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CryoGas International Interviews nexAir

Memphis-based nexAir (www.nexair.com) has been a leader in the distribution of atmospheric gases and welding supplies since its founding in 1940. A family-owned and operated business now being led by a third generation, nexAir is one of the largest distributors of industrial, medical, and specialty gases in the Southeast with 20 locations and 249 employees across six states. In April 2010, nexAir completed a \$1.2 million addition of a new state-of-the-art hydrogen fill plant at its McLean Boulevard cylinder fill and distribution facility in Memphis, TN. The 18-month project resulted in a custom-designed and fully computerized hydrogen filling system that is the only one of its kind within a 250-mile radius.

CryoGas International had the opportunity to speak with nexAir's President Bill Proctor, Vice President of Plant Operations Chuck Britton, and Plant Engineer Troy Goode, about the new hydrogen facility and what this means for nexAir.

CryoGas International (CryoGas): Congratulations on the completion of this project. Can you tell us why nexAir decided on the addition of the new hydrogen filling plant?

Bill Proctor (Proctor): Thank you. We began discussing the addition of a gas hydrogen filling plant at our McLean location two years ago. The idea grew out of our need to streamline our hydrogen gas operations. Prior to opening the new plant, we were buying tube trailer hydrogen in Chattanooga and hauling it to nexAir hydrogen customers in Memphis and the surrounding area. That distribution model resulted in significant transportation costs, restricting our ability to properly service our customers and limiting the expansion of the gaseous hydrogen business in the markets we serve. We made a \$1.2 million dollar investment in response to these needs. In the first few months of operation, we have benefited from a significant reduction in distribution costs, picked up new business, and believe we are well positioned for future growth.



nexAir's new hydrogen fill plant in Memphis, TN

CryoGas: What were the first steps to making the new hydrogen fill plant a reality?

Chuck Britton (Britton): Before we began to design, we did quite a bit of research to make sure that adding a new plant would be an economically sound decision. Then we looked into how best to configure the whole hydrogen operation. We visited two different hydrogen fill plants to look at their designs before deciding on a liquid hydrogen-to-high-pressure gas fill facility. Troy drew the concept plan and sent it to Weldco (www.weldco.com), so they could design the piping and offer their input on how to make the new facility perform well. Once we had the design in place and approval from nexAir's Board and senior management, we moved to the construction phase.

CryoGas: In addition to Weldco, what other partners helped in completion of the plant?

Britton: We were fortunate to work with a number of contractors, architects, and key partners. We purchased a 9,000 gallon liquid hydrogen tank from Praxair (www.praxair.com), nexAir's primary gas supplier and partner. Praxair now supplies the liquid hydrogen to the new plant. We also were fortunate to work with Memphis-based LCI Construction Co. Inc., a company already very familiar with our business from previous projects, and one that had experience working on flammable gas projects.

Troy Goode (Goode): In addition, we partnered with Cryostar (www.cryostar.com), which provided a prototype high-pressure liquid hydrogen pump. We are one of the first users of this pump, which features a low NPSH (net positive suction head) for higher fill reliability and efficiency. We were

impressed with the pump's performance, which so far has proven to be an excellent choice for nexAir.

CryoGas: It sounds like quite an impressive system. How will your new hydrogen plant help nexAir to better service its customers and grow its hydrogen business?

Proctor: Primarily, we are increasing supply in response to rising demand in our region. As the only hydrogen fill plant within a 250-mile radius of Memphis, we now offer current customers immediate and efficient access to hydrogen. The new facility also allows us to service new customers with high purity hydrogen requirements and has enabled us to expand our hydrogen business with other independent distributors by supplying their cylinder gas and tube trailer requirements. In addition, we are now well-positioned to support the spot requirements of end-user customers and the major industrial gas companies that need hydrogen tube trailers filled in our area.

CryoGas: So what are nexAir's strongest markets for hydrogen?

Proctor: Hydrogen is used in power generation, metals processing, semiconductor manufacturing, and high purity laboratory applications. Our company enjoys business in all these market segments with excellent potential for growth. As the only company within a 250-mile radius of Memphis with hydrogen gas pumping capability, nexAir has reduced its distribution cost position. This allows us to pursue more demanding gaseous hydrogen opportunities within this radius and beyond. Therefore, we are seeing significant opportunities for nexAir to grow its hydrogen business.

CryoGas: Over the next five years you expect nexAir's hydrogen to grow?

Proctor: nexAir is very intentional about its growth strategies. Our primary focus over the next five years is to grow our gas business in all segments. We have identified the potential customers and strong position to support them as existing customers.

CryoGas: Troy, you were the one behind the plant's most important design. Can you tell me a little about the plant's design?

Goode: Our plant consists of a filling area and tank, cryogenic pressure hydrogen vaporizer, two high-pressure piping and control systems, and numerous control systems, and cryogenic manifolds. The bulk of the interior piping and control systems was installed by Weldco. To handle and conserve hydrogen we also installed a recovery system, which includes a hydrogen compressor, and group tubes. The storage system provides safety and some extra high-pressure to handle peak requirements. These items were also a very important part of the design/build of the facility.

CryoGas: What makes nexAir's plant stand out when compared to other similar plants?

Goode: Our plant has the high level of design/build for a plant of its type.



nexAir's new

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