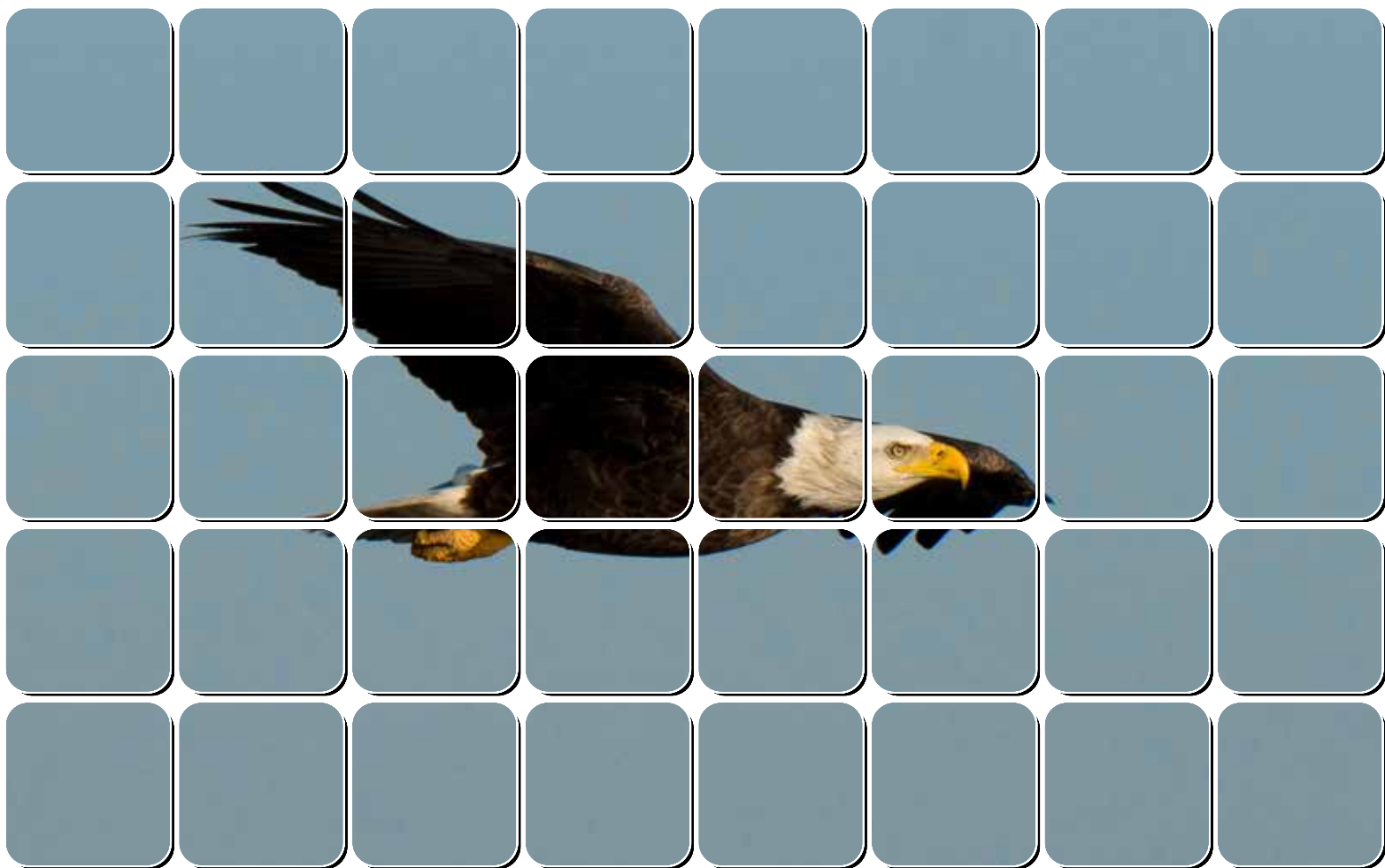


# 2012 EHS Annual Report

Quality, Value and Performance



**Formosa Plastics<sup>®</sup>**

The Reliable Source for Polymer Solutions

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### **Corporate EHS Policy**

The company is committed to the protection of our environment, the safety and health of our employees and the community.

This is accomplished through the use of clear and well-documented systems and procedures, proper training and qualification, high performance expectations, continual improvement in pollution prevention, minimization and recycling, as well as workplace hazard analysis and prevention.

Through the joint efforts of every employee, we shall maintain full compliance with all applicable environmental and safety laws and regulations, conserve natural resources, reduce wastes and keep our environment clean and our workplace free of health and safety hazards, for ourselves, for the community and for future generations.

*About the cover photo: Majestic Flight.  
Bill Harvey, an employee at our Point Comfort, Texas site, captured this amazing photograph of a bald eagle in flight over the Formosa Tejano Wetlands in early March.*

*Photo credit: Bill Harvey*



## Message from the Executive Vice President

### Our efforts are guided by our sustainable development principles:

- Embrace continual improvement in all aspects of our work.
- Respect and comply with all environmental and safety laws and regulations.
- Instill the concept of safety and health in all our activities.
- Conserve resources, prevent pollution, protect and enhance the environment wherever possible.
- Be a force of positive change in communities where we work and do business.
- Promote an engaging workplace for diverse and talented people who want to make a difference.
- Establish a connection between financial success and contributing to society.
- Learn from our experiences, listen to the ideas of others, and regularly report our progress to the public.

