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## Toxic Wastewater Dumped in Streets and Rivers at Night: Gas Profiteers Getting Away With Shocking Environmental Crimes

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August 15, 2012

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Ken Dufalla sits at a table inside Laverne's Restaurant on Route 188 in Waynesburg, PA. The former park ranger, 65, is sporting a camouflaged trucker's hat and enjoying Laverne's cream of chicken and biscuits with mashed potatoes. It's midmorning, between the breakfast crowd and the lunch patrons. Waiters and waitresses are attentive and the coffee is flowing.

Before long, Dufalla is joined by a former Marine and Vietnam veteran, 67-year-old Ken Gayman, who dons a black and gold USMC ball cap. The two former Beth-Center High School wrestling practice combatants sprinkle the conversation with passages from the Constitution and speak about defending land and property. The two men are members of an association, but it's not the Tea Party.

Dufalla and Gayman are members of the Izaak Walton League of America, one of the earliest conservation organizations in the country and according to the national Web site, "formed in 1922 to save outdoor America for future generations." If the stereotypical environmentalist is still imagined as sandal-wearing and tree-hugging, Dufalla and Gayman will quickly wipe away such caricatures. They are a couple of blue-collar guys, no different than anyone else in Greene County. They simply see what's going on around them and they don't like the looks of it.

### Dumping Onto the Streets at Night

On March 17, 2011 Greene County resident Robert Allan Shipman and his company, Allan's Waste Water Service Inc., were charged with illegally dumping millions of gallons of natural gas drilling wastewater, along with restaurant grease and sewer sludge across six counties in Pennsylvania from 2003-2009. Pennsylvania is one of several states that sit atop the gas-rich underground rock formation the Marcellus Shale. Hydraulic fracturing, the process used for retrieving the gas, is a water-intensive drilling method that not only requires massive volumes of water to unlock the gas, but also generates millions of gallons of wastewater when the drilling is done.

The two-year investigation by the Pennsylvania attorney general's office resulted in a total of 98 criminal counts charged against the 50-year-old Shipman and an additional 77 charges levied at his company. [Said Nils](#)

[Frederiksen](#) [3], spokesman for the attorney general's office, "He was pouring the stuff in any hole he could find."

Most egregiously, the grand jury presentment detailed how when the demand for Allan's Waste Water services grew in the summer of 2007, as a result of an uptick in production water (wastewater produced by gas well drilling operations that may contain toxic chemicals) from CNX Gas Co. LLP, a subsidiary of Consol Energy, a company Shipman was hauling for, "Shipman showed the drivers how to leave open the gas well valves and ordered them to discharge production water onto the ground and/or into the nearby waterways." Drivers' testimony added, "This activity would typically occur after dark or during heavy rain so that no one would observe the illegal discharge."

According to the [presentment](#) [4], the investigation of Shipman began after a client of his grew suspicious of illegal dumping after an in-house audit "revealed a large discrepancy in the amount of sludge received by Allan's Waste Water and the amount of sludge disposed" by the company at treatment facilities. A review of reports by the Department of Environmental Protection confirmed that over 170,000 gallons of sludge were unaccounted for from June 2006 to the summer of 2007.

Drivers of Allan's Waste Water testified at the grand jury that Shipman "directed them to mix different wastes in their trucks," a process they termed "cocktailing." The mixed waste of production water and sewage sludge was subsequently discharged into creeks, ponds and at various Municipal Authorities in the area. Waste was also disposed of at the Morris Run airshaft, located at the abandoned Blacksville Number 1 Mine, a coal mine owned by Consol Energy, which ultimately releases into Dunkard Creek, a stream that flows between Pennsylvania and West Virginia for 37 miles before its confluence with the Monongahela River. Consol had permits from the EPA to dump production water (consisting of coal bed methane water only) into the Morris Run airshaft. Shipman's company was not permitted to dump at the site.

Sometimes when drivers had remaining production water in their trucks at the end of their shifts, Shipman directed them to empty the production water inside of the company's garage channeling it through a drain on the floor, which led to Tom's Run and ultimately again into Dunkard Creek. "The drivers occasionally observed Shipman himself empty tanker trucks in this manner."

Other Allan's Waste Water employees described business activities that included forged manifest and [fraudulent billing](#) [5] of 17 companies to the tune of more than \$250,000. In October 2007, business was so good for Shipman that he and his wife started a second company, Tri-County Waste Water. This company, which operated out of the same building as Allan's Waste Water, was authorized on February 21, 2008 by the DEP to treat fluids from the oil and gas industry.

April Morris, secretary for Shipman, testified that when she left the company in May 2008, Shipman was making "approximately \$7 million per year."

