



An aerial view of the Flint Hills Resources' Corpus Christi refining complex.

Flint Hills Resources: Raising the Standard for Operations, Safety, and Environmental Success

By the Hart Publications Editorial Staff

Flint Hills Resources' Corpus Christi, Texas, refining operation is working to establish a higher standard for the oil and gas refining industry by utilizing a new approach to operations. This approach involves a unique management philosophy that has enabled the company to improve its environmental, operational, and safety performance, while earning the trust and support of the community.

Raising the Bar for Efficient and Safe Operations

Flint Hills Resources, LP (FHR) is the new name for the Corpus Christi refining complex, which was known as Koch Petroleum prior to January 2002. An independent refining and chemical company headquartered in Wichita, Kansas, along with its parent company, Koch Industries, FHR owns the refinery, the pipelines leading away from its complex, and four product-terminal sites in Texas. The company has invested \$40 million in a state-of-the-art control center that directs all functions of the sprawling refinery complex.

"Our focus is on consistently working to improve our operations and performance," says Dave Robertson, president and CEO of FHR. "We hire capable people who genuinely care about their work, their company, and

their community, and we support them with the knowledge and tools they need to do a superior job."

Flint Hills Resources-Corpus Christi is a Class 6 refinery, one of the largest in the state of Texas, with 900 full-time and 300 contract employees. Its two facilities on the Corpus Christi Ship Channel have a combined processing capacity of 300,000 bpd. The company produces conventional and reformulated gasolines, jet fuels for commercial aviation, diesel fuels for the trucking industry, and a wide range of petrochemicals used to make household products.

The refinery's fuel products are transported to San Antonio, Austin, Waco, and Dallas/Fort Worth through FHR's Texas pipeline network, which provides 90% of the gasoline used in the Austin market and most of the jet fuel for the Dallas/Fort Worth International Airport. Some commodity and specialty chemical products also are produced at the complex and shipped to domestic and global markets.

The guiding principle of FHR's management is that superior environmental and safety performance is valued and expected in today's marketplace, so those companies that excel in safety ultimately will be more successful. While averaging about two million man-hours per year, the refinery

has one of the best safety records in the industry. In September 2000, the Occupational Safety and Health Administration (OSHA) awarded the Corpus Christi facility "Voluntary Protection Program Star" status. Making it the only refinery in Corpus Christi and one of only about 20 in the U.S. to achieve this safety designation.

An Environmentally Responsible Operator

FHR has focused on meeting expectations for environmental excellence, investing more than \$1 billion at the Corpus Christi facility on upgrades, including improving emissions standards and developing cleaner-burning gasoline and diesel fuels.

"Our vision for an environmentally friendly refinery is real," says Plant Manager Joe Coco. "We are demonstrating that our neighbors can feel safe and be confident that their air quality is good, even with a large petrochemical facility in their midst."

The most recent comparative statistics indicate that FHR-Corpus Christi averages 64% fewer criteria air emissions per barrel than its peer refineries, and the refinery has cut overall criteria air emissions in half since 1995. Company officials cite investment in the best available control technologies as a

key reason for this marked improvement. Technological investments that the refinery has made include installing ultra-low-NO_x burners on process heaters, implementing enhanced leak detection and repair (LDAR), installing floating- and fixed-roof tanks, and upgrading seal technology on external floating-roof tanks. FHR also has implemented additional controls for marine and truck loading, while upgrading sulfur recovery unit efficiency.

Flint Hills Resources-Corpus Christi was among the first refineries in Texas to participate in voluntary grandfathered source reduction and obtained flexible operating permits for all previously grandfathered sources prior to 2005. Last year, the company voluntarily signed a marquee agreement with the U.S. Environmental Protection Agency (EPA) that focuses on reducing NO_x and SO_x emissions.

"In 1999, we upgraded our Central Control Room, which allowed us to take advantage of the latest con-

trol technology that our industry has to offer," Coco says. "The benefits have been more reliable operations and better optimization of our processes, allowing us to be more profitable. In addition, the technology has enabled us to improve our environmental emission performance with less flaring emissions, less NO_x and SO_x emissions from fired equipment, and better sulfur plant operations."