2012 demonstrated the benefits of our long-term investment approach by yielding strong operating and financial results that contributed to record setting returns for the company. As we look to the future, we see Formosa as having many strengths that provide us with important competitive advantages. Within each business division, we have a balanced and highly competitive portfolio of resources, projects, products and personnel. A consistent, disciplined approach to growth and development has established a foundation for us to deliver superior products in a very competitive marketplace. Underpinning our growth are standards of integrity and excellence which allows us to set high performance goals and improve our operations. In addition, Formosa constantly seeks to achieve process and raw material integration as a means to manage operational risk.

Worldwide petrochemical demand slowed in 2012 as the result of the softening global economy, but we expect demand to improve in 2013. In the coming decade, global commodity chemical demand is projected to grow by more than 50 percent, driven by improving prosperity in developing countries. This global growth, particularly in the middle class, will result in the demand for goods which contain products we produce. Formosa is well-positioned to meet this demand. Feedstock flexibility also allows us to capitalize on changing market factors, such as the availability of low-cost ethane feedstock rising from the expansion of North American unconventional natural gas. This is a critical factor in our future plans as Formosa begins construction on a third olefins unit and related downstream plants in Point Comfort, Texas.

Safety is a core value for us, one that shapes our decisions every day and at every level within our organization. We consider a commitment to safety as the most fundamental element in our business and the keystone of responsible operations.

As you read this year's EHS Annual Report, you will find many examples of Formosa's commitment to delivering superior value to our customers, and communities, as we move forward in the important task of meeting the challenges of delivering essential products to our economy in a safe, secure and environmentally responsible way.

Sincerely,

Mr. Walter Chen  
Executive Vice President,  
Formosa Plastics Corporation, U.S.A.

## **Introduction to Performance Data from the Vice President of Environment, Safety and Communications**

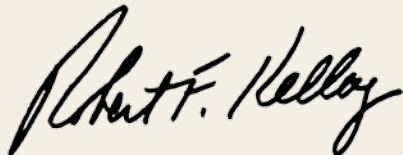
Formosa Plastics has always maintained a core belief that our business success is directly linked to the prosperity and quality of life of our local communities and employees. In this past year, we realized that changing conditions will drive the company to reevaluate our safety programs to further improve our safety record. We continue our relentless effort to reduce environmental permit non-conformances and emission release events.

While we work to support a corporate culture that ensures the safety of employees, contractors and the communities in which we operate, we always seek new ways to improve. For example, we have investigated the latest trends and best practices in the area of process safety management. In addition, we have partnered with our affiliated companies in Taiwan to review and investigate process safety methodologies. We have already incorporated lagging indicators into our company procedures, and we are set to launch new leading indicators for process safety performance measurement. One key leading process safety performance measure includes near-miss reporting as a means of identifying risks and patterns that provide insights into eliminating incidents BEFORE they occur. We plan to incorporate these leading indicators into future EHS Annual Reports to foster innovation and continual improvement in all of our safety programs, not merely our process safety program.

We have worked diligently over the past decade to build a foundation of practices and procedures that direct our efforts to protect the environment, our communities and our employees, as well as our facilities and operations. We have also established an internal system of checks and balances to verify that our practices are enforced and are effective.

To accomplish this, we regularly employ external experts and third-party registrars to audit and evaluate our management systems to internationally-accepted standards. We ensure that all incidents are investigated thoroughly and that corrective actions are implemented in an effective, timely manner. In the near future, we will implement an enterprise-wide electronic tracking and reporting system to verify corrective actions across the company.

I personally invite you to read this year's EHS Annual Report to learn more about our efforts and results. We continue to set high standards and work with our employees, communities and customers to address their expectations.



**Robert F. Kelley**  
**Vice President, Environment, Safety and Communications**

## Production and Operations

Formosa Plastics Corporation, U.S.A. is comprised of several wholly-owned subsidiaries, including three chemical manufacturing companies, which are the subject of this report. Environmental, health, and safety activities at our chemical manufacturing subsidiaries are conducted, managed, and evaluated according to corporate policies and procedures, and therefore, reported cumulatively on behalf of the corporation.

Formosa Plastics has traditionally reported only one dimension of environmental performance: the impact of manufacturing operations. This has included emissions, waste generation, the number of instances of “reportable releases” and permit exceedances. Figure 1 reflects the production levels we use to benchmark our report.

One way to measure, and compare, environmental performance is to “normalize” results relative to production, which is what we have done in parts of this report. For example, environmental performance measurements for waste generation were calculated by dividing total hazardous waste generation by the cumulative amount of products produced.

The benchmark “production” materials for this report include suspension and dispersion polyvinyl chloride (PVC), high density polyethylene (HDPE), linear low density polyethylene (LLDPE), polypropylene (PP), ethylene glycol (EG) and caustic soda.