On March 17, 2011, Shipman was free after posting 10 percent of the \$500,000 bail. The next day, the nearby *Observer-Reporter* warned that his freedom could be short-lived. "The criminal charges filed Thursday carry substantial prison terms upon conviction, along with fines in excess of \$1.5 million for Shipman and \$1.2 million for his company."

## Harry Enstrom Chapter

Greene County is located in the southwestern corner of Pennsylvania and covers 578 square miles of sprawling green hills and open water, from its southern point at the border of West Virginia to its northernmost location of Morris Township. It is 89.2 percent rural. Its tourism bureau [boasts](#) [6] the county is “Nature’s Corner of Northern Charm and Southern Hospitality.”

For residents in small towns like Brave, Dry Tavern and Bobtown, fishing is in their blood. The Monongahela flows north from West Virginia, then snakes through Greene County on its way to meet the Allegheny River in Pittsburgh, where the two rivers form a third river, the Ohio. Ken Dufalla and Ken Gayman have been fishing these waters, aka Three Rivers, all of their lives. Not so much anymore.

Says Dufalla, “I have a grandson and granddaughter and I’m fishing in West Virginia right now. Here? The streams are polluted.”

Greene County’s Harry Enstrom Chapter of the Izaak Walton League meets on the third Wednesday of each month. Dufalla is the chapter president. Dinner’s at 6 pm, followed by the meeting from 7-9, open to the public. The July meeting was held at the Greene Side Grill at the Greene County Country Club.

Dufalla is no shrinking violet; if he sees something going on that’s not right, he’s not the type to keep it to himself. Or as he likes to say, “I’m 65 years old—I’m too stupid to be afraid and I’m too old to run.” He’s also well versed in the history of his land. Says Dufalla, “I used to be a deputy water waste conservation officer for 21 years, and so I had a pretty good feel that something was wrong with some of the streams.”

On August 2, 2011, Dufalla represented the Harry Enstrom Chapter at a Pennsylvania House Democratic Policy Committee Hearing at Waynesburg Central High School. After a brief definition of the word “pure,” Dufalla opened his speech by reciting Article 1, section 27 of the Constitution of Pennsylvania, which begins: “The people have a right to clean air, *pure* water and the preservation of the natural, scenic, historic, and esthetic values of the environment.” Section 27 concludes: “As a trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.”

History is an important aspect of what’s going on in Greene County. Dufalla understands his county’s place in the economic growth of America. “In the 1800s, oil and gas were removed from the state and especially Greene County with no regard for the impacts the ‘rush’ had on the environment or on the health and safety of the people,” he told the area’s political leaders. “In the early 1900s came the coal boom era, which brought with it varying degrees of stream and air pollution.” He then discussed the Marcellus gas boom with hopefulness that if done safely the economic benefits could very much improve the standard of living in the county, only it should not come in lieu of the health of the people or the land.

Greene County is rich in resources, but despite being at the forefront of energy extraction for over 100 years, it is not a wealthy county. It does not boast the best schools and as of the last [census](#) [7] in 2010 the population of 38,686 nearly matched the median household income of \$40,498. Somewhere along the line, people who have used this county’s earth made their money and moved on, leaving behind abandoned mines (approximately 1,200 in southwest Pennsylvania and West Virginia), and with them the highly acidic, orange-colored discharges (acid mine drainage) that flow into the region’s creeks and streams. Dufalla doesn’t want to see something similar happen with the oil and gas industry, where area residents are once more left to deal with the leftover waste of long-departed companies.

Izaak Walton’s numbers in Dufalla’s chapter have steadily been on the rise as others have joined who want to

lend a hand in stopping the water pollution. In January 2010 the membership at the Harry Enstrom chapter sat at 26; today there are 127 members.

A newer feature is the Citizen's Water Monitoring program, which has residents who live next to streams take water samples and get personally involved. "We had a certified hydro biologist come in and we trained these citizens with a six-hour course on how to take water samples — how to read and report them. We basically developed an early warning system," says Dufalla.

Dufalla also writes a weekly column titled "Nature's Corner," for the *Greene County Messenger*, where he often publishes the Izaak Walton water data for the local community. The level of pollutants running through the Monongahela watershed is consistently over the standard. Robert Allan Shipman is part of a much bigger problem.

## Guilty

The county seat of Waynesburg is a small college town still holding onto a walking Main Street and a downtown shopping district that runs a few stoplights. All summer, streamers have been hanging from above merchants' doorways wishing local Olympian, wrestler Coleman Scott, best in London. Set in the middle of town is the Greene County Courthouse. There, at the stoplight of High Street and Washington, a red light forces a line of trucks to idle; gas trucks, water trucks, residual waste trucks, they are now an ever-present sight since the gas companies began fracking in the Marcellus shale, and as the light turns green, the parade of them thunder off down the road. Walk into downtown shops and ask about Allan Shipman and they'll tell you they knew about it all along. They'd heard about the trucks near the streams. They'd heard about Morris Run and how dozens of Shipman trucks a day would line up and battle to unload waste.