These efforts have helped the Corpus Christi area keep its ozone attainment status with the EPA.

"Flint Hills has set an example that other refineries should emulate," says State Representative Gene Seaman, who represents Corpus Christi in the Texas House. "They are a major employer, a huge contributor to our tax base and an active participant in many important community projects. Flint Hills is a great example of a good corporate neighbor."

Clean-Fuels Initiatives

Central Texas' tremendous growth and

the resulting influx of motor vehicles in recent years has kept the region teetering on the verge of losing its ozone attainment status. Answering the calls of state and city officials, FHR spent millions of dollars to bring cleaner-burning fuels to Central Texas voluntarily and ahead of federally mandated deadlines.

In 1999, FHR—then Koch Petroleum—brought low-Reid vapor pressure (Rvp) gasoline to its Texas markets. A year later, the company introduced Performance Gold, a low-sulfur diesel fuel.

In 2001, the company fulfilled its voluntary commitment to bring lower-sulfur gasoline into Central Texas markets. With sulfur levels 50% below the industry average, the low-sulfur gasoline has had the emissions reduction effect of taking about 60,000 cars off the streets in Austin alone. This voluntary move represented a \$32 million investment by FHR, but the company has pledged to do more: another \$145 million in plant modifications and

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upgrades to achieve a 90% cut in sulfur levels in its gasoline. This investment will provide the potential capability to produce gasoline with 30-ppm sulfur content ahead of the 2005 federal deadline. It is the second largest one-time investment in the history of the refinery and the precursor to reducing sulfur in diesel fuels beginning in 2006.

In order to reduce sulfur, FHR undertook major infrastructure improvements, including revamping the refinery's existing hydrotreater to remove sulfur in the gasoil that feeds its catalytic cracking unit. FHR also constructed a new sulfur processing unit, utilizing the technology of ExxonMobil and the services of Jacobs Engineering.

According to Coco, the expedited schedule is an advantage, as it provides the opportunity to prove out the new technology and make adjustments. The schedule allows for trial runs on how to conduct blending operations and the testing of analytic techniques in a new ultra-low-sulfur environment.



Flint Hills Resources invested \$40 million in 1999 to upgrade its Corpus Christi control center.

A Contract with the Community

Beyond the refinery's operations, FHR company officials place great value on their roles in the community. The company has made a concerted effort to raise its visibility and to improve awareness and understanding of the company. The result, company officials say, is a constant, free-flowing exchange of information.

Says Coco, "We are trying to ensure against a closed-door mentality

by reaching out to our neighbors through community advisory councils, employee involvement, and tours of our facilities—by wholly integrating and investing in the community."

FHR's management emphasizes preempting situations before they become major issues. Management and employees pursue this objective aggressively, responding promptly to complaints, meeting regularly with state, county, city, and regulatory officials, and attending regular meetings of numerous local organizations. The company sees it as a process that enables it to stay aware of community interests and objectives and to disseminate timely information about developments and plans at the refinery.

From all indications, their dedication is paying off. Recent industry polling data identified Flint Hills as an industry leader among refineries in the Corpus Christi area in terms of community involvement. "Flint Hills does an outstanding job of soliciting feedback from the community," says Corpus Christi Councilman Mark Scott. "We don't have to ask for information—they let the Council know in advance what they are planning and invite our input before moving forward. They make us part of the decision process."

One of the refinery's most active conduits of community feedback is the Flint Hills Resources Community Advisory Council, which meets monthly with company representatives to identify key issues, enhance mutual understanding, and resolve differences. The advisory council is a microcosm of the Corpus Christi community and its diverse range of interests and concerns. Members include small business owners, environmentalists, schoolteachers, police officers, homemakers, clergy, neighborhood leaders, students, and individuals from virtually every other regional stratum. The company also sponsors

another advisory council in concert with Citgo and Valero that addresses a variety of health, safety, and environmental issues at its west and east plants.

