

Composite Repair Systems for Piping Defects



Genevieve Withers- CEO

Pipe Wrap, Inc. manufactures and designs premier, cost effective innovative composite repair systems for piping related defects associated with the hydrocarbon production and processing industries. Currently, the company offers 12 composite repair systems that structurally reinforce, insulate, mitigate corrosion, stop leaks and/or rebuild pipe and other load carrying structures to original capacity for offshore and sub-sea applications, liquid and natural gas distribution, high pressure natural gas and liquid transmission and petrochemical markets.

Pipe Wrap's experienced Mechanical and Material Engineers restore piping using composite technology in accordance with ASME, ISO and ASTM standards. If Pipe Wrap can't design a solution for you, your solution lies outside the world of composites. Have a specific problem in mind? Explore Pipe Wrap products further!

Interview conducted by: Lynn Fosse, Senior Editor, CEOCFO Magazine

CEOCFO: Ms. Withers, what is Pipe Wrap?

Ms. Withers: Pipe Wrap is a company that manufactures composite repair systems that structurally restore pipeline in the United States and abroad. Customers can restore the structural integrity of pipes, columns, fittings, pilings, tanks, risers, or just about anything you can wrap around.

CEOCFO: Would you tell me a little bit about the overall industry?

Ms. Withers: The overall composite pipe repair industry has been around for about 20 years but aerospace has been aware of composites for probably 50 years. Historically aerospace composites were designed to make things lighter and easier to build and manufacture. In the aerospace industry, you have airplanes that are made with composites. They are just as strong as steel, but they are lighter than the steel so you get more fuel efficiency. In pipeline repair, our main competitor is steel, so we are replacing steel reinforcements with composite, and that is a great advantage for the pipeline owners and operators because our products are lighter, more efficient to use, and they cost less in the end after you put them on. We are trying to introduce composites into an industry that is steadily becoming more aware of the attributes and good things that composites can do for reinforcing pipelines. Composites still mystify some in the pipeline industry. Many decision makers still feel more comfortable welding steel sleeves and/or cutting out and replacing the pipes with newer steel pipe. One of the things Pipe Wrap takes seriously is promoting and educating the use of composites to the pipeline industry.

CEOCFO: When you are speaking with a potential customer, is there an aha moment when they understand; what is the process to get them to consider what you do?

Ms. Withers: When we go to a customer, usually the aha moment is when they see our testing certifications. In this pipeline repair industry, composite repair is relatively a new repair method, so the standards for a composite repair have been written only in the last 10 years. Those ASME / PCC-2 standards help customers be assured that the composite repair systems they are buying from Pipe Wrap are up to industry standards. At Pipe Wrap we design everything to the ASME PCC-2 standard. When customers see our certifications and the amount of testing that we have done to prove that we design to those American Society of Mechanical Engineers (ASME) certifications, that is their aha moment. When a customer understands that we understand how to design a composite repair. There are different things that pipelines encounter – different operating conditions, different environmental temperatures, different environmental soil conditions, so they could be in swamps or in the desert. Some pipelines are up above in a refinery 20 feet in the air running at 500 degrees. Some are in the Alaskan territory where it is very, very cold. There are so many different environments. You have to make sure that your composite pipeline repair is designed specifically to address the environment in which it is going to be applied. At Pipe Wrap, we have worked hard to make sure that the composite systems that we offer our customers are systems that we can stand behind.

CEOCFO: A company would contact you, you would figure out what they need, send the product and they would do the actual repair?

Ms. Withers: It is pretty much like that but a little bit more detailed. What they would do is they would contact us and tell us their problem. We will ask them a variety of questions that we need to be able to design the repair. We then design the repair and send them the design and they either approve it or do something else, and if they approve it, then we have to make sure that the buyer is trained on how to use the product because we are not a service corporation. Many people that we sell to are people that are in the service construction side of the industry so they are already trained. They continuously get trained on a yearly basis with the composite product, so they know how to use them to put them on the pipe. You cannot really just send the designed kit to an end user without that end user knowing how to put it onto the pipe. How to put it on is just as important as what you put on.

“We really believe that in helping the environment and the economy by using safe products to restore infrastructures is better than replacing them. If we can reduce wastes and costs by restoring community assets, then we have made a great contribution to society and that is one of the things that keeps us going.” - Genevieve Withers

CEOCFO: What is the urgency factor? Would a company discover a flaw in the pipe and get to it quickly enough so nothing is leaking out while you figure out what to do?

