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## Avoiding a heartland heart attack

*Shippers, barge operators seek inland waterways modernization.*

By Chris Gillis

When Michael Hennessey, vice president of river operations for CONSOL Energy, looks across the Monogehela River he's witness to the daily flow of barges full of coal coming from the company's western Pennsylvania mines.



These towed coal barges, along with those of CONSOL's competitors, float by Hennessey's office window in Monessen, Pa., through a lock-and-dam system on the Monogehela. The river is a vital commercial artery to the heart of the U.S. inland waterways system — the Mississippi River — which ultimately pours into the Gulf of Mexico.

But Hennessey isn't fooled by the river's apparent placidity. He knows danger lurks in the Monogehela. A catastrophic breakdown of one of the river's aging locks, namely the 100-year-old Lock 3, would bring hundreds of thousands of tons of barge traffic to an abrupt halt with little opportunity to quickly or efficiently divert the cargo to other land-based transport modes.

Lock 3 is about ready to fall into the river," Hennessey said. "If that happens, it would stop the barge traffic on the river."

The lock's failure would not only wreak economic havoc on nearby towns and mining operations that depend on the river for their vitality, but could send shockwaves through the national economy. The Army Corps of Engineers' efforts to repair a failed lock on the Monogehela under this scenario would take months, if not longer, to complete. "It would be a catastrophe," Hennessey said.

Shippers and barge operators on the Monogehela are not alone. There are numerous other locks and dams throughout the nation's 12,000-mile inland waterways system that need modernizing. The average age of the 192 lock sites is more than 50 years old.

It's a ticking time bomb," said Leon Crites, manager of marine transportation and logistics for Houston-based CITGO Petroleum Corp. "A major shutdown would raise the cost of doing business and the American taxpayer would end up paying for it."

**Only Option.** The main purpose for these locks and dams is to raise and lower water levels and provide safe transport channels on rivers, such as the Ohio, Illinois, Tennessee and Upper Mississippi, and numerous tributaries to the Mississippi River basin.

Many of the first and second-generation locks and dams were built in the 1930s and 1950s. For example, locks and dams 20 to 25 on the Mississippi River along Missouri's Northeast border were erected between 1932 and 1936, while on the Illinois waterway, the Lagrange and Peoria locks and dams were both completed in 1936.

The Army Corps of Engineers, manager and caretaker of the inland waterways system, estimates that more than 625 million tons, valued at \$70 billion, of liquid and bulk commodities, including grains, coal, metals, cement, sand and gravel, chemicals and petroleum, pass through the inland waterway system each year. More than half of the country's grain and oilseed exports rely on the river system for transport to ports for loading onto deep-sea vessels. Barges also move about 20 percent of the coal needed by power plants.

Some of the country's biggest shippers by volume rely on the inland waterway system for their day-to-day transportation requirements.

AEP River Operations hauls about 35 million tons of coal and consumables a year to its coal-powered plants along the Ohio River and its tributaries. The company transports another 35 million tons of agricultural commodities, construction materials, limestone, raw materials for the steel industry, finished and semi-finished steel products, and road and industrial salts.

Typically, a 15-barge tow on the large rivers can move about 22,500 tons, which is the equivalent of about 216 railcars or 1,050 tractor-trailer loads. The Maritime Administration and Texas Transportation Institute note that it would take 58 million truck trips to transport the amount of commerce moving annually on the inland waterways.

The Alexandria, Va.-based Waterways Council noted that these types of barge movements resulted in an average transportation cost savings of \$11 per ton compared to other modes such as truck and rail.

The inland waterways barge industry also touts minimal carbon dioxide emissions compared to truck and rail. A recent study by the Texas Transportation Institute calculated that, on a per million ton-miles measure, trucks emit 71.6 tons of CO2 and railroads 26.9 tons of CO2, while towboats release only 19.3 tons of CO2.

Many Midwest states recognize the importance of efficient waterways navigation to their economies and environments.

The Illinois Chamber of Commerce reported that barges on the state's waterways annually transport more than 110 million tons of cargo with a value of about \$16 billion.

Whether that material is being transported to or exported from Illinois, or is transiting the state's waterways, it represents a reduction in truck and rail use across the nation. That is the equivalent of 4.4 million semi-trailer truckloads or 1.5 million railcars of material that would crisscross Illinois each year were it not for the availability of barge transportation," the chamber said.