"Citizens are tired of the trucks," says Greene County Sheriff Richard Ketchem.

When the arrest finally came in March 2011, area residents were elated that the man behind the worst kept secret in Greene County was going to pay for his crimes. Said the sheriff, on behalf of all, "Finally."

On February 9, 2012, Shipman signed a written plea agreement to 13 criminal charges of illegal dumping, as well as defrauding 17 companies and various municipalities over a six-year period. As part of the agreement, he and his wife, Carolyn, agreed to never "apply for, obtain, or possess" any DEP permits related to environmental activity.

On Friday, June 15, 2012, Deputy Attorney General Amy Carnicella walked into the Greene County Courthouse for the sentence hearing, ready for Shipman to be taken to prison. It was pretty straightforward, as she'd say later; "He did dump waste onto the streets at night and during the rain. This happened over years. It wasn't a single incident." On top of it all, he pled guilty. The tentative plea agreement called for imprisonment of up to 16 months. He admitted to the crimes against him. Case closed.

Sheriff Ketchem stood beside the deputy attorney general after eight hours of testimony and deliberations as the judge was set to announce the sentencing. Ketchem describes Carnicella as someone who was steel-like in her confidence pertaining to jail time for the defendant. The sheriff, however, became convinced fairly quickly into the judge's reading that Shipman was going to walk. Judge Toothman's language gave it away for Ketchem. The talk of family tragedy. The judge took a moment to note Shipman's stepdaughter had recently committed suicide. His wife attempted the same. Beyond that, Toothman spoke of Shipman's "law-abiding life." Of how he

laid down on his sword by admitting to his crimes. And, of course, there were the tears.

By the time Judge Toothman began crying it was easy to see things were swaying towards the polluter. Everyone could tell. Everyone perhaps except for the deputy attorney general. Says Ketchum; she believed until the end that jail time was forthcoming. Needless to say when Judge Toothman sentenced Robert Allan Shipman to probation, “She was irate,” Ketchum says, referring to Carnicella.

The full [sentencing](#) [5] order was for seven years probation; fines; court costs; restitution. He was also ordered to work with a water conservation group five hours a week for the next seven years.

Contacted for comment, Carnicella treads lightly. Speaking over the phone, she’s forthcoming but careful with her words. Further litigation is uncertain. Regarding the overall damage to the waterways, “I don’t know how anyone can say that dumping thousands upon thousands of gallons of waste, or raw sewage, of grease... whether it was only buckets...how is that not harmful? This was over many years. Let me ask you this, would you want your small child swimming in this water? I don’t think so.”

Ten days after the sentence hearing, the deputy attorney general filed a motion for modification of sentence. Toothman denied the request on June 28, 2012. On July 28, the state attorney general filed a notice of [appeal](#) [8] with the state Superior Court seeking to overturn the sentencing.

Of note in the DEP’s statement to AlterNet on the Shipman case is that Shipman has already appealed the DEP’s administrative orders “revoking the operating permits for Allan’s Waste Water Company and prohibiting Allan Shipman from any involvement in the waste business including transportation, storage, processing or disposal. Mr. Shipman appealed the administrative orders to the Environmental Hearing Board and litigation is still pending. As such, the matter remains under investigation by the Department.”

Sheriff Ketchum has known Shipman since childhood. “My whole life,” he says, and his summation of the case is that Shipman got rich, then he got off. Ketchum was a former president of Izaak Walton for 10 years and has been sheriff since 1990. He says the damage Shipman inflicted to the land and water are not fully appreciated at the moment and believes the effects of dumping will still be seen 20 years down the road. “Deer, cattle, and all kinds of critters drink from these streams — everything drinks from this water.”

“God only knows where he put it all. What we found was incredible. But who knows where else... all the other places he dumped it.” For the most part, Ketchum says it eventually all went into the water.

Ketchum thinks about one of the waterways affected by the dumping into the Morris Run airshaft. He paints a portrait of Dunkard Creek with 50-inch musky, of large schools of fish. It was a place he fished with his family. On his wall is a photograph of his grandson holding a carp from Dunkard Creek. A beautiful place to fish. He shakes his head. “That poor creek just gets slammed.” Ketchum says.

## **Dunkard Creek**

Billy Craig, an ironworker out of Local 549 in West Virginia, lives in Mt. Morris, Pa and grew up 100 yards from Dunkard Creek. He enjoyed the creek as a swimming hole and spent countless hours fishing for carp, fresh water drum, small mouth bass, flathead catfish, muskie, and even an occasional walleye. Craig first heard that something was wrong in the creek on September 9, 2009, as he was enjoying a couple of beers at the Legion. That’s when a local property owner stopped in the bar and announced that fish were dying at Dunkard between Mason Dixon Park and Mt. Morris. According to Craig, the water hadn’t look good that whole summer, with the

color off, brown and rusty. Still, Billy didn't think much of it. At least at the time.

