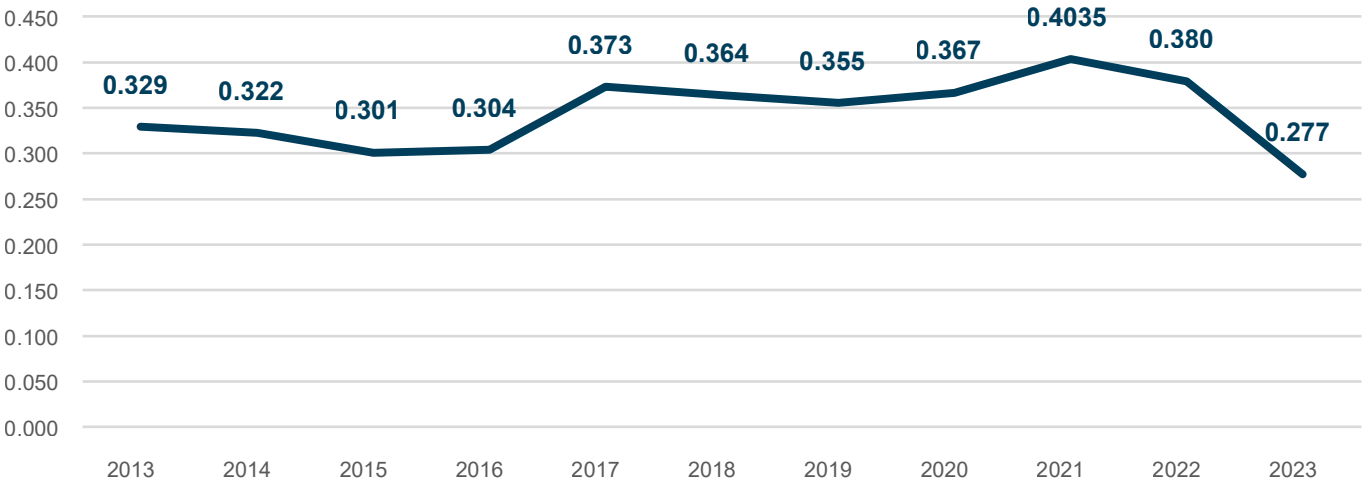


Figure 7-2: Average specific energy



The average specific energy and the total tons of fuel oil equivalent (TOE) reported in 2023 showed a 27% and 8% decrease, respectively, compared to the previous year. The reduction in specific energy consumption highlights manufacturers' ongoing commitment to improving energy efficiency and minimizing their environmental impact.

These improvements reflect the efforts of GPCA members to optimize processes, adopt advanced technologies, and implement energy-saving initiatives across their operations. By focusing on reducing energy intensity, members not only lower operational costs but also contribute to broader sustainability goals by reducing emissions and conserving natural resources.

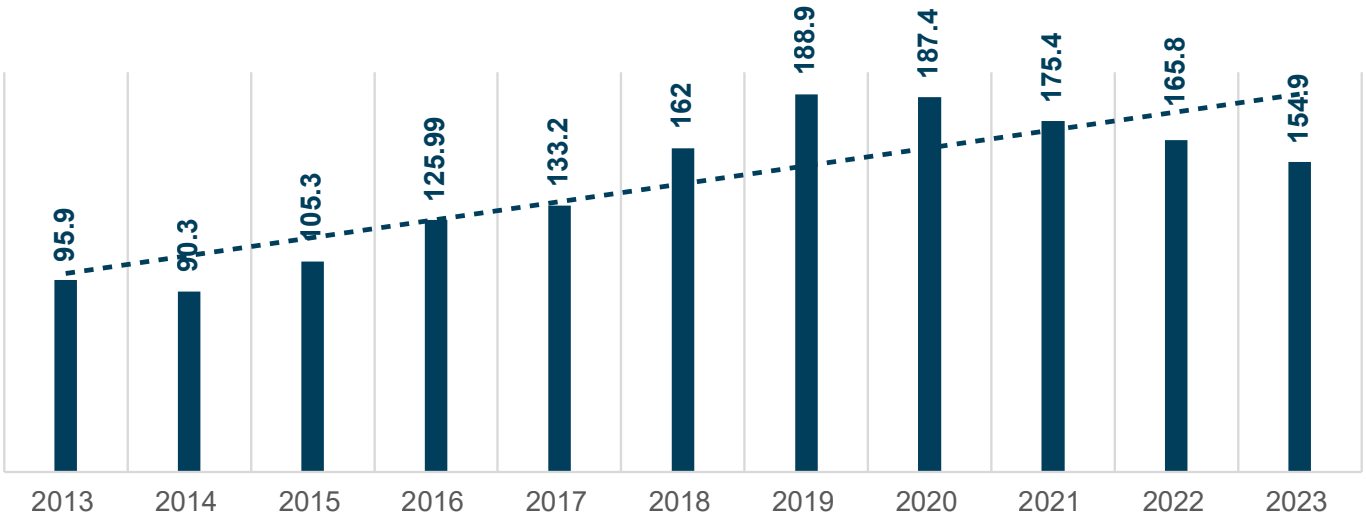
The decline in both specific energy and total fuel consumption is a testament to the industry's dedication to achieving Responsible Care® objectives and aligning production practices with global environmental standards.

