

Focus on Zero Harm Pays Off

Marine Transporter Targets Evolving Technologies with the Goal of Zero Harm Operation

For years, barges and boats have been traveling up and down the Mississippi River and the Gulf Intracoastal Waterway delivering freight and connecting the communities served. While the need for reliable freight carriers hasn't changed, the details of delivery are always evolving. >>>

TEXT AND PHOTOGRAPHY: **NOREEN COMERFORD**

>>> **Today's environment** demands that successful carriers be more efficient, effective and environmentally responsible than ever before. For one company, these lofty goals are actually put into practice every day.



See Ingram's William P. Morelli at Workboat 2009!

Ingram Industries Inc. is a privately held Nashville, USA-based company with a diverse array of interests ranging from book distribution to print-on-demand from publishers.

One of their subsidiaries, Ingram Barge Company, has been a quality marine transporter since 1946, and has grown to become the leading carrier on America's inland waterways. Ingram Barge Company prides itself on its superior customer service, state-of-the-art information systems, and showcases training and safety practices that are second to none.

Although the company has evolved throughout the years, the need Ingram serves remains the same. Ingram remains the major force on the rivers for moving dry and liquid bulk commodities all along the Mississippi River System and the Gulf Intracoastal Waterway.

Ingram began with Alfa Laval in the early 90's with fuel separators. In 2006, Ingram began looking at additional new solutions to address some old technology concerns in some of their boats. Ingram's fleet relied on old shell-and-tube heat exchanger technology and filter pots that presented some significant and ongoing operational and maintenance issues to the company.

They identified the M/V Henry B as the first vessel in need of an update, with the idea that if this initial test was successful, they may roll it out to additional vessels. As a space-saving feature, the shell-and-tubes were actually housed under the deck, requiring removal of the deck each time they required routine maintenance.

Ingram wanted a solution that would eliminate this maintenance hassle and the associated man-hours that accompanied any service to the shell-and-tubes. In combination with the company's focus on the concept of imparting zero harm, they also wanted to achieve a solution that posed fewer risks to the environment.

They began brainstorming new ways of achieving the performance they needed. Ingram decided to investigate the idea of replacing the shell-and-tubes with Alfa Laval plate heat exchangers and replacing the filter pots with Alfa Laval's Eliminator™ combination filter and Heron centrifuge.



Shell-and-tube

Fresh perspectives a must

While the company is well established, Ingram's business philosophies and practices are anything but stale. Their strategy focuses strongly on the concepts of customer satisfaction, teamwork, family pride and imparting zero harm to associates, the environment, customers, communities, and property. Ingram is dedicated to continuous innovation and empowers its workers to challenge the status quo in the name of

process improvement. Naturally, they choose to join forces with like-minded suppliers that can help them achieve these goals.

Ingram operates approximately 2500 barges and 136 boats, of which 97 are linehaul boats. They most commonly serve the coal, sand and grain markets.



Eliminator filter and Plate Heat Exchanger

Ingram already had a working relationship with Alfa Laval, and also spent some time together at an Alfa Laval customer event working out a lot of their issues and concerns until they were comfortable that this could be a viable solution.

Hands-on training at Alfa Laval Service Center

Ozzie Osbourne, Ingram Port Engineer (and no relation to the rock star of the same name!) explained, “Alfa Laval had proven themselves. We had been running fuel centrifuges since the 90’s.”

He continued, “During the decision process, Alfa Laval invited us to their Service Center for a customer event and workshop held in Indianapolis. This workshop was the deciding factor to definitely go with Alfa Laval. We attended three days of technical and hands-on training.

During this time, we addressed our questions and concerns and tested ideas with the Alfa Laval team.”



Ozzie Osbourne, Ingram Port Engineer

Osbourne added, “We also met one of the division presidents from Alfa Laval – John Atanasio – and we left the event with a feeling that we would be taken care of. Craig Kovach in field service is another good guy we spoke with at the workshop. He answered many of our

questions during the event – and later he helped to train our crews on the Eliminator filters and Heron and fuel centrifuges.”

Although the customer event was Ingram’s final deciding factor, the work and careful planning by both companies leading up to this event was key.

Vaughn Pease, Sales Manager for Alfa Laval Marine, has worked with Ingram – particularly Ozzie and Jerry - for many years. Vaughn explains, “The joke is that if Ozzie is for some reason unable to reach me, he calls my neighbor and tells him to come over and knock on my door!”



Tom Smith, Ingram VP – Vessel engineering and Vaughn Pease, Alfa Laval Sales Manager

Entering uncharted waters

Tom Smith, VP Vessel Engineering for Ingram, pointed out that they were entering unproven territory with this pilot project. Smith said, “When we came up with the idea to put the Eliminator on the bigger engines, we had to do the engine testing at Ingram – with Alfa Laval’s continual support.” Thanks to Ingram’s culture of continuous improvement, the project got the green light.

