## Disrepair of PA Locks & Dams Threaten Failure

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PITTSBURGH (AP) — Pittsburgh's three rivers, an economic engine since Lewis and Clark departed the city for their epic exploration of the West, are flirting with disaster.

The region's 23 locks and dams, which annually move 33 million tons of coal, petroleum and other commodities that fuel the local economy, are on the brink of failure, according to the U.S. Army Corps of Engineers, the federal agency charged with maintaining them.

The failure could come at Elizabeth, the locks and dam on the Monongahela River completed in 1907. The Corps says there "are significant structural, mechanical and hydraulic problems" with the locks, including the collapsing roof of the tunnel that carries water used to fill and empty the lock chambers.

"We've had chunks of concrete coming down for many years," said Jim Fisher, acting chief of operations for the Corps' Pittsburgh district.

Or it could come 18 miles farther up the Monongahela at Charleroi, where the walls of a Depression-era lock sway back and forth each time the lock is filled and emptied. Water inside the chamber is helping to hold the walls up.

If the dam at Elizabeth collapsed and water levels dropped, the Charleroi lock could tumble into the river, closing the Monongahela. Corps and industry officials said a prolonged outage would make electricity more expensive, put more heavy trucks on local roads and highways, and even could affect water supplies for consumers and industry.

While Pittsburgh has some of the oldest locks and dams in the nation, conditions along the rest of the nation's 11,000-mile inland waterway system are not much better. The precarious status of the waterway system stems from what government and industry officials agree is a broken method of maintaining and replacing aging locks and dams.

Congress has authorized \$8 billion in projects that would replace or rehabilitate aging river infrastructure. But it has not fully funded the projects up front. The piecemeal funding the projects receive generates significant cost overruns and construction delays counted in decades, not months or years.

The longer the delays, the more difficult and expensive it becomes to maintain the aging locks and dams. More than half of the nation's locks, which were designed to last 50 years, have been moving along river traffic far longer. About 40 percent of the 89 locks in the Corps' Great Lakes and Ohio division, which includes Pittsburgh, are more than 70 years old.

Corps and industry officials say it is only a matter of time before a major lock or dam fails, an event that would force elected officials and consumers to realize the important role river infrastructure plays.

More than 200 locks and related dams move about 550 million tons of freight annually: coal to power plants, grain from farms to market, fuel oil to New England. More than 20 percent of the coal used to generate electricity and 30 percent of oil and other petroleum products move by barge. About 90 percent of the corn and soy beans exported from Mississippi gulf ports gets there by barge.

While coal accounts for the majority of traffic on Pittsburgh's rivers, barges also move gravel, sand and limestone used in construction, fuel oil, fertilizer and other goods.

Rivers provide a less expensive alternative to other transportation options. Barges are more than \$14 a ton cheaper than using rail or truck, according to a 2010 report by a Corps-industry task force that recommended changes in the way lock and dam projects are funded.

"We're going to have a catastrophic failure somewhere in this country and then everybody is going to be up in arms," said Peter Stephaich, chairman of Campbell Transportation, a Houston, Pa., company that operates a fleet of 500 barges and moves about 20 million tons of commodities annually.

The \$8 billion funding backlog stems from the \$170 million Congress and industry generate each year to pay for major repairs to locks and dams or to replace them. Half of the money comes from a trust fund financed by a 20-cents-per-gallon tax barge operators pay on the diesel fuel they use. The government matches that with \$85 million in taxpayer money.

At a \$170 million-per-year pace, it will take more than 22 years to generate the \$3.8 billion needed to complete seven major projects already under way. Those include rehabilitating the Emsworth dam on the Ohio River and building new locks on the Monongahela.

Once that's done — in the 2030s — work could start on another \$4.3 billion in projects that Congress has authorized but not funded.

Even the extended timeline is jeopardized because another \$1 billion has been added to the cost of the Corps' top priority: replacing two Depression-era locks on the Ohio River near Olmsted, Ill., the nation's busiest stretch of river.

Because the \$3.1 billion Olmsted project gets most of the \$170 million the Corps receives each year for major projects, it will cost more and take longer to complete the Corps' No. 2 priority: the project on the Monongahela authorized by Congress in 1992.

A new dam at Braddock already has been completed. But the work not yet done

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includes eliminating the 105-year-old locks and dam at Elizabeth, and building two new locks to replace the Depression-vintage lock at Charleroi.

When the project was approved, it was expected to be completed in 2004 at a cost of \$750 million.

Because of funding shortfalls, the Lower Mon project is now estimated to cost a minimum of \$1.4 billion and will be completed in 2024 at the earliest, 20 years behind schedule.

Steve Fritz, the Corps official managing the project, said if Congress authorizes only minimum annual funding, work will drag into the 2030s and cost upward of \$1.7 billion. "The longer you go into the 2030s, the higher that number will climb," Fritz said.

By then, the Elizabeth lock and dam — built to last 50 years — would be nearly 125 years old.

"The poster child for the river system is the Lower Mon project," said Michael Hennessey, chairman of the National Waterways Foundation, a research group funded by companies that move goods on rivers.

Debilitated locks and dams are part of a larger national problem: the lack of funding to repair or replace aging infrastructure that the economy depends on. In 2009, the American Society of Civil Engineers put a \$2.2 trillion price tag on fixing roads, bridges, locks and other infrastructure.

Because many lawmakers elected in 2010 promised to slash the federal budget deficit without increasing taxes, it is unlikely that money will be forthcoming for infrastructure improvements.