### Terminology

Formosa Plastics Corp., U.S.A.	FPC USA
Formosa Plastics Corp., Texas	FPC TX
Formosa Plastics Corp., Louisiana	FPC LA
Formosa Plastics Corp., Delaware	FPC DE
Formosa Hydrocarbons Co., Inc.	FHC

### A Combined Report

As before, this year’s report incorporates our annual carbon footprint report. By combining these two reports, we are now able to report on all performance parameters at one time and much sooner than previously possible. Results are presented in the “Carbon Footprint Performance” section.

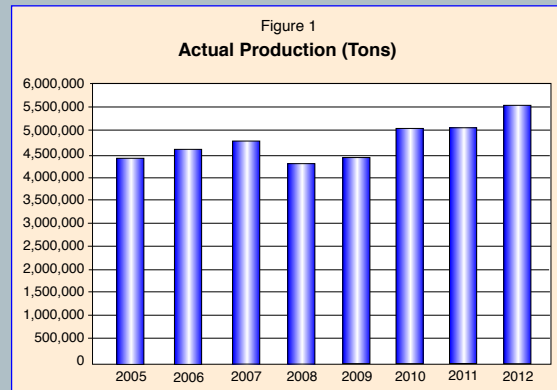
## Manufacturing Operations of Formosa Plastics Corporation, U.S.A.

**Formosa Plastics Corporation,  
Texas (FPC TX)  
Point Comfort, TX**

**Formosa Plastics Corporation,  
Louisiana (FPC LA)  
Baton Rouge, LA**

**Formosa Plastics Corporation,  
Delaware (FPC DE)  
Delaware City, DE**

**Formosa Hydrocarbons Co.,  
Inc. (FHC)  
Point Comfort, TX**



## Safety Performance

### Personnel Safety Performance

Our Recordable Injury Rate (RIR) in 2012 increased from 2011. As shown in Figure 2, our RIR was 0.99 injuries per 200,000 hours worked across the corporation. In comparison, the BLS Plastics Materials average for 2011 was 3.1 and the ACC Responsible Care average was 0.85.

The Lost Work Day Case Rate across the corporation was 0.53. See Figure 3.

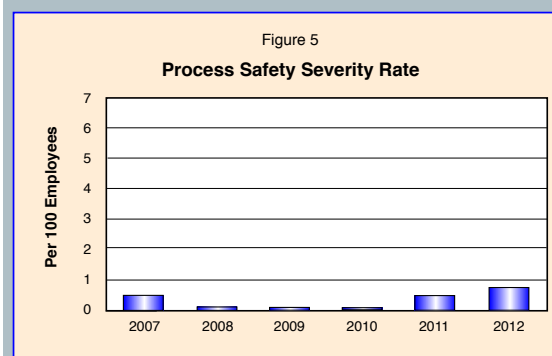
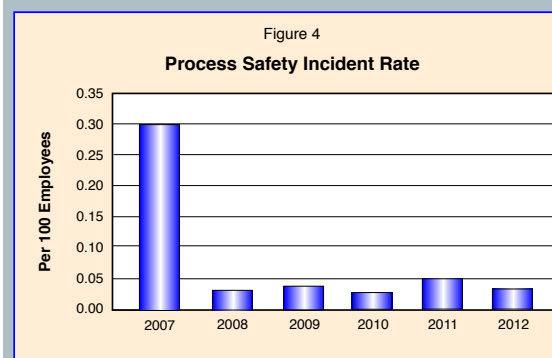
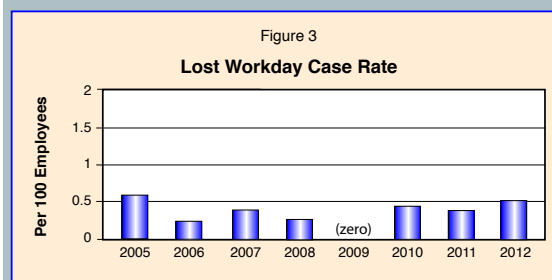
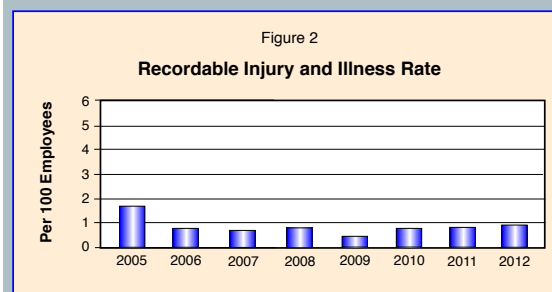
### Process Safety Performance

Process safety metrics are reported in Figures 4 and 5.

