

MARVEL AND MISERY

Reviving interest in treating water

BY KENT JACKSON
STAFF WRITER

Rick Walck remembers how people at a coal conference in West Virginia reacted when they found out that he lived near the Jeddo Tunnel.

"Wow — They wanted to hear more," Walck said. "It's the biggie on the East Coast."

Since 1895 when hard rock miners drilling from different ends for four years met at virtually the same elevation to finish the dig, the Jeddo Tunnel has been a source of marvel and misery.

The tunnel drained mines in Hazleton and coal towns to the north, but poured polluted water into Little Nescopeck Creek in Butler Twp. at a thunderous rate.

On average, 72.3 cubic feet of water streams from the tunnel per second. That's 46 million gallons on a normal day, but the surge rises six-fold during floods.

As water passes through strip mines, mines and the tunnel, it turns acidic from contact with minerals in coal and rock. The acid dissolves metals, becoming a soup known as AMD or acid mine drainage.

AMD from Pennsylvania's Anthracite Region spills into the Susquehanna River Basin, and ultimately reaches Chesapeake Bay, from 320 sites, but 9.8% of that drainage comes from the Little Nescopeck below the tunnel.

For aluminum, a metal toxic to fish, the Little Nescopeck is responsible for 56% of the contamination in the river basin as well as 17% of manganese and 3% of iron.

Over the decades, people have schemed about how to clean the tunnel water to restore fish and aquatic insects in the dead zone.



JOHN HAEGER / STAFF PHOTOGRAPHER

Little Nescopeck Creek as seen from the bridge on Old Turnpike Road on May 5. The creek is impacted by abandoned mine drainage from the Jeddo Tunnel.

Why not plug the Jeddo Tunnel?

Instead of spending billions to treat polluted water from the Jeddo Tunnel, why not plug the tunnel?

"Until strip mining is done, you can't," John Ackerman, an engineer in Hazle Twp., said.

Strip mined land is so porous that water races through into the tunnel, to which a survey found 22 infiltration points.

When mining stops and land is restored to natural contours, water will run off and streams obliterated by mining can be remade.

Then the tunnel could be plugged, which would cause water to back up at great pressure.

Ackerman would capitalize on that pressure by running water through turbines to generate electricity.

— KENT JACKSON

They've imagined the tunnel as a source of hydroelectricity, metals and even drinking water.

But always the amount of water made the remedies

unaffordable.

Now Pennsylvania stands to get \$3 billion in federal funding for mine reclamation during the next 15 years, which changes the

calculations.

Tim Ference, who went to that mining conference in West Virginia with Walck, said efforts to address pollution from the tunnel came close to succeeding a few times before.

"This may be our last opportunity," he said.

Partners line up

Ference leads a small watershed group, Friends of the Nescopeck, which tested water in the Nescopeck Creek even during the pandemic when the state shut down its laboratory.

Sitting in the community room at Conyngham Borough Municipal Building on

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STANDARD SPEAKER 3/3/23

JEDDO: Pollution of heavy metals goes beyond the Nescopeck

FROM PAGE A1

Wednesday evening, five members of the Friends of the Nescopeck pondered how their group could help develop a tunnel treatment plant that would cost tens of millions of dollars.

They began by listing potential allies: Supervisors in Butler Twp., Luzerne County government, Trout Unlimited and an organization dedicated to restoring land and water spoiled by mining, EPCAMR, the Eastern Pennsylvania Coalition for Abandoned Mine Reclamation. Maybe, the Friends thought, the Bureau of Abandoned Mine Reclamation might even sponsor the project.

Colleen Connolly, of the state Department of Environmental Protection, said federal infrastructure money can go toward sites like the Jeddo Tunnel, and the department began collecting data from a new gauge in January to evaluate how to treat tunnel water.

"Treatment of the mine water from the Jeddo Tunnel would be complex and require significant area down gradient of the tunnel," Connolly said in an email. "DEP would need a years' worth of data to determine the amount of area needed to treat the discharge and the feasibility of treatment."

The Western Pocono Chapter of Trout Unlimited also wants to be part of the solution at the Jeddo Tunnel. Chapter members regard the new gauge and the federal funds as positive developments.

"It is a monumental undertaking to remediate and has been evaluated over the years with various feasibility studies. The pollution of heavy metals and sediments go far beyond the Nescopeck. The discharge from this tunnel has impacted the Susquehanna River and the Chesapeake Bay as a major polluter of these waterways," the chapter's President Janet Schmitt wrote in a letter of support to the Butler Twp. supervisors on Feb. 14.

