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Photos available

Flint Hills Resources Begins Construction on Major Technology Upgrade Project

Once construction is complete, the plant will produce a high protein animal feed ingredient.

Fairmont, Nebraska – Construction is now underway at the Flint Hills Resources ethanol plant in Fairmont, Nebraska to install a new, bolt-on technology, called *Maximized Stillage Co-Products™* (MSC). Once operational, the MSC technology will allow the plant to produce a high protein animal and fish feed ingredient from a portion of its distiller grains, a coproduct of ethanol manufacturing.

The \$50 million project is one of the largest investments in co-product upgrading technologies ever made by a dry mill ethanol manufacturer. Significant construction is required to install the MSC technology including the addition of a new building and two protein dryers. Construction is expected to last about 12 months and create about 120 construction jobs. The plant will remain in operation during construction.

“We are excited to begin construction to install the MSC technology,” said Kevin Karasiuk, plant manager at Flint Hills Resources Fairmont. “MSC is an innovative, bolt-on technology that we believe will help us extract more value out of every kernel of corn we process.”

The Flint Hills Resources Fairmont plant buys 44 million bushels of corn annually to produce 125 million gallons of ethanol, 320,000 tons of distillers grains and more than 26 million pounds of distillers corn oil. The plant employs about 50 people.

Innovative Technology

Fluid Quip Process Technologies (FQPT) developed the patented MSC technology exclusively for dry mill ethanol plants. The technology uses a series of mechanical processes to separate protein from the solids leftover after ethanol distillation. Centrifuges are used to isolate protein molecules from residual fiber and carbohydrates. Once the protein is isolated, it is sent to a protein dryer where it is dried into a high-quality meal.

“FQPT leveraged its years of experience in the corn wet milling and ethanol industries to develop the MSC technology as an innovative solution for dry mill manufacturers,” said Neal Jakel, vice president of strategy and technology at Fluid Quip Process Technologies. “The MSC technology raises the value of the ethanol producer’s coproducts and helps them diversify their revenue stream by entering new and proven, yet quickly growing markets worldwide. Additionally, Flint Hills Resources’ Fairmont plant will be the fourth commercial scale MSC system in operation when it comes on-line in the second half of 2018.”

Nutritious and Cost-effective Feed Ingredient Alternative

The new, high protein feed ingredient produced using the MSC technology is a combination of corn gluten (protein) and spent yeast and will contain close to 50 percent protein as well as an improved amino acid profile compared to traditional corn gluten meal. The product will be known as *NexPro*TM protein ingredient, and Flint Hills Resources plans to market it to the aquaculture, pet food, swine and poultry industries as a quality and cost-effective feed ingredient option.

“*NexPro* is a high-quality protein feed ingredient that can help meet the rising demand for protein in feed rations around the world,” said Derek Balk, marketing and business manager at Flint Hills Resources. “Industries such as aquaculture, poultry and swine are looking for alternative sources of protein to supplement the diets of fish, pigs and birds. *NexPro* provides producers with a high-quality, cost-effective alternative to traditional high protein feed ingredients.”

The cost to produce *NexPro* at the Fairmont dry mill ethanol facility will be lower than the cost to produce similar feed ingredients at corn wet milling plants. *NexPro* will have a comparable shelf life to corn gluten meal and soybean meal and can be stored in silos or distributed through various transportation modes including bulk packaging and containers for export.

In addition to its high protein content, *NexPro* is expected to have about 3.5 percent crude fiber, 4.5 percent fat and 1.1 percent phosphorus. The feed also contains yeast leftover from the ethanol fermentation process. The remaining yeast contains elevated levels of lysine – an important amino acid essential for growth in animals – giving the product more total lysine than traditional corn gluten meal.

Flint Hills Resources and Fluid Quip Process Technologies have conducted over fifteen *NexPro* feed studies with well-respected university researchers to demonstrate value in tilapia, trout, shrimp, dairy, pet food, swine and poultry. The results of these studies have shown *NexPro* to be an excellent source of nutrients in the diets of these animals.

About Fluid Quip Process Technologies

Fluid Quip Process Technologies® was founded on the extensive experience and knowhow within the corn wet milling, ethanol and related Ag production industries. FQPT’s engineering and technical leadership team have been developing and implementing new technologies and process solutions applicable to the biofuels and biochemical markets for more than 30 years. FQPT has commercialized multiple patented and patent-pending technologies to enhance the base corn-to-ethanol dry grind process, create new and novel alternative co-products and supply the growing need for carbohydrate feed stocks into the biochemical market.

Fluid Quip Process Technologies is headquartered in Springfield, Ohio and has offices in Cedar Rapids, Iowa. FQPT has provided technologies for over 1.3 billion gallons per year of biofuels production. FQPT provides fully integrated custom technologies solutions and services to dry-grind ethanol and biochemical facilities which include process optimization evaluations, yield improvement technologies, new co-product technologies, and turn-key capital project solutions.

About Flint Hills Resources, LLC

Flint Hills Resources, LLC, through its subsidiaries, is a leading refining, chemicals and biofuels company with operations primarily in the Midwest and Texas. Its manufacturing capability is built upon six decades of refining experience, and the company has expanded its operations through capital projects and acquisitions worth more than \$13 billion since 2002. Flint Hills Resources’ subsidiaries produce and

market gasoline, diesel, jet fuel, asphalt, ethanol, biodiesel, olefins, polymers, intermediate chemicals, as well as base oils, corn oil and dried distillers grain.

Flint Hills Resources operates ethanol plants in Arthur, Fairbank, Iowa Falls, Menlo and Shell Rock, Iowa, Fairmont, Nebraska, and Camilla, Georgia. The plants have a combined annual capacity of 850 million gallons of ethanol.

The refining business operates refineries in Minnesota (Rosemount) and Texas (Corpus Christi), with a combined crude oil processing capacity of more than 600,000 barrels per day. The petrochemical business includes production facilities in Illinois and Texas. The asphalt business produces and markets product in the Midwest. A subsidiary owns an interest in a lubricants base oil facility in Louisiana.

The company is based in Wichita, Kansas, and its 4,000 employees strive to create value for customers and society. More information about the company is available at FHR.com.

*NexPro*TM is a trademark in the United States owned by Flint Hills Resources, LP and may be registered in other jurisdictions.

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