"It is a function of a kind of unfortunate mentality in this country where, over time, we have become a spending nation and not an investing nation," said Michael Steenhoek of the Soy Transportation Coalition, an industry group pushing for waterways improvements.

"We just need to get back to this mentality of being an investing nation. Great nations invest in themselves," he said.

Faced with flat funding, the Corps has adopted a "fix when fail" approach to maintaining locks and dams.

Take what happened at the Montgomery Dam on the Ohio River near Shippingport in 2006. A week after the Corps concluded that the dam had structural problems, a runaway barge hit it, damaging two of 10 100-foot-wide steel gates used to control the flow of water.

"Since that time, we've only had enough funds to put Band-Aids on the gates," said the Corps' Fisher. "We are at the border of 'fix when fail' and 'failing to fix.' " With preventive maintenance crimped, barge operators face more frequent and longer delays as locks break down. On the Ohio River, the number of hours lost annually because of outages has tripled since 2000 to 80,000 hours, members of the House Committee on Transportation and Infrastructure were told last fall.

"I have never seen the disruptions to traffic we have now," said Martin T. Hettel, the American Electric Power manager responsible for moving coal on AEP barges to the Columbus, Ohio, utility's power plants.

The delays occur even though the Corps spends millions each year to keep outdated facilities functioning.

"That's just throwing money down a rat hole," said William Harder, a former navigation manager in the Corps' Great Lakes and Ohio River division who retired last year.

Dams are used to generate hydroelectric power and prevent flooding. They are also used to hold back water, creating a pool deep enough for barges to move up and down the river. Because the water level rises and falls at different points along rivers, locks are used to raise and lower barges depending on the depth of the river where they are coming from and the depth of the river where they are headed.

Hennessey said that if the dam at Elizabeth collapsed, "instead of having 9 or 10 feet for commercial navigation, you might have 2 feet and then everything stops."

Corps and industry officials say it would take three or more years to replace a failed lock and even longer if a dam had to be replaced.

Whatever the period of time needed, the 10 million tons of coal and other commodities that move through the Elizabeth locks each year would have to be moved by rail or truck, which are more expensive. Moreover, it would take more than 1,000 large trucks to move the same amount of coal a standard 15-barge tow carries.

"If the Lower Mon closes, there's not enough trucks to move the coal power plants need," Harder said.

A Corps-commissioned study produced in October estimated a lock or dam failure that closed the Lower Mon to traffic could increase electricity costs up to \$1 billion annually. The figure covers only what businesses and consumers could pay and not how those price increases would ripple through the economy.

But Harder, who disclosed the \$1 billion estimate at an industry meeting in Pittsburgh in October, said costs would include power plants paying more to move coal by truck or rail. He said an extended closure could cause some power plants to shut down, increasing the cost of electricity for about 21 million people along the East Coast. Published on Chem.Info (http://www.chem.info)

Dams also make it possible for electric generation plants, other industry and municipal water companies to draw enough water from the river to supply their operations. Residents and industries who rely on the Monongahela for water might have problems if the level drops below the intake valves used to draw water out of the river.

"If we would lose those dams, we would have a lot of towns in trouble," said Jeanine Hoey of the Corps' Pittsburgh district.

Water companies say they would be able to provide water, even if a dam were out of commission for three or more years. But it might be more expensive.

"It wouldn't be easy. There certainly would be a lot of challenges," said Joe Dinkel, executive director of operations for West View Water Authority, which draws water out of the Ohio River to serve more than 200,000 consumers in the North Hills and Ohio River communities.

Pennsylvania America Water, which has 220,000 customers in the region, is discussing what the loss of a dam would mean with the U.S. Department of Homeland Security, spokesman Gary Lobaugh said.

The Corps and industry officials have elevated their alarms over a looming failure at a lock or dam somewhere along the 11,000 miles of river and the economic impact it would have.

The federal budget deficit is only one reason their fears have gone unheeded.

A more fundamental reason is that taxpayers do not ride on rivers. They exert no pressure on lawmakers to do something about the aging infrastructure. Moreover, the river transport industry is dwarfed by the trucking and rail industries, which have more clout in never-ending funding fights in Washington.

People "have no idea how (river transportation) is tied into jobs and the heart and soul of economic life in this country," Hennessey said. "We don't have the political muscle in Washington, D.C., that the railroads and truckers do."

Industry officials say more reliable locks and dams could boost U.S. exports, a critical element of President Barack Obama's economic recovery plan.

They point to an expansion of the Panama Canal that will allow more and bigger ships to pass through the canal, which links the Caribbean Sea with the Pacific Ocean. The Panama project could benefit American coal and grain producers eyeing booming markets in Asia if they can efficiently ship products down the Ohio and Mississippi rivers to New Orleans for export.

"How can we double exports in five years if our transportation system can't support that?" Hettel asks.

The Waterways Council, an industry group representing carriers and shippers,

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estimates the Panama Canal expansion is the equivalent of six Olmsteds, the Corps' \$3.1 billion project on the Ohio River plagued by cost overruns and construction delays.

Steenhoek, of the Soy Transportation Coalition, notes that unlike Olmsted, the canal project -- run by the Panamanian government that took control of the canal from the United States at the end of 1999 -- is on budget and is expected to be completed on time in 2014.

"The country that built the Panama Canal has a lot to learn from the country that is operating the Panama Canal," he said.

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