

‘I don’t know and I’m scared to death’

Louella Phillips of Mulberry, Florida, will never forget the day in September when she found her 8-year-old daughter sitting in a bathtub full of orange water with tiny brown rocks at the bottom.

Phillips didn’t know it at the time, but more than 200 million gallons of highly acidic wastewater had recently drained into the [Floridan aquifer](#) through a sinkhole that formed under a phosphogypsum stack, a massive pile of chemical waste at the Mosaic New Wales fertilizer plant in Polk County.

While it’s unlikely that the contaminated, radioactive water made its way to Phillips’ home in the days after the spill, she isn’t so sure.

“I don’t know if my daughter drank radioactive water or if she took a bath in it,” Phillips said recently. “I don’t know. I don’t know and I’m scared to death.”

Mosaic says nearly 1,400 tests of area wells “confirm that the water lost due to the sinkhole remains on Mosaic’s property and there have been no off-site impacts.” The Florida Department of Environmental Protection agrees.

But Sydney Bacchus, a Georgia hydroecologist, who has testified against the phosphate mining industry since the 1970s, said there’s “virtually zero” chance that the water remains on site. Don Rice, a Manatee County environmental activist and retired hydrologist with the [U.S. Geological Survey](#), agreed.

If the people of this area ever really and truly understood what (Mosaic is) doing, they’d never get another permit again. The citizens would be out with their torches and pitchforks. They know they’re causing health problems. They know they’re causing environmental problems. They know

they're destroying the land forever.

Andy Mele, an environmental activist with Suncoast Waterkeeper

They say the Floridan aquifer is full of fractures, caverns and cracks that can quickly shunt water like “underground superhighways,” Bacchus said. “I’d like to think of them as subway tunnels,” Rice added.

If Mosaic’s water testing wells aren’t located near these fractures in the aquifer, “the information they’re getting from monitoring wells is basically useless to determine the flow or migration of contaminants to offsite locations,” Bacchus said.

In an e-mail statement, Mosaic said decades of studies by the [Florida Geological Survey](#) and the [Southwest Florida Water Management District](#) shows groundwater in the Floridan aquifer “moves slowly and to the west.”

But because water can move 500 to 1,000 feet per day through the upper Floridan aquifer, Rice said the contaminated wastewater “could get off site within three to five days.”

Families throughout mine-scarred Polk County share Phillips’ fear and confusion about their water. Their panic is the latest of many environmental and public health scares involving Florida’s phosphate industry.

And the public relations black eye couldn’t have come at a worse time for Mosaic.

One of the world’s largest fertilizer manufacturers, Mosaic wants to expand its phosphate mining operations by more than 3,600 acres in eastern Manatee County at their Wingate Creek Mine.

But two hurdles await the proposed [Wingate East](#) expansion: the U.S. Army Corps of Engineers must decide whether to grant a permit allowing mining on protected wetlands. And on January 26, the Manatee County Commission

must decide whether to grant a zoning change that Mosaic needs for the project.

Officials in Florida's Hardee and DeSoto counties face similar decisions as Mosaic moves to mine an additional 40,500-plus acres at two sites – the new [Ona Mine](#) in Hardee and new the [DeSoto County Mine](#). Hardee County and the Army Corps of Engineers have already approved Mosaic's 7,500-acre expansion at its [South Pasture Mine](#).

Mosaic, one of the world's largest fertilizer manufacturers, wants to expand its phosphate mining operations by more than 3,600 acres at its Wingate Creek Mine in eastern Manatee County.

If Manatee, Hardee and DeSoto Counties all approve Mosaic's pending plans, the company will add more than 52,000 acres to its mining and processing operations in Central Florida's "Bone Valley," the phosphate-rich, five-county area where prehistoric animal fossils have been found among some of the world's most plentiful phosphate deposits.

Encompassing parts of DeSoto, Hardee, Hillsborough, Manatee and Polk Counties, Bone Valley is the where the bulk of Florida's phosphate is mined before it's used to make agricultural fertilizer.

The Manatee County Planning Commission recommended in August that county commissioners approve Mosaic's zoning-change request.

But following outcry over Mosaic's nearly three-week delay in alerting the public to the sinkhole, the company postponed a September county commission hearing that would have decided the matter.

Despite an apology for their lack of transparency, Mosaic's public relations blunder insures that more Manatee residents will be watching when they face the commission on January 26.

Local environmental activist Andy Mele said that, ever since the sinkhole

spill, more people are requesting his presentation on the health, safety and environmental impacts of phosphate mining.

“If the people of this area ever really and truly and understood what (Mosaic is) doing, they’d never get another permit again,” said Mele, who works with the environmental group, [Suncoast Waterkeeper](#). “The citizens would be out with their torches and pitchforks. They know they’re causing health problems. They know they’re causing environmental problems. They know they’re destroying the land forever.”