A couple of days rolled by until Craig was at the creek and says he witnessed a sludge of water flowing in, closing in on Mt. Morris. That's when he saw the first of the fish dying at the river mouth where Big Shannon Run empties into Dunkard. Soon, it was more than a dead fish here and there, but rather a couple hundred. Then thousands. Muskies were jumping out of the water. Stressed fish. "You could tell they were being poisoned," says Craig. Before long, stacks of dead fish could be seen. Three hundred to 400 stacked up together. The survivors battled, fruitlessly attempting to get to the fresh water.

Other members of the Mt. Morris Sportsman Association joined him. In the creek, he repeats, a line of polluted water could be plainly viewed, separated from the fresh water coming in from Shannon Run and other tributaries, as the sludge worked its way down from Blacksville. Fishermen like Craig and his buddies would not soon forget the sight. Dead fish, the smell penetrating the towns along the banks.

Craig called Pittsburgh television stations, both channels 2 and 4. "They always say to call if you see news, so I called," Craig says. Nobody came. The news was happening. The footage was fresh. Dead fish continued to roll in. Channels 2 and 4 never came. Billy Craig and his friends filmed it themselves. They took photos of some of the dead fish. A 43.5-inch Muskie. A 39.5 inch flathead catfish. "And it takes a lot to kill a catfish," says Craig.

Craig says there was no cleanup. "Mother Nature took care of that." Raccoons and green heron and a host of other animals did what they do. They ate as much as they could. The creek eventually washed the rest of the dead away. Then one night Craig says the water rose 10 inches in the creek. There was no rain. A helpful discharge from the mineshaft to rid the truth away. Craig's not sure, but he thinks so.

When asked about Robert Allan Shipman's probation, Craig says, "It's a slap in the face to everyone that lives around Dunkard." Adds Dave Headley from nearby Smithfield, "It's ridiculous that all he got was a slap on the wrist."

Craig has nothing against mining or drilling. His dad was a miner at Blacksville #2, and says there was small kill in his father's day too. But he just doesn't understand the lack of concern for the water. Craig and his buddies joined the Izaak Walton league shortly after the fish kill. They began testing Dunkard Creek and recording the data last August and have continued to do so on a weekly basis, usually on Sundays.

Today there's some people out fishing. But it's not the same.

The fish kill affected nearly 30 miles of Dunkard Creek. Salamanders, freshwater mussels and almost every other creature living in the creek were dead. In all, [according](#) [9] to Sharon Hall, an attorney for the Pennsylvania Fish and Boat Commission, 42,997 fish, 15,382 freshwater mussels and 6,447 mudpuppies (a type of salamander) were killed.

After three years of research, the cause of the Dunkard Creek fish kill has rested on [golden algae](#) [10] (*Prymnesium parvum*), a naturally occurring microscopic flagellated algae that is normally only found in waters with a high salt content. Worldwide the algae can be found in estuaries where freshwater mixes with seawater, obviously places far from southwestern Pennsylvania. Golden algae originated in the United States in 1985 in Texas and Oklahoma and since that time has stayed along the coast or in southern states, never this far north. Flowback water, millions of gallons per hydraulic fracturing well, is loaded with salts from deep beneath the earth's surface, and is many times saltier than ocean water. Simply put, salty water caused the golden algae, but

what caused the salty water?

In 2011, Consol Energy, the owner of Morris Run air shaft Shipman was dumping into that eventually leads to Dunkard Creek, agreed to pay [\\$5.5 million](#) [11] and spend up to another \$200 million on a state-of-the-art water treatment plant to be up and running by May 2013, but the company admitted no guilt. Instead an attorney for the company spoke of it in terms of mystic or God-like phenomena. According to *The Intelligencer* and *Wheeling News Register*, Consol attorney Carol Marunich [claimed](#) [9] that “the presence of (golden algae) in the Dunkard Creek watershed were the result of natural forces beyond the control,” of the company, and later referred to the algae as an “unprecedented, abnormal, and extraordinary event.”

In her suit on behalf of the Pennsylvania Fish and Boat Commission (the fact that the PA DEP did not file against Consol is something that causes much ire among Billy Craig and many Greene County residents), attorney Sharon Hall described Consol’s “illegal, toxic discharges,” and termed the deeds “willful, wanton and malicious...”