Smith added, “Ozzie, Tom and Vaughn worked out a detailed plan. We proposed our plan to our Chief Operating Officer David Sehrt and he said, ‘Let’s try this one.’

Smith is happy that they did, as he explains, “While there were up front costs for the first installation, here we are now one million operator hours down the road – and the payback is substantial!”

He knew the dedication of the team involved and felt the potential reward justified the risk in trying a test. Sehr added, "I knew, if it worked, Ingram would benefit. If it did not, I know my team would have already tried every possibility to make it work."

As we all know, the Eliminator worked beautifully."

A change for the better

The upgrade was a major operational change. For example, the dimensions of the shell-and-tubes are eight feet long and two and a half feet in diameter. Smith noted, "In order to change out the enormous tubes, we needed at least two men to remove the decking and deck supports, dismantle the unit and remove the tubes."

They spent hours cleaning, then hours to re-install the cleaned unit." It also provides a "one-size-fits all" solution for all engines, standardizing the fleet.

He continued, "In contrast, the Alfa Laval plate heat exchanger is only 36 inches by 36 inches by 16 inches."

Best of all, in three years, we still have had no need to touch them for maintenance!"

Since the upgrade, many overheating problems have gone away. In addition, by eliminating the downtime associated with the old technology, Ingram can redirect resources previously needed for removal, repair and reinstallation for more productive activities.

Osbourne commented, "I know one thing – it keeps the engine at the perfect operating temperature, and we have experienced zero downtime since installation. In addition, the space savings is fantastic."



It is easy to get to. Compared to the shell-and-tubes – well, there is no comparison. We had many hours of downtime to clean the shell-and-tubes – we also had to remove brace bars, decking, so the time-savings is huge."



The other significant part of the upgrade was removing Ingram's reliance on filter pots. Maintaining filter pots is extremely labor-intensive technology. Approximately every 900 hours Ingram had to perform a rigorous maintenance process. After stopping the hot engine, they removed the top of the filter. Using a wrench, they loosened the spring-loaded parts that hold the filters in place, pulled the filters out and placed them in a pan to drain out the excess oil.

This process led to a substantial loss of lube oil.

Typically, 50 gallons are lost per engine during each filter change because it is necessary to pump all of the oil out of the filter pots to the slop tank to eliminate any contaminants.

Osbourne added, "The filters sit in the pan for a whole week while the oil drains out. As you can imagine, this took up a lot of space on the boat as we allowed the filters to drain." Since space onboard the vessel is naturally at a premium, this is not a great solution.



Draining the filters from the filter pot onboard

He continued, "Afterwards, we placed the drained filters into a yellow trash bag, double-bagging them and sealing them securely with masking tape. Because these still contain oil, we needed to eliminate any chance of spilling the oil by double-bagging and sealing tightly."

The bags were packed and stored in an upper engine room. “They sit there until we get to a facility where we can unload the bagged filters safely,” Osbourne added.



Wrapping disposable filters from filter pot in plastic bags for disposal

The bagged filters are loaded on to a big fuel barge (called a fuel flat) to travel to a shore facility. The filters are then taken from this facility by truck for eventual disposal. Clearly, the entire process is very labor-intensive and offers the potential for environmental issues at every turn.



Plate Heat Exchanger and Eliminator

Eliminating the negatives

The Eliminator from Alfa Laval does just what its name claims – it eliminates all of the need for filters and their disposal. The new process is greatly simplified. Osbourne explains, “Now, approximately every 400 to 500 hours, we take the top of the Heron centrifuge off, simply wipe out the inside of the small hub, place a clean paper inside the Heron centrifuge – and we are done! We shut down the engine to do this – but for only five minutes! And the disposal consists of only a small zipper bag – containing a small handful at the most – of scrappings.”



“Since we are targeting ‘zero harm’ you can see how easily a product like Eliminator fits into that philosophy.”

TOM SMITH, *ingram vp vessel engineering*

Ingram is saving in the purchase and disposal of 150 tons of cartridge filters per year. There are also other major savings factors in the new process. This includes not only the elimination of the downtime during filter changes, but also eliminating of back injuries since the crew no longer hauls the heavy filters up and down steps. The space savings during the draining and storage is also a huge benefit. The new process results in greatly increased uptime.



Eliminator and Alfa Laval Moatti Fuel Oil Filter

Smith added, that the timesaving is not the only benefit, however. He commented, “When we take oil filters off a boat to transfer them to a barge, then off to a waste facility – there is a huge potential for spills at every step. This was where the Alfa Laval Eliminator fit into our plan perfectly. Since we are targeting ‘zero harm’ you can see how easily a product like Eliminator fits into that philosophy.”