Process water consumption

Efficient water use is critical to our industry, especially in the GCC, where energy-intensive processes are required to produce desalinated water for both industrial production and domestic use. Water scarcity is also a growing global concern, making responsible water management an essential priority. In 2023, production activities consumed 155 million cubic meters of water, reflecting a significant improvement from 166 million cubic meters in 2022. This reduction represents a 7% decrease in process water consumption, underscoring the industry's commitment to minimizing environmental impact and enhancing water efficiency.

GPCA members continue to adopt innovative water management strategies, including recycling, reuse, and advanced wastewater treatment, to ensure sustainable operations in water-scarce regions. These efforts contribute not only to environmental stewardship, but also align with global sustainability goals.

Figure 7-3 Process water consumption (Million m³ per year)



POSITIVE EFFECTS OF EFFECTIVE HEAT EXCHANGER MAINTENANCE – SADARA

Positive impacts of effective heat exchanger maintenance

As part of the steam generation unit (SGU) resource optimization and efficient operation, a heat exchanger in heavy fuel oil (HFO) service has been maintained during the plant turnaround. HFO viscosity and temperature are key parameters indicating exchanger efficiency.

Initially, these exchangers are venting steam to the atmosphere due to inefficient operation, mainly due to fouling of the exchanger tubes. The maintenance activity highlights the cleaning of the exchanger in a timely manner, by removing the fouling on the tubes and ensuring no leaks and damages. As a result of this initiative, steam venting has been prevented, condensate has been recovered, greenhouse gas (GHG) has been minimized and 74% less steam has been consumed to reach the optimum HFO viscosity and temperature, with similar quantities of HFO used as supplemental fuel to the boilers.

A lower HFO viscosity positively impacts the combustion of HFO, leading to lesser soot production in the boilers.

They payback period of the maintenance activity is only four days, and saving millions of Saudi Riyals annually.

Performance metric	UOM	Before	After
HFO quantity	tph	26.4	26.5
Steam input	tph	9.3	2.4
HFO temperature	°C	117.8	121
HFO viscosity	cS	25	21.5
Condensat recovery	tph	0	2.4
GHG reduction	tCO_2eq	14,546	3,754
Net operational cost savings	%	0	76%

Before
Steam venting
No condensate recovery

Cleaning
$$

After
No venting
USD 14/ton of steam

EFFICIENT STEAM UTILIZATION FOR ENVIRONMENTAL EXCELLENCE – SIPCHEM

Introduction

In its continuous exploration for environmental sustainability and operational efficiency, SIPCHEM launched a project to optimize excess low-pressure (LP) steam within its facilities. Recognizing the detrimental impact of energy wastage, this initiative aimed to redirect surplus LP steam for beneficial use, enhancing energy efficiency and reducing emissions. The project garnered strong support from Sipchem's executive leadership, ensuring the necessary resources and commitment for successful implementation.

Problem statement

Before this project, SIPCHEM's operations faced energy losses due to the condensation and venting of excess LP steam. This inefficiency contributed to higher operational costs and had negative environmental senses. Addressing this issue was critical to aligning with SIPCHEM's sustainable practices and energy conservation mission. The initiative mitigates these losses by identifying achievable applications for the surplus steam, thereby reducing energy wastage and enhancing overall operational efficiency.

Method

The project commenced with a comprehensive study conducted by SIPCHEM's Process Engineering team, identifying potential users for the excess LP steam. The proposed solution involved the following essential modifications:

- Installation of a New LP Steam Line: A 16-inch-diameter LP steam line extending approximately 700 meters was installed to connect the primary unit with a second deaerator.

- Integration of Monitoring Systems: A new flowmeter was added to the LP steam line and integrated into the utility's Distributed Control System (DCS) for enhanced monitoring and control.

These modifications were incorporated into the 2021 capital expenditure plan and executed by SIPCHEM's Projects and Engineering Services (P&ES) team. The project was successfully commissioned in April 2022.

Results

The project's implementation yielded significant results:

- **Energy savings:** The second deaerator now utilizes approximately 24-25 tons per hour (TPH) of LP steam, considerably reducing the load on the boilers and minimizing the need for steam dumping. This has resulted in around 580,000 million British thermal units (MMBTU) annual natural gas savings.