In July 2009, two months prior to the fish kill, Dr. Paul Ziemkiewicz of the West Virginia Water Research Institute and a group of researchers were testing water in Dunkard. Ziemkiewicz remembers the water as stagnant with “extremely high” electronic conductivity (EC) readings and a total dissolved solids (TDS) level of 9,000 mg/L. [TDS](#) [12] “represents the total concentration of dissolved substances in water... made up of inorganic salts, as well as a small amount of organic matter,” according to the Safe Drinking Water Foundation. DEP data shows that the TDS level would rise in the months ahead to a level of 21,764 mg/L on September 21 taken at Blacksville #2 Mine Outfall 005, with water quality standards in Pennsylvania set at a TDS of 500 mg/L. Fresh unadulterated water normally has a TDS level of less than [100 mg/L](#) [13].

Of more concern to Ziemkiewicz are the levels of bromide in this region’s water. Bromide is another chemical compound that is naturally seen in seawater. Or [according](#) [14] to DEP state files, “Bromide in fresh water is typically found in areas influenced by saltwater intrusion or another bromide source (well drilling brines, industrial chemicals and agricultural chemicals).”

Myron Arnowitz, the PA state director for the Clean Water Action puts bromide into geographical perspective. “It’s really only coastal communities that generally deal with bromides as a water contamination problem. Obviously most of PA is outside of the Delaware estuary.”

When asked if bromide was historically consistent with mine discharges in the area, Ziemkiewicz responds, “bromide is not normally found in coal mining.”

Dufalla put it a bit more bluntly: “Now here’s the million dollar question, how is bromide coming out of coal water discharges, and why do the permits allowing these discharges not address bromides? The reason they don’t address bromides is because they never had bromides coming out of coal before. 1.8 trillion gallons of water beneath southwestern PA and Northern West Virginia because the land has been mined out. A giant honeycomb underneath the region is filled with water. I understand the brine and magnesium, but we’re getting high levels of strontium and high levels of bromide coming out of these discharges. It’s not supposed to be there. Where is it coming from? I asked the DEP and cannot get an answer...EPA-no answer... Alpha Natural Resources [the company putting out many of the discharges] no answer... Nobody knows where they’re coming from, yet here they are. If you start putting two and two together, it’s a pretty good thought that just maybe, some of this Marcellus wastewater has made it into our mines. Just maybe.”

Bromide, in and of itself, is not harmful to humans. Says Dr. Ziemkiewicz, “Bromide is only problematic after it goes through a drinking water utility and is converted to THM [trihalomethane] and associated compounds which are, indeed, harmful.”

When bromide meets the chlorine at a public water intake system it forms trihalomethane, which affects the central nervous system and has been linked to several types of cancer, as well as birth defects. And says Ziemkiewicz; this is “a big concern for municipal water authorities.”

Trihalomethanes have caused the residents of Carmichaels, PA to share in these concerns. Boiling tap water advisories, recommendations to drink bottled water, a water buffalo set up at the local fire department to supply residents with clean drinking water— these have all become [standard fare](#) [15] in Carmichaels since the gas boom began. And headlines such as the following from the *Herald Standard* from June 14, 2011 no longer come as a surprise: “Carmichaels Water Contaminated Again.”

While a lot has been written about contamination of well water due to hydraulic fracturing, what about the tap water? In the midst of Carmichaels' ongoing problem, municipal president Dan Bailey vented to the local papers in 2011: “What upsets me is DEP knows what’s causing this yet they’re letting drillers dump that water into wastewater plants that don’t test it before they dump it into the river,” Bailey said. “This is not caused by our plant. It’s caused by DEP not regulating what they are dumping into the river.”

The *New York Times* reported, “In late 2008, drilling and coal-mine waste released during a drought so overwhelmed the Monongahela that local officials advised people in the Pittsburgh area to drink [bottled water](#) [16]. E.P.A. officials described the incident in an internal memorandum as 'one of the [largest failures](#) [16] in U.S. history to supply clean drinking water to the public.'”

### **Wild West Years**

In the summer of 2008, the Monongahela River was teeming with high TDS. This period coincides with the Wild West years of Marcellus Shale drilling. Prior to 2007, newspapers hardly mentioned the words, as gas wells began popping up quietly across rural Pennsylvania. (Go to Google News and search for “Marcellus Shale” and a single result will emerge with these words, with no results at all returned prior to 2006.) The DEP was caught flat-footed, and illegally or not, as there were not many rules in place, let alone any recommendations as to what to do with the wastewater, Pennsylvania streams and rivers were flooded with waste, which would in hindsight lead one to think this would make surface levels rise. But this is leaving out one important factor, which is that gas-drilling companies were also taking a tremendous amount of water out of the waterways, as each drilling site demands four million gallons of water per well. Following fracking operations this water would be returned to the waterways filthy. Combine this with low summer water levels and this threw the dilution factor completely off tilt in 2008.