In an e-mail statement, Mosaic spokesperson Jackie Barron said the company’s work to increase food production has been environmentally responsible.

“It is unfortunate our opponents take a simplistic and one dimensional view of the role Mosaic plays not only in Florida but around the world,” Barron wrote. “Those who make extreme and unsubstantiated statements do a disservice to the public.”

The Army Corps of Engineers’ 2013 [Areawide Environmental Impact Statement](#) found that, collectively, Mosaic’s Wingate East, Ona, South Pasture and DeSoto mining projects – with mitigation like land reclamation and restoration – would generally have a “minor effect” that “would not be significant” on ground and surface water resources, surface water quality and ecological resources.

The corps has already issued a Clean Water Act permit allowing Mosaic’s South Pasture mine expansion to dredge in the Peace River Watershed.

It’s unclear when and in what order the corps will evaluate Mosaic’s other permit requests for the Wingate East, Ona and Desoto County Mines, but approving any of the three projects will surely draw a challenge.

On Dec. 20, four environmental groups announced plans to sue the U.S. Fish

and Wildlife Service and the U.S. Army Corps of Engineers for allegedly violating the Endangered Species Act by granting Mosaic's South Pasture mining permit.

Their suit will contend that the corps' 2013 environmental impact statement was inadequate and possibly unlawful, said

Jacklyn Lopez, Florida director of the Center for Biological Diversity and lead attorney for the four environmental groups – each of which have been vocal opponents of the Wingate East mining project.

Phosphate strip mining, which creates 60-foot-deep pits encompassing thousands of contiguous acres, comes with a steep environmental tradeoff: it disfigures the landscape, elevates land radiation levels, releases cancerous radon gas, threatens area [wetlands](#) and wildlife and depletes valuable water supplies.

And as the sinkhole showed, storing the hazardous waste left behind when phosphate is turned into fertilizer can expose groundwater systems to acidic, radioactive waste water that contains radium, uranium and other heavy metals.

While phosphate-based fertilizers are key to improving crop yields that satisfy the world's growing demand for food, "the phosphate industry has a history of big spills, sinkholes, contamination and scars on the face of the state that you can see from outer space," said Bradley Marshall, a senior associate attorney in the Florida regional office of [Earthjustice](#).

In her statement, Barron praised Mosaic's biologists, ecologists and engineers for innovative reclamation and restoration efforts that converted formerly mined lands into "critical habitat and wildlife corridors."

"At Mosaic, we're proud of our legacy and passionate about the innovative environmental work we do," Barron wrote.

Wingate East, a proposed 3,635-acre dredging and dragline operation, would run for about 13 years – from 2018 to 2031 – followed by up to 11 years of reclamation efforts to restore the land, according to Mosaic. Over the life of the project, the county would receive about \$16 million in ad valorem taxes and \$18 million in severance taxes, according to Mosaic.

The project would encompass roughly 940 acres of wetlands and about 23,400 linear feet of streams, Mosaic said. Most of the project falls in the Myakka River watershed. But Mosaic also wants to “mine and disturb” 279 acres within the Peace River watershed, according to [a report](#) by the Manatee County planning commission. Peace River and its tributaries are “an important source of potable water for the citizens of four counties within the region,” Manasota 88.

But based on Mosaic’s “competent and substantial evidence,” the planning commission determined that mining in the Peace River watershed “will not cause a degradation of water quality or adverse impacts on water quantity within the affected watershed.”

About 24 houses are within 1,000 feet of the Wingate East property, according to the planning commission. The closest one, in the Winding Creek subdivision, is less than 200 feet from the site’s western property line.

Nearby residents, worried about possible ground and surface water contamination from the project, expressed their concerns at the county planning commission meeting in August 2016.

The Wingate East project would also require an enormous 595-acre clay settling area where sand and clay is stored after mined phosphate is removed. Unlike strip-mined land that must be reclaimed, clay settling areas “[remain barren islands of waste with little ecological value](#),” according to Manasota 88.

The settling area at Wingate East would be within 500 feet of the Lake

Manatee Watershed boundary. Because clay isn't as permeable as natural soil, rain water can't seep through the settling area to replenish the aquifer. The buildup of rainwater in the settling areas create massive lakes that require restraining dams. The Wingate East settling area will feature a 50-foot high dam.

Mosaic also plans to build a "deflector berm," along the boundary of the Lake Manatee watershed to keep "potential dam failure waters" from entering the Lake Manatee watershed, according to a county report.

In 1994, a dam failure at a clay settling area at the Hopewell Mine in Hillsborough County spewed nearly 500 million gallons of water into area wetlands and the Alafia River, while flooding parts of Keyville.

With an estimated 80 percent of U.S. phosphate deposits, Florida provides 75 percent of the phosphate fertilizer used in America and 25 percent of the world's supply, according to the [Florida Industrial and Phosphate Research Institute](#).