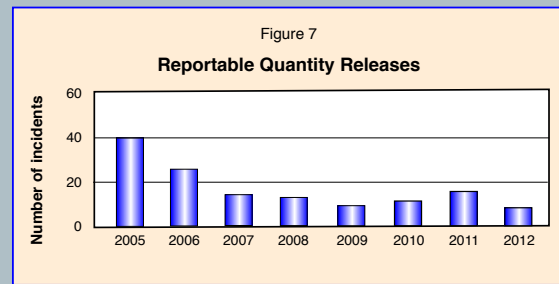
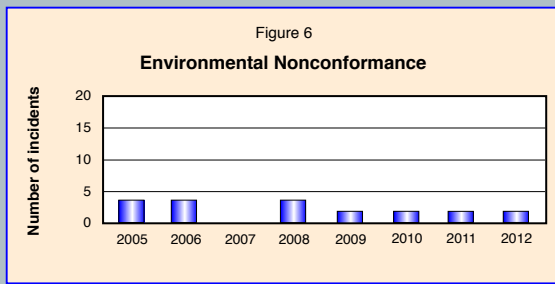
The Center for Chemical Process Safety (CCPS) has developed lagging indicators for process safety to help chemical processing companies benchmark performance using a standard set of criteria for identifying and tracking a process safety incident (PSI) and calculating process safety incident severity. A PSI event can involve a release of a process safety regulated chemical beyond primary containment, an injury, fire, explosion or monetary damage to equipment beyond a set level. Our PSI rate was 0.03 incidents per 200,000 hours worked in 2012 (Figure 4).

In contrast, the Process Safety Severity Rate takes into account the extent of the damage, release or injuries related to any PSI. Scoring for any one PSI can range from a high of 108 points to a low of 1 point. Our Severity Rate in 2012 was 0.08 per 200,000 hours worked, (Figure 5).

The charts include contractor man-hours worked for 2008 to the present.



Comparison of Injury Rates - 2012	
Formosa Plastics	0.99
U.S. Labor Statistics Avg.	3.1
NAICS 325211 Plastics Material (2011) – most recent data	
American Chemistry Council Responsible Care Companies Average (2011) – most recent data	0.85



## Environmental Performance

### Maintaining Compliance

During 2012, FPC USA reported a low number of releases and maintained a very low rate of 2 permit nonconformances. As Figure 6 indicates, Formosa continues to manage permit compliance successfully. Over the past ten years, permit nonconformance events have declined by approximately 90 percent. The nonconformance data shown in the figure are mainly related to state authorized wastewater discharge permits. This figure does not typically include individual air permit excursions, self-reported to state agencies under the Federal Air Permit program (Title V). Air permit “deviations” for example, are more often related to missing data and “downtime” for air pollution control instruments with little or no impact on the environment. The purpose of the chart is to track permit nonconformance incidents (NCRs) that involve an actual impact on the environment.

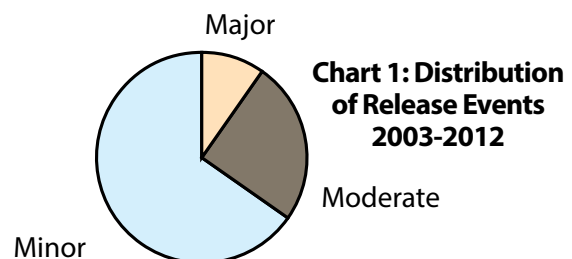
Federal regulations require certain facilities to report information to the National Response Center (NRC) immediately after the occurrence of an accidental release that is greater than a certain threshold quantity. In the event that an accidental release occurs at one of our facilities, immediate action is taken to notify the NRC, as well as state agencies, and an investigation is immediately launched. The investigation team identifies the fundamental cause of the release, determines whether the incident demonstrates a trend and recommends corrective actions to prevent the release from recurring. Release events that do not reach the “reportable quantity” (RQ) threshold are also investigated as “near miss” incidents.

As Figure 7 demonstrates, Formosa has made steady progress in reducing the overall number of reportable release events over the years. 2012 saw a decline in RQ events, even with the start-up of a major new operation.

For the past nine years, Formosa has classified all reportable release events according to a system that assigns a point value to the event, based on a number of criteria. Spills and releases are evaluated using four criteria: (1) Size of Release, (2) Type of Chemical, (3) Off-Site Impact and (4) On-Site Impact. The four scores are added to generate a total score. The total score is then compared to three alphabetical categories:

- A: > 40 points - Major Incident
- B: 30 - 40 points - Moderate Incident
- C: 0 - 25 points - Minor Incident

As shown in the chart below, the vast majority of our reportable release events over the past nine years fall into the “minor” incident category. Since 2003, Formosa has reduced the number of the most severe incidents by 80%, moderate incidents by 60% and minor incidents by 82%.



We will continue to work to drive this number lower by investigating near miss release events and determining the root cause of each incident.