Says Arnowitz, of Clean Water Action, “The sewage plants at that time was their main way of getting rid of the wastewater.” But sewage treatment cannot get rid of the salts and bromides from production water.

Left to their own devices, aka unregulated, the gas industry turned to guys like Allan Shipman, and then they turned a blind eye. In a DEP file, an executive summary of the third and fourth quarters of 2008 disclosed, “Based on the speciation there appears to be a strong correlation between THM formation and elevated source water bromide concentrations in the Monongahela River.”



Yet it wasn't until the spring of 2011 that this agency requested, not required, water treatment plants to stop accepting Marcellus wastewater. In the 2011 statement, DEP secretary Michael Krancer said, "While there are several possible sources for bromide other than shale drilling wastewater, we believe that if operators would stop giving wastewater to facilities that continue to accept it under the special provision, bromide concentrations would quickly and significantly decrease." The statement added: "Removing TDS from water also removes bromides."

It was a great step, even if a late step. Arnowitz is not entirely convinced that treatment plants have stopped accepting gas drilling wastewater even at this point, more than a year later, saying that between five and 10 treatment plants were still accepting natural gas drilling wastewater according to the most recent data Clean Water Action has, which is from July through December 2011. "It's been a little bit hard to completely pin down," Arnowitz says. "Once every six months gas well operators are required to send something to the state saying where they've sent their wastewater," with the last report showing, "there were a few that showed greatly reduced intake, but there were still a few gas wells that showed they were sending wastewater to plants that service water disposal."

The tracking system for gas drilling wastewater, now years into the process, is still extremely lacking.

"There is a system that exists in Pennsylvania," says Arnowitz. "The problem is that it's not transparent to the public, you and I can't track shipments of wastewater from the well to the eventual source of where it's disposed of. Theoretically the DEP could do that, but even they don't have all the information sitting in their office in Harrisburg." Millions of gallons of wastewater produced a day, buzzing down the road, and still nobody's really keeping track. "There's no public oversight," says Arnowitz.

Recycling efforts, which are bringing much self-congratulation from the gas industry lately, also aren't where they need to be at this point. Arnowitz says, "Recycling is not very regulated. You can get into these storage situations that can have lots of problems." Such as the use of PVC pipes to move the reused water from well to well. "And it's leaking in places. It's not a very well contained process." Moreover, Dufalla will point out that the word "recycling" is really a misnomer and should more accurately be stated as "reusing."

At this moment, bromide levels continue to register elevated readings. Dr. Ziemkiewicz shared recent numbers showing the high level of 5.3 mg/L on June 27, 2012 from samples taken from Whiteley Creek in Greene County. Lloyd Richard of Carmichaels Water Authority says they are still struggling to keep their trihalomethane numbers in compliance. In late August or early September they will test a chlorine dioxide disinfecting system aimed at reducing high levels of THM. Down the road at the Tri-County Municipal Water Authority, where historically, they haven't had the same type of problems as Carmichaels, plant manager Jeff Kovach says that since the high TDS levels of 2008, the authority still has had to send out letters "four or five times," to alert their customers of high THM levels. Kovach, who has worked at Tri-County for 37 years, says that prior to 2008, the company's THM levels weren't an issue and they were never in violation.

David Argent, professor of wildlife and fisheries sciences at California University of Pennsylvania, shares his thoughts on the health of the Monongahela River today, the source of drinking water for nearly 1 million people. "The Monongahela has had a rather tragic history of water quality issues stemming from mining and hydrologic changes associated with the dams... Because the river serves as a drinking water supply for hundreds of thousands of people as well as a carrier of 'treated' waste and as a recreational destination for many, I am ever concerned that we have pushed the system beyond its assimilative capacity to provide us with clean water while at the same time carry our byproducts away. The fish communities we study certainly have recovered from

mining, but there are new threats emerging that may not only impact fish, but also human health.”

With all of the money spent on machinery by the coal industry and the companies extracting oil and gas from the earth, the question has to be asked, why isn't the same money invested in dealing with the second part of the process and cleaning up their own mess— in properly treating this massive amount of leftover waste? Dilution has become the treatment solution, an idea that drives Dufalla into fits of anger, as he mocks the waste experts call of *dilution is the solution to pollution*. But that's not the best way, says Dufalla. “The best way is prevention. Prevention is the key to preservation.”