- **Cost efficiency:** The initiative demonstrated substantial financial benefits. The total project cost was SAR 5 million, with annual savings of SAR 12 million. The simple payback period was remarkably short at just five months.

Conclusion

This project's successful commissioning and operation have significantly enhanced SIPCHEM's energy efficiency and reduced our environmental footprint. The project met its objectives, and the savings were realized immediately. This initiative exemplifies SIPCHEM's commitment to sustainable practices and operational excellence, contributing to our broader environmental goals.

DISTRIBUTION

Why is this important?

The chemical industry's distribution networks, whether land, sea, or air, are its primary means of getting products to market. There are, however, risks associated with this, which have a potential EHS&S impact far beyond the boundaries of production facilities. The objective of the GPCA's Distribution Performance Metrics Code is to minimize any potential harm posed by the transportation, handling, and storage of chemicals to the public, distributors, chemical industry employees and the environment.

How is the metric calculated?

A distribution incident is defined as any event which results in:

- Death or injury
- Spill or release of product
- Property damage
- Involvement of the authorities

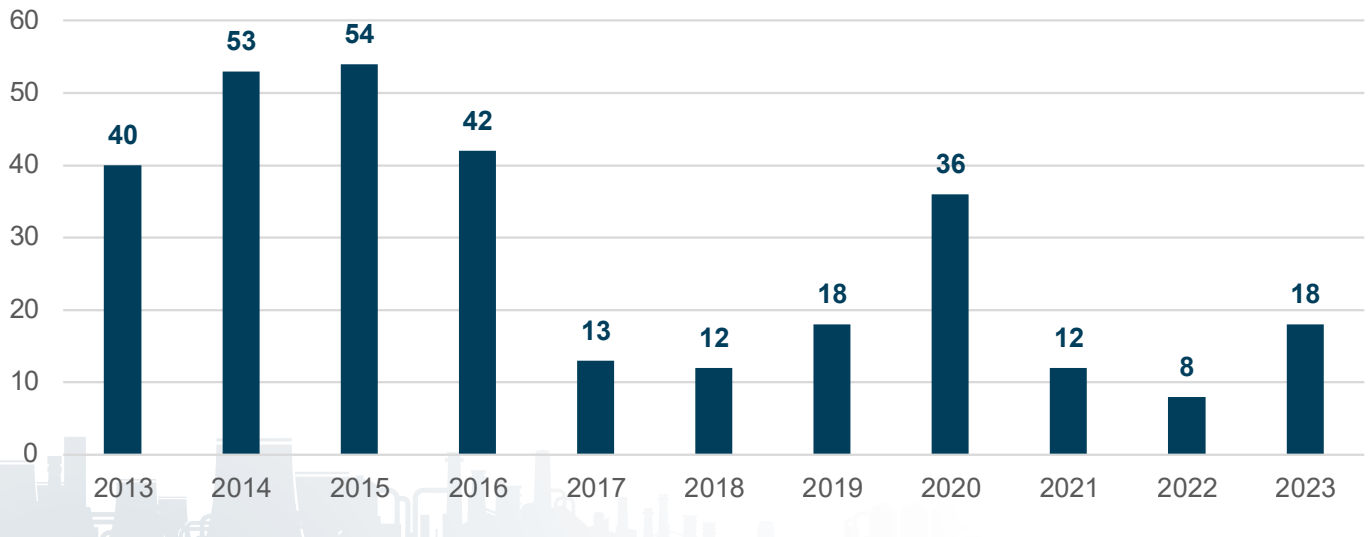
The number of incidents which meet this definition are reported. All transportation methods – rail, pipeline, road, or sea – are included in the report.

The increase in distribution incidents reported in 2023 compared to 2022 highlights an area for improvement that GPCA has proactively addressed through the promotion of comprehensive EHS&S (Environment, Health, Safety, and Security) programs. These programs emphasize enhanced employee training, thorough risk assessments, regular inspections, proactive equipment maintenance, well-defined emergency response plans, and a culture of continuous improvement. Additionally, the adoption of technological advancements for real-time monitoring and strengthened stakeholder engagement play a crucial role in fostering a safer and more responsible distribution environment. These collective efforts aim to minimize hazards, reduce risks, and prevent future incidents.

Collaboration between manufacturers and Logistics Service Providers (LSPs) is vital to ensuring the safe transportation and handling of products. As outlined in the Distribution and Product Stewardship codes of Responsible Care®, the responsibility for product management outside company premises is shared equally between manufacturers and transporters.