Whatever coalition arises to address the Jeddo Tunnel, Ference told the Friends of the Nescopeck that there are deadlines to meet. The first round of applications for Abandoned Mine Land grants ends on April 28, the last on Dec. 2. The coalition also will need technical help from engineers, a design for a treatment plant, land for the plant and support from nearby property owners.

The Friends discussed ownership of land near the outfall of the tunnel, including county holdings and land near Fritzingertown that the township owns and used to operate a sewage

How a plant treats mine water

To treat mine water from the Jeddo Tunnel, engineers might suggest building a treatment plant like one operating on Rausch Creek in Hegins Twp., Schuylkill County since 1972.

After the entire stream flows into the plant, water enters a flash mixer containing lime, which neutralizes the pH, according to an undated history of mine drainage facilities built under Operation Scarlift on the website of Pennsylvania's Department of Environmental Protection.

Once neutralized, the water goes into aeration tanks that shake it for a half-hour. An additive helps solids combine.

The aerated water goes into a pair of clarifier tanks 90 feet in diameter. Clear water flows out into lagoons and then returns to the creek.

Sludge is pumped out, pressed to reduce water content and transported to a disposal site.

— KENT JACKSON

treatment plant on.

Butler Twp. supervisors have discussed the tunnel since May when Michael C. Korb, a mining engineer, raised the possibility that the infrastructure bill might provide enough money to treat the outfall.

Charles Altmiller, the chairman of the supervisors, said then that the tunnel is the township's biggest eyesore and he would have to have rocks in his head to oppose the cleanup.

Dr. Frank Polidora, another supervisor, however, said this week that people who live near the Little Nescopeck might not want to look at a factory-like treatment plant with storage tanks and settling ponds. He also said dispos-

ing of sludge from the plant is a non-starter.

"I'm all for cleaning up the Nescopeck, but I don't want to see people's lives or the aquifer ruined or money wasted," Polidora said.

Korb ballparked the cost of a treatment plant at \$30 million to \$40 million but emphasized that those estimates were rough. He recommended a plant that would be big enough to treat average flows but divert water during heavy rains.

As a model, engineers might emulate a treatment plant on Rausch Creek in Hegins Twp., Schuylkill County, that Friends of the Nescopeck and others interested in the Jeddo cleanup have toured.

The plant in Rausch

Creek treats 8.8 million gallons a day, less than one-fifth the water from Jeddo Tunnel, and it cost the state \$4 million to build — 50 years ago.

Diversions

Peter Haentjens comes from a family experienced in draining mines. For approximately a century, a company started by Otto Haentjens in 1916 built pumps for the mining industry in Hazleton.

Through a group called Eastern Middle Anthracite Regional Recovery, Peter Haentjens has studied the possibilities of diverting water from the tunnel to reduce pollution flowing into the Little Nescopeck. A survey identified 22 infiltration points to the tunnel. They could be diverted by tactics such as restoring streams where water flowed before mining began.

Those projects are costly, and collectively won't reduce water in the tunnel by more than 20%, Haentjens said.

His estimate matches that of hydrogeologist Paula Ballaron, who wrote in a 1999 report for the state Bureau of Mining that even after reclamation efforts, groundwater would send 19 million to 21 million gallons a day through the Jeddo Tunnel.

In 1994, Haentjens and

others demonstrated a process for treating mine water to Hazleton City Authority, which provides drinking water to residents in 14 municipalities. Instead, the authority built a pipeline to tap the Lehigh River.

In September, Haentjens revisited the idea after the authority had a shortage of water, attributed primarily to problems pumping from the Lehigh.

By tapping water from a mined area known as Hazleton Shaft off North Cedar Street, the authority could gain 8 million gallons a day even during drought and divert that amount from the Jeddo Tunnel.

Right now, the authority considers mine water a last resort, its Director of Operations Scott Burkhardt said Thursday in a text message.

John Ackerman, an engineer who took part with Haentjens in the 1994 project to treat mine water, understands the options for diverting water or treating discharge from the tunnel.

"I think I have an alternative," Ackerman said.

He has developed a process for reclaiming aluminum and other metals from the mine water, is building a model to demonstrate his process and plants to seek grants.

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