Says Arnowitz, “The oil and gas industry came in here pretty big in 2008, started drilling a lot of wells and all of a sudden they had millions of gallons of wastewater. They really hadn't set up a real infrastructure for how to treat it. It's kind of like a chemical company came to Pennsylvania and said we're going to build this big chemical plant, we need to start operating it right now, and yes, there's going to be wastewater. We'll get the wastewater treatment plant on line three years from now, but until then we'll just have to figure out something else. That's exactly what the gas industry did here. I think it was inevitable that someone like Allan Shipman would come along. The gas industry was willing to pay people money to take this waste off their hands. They weren't predisposed to ask a lot of questions. And I think for Allan Shipman it was money he didn't feel like he could refuse. And he didn't have all the solutions worked out either with what to do with the stuff, so at a certain point he just figured out a way to get rid of it.”

## Running Red

On July 31, 2012, Ken Dufalla invited me to accompany him to test water throughout Greene County. That way, he said, I could see for myself, and nothing would be lost in translation. Joining us was another Harry Enstrom member, Chuck Hunnell, a 69-year-old former U.S. history teacher. Prior to teaching, Hunnell was a Lieutenant Commander in the Navy and a former Vietnam veteran. Again, anyone trying to shove the earth's health aside and throw around outdated labels towards those looking out for the environment needs to face reality. These aren't a bunch of hippies smoking pot and preaching utopian ideals. These are men and women fighting and who've already fought for this country. As Ken Gayman told the *Greene County Messenger* on June 22, “Why did I go to fight in Vietnam and see my fellow Marines die in battle only to have big polluters destroy the country?” Gayman added. “It's time for people to stand up and take America back.”

Chuck Hunnell would like nothing more than to simply enjoy the waters he fishes in retirement, but once you see your streams turn blood red, it's hard to ignore. Retired or not, Hunnell is out there all day with us.

Just a few days before my visit, after a period of high rain in the region, Dufalla's team alerted the DEP of discharges running through Smith Creek a half mile south of downtown Waynesburg. Smith Creek was our first stop.

We tested water near where a discharge from Emerald Mine (Outfall 001) enters the stream. Emerald Coal or Emerald Mine, a vast mining area, sits high on a hill obscured by trees. Guards man the gates at the entrance; a fortress-like setting. It's impossible to view what's going into the ponds that are then piped into Smith Creek, only what comes out. Our water sampling results showed TDS 1890 of mg/L, which far exceeds the recommended standard of less than 500 mg/L and an EC reading of 3760  $\mu\text{S}/\text{cm}$ , which has a standard of 1,000  $\mu\text{S}/\text{cm}$ . (EC or electrical conductivity measures inorganic dissolved ionic components in water, such as its salinity. People can taste saltiness in water at EC levels of 1,500 to 2,000.) The color of the stream was light red. Minnows viewed days earlier according Dufalla were now absent in the impaired water. Only flies and a

northern banded water snake were seen.

Next we visited what Dufalla called “the number-one polluter in Greene County”— Emerald Mine Bleeder #5, discharge 016, a treatment pond for coal mine discharge water, which leads to Whiteley Creek, before emptying into the Monongahela above Carmichaels, the community experiencing all of the trouble with THM. For bromide sampling, Dufalla relies on the sampling from the DEP or WRI (data filed at [www.monriverquest.org/map.cfm](http://www.monriverquest.org/map.cfm) [17]). As he [wrote](#) [18] in a recent *Greene County Messenger* column, [certified samples](#) [19] from this site in August 2011 showed bromide levels exceeding 11 mg/L. Our tests for EC exceeded the instrument maximum of 10,000  $\mu\text{S}/\text{cm}$  for EC and the maximum 5,000 mg/L for TDS. Again, this is for post-treated water.

At each subsequent testing site sampling revealed levels, which far exceeded the standard set by the state. Each site being a tributary leading to the Monongahela, a source of drinking water. Whiteley Creek: EC 3400  $\mu\text{S}/\text{cm}$ , 1710 TDS mg/L. Clyde Mine Discharge leading to Ten Mile Creek: TDS 4000 mg/L.

Shipman’s activities opened up a Pandora’s box. While his more heinous crimes, dumping in the rain and on the roads, are tough to get past, it might be his use of an old mine shaft that has the most importance moving forward, because the discharges coming from mines today do not match what’s historically been recorded in this area, such as the case with bromide. As Adam Federman [wrote](#) [20] in *Earth Island Journal*, “Untreated acid mine discharges typically have conductance values of between 1,000 and 1,500  $\mu\text{S}/\text{cm}$ .” Testing with Dufalla and Hunnell, our sampling revealed levels as high as 10 times that limit, and from “treated” discharges.

Nobody wants to say these high numbers are related to Marcellus drilling. But the fact is that it really doesn’t matter to Dufalla. Just do something about numbers. Period. Whatever the source. Mine water needs to be released, yes; the only thing people in Greene County want to see is a better way than simply releasing it into water. This will cost money. But so does the first part of the process, getting the resources out of the ground. Cleaning up should not be optional.