Mosaic makes fertilizer by extracting phosphate ore from clay and sand and applying sulfuric acid, which turns it into phosphoric acid.

Doing so creates a toxic waste product, phosphogypsum, which contains uranium and radium. When radium decays it forms radon, a cancerous radioactive gas.

Every ton of usable phosphate creates five tons of phosphogypsum waste. About 30 million tons are produced each year in Florida.

Phosphogypsum is stored in the towering "gyp stacks" which can be hundred of acres wide and up to 500 hundred feet high. Because of phosphogypsum's radon emissions, the federal Environmental Protection Agency has largely banned its commercial usage.

Roughly a billion tons of phosphogypsum are piled into 25 gyp stacks

throughout Florida. Twenty-two are in central Florida.

“They extract phosphorous in Florida and sell it all around the world, but they leave all the waste here to be absorbed by our environment,” Marshall said.

Wastewater from the fertilizer production process is added to the top of the stacks, creating giant lakes of acidic water on top of the toxic piles.

Some of the water evaporates, some is reused and the rest is captured in liners beneath the stacks designed to keep it from seeping into the underground aquifer. The failed gyp stack at New Wales was built with a composite high-density polyethylene liner and met state code requirements, according to the U.S. Environmental Protection Agency.

In addition to the 215 million gallons of acidic waste water that spilled into the aquifer, the New Wales sinkhole also swallowed up an estimated 45,000 tons of solid phosphogypsum, Mosaic said.

Like the wastewater, Mosaic said the lost phosphogypsum has also been contained on-site. It’s lodged in the upper cavity of the sinkhole known as the confining layer, a formation of clay, sand, gravel and limestone. Efforts to close the sinkhole with cement-like grout will focus on “sealing the base of the sinkhole in the confining layer,” Mosaic said in an e-mail statement.

The company expects to begin grouting operations to seal the sinkhole later this month. “We expect to complete those efforts by June,” Mosaic said in another email.

In 1994, a sinkhole beneath an adjacent “gyp stack” at the same New Wales facility sent 80 million gallons of waste water into the aquifer. And two “anomalies” or would-be sinkholes that appeared to be developing at the New Wales site were discovered and averted by Mosaic in 2004 and 2013.

Rice believes the sinkholes and the “anomalies” at New Wales resulted from highly acidic gyp-stack process water leeching into the aquifer and dissolving

the limestone under the massive stack.

“When you dissolve limestone, you get a sinkhole. “It’s not a coincidence,” Rice said.

In an e-mail, the EPA said, “Mosaic believes that the (2016) sinkhole occurred as a result of circumstances beyond its control.”

What’s unclear is whether a leak in the gyp stack liner created the sinkhole, or whether the sinkhole created the breach in the liner? “That’s what we don’t know,” said Brian Birkey, executive director of the phosphate research institute.

Gyp stacks have always been a faulty line of defense against environmental damage.

In addition to the two spills at the Mulberry processing plant, more than 50 million gallons of wastewater poured into the Alafia River in December 1997 when a dam broke on top of a gyp stack at the Mulberry Phosphates fertilizer plant during a storm.

In September 2004, winds from Hurricane Frances created waves in a lake atop a 100-foot gyp stack at the Cargill Crop Nutrition’ fertilizer plant in Riverview, which is now owned by Mosaic.

The waves tore a six-foot hole in the pond liner, dumping nearly 70 million gallons of wastewater into a creek that fed into Hillsborough Bay. In both incidents dead fish, stingrays, crabs and other marine life littered the waterways.

In 2015, Mosaic [agreed to pay \\$1.8 billion](#) to settle federal claims of improper storage, handling and disposal of 60 billion pounds of hazardous waste at six company facilities in Florida – including New Wales – and two in Louisiana.

Inspectors from the EPA said Mosaic violated federal and state laws by

mixing “highly corrosive substances from its fertilizer operations, which qualify as hazardous waste, with the phosphogypsum and wastewater from mineral processing.”

Under the settlement, Mosaic’s \$1.8 billion will go toward “the future closure of and treatment of hazardous waste water” at three Mosaic facilities in Florida – Bartow, New Wales and Riverview – and one in Louisiana.

Mosaic also agreed to pay \$170 million to reduce environmental impacts at its facilities and another \$2.2 million for two local environmental projects. They paid a \$5 million federal civil penalty and \$3 million in penalties to Florida and Louisiana.

At the time, the EPA said the settlement agreement “will ensure that wastewater at Mosaic’s facilities is properly managed and does not pose a threat to groundwater resources.”

Less than a year later, the New Wales sinkhole would prove that statement untrue.

Although the consent agreement requires Mosaic to “verify the structural stability of waste piles and ponds,” the EPA said in an e-mail that based on federal and state “review of available information at this time, Mosaic met the requirements of the Consent Decree related to maintenance of the gyp stack.”