**Surgery.** The nation's inland waterways locks and dams are showing their age and it's become apparent through cracked and crumbling concrete, leaky gates and creaky equipment.

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Repairs, even scheduled ones, are a constant reminder to both the Corps and industry about the tenuous condition and costs of routinely applying Band Aids to a system in need of major surgery. The examples of unscheduled closures in the past decade are on the rise, and fresh in the minds of the inland waterways system's most dependent shippers.

In 2007, the Corps reported navigation locks were unavailable to commercial traffic for 157,530 hours due to repairs and mechanical breakdowns.

The scheduled ones we can deal with most of the time with extra inventory deliveries prior to closure," said Mark Knoy, president of AEP River Operations, which operates 3,000 barges, making it the second-largest fleet of dry cargo barges on the inland waterways.

Oftentimes both scheduled and unscheduled closures can be offset somewhat if an auxiliary lock is available as on the Ohio River system,” he added. “The Upper Mississippi and Illinois do not have auxiliary locks and those closures have no choice but to wait.”



**Knoy**

Even scheduled closures can easily become costly headaches for shippers and barge operators. In September 2003, the Corps planned a three-week maintenance closure of the well-tread Greenup Locks and Dam on the Ohio River. The deterioration was far worse than anticipated and the Corps kept the lock closed for eight weeks. Tows were processed through a smaller adjacent lock, resulting in queue delays approaching 40 hours. The shipping industry spent nearly \$14 million in tow-idling costs. Some power companies were down to a few days worth of coal by the time the Greenup lock was reopened. The Corps estimated that if the lower gate at Greenup had failed, the main chamber would have been closed six months with delays costing the industry upwards of \$75 million.

Mike Enschede, chief of operations and regulatory for the Corps, said the agency does its best to notify shippers and barge operators as far in advance as possible to allow them to build sufficient stockpiles of materials. The Corps provides a composite maintenance schedule for the next three years, which it makes available to the industry on its Web site, he said.



**Ensch**

**High Demand.** Over the years, the Corps has generally had a good relationship with the waterways industry. “We have a good rapport at the local level. I think the industry knows we try,” Enschede said.

The Corps continues to make upgrades on locks and dams throughout the inland waterway system. One of the largest modernization projects includes the construction of a new dam with twin 1,200-foot locks at Olmsted. The agency recently finished erecting a second 1,200-foot chamber at McAlpine Locks and Dam. Both structures are located on the Ohio River.

The agency is also constructing 1,200-foot chambers at the Kentucky Lock on the Tennessee River and at the Inner Harbor Lock on the Gulf Intracoastal Waterway at New Orleans. Other projects are underway in Pennsylvania, West Virginia and Tennessee. Together, this ongoing work represents an investment of more than \$7.2 billion in inland waterways modernization that will be completed over the next 10 to 20 years, depending on the availability of funds, the Corps noted.

The bigger lock sites are important to the shipping industry. At the smaller lock sites, barge operators must “cut” their 12- to 15-barge tows in half to accommodate the 600-foot-long passages. This procedure causes long queues for tows waiting their turn to

move through the lock. In addition, the delays cost the industry hundreds of millions of dollars a year.

Other critical projects are authorized or under study on the Upper Mississippi River and Illinois Waterway, Ohio River, the Gulf Intracoastal Waterway, and the McClellan-Kerr Arkansas River Navigation System. Corps officials said over the next few years, these studies will identify navigation and environmental actions needed to support the inland waterways system for the next 50 years.

However, the Corps' pace in performing upgrades and replacements of locks and dams has increasingly frustrated the industry. Some projects that should have been completed years ago continue to drag on, resulting in billions of dollars in cost overruns for the government, and similar financial losses due to operational inefficiencies for the industry.

For example, Congress authorized the Olmsted Locks and Dam project in the 1988 Water Resources and Development Act to replace the late 1920s-era dams and "temporary" lock chambers built there in 1969 and 1979. Beset by bureaucratic, funding and technical setbacks, the project is nowhere near completion. The Corps calculated that the cost of the finished Olmsted project by 2018 would be \$2.1 billion, or about \$1.33 billion more than its original \$775 million cost estimate.

We have a supply-and-demand problem here," said Maj. Gen. Merdith W. B. Temple, deputy commanding general for the Corps' civil and emergency operations, in a recent interview. "We have a lot of demand and the supply is essentially fixed."