## Citations and Penalties Paid

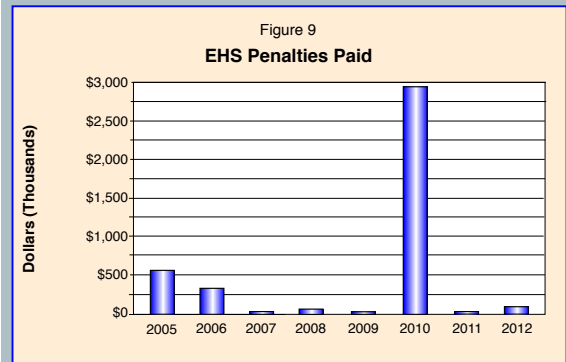
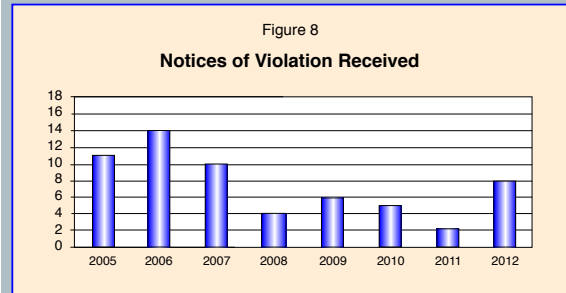
Notices of Violation (NOVs), or citations, are official documents received from state or federal regulatory agencies regarding air, water or waste regulations. A citation or NOV typically describes an allegation of non-compliance with an environmental or safety regulation.

Notices of violation, citations, warning letters, consent orders and enforcement notices are tracked by FPC USA's Corporate Environment, Safety and Communications Division and reported as part of our Environmental Management System (EMS) to ensure that every item is addressed in a timely and effective manner by senior management.

Figure 8 shows the number of NOVs received by Formosa Plastics Corporation, U.S.A. from 2005-2012. Figure 9 presents the penalties paid during the same period.

In 2012, Formosa Texas, Louisiana, and Delaware settled claims with the TCEQ, DNREC and OSHA for \$80,000.

Please note that Figure 9 identifies the penalties in the year they are actually paid by Formosa, not the year in which the violation occurred or the citation was received.





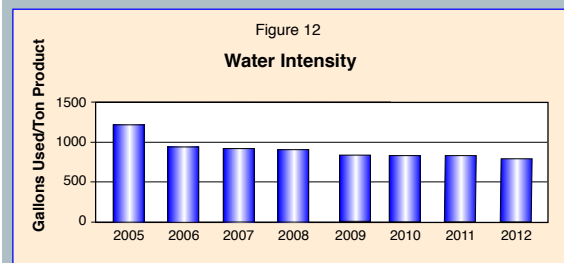
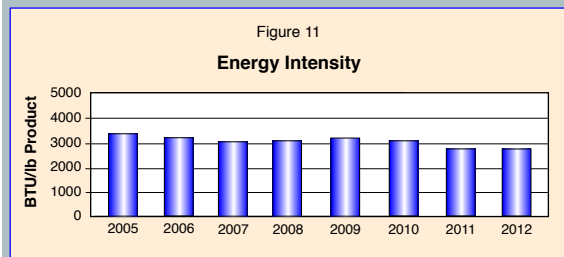
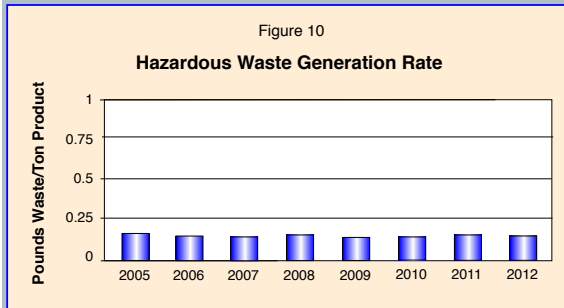
## Resource Management

Hazardous waste generation as a function of production remained near the all-time low, as shown in Figure 10. This reduction was achieved mainly by a continued effort to reclassify materials and a focused program to reuse our resources. More importantly, the company has met its long-term goal of a 95% reduction in hazardous waste generation from our 1995 baseline level.

Future efforts will focus on the remaining waste streams at our operations and new methods to reduce, reuse or recycle materials. In 2007, Formosa completed the installation and start-up of a multi-million dollar project to utilize the Catoxid® technology, a proprietary reuse technology for a major process by-product. The use of this new process enhances resource recovery and eliminates emissions associated with transporting the material.