While this is harder to quantify in terms of payback, it is an important factor in Ingram's adoption of the technology. Smith continued, "When you are transporting oily filters to the disposal site, it only makes sense that you are increasing your chances for spills. The Alfa Laval product actually does "eliminate" this problem by removing the need to transport these filters. A big part of the decision to go with the Eliminator was due to our commitment to zero harm."



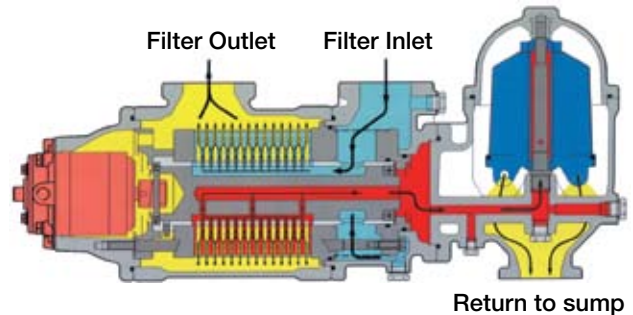
Eliminator filter

Money well spent

They feel the benefits far outweigh the costs. Smith said, "The initial installation was not budgeted for – however after realizing the benefit – this far offsets the cost. We already had budgeted for the cost of purchasing and disposing of the filters. As we started to realize the savings, this offset any initial capital expenditure."

"We now have the Eliminator listed as a capital budget item to continue to update so many a year until our entire fleet is completed."

Smith added, "When considering the costs in dealing with spills, placing the orders and invoicing for the large quantity of cartridge filters needed; draining and storing the filters; then hauling them to and from the disposal barge – well, we don't even need to think about it!"



David Sehr comments
"At Ingram, we encourage flexible, team thinking – and we encourage new opportunities. The Eliminator was a prime example."



Ingram Barge's linehaul Erna E. Honeycutt



From left to right: Jerry Long, Port Engineer – Ingram; Vaughn Pease, Sale Manager – Alfa Laval and Randy Cummins Chief Engineer on the John M Donnelly

Teamwork made the project a success

Teamwork is a cornerstone to the Ingram culture, and their supportive collaboration results in a positive and productive workplace. Jerry Long, Ingram Port Engineer involved in the upgrade, commented, “I enjoy being with a company where we share ideas, communicate – all with the intent of continuously improving and moving forward. That means a lot. Here, we discuss – sometimes debate – but I feel I have a voice in our final decisions. This means the world.”

When selecting vendors, Ingram looks to work with companies that mirror their own ideals. In this way, Alfa Laval is a natural fit. The two companies share mission and vision. This dedication to continual improvement on the part of both companies makes for a great working relationship.

Smith added, “Our world is changing all of the time. We have new laws and regulations – and this changes how we approach the maintenance of our vessels and processes. There is currently a huge shift in our industry towards proactive, preventative and predictive maintenance. We are much more cognizant of the consequences of poor maintenance and take more of a proactive approach toward maintenance.”



Ingram Barge's linehaul John Donnelly

The Original Ozzie Osbourne

Ingram has one key team member with a famous name - Port Engineer Ozzie Osbourne. Osbourne joined Ingram in 1990, bringing with him years of experience in marine transport. In 1951 Osbourne started hauling a barge line in the engine room for another company. He worked his way up to relief chief engineer in seven years.

Then Osbourne moved to a new position in New Orleans for 11 years, working on deep sea tugs towing gasoline from the Gulf of Mexico to Florida. In 1990, he joined Ingram Barge. About his years of experience, he notes, “I would rate Ingram as the top company I have worked for. I must be satisfied – I have worked here 19 years! The people you work with is the key – and I work with quality people.”

The dream team – Ozzie and Jerry

Ingram's Osbourne might not be a rock star, but in the world of marine transport, he is somewhat of a legend. Osbourne's co-worker, Jerry Long, Ingram Port Engineer commented, “Everybody knows Ozzie. You can't work the river for 59 years without being known!”

The two have been working along side each other for many years. What is the secret to their success? They respect and learn from each other. Jerry notes, “Ozzie has instructed that I must ask him at least one question every day.” Ozzie chimes in, “Do you want to know why I like to work with Jerry? He asks the right questions!”

Ingram management has learned to trust this dynamic duo through the years. As David Sehart - Chief Operating Officer at Ingram explains, “At Ingram, we encourage flexible, team thinking – and we encourage new opportunities. The Eliminator was a prime example.” He knew the dedication of the team involved and felt the potential reward justified the risk in trying a test. Sehart added, “I knew, if it worked, Ingram would benefit. If it did not, I know my team would have already tried every possibility to make it work. As we all know, the Eliminator worked beautifully.”