Seeing “treated” water discharged into the streams and creeks of Southwestern PA was quite honestly unnerving. Seeing streams running red, or bubbling with methane while a fisherman angled nearby simply doesn’t seem right. It’s disturbing to see farms with their animals now fenced from fresh water streams in order to keep the animals safe. However, to the seasoned scientists who have studied the region or to the officials in charge of regulating the area, there is a shocking casualness. Mine drainage has been flowing into the waterways for decades. To many, the fact that mine drainage is undergoing any treatment whatsoever is good enough, at least better than during the '70s when mine water was discharged directly into the Mon, and when the river flowed a consistent metallic orange color.

On Dufalla’s tour, a DEP agent drove by Ten Mile Creek as we took samples. When the agent stopped and emerged from his white jeep, the first thing we noticed were his clean black shoes without a speck of dirt, which to the three of us, suggested that this water pollution agent hadn’t been near water in some time. All afternoon I had listened as Dufalla grumbled about DEP bureaucracy and the pass-it-on-down-the-line mentality he’s experienced between the various divisions within the agency; water, oil and gas, mining, etc. So when the initial reaction from the agent to the pollution we showed him (he had no idea, in his clean black shoes), was “Well, this falls under the mining division,” we would later share a laugh at my jaw-dropping response.

When we asked what division he was with and he replied “Water,” we alerted him to the fact that we were showing him polluted— *water*— that was flowing into— *more water*— and an area of recreation for the

community, Ten Mile Creek. He quickly figured it out and showed his preparedness as he shuffled around to take some pictures, but first he had to replace the batteries in his camera.

If I had to venture to guess, I'd wager that these discharges, which were nearly triple that of what his own agency recommends, would not be addressed any time soon. The DEP agent took a stab at an explanation, then blamed Shipman.

Says Dufalla later, "I got news for you, Shipman's not the only one dumping stuff into those streams, and the rest of them are getting permits to do it."

Arnowitt echoes Dufalla and says he believes it's entirely possible that the type of dumping Shipman did for years is still going on. "Allan Shipman certainly ran a more extensive dumping operation than I would expect most to run, but that being said, it would be very easy for any number of entities— who are maybe mostly running a legitimate operation, but sometimes things happen and they don't know what to do with a shipment, and it gets illegally dumped. I don't think that would be hard to do."

"There's very little independent sampling oversight by the DEP," says Arnowitt and theorizes why this is the case. "It is both a resource problem and a will to do it problem. Truly, DEP has had its budget cut very significantly -- it's been cut 42 percent in the last four years, so they have a lot less to work with. The place they've really invested inspection resources has been at the actual well site, but inspecting what happens with the waste that leaves the well site, like wastewater, there's very little inspection there, and for the most part the state goes off of what the permit holder sends into them. So that's definitely a hole in the system that still exists."

### **Party Line**

In August 2011, New York State Senator Greg Ball took a tour of Pennsylvania to properly verse himself on hydraulic fracturing prior to making up his mind on the issue. A common sense approach. Upon return, he urged New York Governor Andrew Cuomo to do likewise.

Ball, an outdoorsman and fisherman, has much in common with the residents of Greene County. Recounting his tour of Pennsylvania, Ball says he saw a process begin without the manpower and funding in place to regulate the process and he witnessed firsthand how tough it has been for the state to hold the oil and gas industry accountable. He saw "real fears in residents of Pennsylvania" -- farmers and property owners deceived on whether water was clean or contaminated. One of his biggest elements of concern is the fact that billions of gallons of clean drinking water are being used or affected by this industry.

"This is a limited resource," Ball says. "The fact that millions of gallons of drinking water is being allowed to be contaminated is a fundamental issue."

Besides health concerns regarding the issue of clean water, he's troubled about the overall quality of life for citizens. He wants New York "to avoid the devastation seen in other states," to avoid the haste he saw in other states, the overall rush to expedite permits and drilling before the proper framework was in place on how to regulate this industry. "Wastewater needs to be treated as an industrial waste," says Ball. "New York needs to set an example on how this industry needs to be held accountable."

While at a national level, Ball says it's essential to eliminate the "Halliburton loophole," which exempts fracking from compliance with the Safe Drinking Water Act.

“Clean water has nothing to do with politics,” says Ball, a Republican. “It shows why politics suck in America.” Ball says citizens need to stop pointing at each other and focus on the real problem, which is the amount of money and influence currently corrupting the government, the red-carpet treatment some industries receive.

Clean water should be something beyond politics. Or in the words of Billy Craig, an ironworker from the Mason Dixon line, “If we don’t have clean water, we’re all in trouble. None of us are going to survive. Clean water is something we all need.”

Aaron Skirboll is a freelance journalist and the author of *The Pittsburgh Cocaine Seven: How a Ragtag Group of Fans Took the Fall for Major League Baseball*.

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