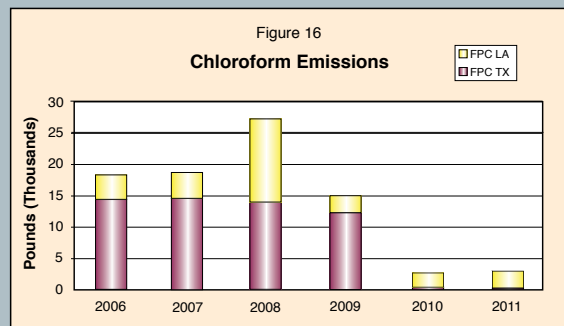
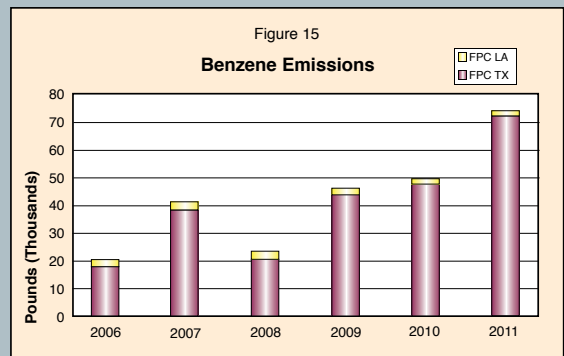
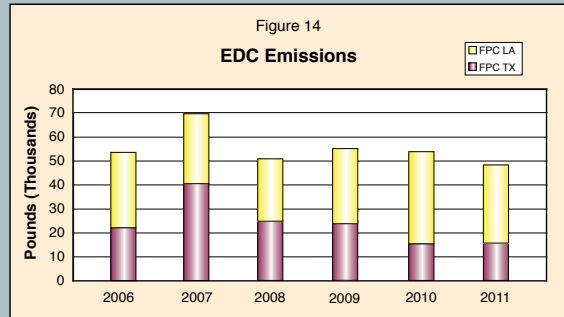
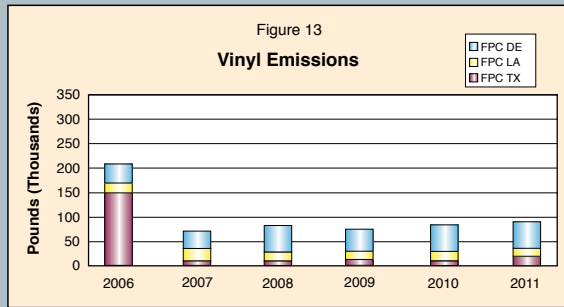
For the past several decades, energy supply and demand have been at the center of many major environmental and sustainability debates. See Figure 11. While Formosa is a major producer of energy, we are committed to demand-side management. Better energy management reduces the cost of our products, as well as the energy burden of our production processes. Formosa's operations employ modern combined-cycle co-generation plants that produce some of the lowest cost, lowest emission electricity in the region.

Our operations continue to evaluate new methods to reduce the need for water, as shown in Figure 12. One project under review includes the consolidation of concentrated brine streams that would allow for the enhanced recycling of other process wastewater.



## Air Emissions

Federal regulations require that manufacturers who use threshold quantities of listed chemicals report a variety of information to local communities and to state and federal governments. One of the most substantive means to report this information is through the annual Toxic Release Inventory (TRI).<sup>1</sup>



Total TRI Air Emissions, Pounds			
	2009	2010	2011
FPC TX	1,488,211	1,438,542	1,409,401
FPC LA	109,880	121,602	118,274
FPC DE	87,000	114,650	137,034
<b>FPC USA</b>	<b>1,685,091</b>	<b>1,674,794</b>	<b>1,664,709</b>

As shown in the table above, our total TRI air emissions in 2011 were roughly the same as in 2010. Emission data are subject to year-to-year variability, caused by factors such as production rates (higher or lower emissions), unit shutdowns (lower emissions) and startups (one-time, higher emission events).

Overall, our 2011 air emissions were within this expected variability, with some increasing and some decreasing. Vinyl emissions (Figure 13) increased slightly, with an essentially even trend since the one-time emission event in 2006. EDC emissions (Figure 14) were also essentially even, with modest year-to-year variability.

Benzene emissions (Figure 15) were higher because of new sources and additional test data. Chloroform emissions (Figure 16) continued their ongoing downward trend since 2006, disrupted by a one-time estimation calculation anomaly at our Baton Rouge site in 2008. The dramatic drop in chloroform emissions in 2010 was due to new test data and improved operational procedures/controls.

<sup>1</sup> The TRI data is typically not available for each year's report until about the middle of the following year. To accommodate this delay, we typically publish two editions of our EHS Annual Report. The first edition is published during the first quarter of each year to report on the information available at that time, including data on our environmental and safety performance and carbon footprint. It's reissued during the third quarter each year to include the previous year's TRI emission data.

## Social Performance

### Employee Turnover

Formosa offers competitive salaries and benefits that meet the changing needs of our employees.

Our annual employee turnover remains low, at about 3.3%, as shown in Figure 17. In comparison, the average for all manufacturing in 2011 was over 15%. This demonstrates our success at motivating, and retaining, a highly skilled, experienced workforce.

Factors contributing to this success include:

- Formosa incurs the full cost of health, dental, life and long-term disability insurance premiums for each eligible employee and dependents.
- Company sponsored training is available to all employees.
- Formosa offers a range of work/life benefits, such as flextime and a Life Assistance Program.

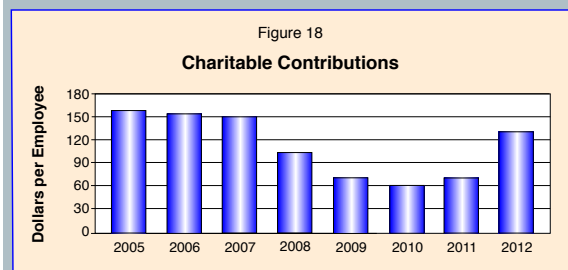
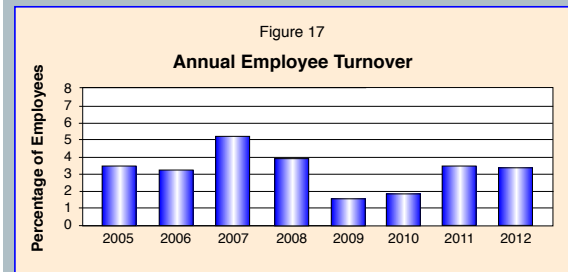
### Corporate Contributions

In 2012, as in past years, our corporate contributions focused on supporting key programs and services that improve the lives, health and education of people who live in the communities in which we operate. Figure 18 presents our results from 2005 through 2012.