The advisory councils have been effective in providing information and answering questions on a variety of issues, which has helped avoid unnecessary concern about the refinery and its operations. For example when community concern arose about air monitors operated by the Texas Natural Resources Conservation Commission near the refinery, advisory council members proved to be effective in educating the public about how to interpret the data from the monitors to evaluate the impact on air quality and health.

FHR's community involvement philosophy and its reputation were put to the test two years ago, when the company faced a high-profile federal case for environmental violations at the Corpus Christi refinery. As part of the resolution of the case, the company agreed to plead to a single charge, concealment of information over a three-month period in 1995.

"Both the company and our employees feel good about the way we handled ourselves throughout all phases of the case," says Coco. "We were forthright in our dealings with the government and the community. As with all difficult experiences, we learned some valuable lessons—lessons that we have used to improve our operations and our ongoing dialogue with our neighbors."

Market-Based Management—A Key to Flint Hills' Success

FHR's company officials say that Market-Based Management (MBM) is a key and common element in helping the facility achieve its safety, environmental, and community relations successes. MBM is a management philosophy developed by Koch Industries. A wide range of business publications, including *Forbes* magazine and *The Wall Street Journal*, have profiled this unique management approach, which empowers employees, encourages them to think like owners, and stands in stark contrast to the command-and-control management style that marked much of the 20th century.

"There are five key dimensions to MBM: vision, values, incentives, decision rights, and knowledge systems," says Robertson. "Each one of those—along with a clearly defined set of business principles—is critical to understanding what our customers and stakeholders value and how we can deliver on those expectations in the most responsible, cost-effective manner."

All Flint Hills Resources employees participate in workshops that train them in the principles and concepts of MBM. These classes are directed by a team of employees from Koch Industries.

"MBM is about meeting market demands and creating value," says Coco. "There's value in a cleaner environment, there's value in a safer workplace, and there's value in being integrated into a community more completely. We've come a long way, but we view this as an ongoing process of continuous improvement."

Looking Toward the Future

FHR's management is optimistic about

what the future holds for the company and the refinery. Perhaps the most significant challenge facing the company, according to Coco, is preparing to meet the federal guidelines for producing cleaner-burning fuels in 2004 and 2006. "FHR-Corpus Christi does not have some of the hardware and feedstock advantages that some of our competitors enjoy," he says. "We have to be better at operating the assets that we have on the ground today by producing products at a lower cost and achieving higher asset utilization with improved reliability. These assets are more organizational- or people-driven than capital- or investment-driven; therefore, it becomes more challenging for the plant's leadership and employees to achieve."

The company also faces the ongoing challenge of maintaining a positive continuing education process with the community. "The community wants to become more knowledgeable and aware of environmental, health, and safety issues and the refinery's effects on their quality of life," says Coco. "The

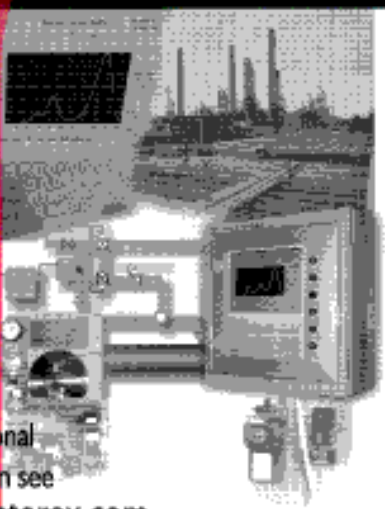
challenge is in determining how to share knowledge and measure results in order to ensure that the public's confidence is driven by measurable performance. We are committed to working in tandem with our neighbors and to maintaining a high level of community confidence."

FHR officials unanimously agree that the refinery's future is brighter today than perhaps at any previous time in the company's history. FHR-Corpus Christi has garnered great achievements operationally, and its people have acquired an important understanding of what being successful really means.

"The old industry model did not look beyond the fence line or the bottom line," says Coco. "The new model takes profits into consideration, but it also involves how your stakeholders feel about you—your shareholders and regulators, certainly, but also your employees, your customers and your neighbors. You want them to feel good about you." ●

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