Ms. Withers: That is a very good question. That is a question that Congress helped answer in 2002 when they passed the Pipeline Safety Improvement Act. In 2002 Congress signed a federal regulation that required every owner of gas transmission pipeline and hazardous liquid pipeline in the United States of America to check every 5 years that their pipeline has integrity. This law was one of the drivers that Pipe Wrap had back in 2002 to get on the ball to start developing composite repair that would restore pipe areas that they find that are damaged. Sometimes there is external or internal corrosion, dents, gauges, third-party damage; these are things that must be kept up with through federal law. In the past, owners were not required to actively manage the health of their pipeline every 5 years. Now new technologies check the pipe internally to see if it has any lost integrity or metal wall thickness. Once they identify where those problem areas are, they go out and dig up. They identify where the problem is, make sure that there is a problem that they can fix, and then they choose a way to fix it. Most of the time they weld sleeves onto the pipeline, but that is timely and costly. Our challenge here at Pipe Wrap is to get our product systems available and aware to the pipeline industry so that they understand, “Oh, we have an alternate to cutting it out or welding a sleeve on it,” that they can trust and stand behind. The permanency of the repair is paramount in this industry. We turned to the government to help us develop a composite that would directly address the permanency of the repair issue to help differentiate our products from the competition. The US government in turn has been very good to us. We were able to receive a National Science Foundation grant from the Small Business Innovation Research (SBIR) that has enabled Pipe Wrap to do some research and development in improving the composites that we sell using advanced nano-technology. We have been able to prove with the government funds many interesting findings, one of which is elevated temperature resistance and extended durability. We have been able to prove that we can get improved fatigue resistance of the composite material. These are things that Pipe Wrap Inc. is very excited about and if it were not for our government funding the National Science Foundation Pipe Wrap would not have been able to do that research work. When people like to bash big government, sometimes it gets me sad to think they do not realize how important it is to have an entity that is large enough to protect and provide small business like ours with avenues to success. I am proud that our government was there for us and we were able to get those grant monies.

CEOCFO: Are there areas of the world that are more receptive than others? Are there areas where you would like to or see the opportunity for greater attention?

Ms. Withers: I have always thought that the eastern bloc countries would be a wonderful area to present our composite solutions, but it is very difficult to get in there because of language and the different countries within Russia and the eastern bloc. We look forward to the days that we get large enough to start springing into those areas, but in the meantime the areas that we are well received in overseas would be the Middle East. We were well received in Canada and we are making inroads into Mexico. Just imagine, there are more pipelines in Russia than there are in any country, including the United States, and they are probably in dire need of composite wrap systems because they were put down in the ground for longer miles and in rougher environments than other parts of the world. They are probably pretty corroded right now, and we sure would like to get in there and help fix some of those pipelines, but that is a process that would take a great deal of focus. As I said, one of our main focuses has been in research and development and trying to get the best products even better.

CEOCFO: Are there many companies in your industry that use composites?

Ms. Withers: There are about 3 competitors in our space that we occasionally run into. They have systems that specifically address specific problems whereas at Pipe Wrap what we have tried to do is embrace all the different composite systems that can be used to design the right repair for the right environment. Our competitors may have one

style of composite repair that they manufacture, but we manufacture all the different styles of composite repair so that we can offer the customer a one stop shop not a one trick pony shop.

CEOCFO: *Do you patent your systems? Do they become proprietary? Should you?*

Ms. Withers: In our company we have recently in the last 2 to 3 years focused a lot on patenting our composite systems that we are developing here at Pipe Wrap. The reason is because we believe that the tendency in this market is “If they can do it, we can do it,” but that is really not how it works. You really have to have testing and research behind the systems you offer into the market. You must protect that research and development with intellectual property (IP) We have 2 patents pending, 2 patents that have been awarded to us, and we continue to work with our IP attorneys to make sure that we protect what we are working on moving forward here at Pipe Wrap. The work that we were doing with the National Science Foundation is protected with IP. The work we are doing with the Gas Technology Institute in Chicago, Illinois for repairing polyethylene pipes is protected IP. Many of the pipes that have been put down in this country in the last 20 years are plastic polyethylene pipe, and there are not many options to repair it that are available to the owners of the pipe. We have been working with the Gas Technology Institute and successfully developing a very exciting new product and of course we have to protect that. We have done our very best to do that. It is important in this industry to protect either through trade secrets or through patents.

CEOCFO: *What surprised you as the business has developed?*

Ms. Withers: More and more it surprises me how much people want to do the right thing. In the past, I was not familiar with the composites industry. I realized that the owners of the pipelines are very serious about integrity and they are very serious about keeping the pipeline safe for the public. I find that refreshing because in the olden days when their pipeline was very new, back in the 40s and 50s, just from what I know talking to the elders, they just threw in any kind of pipeline they could put down, especially during World War II. There was a big hurry to get the pipeline put down because of the war effort and to transport as much oil fast as they could and they did not take much time to think about the longevity of the pipe. They were just trying to lay it down. Today's measures are very much different. When you go to lay a pipeline down or you go in to repair a pipeline, there are a great deal of federal requirements that the owners have to abide by and this, to me, ensures the safety of those pipelines in the United States.

CEOCFO: *Why should the “pipe” community pay attention to Pipe Wrap?*

Ms. Withers: Pipe Wrap is on the cutting edge of some fantastic technology in composites that can be transformational into other industries, not just pipeline repair. We look forward to getting these products showcased and out there so we can license the technology or perhaps get some strategic partnership around the world to help wrap some of the stuff that needs repair. It does not have to be pipes. That is the beautiful part about it. That is what is exciting about Pipe Wrap. It is not just about pipe; it is about where can we take these products and developments and offer them in unconventional ways to help people solve problems and keep our planet sustained. We really believe that in helping the environment and the economy by using safe products to restore infrastructures is better than replacing them. If we can reduce wastes and costs by restoring community assets, then we have made a great contribution to society and that is one of the things that keeps us going.

BIO: Genevieve Withers, CEO of Pipe Wrap, is an entrepreneur who founded the company in 2005.



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