The decline in corporate contributions since 2007 has been the result of several factors, including:

- A return to more normal contribution levels following substantial donations made in response to Hurricanes Ike, Rita and Katrina.
- An IRS interpretation regarding what can be categorized as a charitable contribution for tax purposes.

As shown by the rise in donations in 2012, the company and its employees were very generous in supporting relief efforts following the devastation caused by Superstorm Sandy.



## Corporate Citizenship

Formosa Plastics is proud to be a member of the communities in which we operate and is committed to making substantive contributions in each of them.

Over the past twenty years, we've worked with local organizations to improve education, health, civic growth, spiritual development and environmental protection. Donations of time and funds are only the beginning.



**Formosa Plastics supports local civic, social and educational organizations**

For example, Formosa has helped build new Habitat for Humanity homes. Employees from all over the country turn lumber into homes for hard-working families who might not otherwise achieve the dream of home ownership.

All of our sites actively support their respective communities:

### Delaware City, Delaware

- Funded scholarships for local students to pursue a college degree in math or science.
- Donated funds to continue a school's *Nature Tours* program.
- Offered in-classroom presentations to enhance students' understanding of business and technology.
- Supported local fire and police departments, Lions Club and Mayor's Ball.

### Baton Rouge, Louisiana

- Sponsored Our Lady of the Lake Children's Hospital Foundation and The United Way through company and employee donations.
- Supported the Baton Rouge Community College Process Technology program via service on its Advisory Board, classroom instruction and scholarships.
- Served on the Student Advisory Board at Southern University.

## Point Comfort, Texas

- Sponsored a sporting event that raised \$53,000 for The United Way of Calhoun and Victoria Counties.
- Partnered with Calhoun County and Victoria County school districts for field trips to the plant to encourage students to stay in school and to consider a career in industry.
- Funded a water utility project for the City of Point Comfort and a tire recycling project for the City of Seadrift.
- Provided funding for three school districts to conduct environmental education classes at the Formosa Tejano Wetlands Outdoor Classroom.
- Held four blood drives that yielded 422 units of blood. This was by far the largest contribution of any entity in the area.
- Supported annual fundraisers for the Calhoun County United Way, Habitat for Humanity and the American Cancer Society's *Relay For Life*.

## Livingston, New Jersey

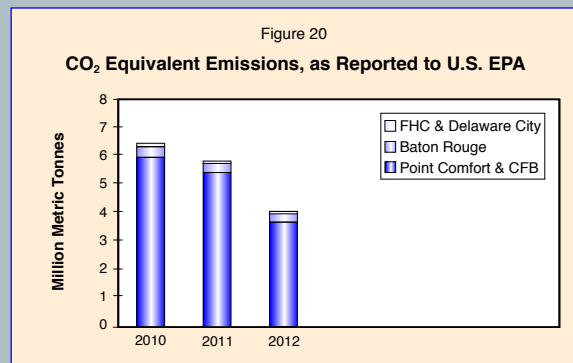
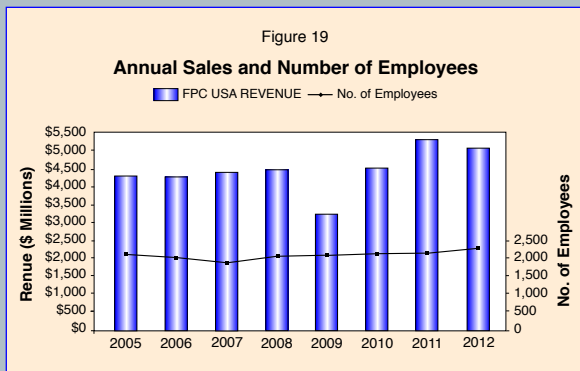
- Granted 3 National Merit® Formosa Scholarships, renewable for up to four years of full-time undergraduate study.
- Held its Annual Food Drive, resulting in donations of almost \$20,000, and 452 turkeys, to the Community Foodbank of New Jersey.
- Raised and donated over \$50,000 to fund important and timely relief efforts following the devastation caused by Superstorm Sandy.



Formosa Plastics' late founder, Y.C. Wang, established five foundation trusts to fund community programs in the Point Comfort, Texas area:

1. Formosa Environmental Trust;
2. Calhoun High School Scholarship Trust;
3. Formosa Religious Trust;
4. Memorial Medical Hospital Equipment Trust; and
5. Edna School Trust.

Each year these trusts provide about \$250,000 in grants to schools and community organizations in Calhoun and Jackson Counties.



## Economic Performance

In 2012 we had revenues of over \$5 billion, on slightly lower volume and improved profitability.

As we move forward, a key success factor of our company strategy is making sure that we are strongly positioned in the right markets to deliver growth. Part of this involves our continued expansion of exports to Latin America, where much of our new sales was generated.