**Temple**

The Corps not only maintains the inland waterways system, but has numerous other military and public works responsibilities. The agency estimates that annually it dredges more than 200 million cubic yards of material from the nation's ports and harbors, which is enough to fill a football field to a depth of 10 miles.

Funding for the Corps' Civil Works activities in fiscal year 2009 came to more than \$15 billion, including \$4.6 billion from the American Recovery and Reinvestment Act. As a result of the ARRA funds, the Corps' annual capital spend for the inland waterways system increased from less than \$200 million 10 years ago to nearly \$650 million for 2009.



**Stockton**

“While this helps many ongoing construction projects to continue moving forward, ARRA funding is anticipated to be a one-time stimulus,” said Steven L. Stockton, director of the Civil Works program. “Substantial funding well into the future will be required to complete ongoing and authorized inland waterway investment needs. This will require the administration, Congress and inland waterway stakeholders to reach common ground on an appropriate future level of investment, the source of funds, and the priority sequencing of investment needed to support inland waterway infrastructure modernization.”

**Paying The Bill.** The cost of inland waterways projects has in part been shared by the shipping industry. The industry pays a 20-cents-per-gallon diesel fuel tax, which is deposited into a trust fund set up under the 1986 Water Resources Development Act. Allocations from the trust fund are matched by Congress with funds from the general treasury.

Inland waterway shippers pay less than \$90 million annually into the trust fund. According to the Army department in early 2008, the annual receipts from the existing diesel tax provides less than 10 percent of the total costs that the Corps incurs each year to support commercial navigation on the inland and intracoastal waterways. The industry disputes the number.

Last year, the Bush administration proposed a lockage fee to replace the inland waterway industry diesel tax. Lawmakers rejected the concept. President Obama followed earlier this year by similarly proposing a lockage fee. Terrence Salt, acting assistant secretary of the Army for civil works, testified in mid-May before the House Appropriations Committee’s energy and water development subcommittee in support of including the lockage fee proposal in the Corps’ fiscal year 2010 budget.

The inland waterway industry has fought the implementation of lockage fees. “We’re strongly opposed to that idea,” said John S. Doyle Jr., vice president of government affairs for the Waterways Council, during an industry press gathering in Washington on June 24.



**Doyle**

The council is supported by more than 250 waterways carriers, shippers, port authorities, shipping associations and waterways advocacy groups from all regions of the country.

Council officials said the lockage fee proposal has failed to gain support among lawmakers, even though the Obama administration said the fee could generate an additional \$1.26 billion over the next 10 years.

Cornel J. Martin, the council's president and chief executive officer, warned that a lockage fee would be "grossly out of step" with the country's efforts to encourage more shipper use of energy efficient freight transportation through the nation's inland waterway system.

To avoid the lockage fees, Martin said inland waterway shippers might decide to divert their cargo from the waterways to already congested railroads and highways.

**Major Rehabilitation.** Instead of a lockage fee, the Waterways Council urges the administration to allow a current Corps-industry initiative, known as the "white paper" process, to develop an improved project delivery system and long-term capital plan for the nation's inland waterways infrastructure.

The initiative's goal is to develop a comprehensive, consensus-based program to ensure that resources and processes can achieve a reliable, cost-effective and environmentally sustainable inland marine transportation system, along with a funding stream that industry can afford and is sufficient to meet needs identified in the plan.

Early in the process, the Corps and Inland Waterways User Board members identified a list of about 90 possible projects to focus on. They're vetting the list to identify those that are most necessary and prioritize them, determining the approximate annual funding needed over the next 20 years to modernize the system, and establishing a long-term oversight process.

I believe it is premature to put an estimate on the inland waterways system backlog until the group completes its work in about December of this year," said Gary A. Loew, programs division chief for the Corps' Directorate of Civil Works. "At that time we should not only have a pretty good sense of the work required, but also a pretty good sense of the annual financial requirement and the picture about how we would work through it over time."

I don't blame the industry for being impatient, but it will take time to see results," Temple said. "Overall, I'm optimistic about our prospects for the future. There's some momentum here to get us to a solution."

Both the Corps and industry hope to present the white paper's outcome to Capitol Hill and White House for consideration in the development of a 2010 Water Resources Development Act.

“We’re going into this believing that we can achieve a consensus-based comprehensive set of recommendations, which the industry and Corps could together deliver to Congress and the administration,” Doyle said. “Just think of the power that would have on Capitol Hill.”

“We’re very confident that if we can get the funding stream to a sufficient level that we can deliver projects efficiently and effectively,” Stockton added.