Within the framework of Responsible Care®, Gulf-SQAS provides a standardized tool to assess the quality, safety, security, and environmental performance of LSPs. Independent assessors use a uniform questionnaire to evaluate these systems, eliminating the need for multiple assessments by individual chemical companies. Gulf-SQAS helps companies select suitable logistics partners and collaboratively define targeted improvement actions to enhance performance.

Figure 8-1 Number of distribution incidents



The Gulf Petrochemicals and Chemicals Association (GPCA) Responsible Care® Awards are designed to honour companies and individuals that have demonstrated leadership and outstanding performance in the implementation and execution of the Responsible Care® program over a period of two years prior to the award submission. Through this award series, GPCA provides its member companies and other industry stakeholders with an opportunity to showcase their achievements in the field of Responsible Care®, while sharing best practice and adding value to their business.

The 3rd Responsible Care Excellence Awards were concluded during the 5th GPCA Responsible Care Conference from 5-7 September 2023 at the Ritz Carlton, Bahrain.

The winners per category from the Responsible Care Excellence Awards are:

Performance Metrics Category

This category award promotes committed companies to Responsible Care® in maintaining EHS&S continuous improvement with reference to the GPCA's Responsible Care Performance Metrics

Winner: **OQ**
Runner-up: **SABIC**

Process Safety Category

The submission for this category award is for the best initiative towards improving process safety performance, culture and reducing the process safety risk to prevent major process safety event

Winner: **SABIC**
Initiative: **Process Safety Competency Development Program (PSCDP)**
Runner-up: **PetroRabigh**
Initiative: **Tier 3 LOPC Dashboard**

Sustainable Environmental Protection Category

The submission for this category award is to recognize companies that have made significant contributions to environmental protection and sustainability

Winner: **SADARA**
Initiative: **Waste Heat Recovery**
Runner-up: **QAPCO**
Initiative: **Near Zero Liquid Discharge (NZLD)**

Community Awareness Category

Winner: **GPIC**
Initiative: **GPIC environment lectures and research program**
Runner-up: **Ma'aden (MWSPC)**
Initiative: **Schools of excellence**

Rising Star

The submission for this category award is dedicated to GPCA full members only. The basis for this award is to encourage a young employee (less than 30 years of age at the time of award/nomination), who has demonstrated exceptional creative performance in EHS&S

Winner: **QAPCO: Fatima Al Abdulghani**
Runner-up: **PIC: Mohammad Mnahi Almutairi**

ACKNOWLEDGEMENT

GPCA sincerely acknowledges the commitment and support of the Performance Metrics Sub-Committee for the timely and quality production of this report. The Sub-Committee is responsible for the overall coordination of the report's content and selecting the companies' success stories for inclusion in the report. Our members form the backbone of this report, and we gratefully acknowledge their effort to submit complete and accurate performance metrics data in a timely manner, which has been essential for compiling the report's findings. We also thank all members for sharing their success stories accurately and in a collaborative manner. While we cannot include them all in this report, we are grateful for every submission and encourage you to keep making strides in your journey toward Responsible Care® excellence.

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Industry OPEX Manager - Industry & Facilities
Bureau Veritas

Adel Al Harbi
Sr. Environmental Engineer
Sipchem

Maha Al Jabri
Team Lead Environment Petrochemical
OQ

LIST OF MEMBER COMPANIES FEATURED IN THIS REPORT:

39 companies (22+17 SABIC Affiliates)

IBN SINA | IBN ZAHR | UNITED | YANPET | YANSAB | PETROKEMYA | AR RAZI | SABIC AGRI-NUTRIENTS/AL BAYRONI | GAS | IBN RUSHD | KEMYA | SHARQ | SAUDI KAYAN | SABTANK | SAMAC | SPECIALTY CHEMICAL | KSTC

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The Gulf Petrochemicals and Chemicals Association (GPCA) represents the downstream hydrocarbon industry in the Arabian Gulf. Established in 2006, the association voices the common interests of more than 250 member companies from the chemical and allied industries, accounting for over 95% of chemical output in the Gulf region. The industry makes up the second largest manufacturing sector in the region, producing over USD 108 billion worth of products a year.

The association supports the region's petrochemical and chemical industry through advocacy, networking and thought leadership initiatives that help member companies to connect, to share and advance knowledge, to contribute to international dialogue, and to become prime influencers in shaping the future of the global petrochemicals industry.

Committed to providing a regional platform for stakeholders from across the industry, the GPCA manages six working committees - Plastic, Supply Chain, Fertilizers (now known as Agri-nutrients), International Trade, Research and Innovation, and Responsible Care - and organizes five world-class events each year. The association also publishes an annual report, regular newsletters and reports.

For more information, please visit **www.gpca.org.ae**

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