In 2012, we completed and started up a caustic soda plant expansion and our new CFB utility power plant. Our Specialty PVC plant in Texas also became more fully operational.

In 2013, we will continue to invest in our plants and equipment, ensuring that Formosa has some of the most technologically advanced production capacity in the industry. Last year we announced plans for a \$2 billion olefins/polyolefins expansion.

In 2012, we demonstrated the strength of Formosa's business strategy. During 2013, you can expect that we will follow the same principles that have guided our success thus far.

We will stay focused on excellence in operations and maintain our record for financial discipline while seeking new opportunities to create value for our customers and stakeholders.

## Carbon Footprint Performance

Figure 20 presents our carbon equivalent emissions, or carbon footprint, from 2010 through 2012, as reported to the U.S. EPA.<sup>2</sup> Since 2010 our carbon footprint has shrunk by about 30%, despite increased production. These accomplishments are primarily the result of ongoing energy efficiency improvements and shifts from the use of naphtha to natural gas.

We anticipate further reductions as we make additional emission improvements to our Texas utilities and operations.

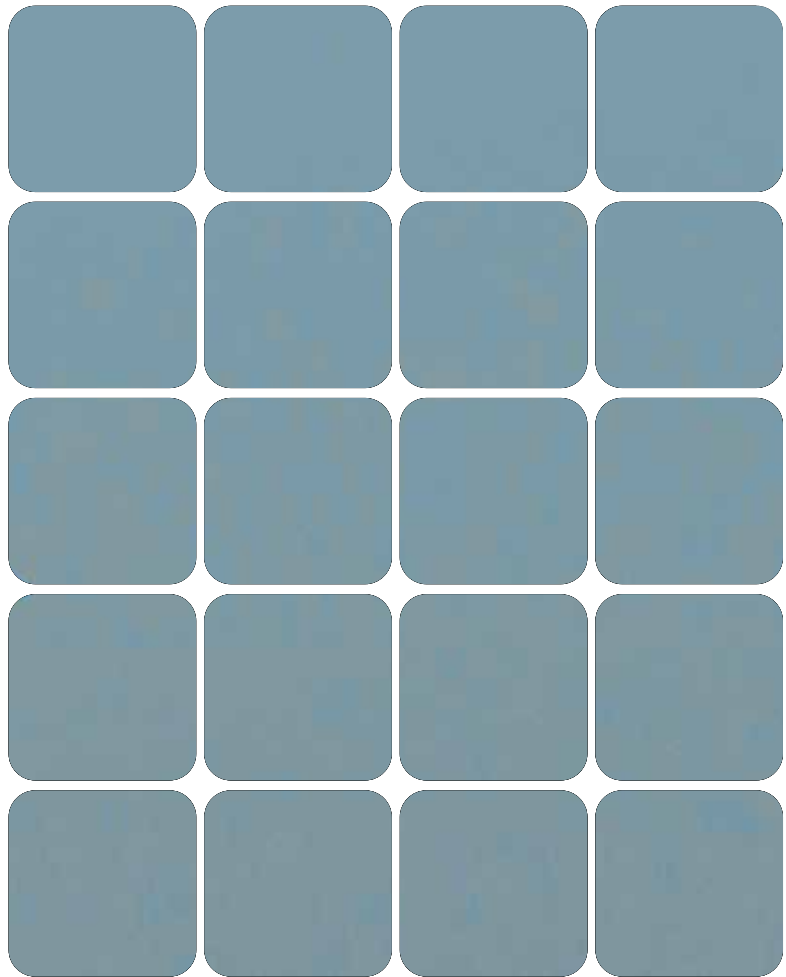
### Our Future Opportunity

Our future opportunity is how to achieve sufficient energy efficiencies to offset carbon emissions from production unit expansions that came online in late 2011 and early 2012. The modification of the CFB power/steam generation unit to operate on natural gas should aid in this effort.

The next phase of major production expansion in Texas may have a notable impact on some segments of our carbon footprint, beginning in calendar year 2016.

*April, 2013*

<sup>2</sup> Please note that GHG emissions are reported to the U.S. EPA as absolute Carbon Dioxide Equivalent (CO<sub>2</sub>e) units, rather than absolute, or normalized, Carbon Equivalent (CE) units.



The information and recommendations in this publication are, to the best of our knowledge, reliable. Suggestions concerning uses or applications are only the opinion of FORMOSA PLASTICS CORPORATION, U.S.A. and users should perform their own tests to determine the suitability of these products for their own particular purposes. However, because of numerous factors affecting results, FORMOSA PLASTICS CORPORATION, U.S.A. MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING THOSE OF MANUFACTURING AND FITNESS FOR PURPOSE, other than that the material conforms to the applicable current Standard Specifications Statements herein, therefore, should not be construed as representations or warranties. The responsibility of FORMOSA PLASTICS CORPORATION, U.S.A. for claims arising out of breach of warranty, negligence, strict liability, or otherwise is limited to the purchase price of the material. Statements concerning the use of the products or formulations described herein are not to be construed as recommending the infringement of any patent and no liability for infringement arising out of any such use is assumed.



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